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A Study of Women's Empowerment With Special Reference to Solapur City, Maharashtra.**Dr. Mahadeo Sadashiv Disale,**Associate Professor,
College of Education, Barshi. Dist. Solapur. (MS)**Abstract**

Women Empowerment means assigning equal opportunity to woman in all fields such as social, economic, educational, political etc. to accord equal positive participation and to offer similar wages as men social justice and enjoy right equally to fulfil social duties and responsibilities which may be defined in short as- "Empowerment means to create healthy balanced affirmative and compassionate individual". The true empowerment takes place when women challenge discrimination on the basis of gender to improve their well being Self Help Group (SHG) is a movement to empower the women socially & economically which would have an implication on the overall development of the women In Solapur city industrial zone is very short so it is a non-industrial city as a result there is low income. The employment is seasonable & frictional. It is too small income to sustain for families hence, selfhelp group have plenty of scope in Solapur city of Maharashtra. for women employment and development. Self Help Group (SHG) is a voluntary association of persons with common interests formed democratically. They are small and homogenous group of 10-20 members. They built common fund slowly and systematically SHGS are established through linkage with Bank, Government department and NGO. In India 92% of the group cover women and only 4 to 5% of the groups consists of Men. The Descriptive research method was used for the present study. Society based survey method was executed in the research study. The researcher has selected 200 women from 25 SHGS with the help of purposive sampling method by non-Probability sampling method. Solapur city and North Solapur area was selected. The questionnaire was developed by the researcher. It was based on the objective type questions regarding women's empowerment through SHGS Awareness. The collected data were analysed and interpreted. The relevant findings and recommendations are stated on the basis of statistical analysis through the measure of Average.

Keyword: - Women's Empowerment, Self Help Group (SHG), Solapur City

Introduction

Women Empowerment means assigning equal opportunity to woman in all fields such as social, economic, educational, political etc. to accord equal positive participation and to offer similar wages as men social justice and enjoy right equally to fulfil social duties and responsibilities which may be defined in short as- "Empowerment means to create healthy balanced affirmative and compassionate individual".

In Indian scenario after independence, development of women was not primarily focused in five year plans till 1970. In response to UN initiatives the Government of India had formed a committee in India. The subordination and gender disparity issues caused more speculation that formulated National plan of Action for women in 1976. It identified areas of health education, employment etc. The government of India is a signatory to provide blue print of action to advancement of status of women in national and international, economic, social, cultural and legal spheres by the year 2000. Thus, we see the shift of approach from the development to empowerment. Empowerment as a concept was brought at international women's conference in favour of women through positive intervention. The programme of action 1992 has comprehensively mentioned the parameters of the empowerment of women.

Empowerment of the women became one other nine primary objectives of the plan 1997-2002. Thus from the development of the emphasis now shifted to empowerment of women some of the important indicators of the empowerment would be ownership and control official productive resources like land, access to credit, membership of family groups, community, organizations, active participation in cooperative, trade unions and other professional organization as such. Thus, the contribution of women in income generation by controlling the resources and its effect on rising socio-economic status women has been centered in the framework of the recent policies. Entrepreneurship development has become focused through the government schemes and programmes and the corporations. The aim of these programmes is to facilitate the poor women in skill development and the opportunity to overcome their problems. "Mahila Arthik Vikas Mandal" a corporation has been constituted by government of Maharashtra in 1975 to provide financial support to seek self-employment to women. It's one of the purposes to dispersal of credit and information to poor rural women through formation of self-help groups. The women empowerment policy of the government has been recognized the MAVM as its agency to run its programme effectively. The portfolio the MAVM has spread in almost all district of Maharashtra covering of each block with minimum 225 self-groups each.

The true empowerment takes place when women challenge discrimination on the basis of gender to improve their well being. Self Help Group (SHG) is a movement to empower the women socially & economically which would have an implication on the overall development of the women. In Solapur city industrial zone is very short so it is a non-industrial city as a result there is low income. The employment is seasonal & frictional. It is too small income to sustain for families hence, selfhelp group have plenty of scope in Solapur city of Maharashtra for women employment and development.

Meaning of Self Help Group (SHG)

SHG is a voluntary association of persons with common interests formed democratically. They are small and homogenous group of 10-20 members. They built common fund slowly and systematically SHGs are established through linkage with Bank, Government department and NGO. In India 92% of the group cover women and only 4 to 5% of the groups consists of Men.

Statement of Problem:-

A Study of Women's Empowerment with Special Reference to Solapur City, Maharashtra.

Objectives of the study :

1. To study the various SHGS groups in Solapur city regarding Women's Empowerment.
2. To study the economic empowerment of women through SHGS.
3. To Study the problems of SHGS in Solapur City regarding Women's Empowerment.
4. To suggest some recommendation to improve performance of SHG in Solapur city.

Assumptions of the Study

- 1) The awareness of women's empowerment is important for all women's in society.
- 2) The self-help group help to maintain good socio-economics status of women.
- 3) The self-help group bring energy and happiness in human life.

Scope, delimitations, and sampling of the Study

The scope, delimitations and sampling of the present study were in the following respects-

Area - Solapur City Area

Grade - Women's in Rural and Urban area.

Discipline - Self Help Groups (25)

Sample- 200 Women's in Rural and Urban area (purposive sampling method.)

Duration - 2019-2020 academic year

Mode of Data Collection-The researcher has used interview schedule for primary data collection & also used internet, reference books, Journal, DRDA Report of Solapur etc. for secondary data collection.

Procedure of the Research Study

The research methodology, design, sampling, tools, procedure, and statistical analysis of the present study were as follows.

The Descriptive research method was used for the present study. Society based survey method was executed in the research study. The researcher has selected 200 women from 25 SHGs with the help of purposive sampling method by non-Probability sampling method. Solapur city and North Solapur area was selected. Total 200 women from 25 SHGs with the help of purposive sampling method selected randomly for the research study. The questionnaire was developed by the researcher. It was based on the objective type questions regarding women's empowerment through SHGs Awareness. The questionnaire includes MCQ based as well as open ended response through written test. Responses of each respondent to the questions were measured. The collected data were analysed and interpreted. The relevant findings and recommendations are stated on the basis of statistical analysis through the measure of Average.

Findings:-

1. 96% women members belong to middle age group i.e. between 30 to 40 years & 4% women members belong to 55 to 65 years.
2. 86% women are married 9% women are unmarried & 5% women are widow, divorcee.
3. Out of total 200 women 59.8% women are belonging to Hindu religion, while belonging to Muslim religion is 26.2%, Buddhist religion is 12%, shikh religion is 2% where as representation of Christen is zero.
4. Cast wise composition indicates that the percentage of open category is 37%, SC, ST, NT, SBC & OBC constitute 20%, 10%, 11% & 22% respectively.

5. 67% women are illiterate & 33% women are literate
6. Economic status of the women are as follows:

Sr. No.	Nature of Product	Percentage
1	Papad/Lonche, Product, Awala candy,	51 %
2	Milk Product	10%
3	Beauty Product	18%
4	Store other	12%
5	Other	09 %

Reporting Year 2019-20

Add the table of 2019-2020

Tahashils	Self Help Group Established		Self Help Attached with Main Business		SHG Linked with Break for Working Capacity	
	Below Poverty Level	Above Poverty Line	Below Poverty Level	Above Poverty Line	Below Poverty Level	Above Poverty Line
City Central	28	40	21	05	37	04
North Solapur	12	21	15	02	29	00

SHG Started Business total turnover during the financial year 43 Lakh.

Problems of SHGS

The main problems faced by the women are as follows :

1. Majority of the women member of SHG are illiterate: Communication Skill as poor, that's why they cannot face any problems properly.
2. All women are faced marketing problem they cannot sale their product globally.
3. The amount of subsidies & Loans given by the Government to product globally. BPL, SHGS is too less, for the business.
4. Due to family & social pressure they are unable to work out of their home & start big projects, so only traditional business are done by them.
5. Some women member of SHGS are not handling financial matter through banking procedures.
6. Training Programmes for starting the business are not sufficient.

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Environment and Sustainable Development, a Necessity of the 21st Century**Dr. Atish S. Tidke**

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Abstract:

During the last 45 million years, the earth has experienced six catastrophic floods. One hundred percent of the earth's biodiversity is being destroyed by each flood. You may be surprised that the biodiversity we see is only 0.01 percent left. 99.99% of biodiversity has been destroyed by six floods in the last 45 million years. Out of the current 0.01 per cent biodiversity, 70 per cent biodiversity is divided into only 12 countries, of which India is one. The importance of environment will be noticed by looking at the above scientific evidence. For tourism, we often visit nature and see the biodiversity there. The mind was amazed to see beautiful, colorful butterflies, birds, flowers and plants. Today, the loss of biodiversity is only 0.01 percent. What would be the beauty of an earth that is 100 percent biodiversity millions of years ago?

There are billions of species of plants and animals in the world. It is the only intelligent human being who lives without harming the ecosystem except human beings, who have polluted the air, water and land due to deforestation and industrialization in the name of development and thousands of lives are on the verge of extinction as a result of that pollution. Some are destroyed forever. Again, its creation is not possible. The next generation will not be affected by environmental degradation only if we spend our human energy (manpower), time and money on how to sustain and add to what is left. Pollution caused the earth's temperature to rise, and nature's balance began to decline. If we want to control pollution, we have to plant trees at war level.

At present, there is an urgent need for tree planting and conservation for environmental protection and sustainable development. Jord Bernard Shaw's remarks at the beginning of the article also apply to environmental protection. The only difference is that the people who have been beaten up instead of being mad, the people who have been beaten up in the true sense and they are needed for sustainable development. June 5 World Environment Day If we give human energy, time and money for environmental protection and sustainable development for tree planting and conservation, it will be like celebrating World Environment Day in the true sense of the word.

At the twenty-first century, a special effort was launched through the United Nations. The Millennium Development Goals (MDGs) were set by all countries with the aim of improving the living standards of all people in the world, providing minimum facilities to all human beings, and reducing health problems. At the United Nations General Assembly in September 2000, these goals were adopted by the whole world. Eliminate world poverty and hunger by 2015, provide primary education to all, women empowerment, reduce child mortality, improve maternal health, AIDS, malaria, TB. The objectives were to control such diseases, protect the environment and establish a global cooperation system to do so.

Since 2010, there has been a lot of talk about meeting the Millennium Development Goals. 'What after 2015?' At the 2012 United Nations Sustainable Development Conference in Rio. The discussion was about to begin. Colombia has been pursuing sustainable goals since 2011. Gradually this idea was supported by many countries. India's assistance in this regard was significant. In this endeavor, the concept of Sustainable Development Goals (SDGs) at the 2012 Rio and + 20 Conference will be a guide to our common path after 2015, all countries agreed. The United Nations then began discussing these objectives, both politically and technically. The views of various groups including governments, NGOs, various world class organizations, associations, industry world etc. were heard. From these efforts, a program was created outlining what principles should be adopted for what should be achieved by 2030.

Keywords: Sustainable Development, Three pillars to sustainable development, Sustainable development goals, Sustainability, affecting Factors, Model of sustainable development.

Rationale of the study:

The 21st century is witnessing massive environmental degradation. Human needs have greatly increased in the 21st century. Humans are doing a great deal of damage to the environment to meet their needs. So the needs were met but to a large extent created an imbalance in nature. As a result, crises such as droughts, and poverty have plagued mankind. Humans have made economic progress but human development has not. Sustainable development is essential for human development. This requires environmental balance. This will enable the entire human race to achieve full development.

Objectives of Research Paper:

- To study of Sustainable Development.
- To study the affecting Factors of sustainable development.
- To study the Model of sustainable development.

Hypothesis:

The 21st century is witnessing massive environmental degradation.

Only sustainable development can keep the human race afloat.

Sustainable Development Concept:

Sustainable development in accordance with the World Commission on Environment and Development under which the needs of the generation can be compromised without the ability to meet the needs. Therefore, development cannot be sustainable without environmental protection, i.e. how natural resources should be used in the present with the needs of future generations in mind so that the desired balance between economic development and environmental protection can be established. In sustainable development we must use nature for human development in such a way that nature does not harm the environment and maintains a balance between nature and development.

According to the classical definition, given by the United Nations World Commission on Environment and Development in 1987, development is sustainable if it “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Three pillars to sustainable development:

There are three pillars to sustainable development:

- Economy: The creation of wealth and livelihoods;
- Society: The reducing of poverty and improvement of quality of life;
- Environment: The increase of natural resources for future generations.”

Sustainable development of human society has environmental, material, ecological, social, economic, legal, cultural, political and psychological dimensions that require attention: some forms of sustainable development can be expected to be much more acceptable to humans and, therefore, much further away from eventual collapse than others

Sustainable development goals:

1) A total of 17 objectives have been set. In order to achieve these goals, some goals have been set for each goal. 2) There are 169 targets in total. Indicators have been set to measure whether these goals have been achieved. More than 300 such indicators have been fixed. 3) Every country wants to consider this year's information as the baseline. Creating such a baseline for minimum indicators is also an important task. 4) Countries that need help to set such a baseline are also provided. Arrangements have also been made to measure how the objectives are being met. 5) Special efforts are being made to ensure that other development partners work alongside the governments of each country to achieve these objectives.

Why sustainability?

Sustainable development is in great demand today. Environmental degradation is seen at a massive rate. Large-scale deforestation is taking place. Industrialization is causing a large number of problems such as pollution, urbanization, poverty. We see that industrialization has only led to economic development but human development does not appear to have taken place. If the country is to achieve sustainable development, it is necessary to maintain the balance of the environment.

Factors affecting sustainable development:

Crossing of planetary boundaries:

Only solar energy comes from outside the earth. Everything else is recycled on this planet. Man has started interfering in all these cycles, which results in the loss of biodiversity, pollution and so on. Just like you have a budget for your house expenses, you have to spend a few rupees a month, you have a certain amount of money a year, and if you have to spend on it, you have to take out a loan. In the same way, every source of nature has the potential to make up for lost time. It takes a while for it to heal. The cycles of nature have to be completed. Considering that, there is a budget for the cost of the earth that is, how many resources should mankind use in a year?

Energy Problem:

The sun is the source of all energy on earth. Energy every work requires energy. This means that when we use solar energy, most of it is useless. Now, what does this have to do with environmental issues? The current environmental issues that we have are actually a lot of energy issues. This means that the energy that is needed to drive a car is obtained by using mineral oil and carbon dioxide is produced from it. We burn coal to generate electricity, which also produces carbon dioxide. For each of our actions, we use one or the other low-entropy source. Many of these sources pollute the air. The words clean energy / green energy are prevalent in the world. Another word is renewable energy. Solar energy, wind energy, hydropower are unconventional sources of energy and if used, they do not harm nature. There is no pollution. But much of this is not true. All of

these energy sources also cause pollution, and if used properly and in moderation, hydroelectricity and solar energy are the two best sources of energy. Due to the increasing material desires of man, we are inclined towards excessive use of energy. The first step towards sustainable development is to reduce the total need for human resources and energy.

Model of sustainable development:

If you want to understand what sustainable development is in recent times, I would like to point out the following four main objectives.

Reducing human burden on land:

In recent times, man has started a great oppression on nature. Humans have usurped a large amount of land from nature. Returning that land to nature is an important step. This means that the land that is currently being used for industrial farming is mostly chemical. These industrial farming models should be turned to natural farming. This includes taking several crops at once instead of one, avoiding the use of chemical fertilizers and reducing or stopping the consumption of meat. Suppose you are planting vegetables only maize on a hundred acres of land, then plant at least four to five different types of grains or vegetables on five to ten acres instead. Applying multi-cropping methods to your farm means you need to do rotational farming. But it is not nature to create a forest just by planting trees. There are many ecosystems of nature. Grasslands, wetlands, sand plains, deserts are all natural ecosystems. One of the important goals of sustainable development is to cultivate the local ecosystems within the natural ecosystems of the region according to our geographical location.

Decentralization of resources:

Our current economy is focused on centralization. It is economically cheaper to produce Product in China, so goods from all over the world are produced there. Food, grains, Milk, Clothes, Water, Energy Even the necessities of our daily lives are sometimes made overseas. You just have to be more discriminating with the help you render toward other people. Since we do not measure the natural value of all these items, we can afford them financially. But the corona showed us the slightest hint of what a terrible situation could be if something in this chain was banned. One of the key goals of sustainable development is to create small human settlements that are self-sufficient, at least in terms of food and energy. Today in any city in India, water comes from a distant dam, grain, vegetables, milk comes from a nearby village. All these things come to the city but what is created in the city is pollution, sewage and waste. Again, all these things have to be taken out of the city, processed and released. On the other hand, in every ward of the city, vegetables and fruits can be grown in a sustainable manner. Biogas can be produced from wastewater and wet waste from all parts of the city. It can meet the energy needs of the people there to some extent. If the same model is implemented in the village, the number of people coming to the city will be less. The people of the village will be able to live better in the village itself. The farm couple will be able to run small cottage industries. It will be a non-exploitation economy.

Cyclic economy:

How businesses operate in the dream of sustainable development? It will not generate waste in any product as the waste generated in one product will be the raw material of another product. These industries will of course be more decentralized and self-sufficient in energy. For example, today we bring a packet of biscuits. Who is responsible for its wrapping? Sustainable Industry will be the end to end Responsibility taker. This is known as cradle to cradle approach. Then in such a situation Weston Biscuit Company of Single Use Plastic may not be affordable. In the same vein, if a law is passed to recall a company that manufactures electronic devices, mobile companies may not be able to bring new models so quickly. Because the company can't afford to take back the whole phone just for a new chip, then maybe the same phone can be used for a longer time by replacing the one chip.

Unconventional energy sources:

Solar energy and hydropower are the two best options to meet the basic energy needs. But to generate small amounts of decentralized energy rather than building large dams for it and it is more sustainable to add it by grade if needed. Although it is convenient to use solar energy through solar panels, it is not the best option. The easiest and best way to use solar energy as it is. Biogas from grass and wet waste generated in the field can be a sustainable alternative. Making a lifestyle change that will reduce the child's energy needs is a big change. How is all this possible? All of these things are possible if you think about it. If you had been told a year ago that you were going to stay home for a year, you probably wouldn't have agreed but it happened because of Corona Virus. It takes willpower and action to make anything come true.

Conclusions and recommendations:

Sustainable development concept was firstly thought to be a solution to ecological crisis caused by intense industrial exploitation of resources and deterioration of the environment and the primarily focus was to preserve environmental quality. Today the concept has expanded by including quality of life in its complexity, economically and socially.

The analysis of economic process in many countries has shown that the rapid economic growth caused serious problems from the point of view of sustainable development such as social, economic, environmental, etc. The paper concludes that sustainable development is a better concept than mere economic growth and development, because sustainable development has three parts including economic prosperity, social equity and justice and environmental sustainability. Sustainable development, therefore, must be kept in mind while designing projects. These projects may meet the needs of the current generation without jeopardizing the abilities of the future generations. Saving and investment can play a key role in sustainable development. So, local, national and international sources may be mobilized into productive investments that could ensure useful productions. Poverty is widespread phenomenon in developing countries. Serious efforts could be made to eliminate and reduce poverty. Keeping in mind the successful experience of Grameen Bank in India, provision of microfinance can play a pivotal role in reducing poverty. High population and high population growth rates are major challenges for developing countries. Serious efforts need to be taken to reduce population growth rates. Population planning can be of greater importance in this regard. Environmental degradation and pollution or air and water are also crying problems of the day. Therefore, environmental health and conservation planning must be part of development planning. In developing countries, poor are excluded from the benefits of development. Therefore, community participation needs to be ensured so that the say of the poor could be heard. There are various policy and market failures in developing countries. Transparency and good governance can play a better role in this regard. Recently, there have been various types of natural and man-made disasters in various parts of the world. The developing countries may have sound disaster preparedness, prevention and management planning and programs.

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The Impact and Causes of Rising Fuel Prices in Solapur District

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Abstract:

Petrol prices are going up day by day and the direct impact is being felt by the citizens. Energy consumption for consumption purposes in India is the highest in the world. Global demand for energy and fuel prices are continuously increasing. Studying recent rises in prices and explaining the implications of those increases is how to resolve the recent externalization of the economy.

Keywords: Fuel, pricing structure. government taxes, Solapur, Petroleum.

1) Introduction:

Energy has been controversial for decades, with the question of how long we can live with the available energy sources. Fossil fuels, diesel and various material fuels are the most important fuels. The dependence on fuels, particularly fossil fuels, has recently been increasing over time and is shaping the global economy. India is the third largest crude oil importer in the world and imports almost 85 percent of its oil needs. Although few people did not participate in this process, most domestic fuel consumers were not happy to hear the news of fuel price increases.

In 2021, Petrol and diesel prices will increase rapidly. Reasons for price increases include invalid government policies, devaluation of the rupee, and the United States' global policy of sanctions on Iranian oil imports. OPEC controls 40% of crude oil and is committed to bringing uniform oil prices to its members. In recent years, India has been working to diversify its third-country oil imports, because 2/3 of your oil needs are purchased at a fixed price in time contract. In recent years, India has increased its oil purchases from the United States and Canada, while reducing its purchases from Africa and the Middle East.

2) Literature review:

1) *Bhattacharya and Batra, 2009*. Within the scope of this research, the author tried to analyse the impact of domestic inflation and production growth in India, considering the world oil price. The research focuses on two main research examples. a) When fuel prices are proportional to global fuel prices. Government guidelines, which are updated from time to time, affect fuel prices in the current situation.

2) *Anand, 2013*, During this study, the analysis was performed on fuel assessment systems conducted across the country without the need for fuel subsidy reform and improvement options. The paper appearance intimately into the degree of fuel subsidies in action within the county and additionally they will increase in domestic fuel costs needed to counter the allowance and also assesses the impact these value increases can wear the inflation and menage real incomes.

3) *Bhanumurthy, Das, & Bose, 2012*, This analysis study comprehensive cantered on the effect that transmission of International Oil costs and domestic oil value labour below the policy on the Indian economy. The simulation model helped complete the study.

3) Research Design:

A) Statement of the problem:

India is currently facing the rising price of Petrol and Diesel. There are multiple factors in motion that contributed to the present increase. This proposed research aspires to appear into the key causes that have contributed to the current rise, whether the govt contains a major role to play during this pricing game and what are the possible impacts of this on the people of Solapur District.

B) Scope of Study:

Our study based on the city of Solapur District. Petrol and diesel are our fuels. the two fuels are skyrocketing. Though the causes of increased fuel prices could also be general, the impact of the identical would be specific to the current particular region under study. Therefore, our questionnaires are also designed in such a way as to enable us to attempt to analyse this particular area.

C) Research methodology

a) Sources of Data:

While conducting this research, we used primary and secondary data. To determine the effect of fuel prices in Solapur District, we obtained information from 300 residents of the city through a Google form and a questionnaire. we have used secondary data to determine why fuel prices have increased.

b) Objectives:

- 1) Understand the relationship between the central and the state in gasoline and diesel prices. 2) Know the impact of the rise in fuel prices in the city of Solapur District.
- 3) Understand how government pricing policies work and how to subvert them.
- 4) Solve the problem and advise on the choice of the problem.

C) Research Hypothesis:

H1: The Central and the state has an important role to play within the value of Petrol and diesel. H2: As a results of rising fuel prices, Solapur is experiencing vital economic hardship.

d) Expected Outcome:

In addition, by analysing the structure of fuel, we will provide a way of regulating the current level prices, find out the main reasons for the increase in fuel prices, and find a solution to alleviate this population burden. Price, what can the government do.

e) Limitations of Study:

My study focuses only on the Solapur district. For this study, I need information from the questionnaire, which does not start from a complete survey of all the respondents but comes from a well-defined but roughly reliable sample.

4) Data Analysis and Interpretation:

In the first place, I have researched the factors responsible for the increase in fuel prices in the Solapur district. Fuel prices are affected by factors such as the initial price of crude and the tax burden, the difference between supply and demand, population growth, declining fuel sources, exchange rate fluctuations, and imports. We have focused our research on the following factors that have had a major effect on fuel prices over the last decade.

4.1) The effect of rising fuel prices in Solapur District: Here are a few things that directly affect petrol prices every day, so you'll have a better idea of how they fluctuate.

Crude Oil Cost: Among the most crucial factors that directly affect the price of petrol in the Indian domestic market is the cost of crude oil. Crude oil, also known as unrefined oil, is an international commodity whose cost affects the price of Indian fuel. Crude oil's price is mainly affected by demand and supply, international relations, and future supplies and reserves.

Increasing Demand: More and more people are driving private vehicles, which had an impact on the price of petrol. Petroleum is produced from crude oil, the cost of which determines the price of fuel in India. Increasing crude oil prices make it difficult for Indian oil refinery companies to meet the rising demand for petrol, resulting in limited supplies of petrol.

Taxes: Petrol prices in India increase and fall according to the government's fuel tax policies. To recover losses and get marginal returns, Indian oil companies change their rate according to the changing tax rate.

Rupee And Dollar: There are several factors that contribute to petrol prices in India, and one of them is the rupee-dollar exchange rate. In India, oil is imported in dollars. In this way, when the dollar strengthens against the rupee, the buying cost soars, thus affecting the price of petrol.

Refinery Consumption Ratio: Crude oil imported from abroad is sent to refineries for further processing. Reduced refinery ratios lead to a decrease in petrol availability, thereby increasing the cost of petrol.

A chart comparing the price of gasoline and diesel by crude oil cost is below.

Final fuel price according to crude oil	5th July 2021
The price of oil on international markets	77.52 \$ per Barrel
The Exchange Rate of Currencies	74.29 ₹ / USD
The value of Crude Oil in Indian Currency	5,758.96 ₹
The price of one barrel of crude oil	159 (Litre)
Cost for one litre	36.21 ₹ per Litre
Petrol for one litre (Solapur) as on 5 July 2021	100.34 ₹ per Litre
Diesel for one litre (Solapur) as on 5 July 2021	90.84 ₹ per Litre

	Excise Duty on Petrol (Rs in Per Litre)	Excise Duty on Diesel (Rs in Per Litre)	VAT on Basic Price on Petrol (%)	VAT on Basic Price on Diesel (%)
Taxes in November 2014	9.2	3.46	20	12.5
Taxes in December 2017	21.48	17.33	27	16.75
Taxes in July 2021	32.9	31.8	30	16.75

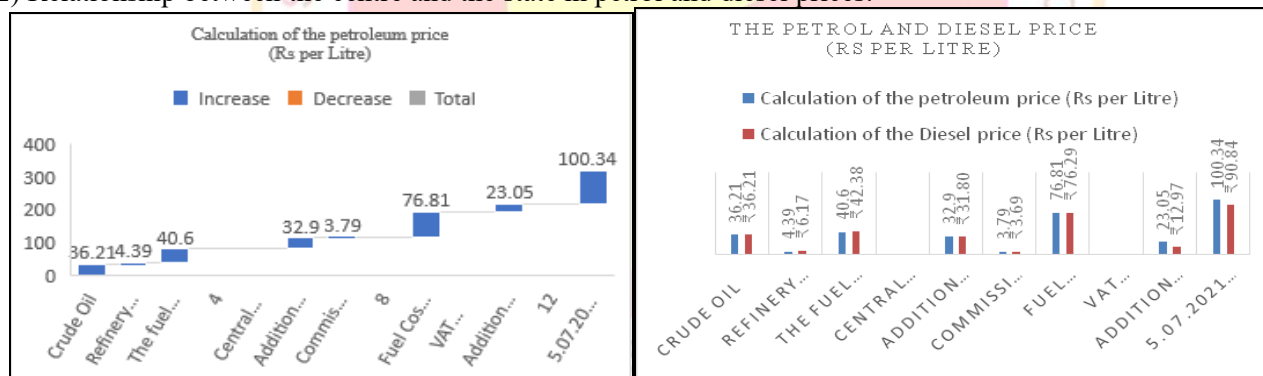
Scenario of taxation on petroleum and diesel fuels
Chart for simplified computation of Petrol and Diesel price in Solapur (on 5 July 2021)

<u>Calculation of OMC Costs</u>	<u>Calculation of the petroleum price (Rs per Litre)</u>	<u>Calculation of the Diesel price(Rs per Litre)</u>
Crude Oil	36.21	36.21
Refinery processing costs plus refinery margins plus OMC margins plus freight and logistics	4.39	6.17
The fuel price after processing (<i>ready to be sent to the pump</i>)	40.6	42.38
<u>Central Government Taxes & Dealer Commission</u>		
Government collects excise duties and road fares	32.9	31.8
Commission for Petroleum Pump Dealers	3.79	3.69
<u>Fuel Cost Before VAT</u>	76.81	76.29
<u>VAT Calculation</u>		
Additional: VAT (Petrol - 30% and Diesel - 16.75%)	23.05	12.97
5.07.2021 - Final retail price (Solapur District)	100.34	90.84

In this table, you'll find Solapur's fuel tax rates for July 2021.

Solapur District	Obtaining FuelPer Litre	Taxes paid on fuel (%)	The total cost of fuel
Petrol	55.95₹	56%	100.34₹
Diesel	44.77₹	50%	90.84₹

4.2) Relationship between the centre and the state in petrol and diesel prices:



We can build the price of petrol from the components such as the price paid to dealers, the dealer's commission, the excise tax levied by the state government, the price paid to refineries (the refinery transfer price), and the marketing cost, margin, and freight associated with it. There is a fixed commission rate of 3.79 per litre for dealers. Currently, Crude oil with Ocean Freight is being traded for \$76.49 per barrel. The crude oil barrel has a capacity of 159 litres. By using the exchange rate of 74.64 INR per dollar on the above date, Crude oil would cost 36.21 INR per litre. Based on the above, we arrive at the price charged to dealers of INR 100.34 due to the entry tax, refinery processing charges, freight charges, and OMC margin on this amount. approximately 56.4 rupees are paid to the government out of the total fuel price of INR 100.34 (32.9 from the Central Government as excise duties and 23.05 from the State Government as VAT). Approximately 56.4 rupees are paid to the government out of the total fuel price of INR 100.34 (32.9 from the Central Government as excise duties and 23.05 from the State Government as VAT). If there were no taxes, we would have to pay only INR 43.60 per litre of petrol on 5 July 2021.

4.3) The government's pricing policy:

When the price of petrol goes up, both the centre and the states blame international price fluctuations. According to theory, Supply and demand are factors that influence oil prices, although there are other factors, such as state and government taxes and dealer commissions, that affect the price. Whenever the price is high, the

government often uses what it calls 'dynamic pricing'. We should see how the price of petrol and diesel is deregulated to understand how fuel prices are determined. (Dr. Manmohan Singh) deregulated the petrol price in 2010, and Petroleum Marketing Companies are now free to fix petrol prices according to their cost and profit calculations. Another round of deregulation of diesel was implemented in 2015 (under Narendra Modi).

5) Findings:

- A) It will also affect the business world because many industries that use petroleum as a raw material have fallen due to rising fuel prices, such as fertilizers, wax, tires, paint and shoes, cement, construction, etc.
- B) As the price of diesel is increasing, most groceries and other necessities will also cost more.
- C) The RBI will increase interest rates if inflation increases. Those who are seeking loans and businesses seeking loans will be affected, while savers will gain because of this.

6) Suggestions:

Our nation's energy profile must be drastically changed, our energy security needs to be improved, and we need to reduce our dependence on oil-based revenues. Although the government's policy on electric vehicles is encouraging, more resources should be put into setting up EV charging stations across the country. Particularly as new highways are built, this kind of infrastructure can be provided. As a result, the government could make INR a more appealing currency in the Asia-Pacific region.

7) Conclusion:

Prices of fuel are directly affected by the price of crude oil internationally. Both the central government and the state governments play a vital role in setting fuel prices in the country. It is also possible to add petrol and diesel to the GST list, but it will take some time before it is implemented. There is already a decreasing relationship between depreciating rupees and rising fuel prices. The current trend will cause the price of petrol to rise to around Rs 150 a litre in the future. You can SMS "RSP*space>Dealer Code of petrol pump" to 92249 92249. This will give you an indication of the petrol and diesel prices for the day in your city or town.

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Integrative Perspective of Green Marketing in Modern Business Setup**Dr.K.Gunasundari,**Assistant Professor, Department of Management Sciences,
PSG College of Arts and Science, Coimbatore.**Introduction**

Development and conservation professionals are increasingly incorporating conservation products into their portfolio of activities to contribute to biodiversity conservation and poverty alleviation for the communities that live in high biodiversity areas. Tremendous progress has been made in involving communities in good conservation practices, developing enterprises that are sustainable and generating income that also promotes biodiversity conservation. Yet, these groundbreaking enterprises and products still struggle to understand the markets for their products and how to access these markets. Green marketing is the marketing of products that are presumed to be environmentally safe. Green marketing is a holistic marketing concept wherein the product, marketing consumption on disposal of products and services happen in a manner that is less detrimental to the environment with growing awareness about the implications of global warming, non-biodegradable solid waste, harmful impact of pollutants etc., both marketers and consumers are becoming increasingly sensitive to the need for switch into green products and services. "Those human activities directed at satisfying needs and wants through voluntary exchange processes, with full consideration of the social, ecological, and economic impacts of those transactions."

Green Products And Its Characteristics

The products those are manufactured through green technology and that caused no environmental hazards are called green products. Promotion of green technology and green products is necessary for conservation of natural resources and sustainable development. We can define green products by following measures:

- Products those are originally grown,
- Products those are recyclable, reusable and biodegradable,
- Products with natural ingredients,
- Products containing recycled contents, non-toxic chemical,
- Products contents under approved chemical,
- Products that do not harm or pollute the environment,
- Products that will not be tested on animals,
- Products that have eco-friendly packaging i.e. reusable, refillable containers etc.

Green Marketing Mix

- **Product:** A producer should offer ecological products which not only must not contaminate the environment but should protect it and even liquidate existing environmental damages.
- **Price:** Prices for such products may be a little higher than conventional alternatives. But target groups like for example LOHAS are willing to pay extra for green products.
- **Place:** A distribution logistics is of crucial importance; main focus is on ecological packaging. Marketing local and seasonal products e.g. vegetables from regional farms is more easy to be marketed "green" than products imported.
- **Promotion:** A communication with the market should put stress on environmental aspects, for example that the company possesses a CP certificate or is ISO 14000 certified. This may be publicized to improve a firm's image. Furthermore, the fact that a company spends expenditures on environmental protection should be advertised. Third, sponsoring the natural environment is also very important. And last but not least, ecological products will probably require special sales promotions.

Additional social marketing "P's" that are used in this process are:

Publics: Effective Social Marketing knows its audience, and can appeal to multiple groups of people. "Public" is the external and internal groups involved in the program. External publics include the target audience, secondary audiences, policymakers, and gatekeepers, while the internal publics are those who are involved in some way with either approval or implementation of the program.

Partnership: Most social change issues, including "green" initiatives, are too complex for one person or group to handle. Associating with other groups and initiatives to team up strengthens the chance of efficacy.

Policy: Social marketing programs can do well in motivating individual behavior change, but that is difficult to sustain unless the environment they're in supports that change for the long run. Often, policy change is needed, and media advocacy programs can be an effective complement to a social marketing program.

Golden Rules Of Integrative Green Marketing

Know your customer: If you want to sell a greener product to consumers, you first need to make sure that the consumer is aware of and concerned about the issues that your product attempts to address.

Empower consumers: Make sure that consumers feel, by themselves or in connect with all the other users of your product, that they can make a difference. This is called “empowerment” and it’s the main reason why consumers buy greener products.

Be transparent: Consumers must believe in the legitimacy of your product and the specific claims you are making. The rest of your business policies are consistent with whatever you are doing that’s environmentally friendly.

Reassure the buyer: Consumers must be made to believe that the product performs the job it’s supposed to do-they won’t forego product quality in the name of the environment.

Consider your pricing: If you are charging a premium for your product and many environmentally preferable products cost more due to economies of scale and use of higher-quality ingredients-make sure that consumer can afford the premium and feel it’s worth it. Many consumers, of course, can’t afford premiums for any type of product these days, much less greener ones, so keep this in mind as you develop your target audience and product specifications.

Perspective For Effective Green Markets

Green marketing mirrors the goals of traditional marketing, which is to “facilitate exchanges intended to satisfy human needs or wants.” The point of difference is that green marketing seeks to accomplish that with minimal detrimental impact on the natural environment. As companies face limited natural resources, they must also develop new or alternative ways of satisfying their customers’ needs. So green marketing is also a way of looking at how marketing activities can make the best use of these limited resources while meeting corporate objectives.

- Set the Right Green Objectives
- Demonstrate Social Responsibility
- Demonstrate Social Responsibility
- Respond to Competitive Initiatives
- Provide Accurate Environmental Information
- Identify Products with Green Characteristics
- Focus Product Development on Sustainability
- Set Realistic Prices
- Eliminate Unnecessary Packaging
- Practice Greener Distribution
- Promote Green Credentials Efficiently
- Make It Easy for Customers to Be Green

Keys To Successful Green Marketing

Show potential customers that you follow green business practices and you could reap more green on your bottom line. Green Marketing isn’t just a catchphrase; it’s a marketing strategy that can help you get more customers and make more money. But only if you do it right. For green marketing to be effective, you have to do three things; be genuine, educate your customers, and give them the opportunity to participate.

Being genuine means that (a) that you are actually doing what you claim to be doing in your green marketing campaign and (b) that the rest of your business policies are consistent with whatever you are doing that’s environmentally friendly. Both these conditions have to be met for your business to establish the kind of environmental credentials that will allow a green marketing campaign to succeed.

Educating your customers isn’t just a matter of letting people know whatever you’re doing to protect the environment ; but also a matter of letting them know why it matters. Otherwise, for a significant portion of your target market, it’s a case of “So what?” and your green marketing campaign goes nowhere.

Giving your customers an opportunity to participate means personalizing the benefits of your environmentally friendly actions, normally through letting the customer take part in positive environmental action.

Know your customer : If you want to sell a greener product to consumers, you first need to make sure that the consumer is aware of and concerned about the issues that your product attempts to address. (Whirlpool learned the hard way that consumers wouldn't pay a premium for a CFC-free refrigerator because consumers didn't know what CFCs were!).

Empower consumers : Make sure that consumers feel, by themselves or in concert with all the other users of your product, that they can make a difference. This is called "empowerment" and it's the main reason why consumers buy greener products.

Be transparent : Consumers must believe in the legitimacy of your product and the specific claims you are making. Caution: There's a lot of skepticism out there that is fueled by the raft of spurious claims made in the "go-go" era of green marketing that occurred during the late 80s to early 90s- one brand of household cleaner claimed to have been "environmentally friendly since 1884."

Reassure the buyer : Consumers need to believe that your product performs the job it's supposed to do — they won't forego product quality in the name of the environment. (Besides, products that don't work will likely wind up in the trash bin, and that's not very kind to the environment.)

Consider your pricing : If you're charging a premium for your product and many environmentally preferable products cost more due to economies of scale and use of higher-quality ingredients-make sure that consumers can afford the premium and feel it's worth it. Many consumers, of course, cannot afford premiums for any type of product these days, much less greener ones, so keep this in mind as you develop your target audience and product specifications.

Reason For Use Of Green Marketing In Modern Business Setup

Man has limited resources on the earth, with which she/he must attempt to provide for the worlds' unlimited wants. Hence there is "freedom of choice", that individuals and organizations have the right to attempt to have their wants satisfied. As firms face limited natural resources, they must develop new or alternative ways of satisfying these unlimited wants. When looking through the literature there are several suggested reasons for firms increased use of Green Marketing. Five possible reasons are as follows:

1. Organizations perceive environmental marketing to be an opportunity that can be used to achieve its objectives.
2. Organizations believe they have a moral obligation to be more socially responsible. Governmental bodies are forcing firms to become more responsible.
3. Competitors' environmental activities pressure firms to change their environmental marketing activities.
4. Governmental bodies are forcing firms to become more responsible.
5. Cost factors associated with waste disposal, or reductions in material usage forces firms to modify their behavior.

Challenges In Green Marketing

1.Need for Standardization

It is found that only 5% of the marketing messages from "Green" campaigns are entirely true and there is a lack of standardization to authenticate these claims. There is no standardization to authenticate these claims. There is no standardization currently in place to certify a product as organic. Unless some regulatory bodies are involved in providing the certifications there will not be any verifiable means. A standard quality control board needs to be in place for such labeling and licensing.

2. New Concept

Indian literate and urban consumer is getting more aware about the merits of Green products. But it is still a new concept for the masses. The consumer needs to be educated and made aware of the environmental threats. The new green movements need to reach the masses and that will take a lot of time and effort. By India's ayurvedic heritage, Indian consumers do appreciate the importance of using natural and herbal beauty products. Indian consumer is exposed to healthy living lifestyles such as yoga and natural food consumption. In those aspects the consumer is already aware and will be inclined to accept the green products.

3.Patience and Perseverance

The investors and corporate need to view the environment as a major long-term investment opportunity, the marketers need to look at the long-term benefits from this new green movement. It will require a lot of patience and no immediate results. Since it is a new concept and idea, it will have its own acceptance period.

4.Avoiding Green Myopia

The first rule of green marketing is focusing on customer benefits i.e. the primary reason why consumers buy certain products in the first place. Do this right, and motivate consumers to switch brands or

even pay a premium for the greener alternative. It is not going to help if a product is developed which is absolutely green in various aspects but does not pass the customer satisfaction criteria. This will lead to green myopia. Also if the green products are priced very high then again it will lose its market acceptability.

Conclusion

Now this is the right time to select “Green Marketing” globally. It will come with drastic change in the world of business if all nations will make strict roles because green marketing is essential to save world from pollution. From the business point of view because a clever marketer is one who not only convinces the consumer, but also involves the consumer in marketing his product. With the threat of global warming looming large, it is extremely important that green marketing becomes the norm rather than an exception. Recycling of paper, metals, plastics, etc., in a safe and environmentally harmless manner should become much more systematized and universal. It has to become the general norm to use energy-efficient lamps and other electrical goods. Marketers also have the responsibility to make the consumers understand the need for and benefits of green products as compared to non-green ones. In green marketing, consumers are willing to pay more to maintain a cleaner and greener environment. Green marketing assumes even more importance and relevance in developing countries.



Role of Organic Farming in Agricultural Sustainability

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Abstract

There is no exact meaning of the term "organic" because different nations follow distinctive standards for products to be certified "organic". In simple words, organic foods are prepared using simple means to sustain purity without artificial fixings, additives or inorganic substances in them. Organic products are acquired through procedures that are kind to the earth, and through development strategies that consider both- characteristics of the previously obtained item and production techniques. It is observed that all organic food consumers do not have a similar outlook and approach towards organic food. Thus, the present paper focuses on the role of organic products and organic farming in bringing about overall sustainability in Agriculture.

Keywords: *Organic Products, farming, agricultural sustainability, ecological benefits.*

Introduction

Organic agriculture has been in practice in India since the nineteenth century. Farmers began receiving more intensive training after the Green Revolution took off in India in 1960. In recent decades, consumers have turned out to be more knowledgeable and better aware of the idea of organic practices. This increase in attentiveness and concern for ecological conservation is expanding the interest for organic products all over the globe.

The growing market of organic products is among the rapid growing businesses in the world slated to give trade opportunities to both, creating and created economies. The world market of organic food products will rise to 25-30 percent from 10-15 percent. In view of this, the farmers are currently embracing organic farming effectively. This present rush of organic farming in the farmers all over the globe has brought about around 3.5 million hectares of area.

In India, although organic farming practices are seeing an upward trend, its share in the world market share is less in contrast with different exporters, for example, the United States, Canada, Holland, etc. This study intends to investigate the demand for the organic product industry in the Indian market from the point of view of the global market.

The word "organic" may be defined as "an ecological management production system, which promotes and enhances biodiversity, biological cycles and soil biological activity. This is mainly based on minimum usage of off-farm inputs and on management practices, which restore, maintain and enhance ecological harmony".

Organic food market is in a dynamic state in India. It is developing rapidly, with the difference in price range in western and eastern parts being very obvious. Consumers have shown a good amount of interest in healthy and delicious diets which have high nutritional compounds and trust with regard to the safety of food about what they consume. Further people also see the safety of the environment and welfare of the animal and sustainability.

Sustainable food production attained importance after witnessing the impact of the agriculture industrialization such as social impact, economic impact and ecological impacts. Societies try to find the solutions by reducing the demand of input, local and seasonal products concerning the health, environment and social welfare of the given locality where cultivation is done. To manage and administer food production various organizations and policies have been formed by the developed nations. Organic agriculture is seen as a solution to problems of industrialised agriculture as it is based on holistic production management systems that aim to create the integrated, environmentally, humane and economically sustainable agricultural production systems. Consumers in industrialized countries have shown great interest in organic products since the beginning of the 90's. A food safety and quality issue has triggered awareness among consumers as people began growing suspicious of conventional products. Moreover, in today's society where education and awareness levels are higher, people are showing great concern about their family's health, which encourages them to prefer foods which have the most nutritional value, less additives and preferably grown with natural methods of production. Movements in favour of the environment and welfare of farming are gaining momentum, which is influencing consumer choice while buying products.

Ecology and Environment Initiatives by the Government:

The Indian Government, perceiving the seriousness of environmental issues, has embraced a far-reaching arrangement to address the environment. India was the primary nation to embed a change into its Constitution taking into consideration the state to mediate and to ensure general well-being, forests and natural life. Further, in light of national promise to a spotless environment (commanded in the Constitution in Articles 48A and 51A (g), reinforced by judicial translation of Article 21, the Government has come up with an environmental strategy in 2006. The prevailing topic of this approach is that individuals subject to specific assets acquire better jobs from preservation, than from degradation of the asset (GOI Government of India, 2012).

The second concrete information is the requirement for the conservation of soil fertility and nutrition management. Citing from the report, soil is a fundamental regular asset that supports life on the earth. Millions of small living beings survive in good quality soil, which is wealthy in organic issues. A living soil biological system supports and feeds plants by giving a healthy foundation to take roots in and through an enduring supply of supplements. Aimless utilization of synthetic chemical composts can genuinely damage the characteristic soil biological community.

Chemical composts are sponsored extensively in India, and the measure of manure endowment has developed exponentially amid the last three decades. Such substantial endowments regularly eliminate problems and unevenness in soil nutrition. Despite the fact that there is still a need to increase compost use in numerous parts of the nation, the abuse of chemical manures in different zones has brought about extreme degradation of soil.

Reviving soil and improving its quality in terms of organic features and its small-scale supplements in mass amounts is required. Enhanced supplement management will slowly improve the impact of imbalanced/extreme utilization of chemical composts. Support for soil improvement and environmental/organic preparation is presently accessible under different plans. However, it will require a clearer focus alongside it, better strategies for appraisal of soil health. Further, supplement needs at the farm level for soil should be considered.

The tenth five year design underlined advancement of, and support to, organic farming with the utilization of Integrated Pest Management (IPM), organic waste, and Integrated Nutrient Management (INM). Indeed, even the ninth five year design had stressed on the advancement of organic delivery in estate crops, spices and toppings with utilization of organic and bio contributions for security of environment and advancement of sustainable agriculture. Different bodies under various ministries, for example commerce, textiles and agriculture have required the push to advance and empower organic farming.

Need for Organic Products (NABCONS) :

Chemical fertilizers have assumed huge importance in agriculture in India, mainly after the Green Revolution and making the nation independent in food generation. Be that as it may, it affects quality of soil, fermentation, miniaturized scale supplement depletion, soil corruption, condition of the food crop and lower crop yield and quality. In addition, utilization of synthetic fertilizers may add to environmental hazards like rise in water level, rise in global warming, rise in water contamination and so forth. So it is necessary that we come back to practices which are eco-friendly in nature. The main response to these issues is organic cultivating which gives eco-innovative stability, sustainable agriculture and better pest and supplement administration.

Steps Taken for Promotion of Organic Products in India:

2000 year is a critical year for the country from the perspective of organic products. The Planning Commission made a supervisory gathering on agriculture who recognised organic cultivating as a national test and recommended it ought to be taken as an undertaking as a significant push region for the tenth arrangement. The gathering suggested organic cultivation in the North Eastern Region, rain encouraged territories and in the zones where the consumption of agro synthetic concoctions is low or negligible.

The National Agricultural Policy (2000) suggested advancement of conventional learning of agriculture, and identification with organic cultivating and its logical upgradation. The Ministry of Agriculture constituted (2000), Department of Agriculture and Cooperation (DAC) a taskforce on organic cultivation under the chairmanship of Shri Kunwarji Bhai Yadav, and this team suggested advancement of organic cultivating. The Ministry of Commerce thrust the National Organic Program in April 2000, and Agricultural and Processed Food Products Export Development Authority (APEDA) is executing the National Program for Organic Production (NPOP). Under the NPOP, documents like national measures, accreditation criteria for certifying assessment and confirmation agencies, accreditation strategy, examination and affirmation techniques have been arranged and endorsed by the National Steering Committee (NSC).

NPOP principles have been perceived by the European Commission for comparability and consideration in the Article 11 rundown of EC control and by USDA for the similarity evaluation frameworks of the accreditation techniques of NPOP (ISO17011). Likewise, Switzerland also had approval of NPOP.

A report by EXIM Bank published in November 2015 mentioned following aspects related to NPOP:

“The NPOP standards for production and accreditation have been recognised by the European Commission and Switzerland as equivalent to their country standards. USDA has also accepted the conformity assessment system of NPOP. Consequently, products certified by an Indian accredited certification agency under NPOP can be exported to Europe, Switzerland and USA without the requirement of re-certification.” (Exim Bank, 2015)

Government Initiatives to Promote Organic Farming:

A report by EXIM Bank published in November 2015 mentioned some of the initiatives taken by the government. Excerpts from the said report are reproduced herewith.

National Project on Organic Farming:

This scheme was implemented in the 10th Five year plan and it is a central sector scheme with Rs. 57.04 crore outlay. Further in the 11th Five year plan the scheme was expanded with an Rs. 101 crore outlay. The main aim of this Scheme is to encourage the production of organic food and promotion of organic and biological manufacture and usage like organic manure, bio-fertilizers, bio-control agents and bio-pesticides.

Capital Investment Subsidy for Setting up of Organic Inputs Production:

By providing around 33 percent of the capital cost, which is maximum of Rs. 63 Lakhs, the NPOF provides the financial assistance for the compost unit of the waste of vegetables and fruits. NPOF also gives the subsidies to construct the production unit of the bio-pesticide or bio-fertilizer up to 25 percent of cost of capital of project subject, which is maximum of Rs. 40 lakh. The balanced cost is envisaged as credit support from the various financial institutions and margin money. The subsidy is credit linked and back-ended, and mobilized by the NABARD.

National Project on Management of Soil Health and Fertility (NPMSF):

In the 11th Five year plan this project was implemented with an outlay of Rs. 429.85 crore, for promoting the balanced and judicious use of the fertilizers and the organic manure by testing the soil. The financial assistance is provided by this scheme of Rs. 500 per hectare for the promotion of the use of organic manure.

Network Project on Organic Farming by ICAR:

This project was launched in the 10th five year plan by ICAR at the Project Directorate for Farming Systems Research, Modipuram, Uttar Pradesh. This involves the developing package of practices of organic farming for the various different crops and the system in the different agro-ecological regions in India. At 13 centers in 12 states where the State Agricultural Universities (SAUs) have been spread, these projects are being run. Various crops like basmati rice, maize, rain fed wheat, chickpea, soybean, mustard, red gram, groundnut, isabgol, ginger, tomato, black pepper, cauliflower and cabbage were included in this package of practices for organic farming.

National Horticulture Mission:

This scheme is sponsored by the central government that was launched in 2005-06. The aim of this scheme is to strengthen the horticulture sector growth including the various flowers, fruits, spices, aromatic plants, vegetables, roots, tuber crops, mushroom, cocoa and cashew. For establishing the vermicomposting units and HDPE vermi beds, this scheme provides the financial assistance under the Mission for Organic Certification of Rs.5 lakh for a farmers group covering an area of 50 hectares.

Rashtriya Krishi Vikas Yojna:

Assistance for decentralized production and marketing of the organic fertilizers is made available under this scheme for projects which are formulated and approved by the State Level Sanctioning Committee.

Regulatory Mechanism for Organic Products in India:

This defines the regulatory mechanism in the organic products in India, which is regulated under 2 different acts for the domestic and export marketing India. Agricultural and Processed Food Products Export Development Authority (APEDA) is the nodal regulatory body for the export programme requirements. Agricultural Marketing Advisor (AMA) governs the programme under the Ministry of Agriculture. For monitoring the domestic and the import market, The Agricultural Produce (Grading, Marking) and Certification Act (APMC) is there. The National Steering Committee formulates the National Accreditation Policy and Programme and operates as the National Accreditation Body. For the organic product, this programme designs the national standards and the regulations which are needed in the usage of the National Organic Certification Mark.

For demonstrating and establishing the credibility and to communicate the genuineness and product originality, the "India Organic" trademark is created and owned by the Indian Government, which is granted on National Standards for Organic Production (NSOP) compliance condition. Only those manufacturers, exporters and processors are granted the license for using the logo, who get certified their products by the accredited inspection and certification agencies.

Conclusion

India has a rich history of agricultural practices, and keeps on incorporating innovations like biodynamic and different frameworks into its organic practices. India's organic farmers have been implementing cutting-edge field based innovations likevermi-fertilising the soil to using coordinated animals homes that encourage their capacity to enhance soil fertility even in semi-arid or barren territories.

Diverse parts of India have built up their own specific territorial frameworks for biological agriculture, for example, agnihotra and panchagavya that are presently assembled under one umbrella term, Jaivik Krishi'. The general status of organic production in India is given below:

Presently, there are 3 kinds of organic producers in India – conventional organic growers who develop organic compost for their subsistence needs, business farmers who have surplus and export their compost through various channels, and privately owned businesses which either have their own farms or arrange extensive transformation programmes with cultivators.

Civil society, basically NGOs and farmer associations, have an essential part in India's organic segment. They have developed fundamental development practices in the poorer and remote regions. As organizations, they have played an important role in spreading details and information, and in addition, encouraging entry in markets. All the more as of now, as business opportunities have increased in the organic field, privately owned businesses have progressively played a part in organic development.

The poorer or rural farmers must be able to meet specific norms if they are pursuing organic accreditation. Although the prerequisites are generally not burdensome for them, they do require careful attention from farmers.

These necessities are the fundamental principles of organic agriculture. These principles envelop major objectives and cautions that are viewed as vital for delivering top food quality, fiber and related products in an environmentally sustainable way.

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Investigation of Density of Cestode parasites infection in Fresh water fishes during February 2015 to January 2017 from Ujani reservoir, Maharashtra state, India.

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Abstract :

In the present investigation the density of cestode parasites *Lytocetus*, *Circumoncobothrium*, *Senga* and *Gangesia* sp. from freshwater fishes *Clarias batrachus*, *Mastacembelus armatus*, *Channa gachua* and *Wallago attu* during February 2015 to January 2017 from Ujani reservoir, Maharashtra state, India was studied. Fish all over the world suffer from varieties of parasitic diseases that cause mortality in fish either directly or indirectly (Lerssutthi chawal, 1999). Especially, the cestode parasites of fish which live in the alimentary canal damage the lining wall of the gut and some other organs such as liver and bile duct. Therefore, considering the adverse effect of parasitic contamination on fish health, the present study was planned to collect the data on seasonal variations.

KEYWORDS : Investigation, Density, Cestode parasite, *Lytocetus*, *Circumoncobothrium*, *Senga* and *Gangesia* sp., freshwater fish *Clarias batrachus*, *Mastacembelus armatus*, *Channa gachua*, *Wallago attu*, Ujani reservoir.

I. Introduction

Fish form an important dietary component of man. Since, it is important the fish that are consumed should be healthy and free of infection ensuring food safety. Infections which are caused by viruses, bacteria and parasites among fishes in natural and manmade culture systems are harmful for fish health and growth and sometimes are very fatal, causing high mortalities. The parasitic activities cause injuries to their tissues which then become infected by the secondary activity of microorganisms (Khanum *et al.*, 2008). Besides mortality in fish, some Cestode parasites are also transmitted to humans through fish. According to Ahmed (1994), the density of the parasitic activity increases when an intermediate host is involved in their life cycle. This is the reason why Cestode parasites cause greater damage to the fish. These parasites either cause diseases in fish directly or make them susceptible to other disease. Both the cases result in the fish loss (Onyedineke *et al.*, 2010). In tropical countries like India where there is increasing protein demand fishes acts as a cheap source of animal protein. It is known for its protein value, high content of essential minerals and for being low in saturated fats. Hence to obtain healthy and quality fish meat, it is necessary that the fish should be free from all types of pathogens. Parasites of fish constitute one of the major problems to fish health. In order to control parasitic infestation of fresh water fishes much emphasis needs to be given on epidemiological studies so that preventive measures can be taken.

Therefore, the present study was undertaken to investigate the density of infestation of cestode parasites in Fresh water fishes during February 2015 to January 2017 from Ujani reservoir, Maharashtra state, India.

II. Material And Method

The Ujani dam is constructed on the Bhima River near the village Ujani, Madha Tahasil of Solapur district in Maharashtra state. The river Bhima is a major tributary of the Krishna River. The study sites of the present investigation viz. Indapur, Palasdev and Bhigwan are located in the backwater of Ujani Reservoir about 50 kms upstream of the dam. The spread of the Ujani reservoir occupies the North of the dam site to the South lie hill slope and agricultural lands of two villages, Kumbhargao and Dalaj No. 2. Both these villages have been resettled on the new sites due to the construction of Ujani reservoir.

The investigation was carried out during the study period of Feb 2015 to Jan 2017, at Ujani reservoir. The hosts examined in two years, were *Mastacembelus armatus*, *Clarias batrachus*, *Channa gachua* and *Wallago attu*. The Fish hosts were dissected in the laboratory. The intestines were examined and recorded the data of infected intestine. After separating and counting the population of cestode parasites from different hosts, the parasites were preserved in 4% formaline in separate bottles.

The density of infection are calculated by using standard formulae as follows: (Jadhav and Bhure, 2006):

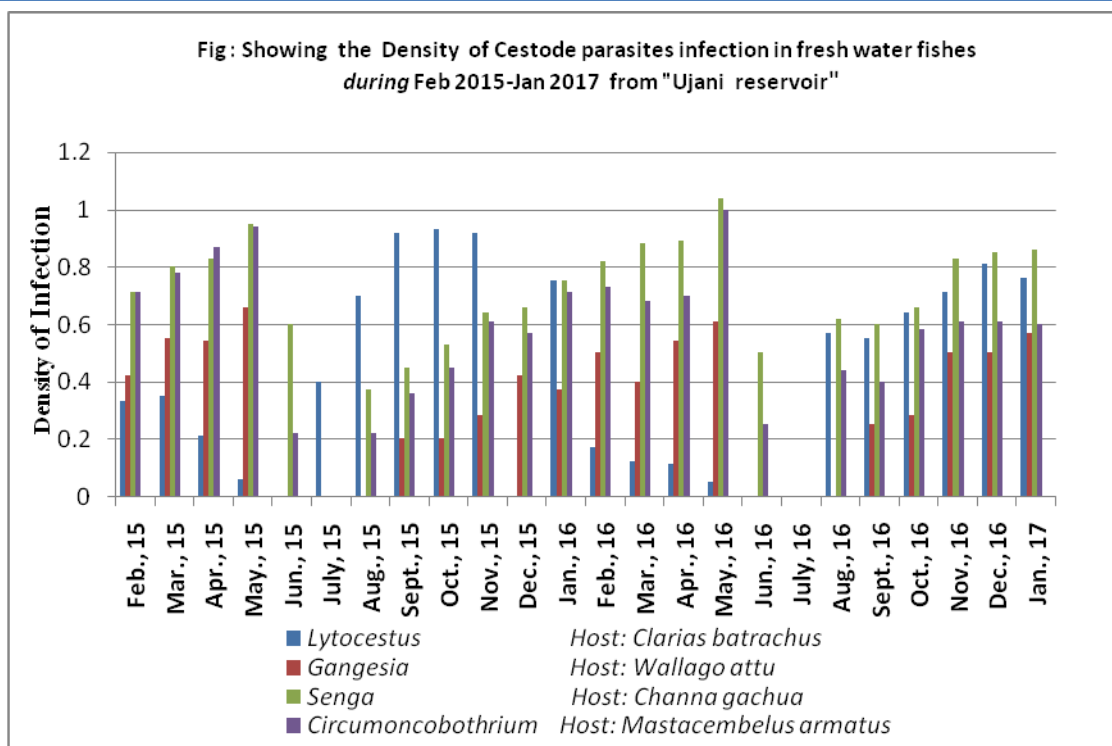
Density of infection – Density of infection is calculated by using following formula:

$$\text{Density of infection} = \frac{\text{No. of parasites collected (c)}}{\text{No. of hosts examined (a)}}$$

Iii. Results And Discussion

Table : Density of Cestode parasites infection in Fresh water fishes during February 2015 to January 2017 from Ujani reservoir, Maharashtra state, India.

Month	Lytocestus Sp.			Gangesia Sp.			Senga Sp.			Circumonchobotrium Sp.		
	No. of host examined (a)	No. of Parasites (b)	Density % b/a	No. of host examined (a)	No. of Parasites (b)	Density % b/a	No. of host examined (a)	No. of Parasites (b)	Density % b/a	No. of host examined (a)	No. of Parasites (b)	Density % b/a
Feb., 15	15	05	0.33	07	03	0.42	14	10	0.71	14	10	0.71
Mar., 15	14	05	0.35	09	05	0.55	15	12	0.66	14	11	0.78
Apr., 15	14	04	0.21	11	06	0.54	18	15	0.83	16	14	0.87
May., 15	15	01	0.06	12	08	0.66	20	19	0.95	17	16	0.94
Jun., 15	08	00	0.00	02	-	-	05	03	0.60	09	02	0.22
July, 15	10	04	0.40	-	-	-	-	-	-	-	-	-
Aug., 15	10	07	0.70	03	-	-	08	03	0.37	09	02	0.22
Sept., 15	13	12	0.92	05	01	0.20	11	05	0.45	11	04	0.36
Oct., 15	15	14	0.93	05	01	0.20	13	07	0.53	11	05	0.45
Nov., 15	14	13	0.92	07	02	0.28	14	09	0.64	13	08	0.61
Dec., 15	-	-	-	07	03	0.42	15	10	0.66	14	08	0.57
Jan., 16	16	12	0.75	08	03	0.37	16	12	0.75	14	10	0.71
Feb., 16	17	03	0.17	08	04	0.50	17	14	0.82	15	11	0.73
Mar., 16	16	02	0.12	10	04	0.40	17	15	0.88	16	11	0.68
Apr., 16	18	02	0.11	11	06	0.54	19	17	0.89	17	12	0.70
May., 16	18	01	0.05	13	08	0.61	21	22	1.04	19	19	1.00
Jun., 16	05	00	0.00	02	-	-	08	04	0.50	08	02	0.25
July, 16	-	-	-	-	-	-	-	-	-	-	-	-
Aug., 16	07	04	0.57	02	-	-	08	05	0.62	09	04	0.44
Sept., 16	09	05	0.55	04	01	0.25	10	06	0.60	10	04	0.40
Oct., 16	14	09	0.64	07	02	0.28	12	08	0.66	12	07	0.58
Nov., 16	14	10	0.71	06	03	0.50	12	10	0.83	13	08	0.61
Dec., 16	16	13	0.81	06	03	0.50	14	12	0.85	13	08	0.61
Jan., 17	17	13	0.76	07	04	0.57	15	13	0.86	15	09	0.60



The analysis of data showed that the occurrence of cestode parasites varies according to seasons. The high density of infection of all cestode parasites was observed in summer season followed by winter season whereas lower in monsoon season, except *Lytocetus*. According to Kennedy (1971, 1975 and 1977) and Rodhe (1993) factors such as the temp, humidity, rainfall, feeding habits of host, availability of infective host and parasite maturation are responsible for influencing the parasitic infections.

IV. Acknowledgement

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Human-Animal Encounter in Suniti Namjoshi's 'Aditi Adventures I: Unlikely Friends'**Dr. Suresh Pandurang Patil**Assistant Professor, Deptt. Of English
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Suniti Namjoshi is known as a writer of contemporary postcolonial transnational literature. She is an expatriate Canadian South Asian author currently living in England. She always had a fascination for fables and fairytales, consequently her works are primarily feminist rewritings of fables and fairytales. Namjoshi's fables and fairytales are populated with mythology and animals that are eccentric in nature. Her mythical characters or animals are fine instances of joining the animating and inanimate worlds with the human consciousness.

Suniti Namjoshi has published 'Aditi Adventures Series' (2000-2009), a latest work in the children's literature. It comprises three volumes containing four books each. These three volumes are entitled as 'Aditi Adventures I: Unlikely Friends', 'Aditi Adventures II: Unexpected Monsters' and 'Aditi Adventures III: Heroes'. The series 'Aditi Adventures I: Unlikely Friends' comprises four books entitled as 'Aditi and the One-eyed Monkey', 'Aditi and the Thames Dragon', 'Aditi and the Marine Sage', and 'Aditi and the Techno Sage'.

The first book in the series 'Aditi and the One eyed Monkey' (2000) embodies the adventures of Aditi, the heroine of female-oriented fairy tale fantasy. She moves on an adventure accompanied by the unlikely friends such as the one-eyed monkey, the ant, and the elephant. Aditi is the grand-daughter of the king and queen of a small kingdom. A dragon terrorizes a kingdom unless its rulers send him their granddaughter, Aditi, for a lifetime of indentured service and she must not be accompanied by any human being. However, she also gets the support from the two dragons, and a baby shark to accomplish her tasks that she faces in her different adventures.

On their quest for the dragon, they are fully equipped with the magical objects such as cloak of invisibility, the Sword of Courage, and a ball of magic clay. The four adventurers risk their lives as they fight against the lionesses and cubs. The Island Sage directs them to dragon that lies under the ocean. On reaching at the dragon's den, the dragon treats them as servants. The dragon orders them to write its biography. It suffers from loneliness as it doesn't have any friends. The four adventurers overpower the dragon with their magical objects, the fishing net and the bees. They confine the dragon into a net. They agree to release it if the dragon stops scorching Aditi's grand parents' kingdom. Blessed with the friendship, the dragon takes the four adventurers on its back as they set off to the palace of Aditi's grandparents.

The children are always inclined towards the animals for their strange behavior and shape. The inclusion of animals in the children's literature enables the author to instruct them about their social interaction with animals as a part of our natural environment. Animals offer a safety outlet for the writers to express their views as they are presented as moral educators for children. It serves the purpose of inculcating basic ideas about nature and nurture. Being the part of environment, animals tiny or huge, magical or demonic, real or fictional, always add knowledge to the curiosity of children. A story about nature provides an opportunity to foster an environmental ethic among the young learners. Suniti Namjoshi rightly webs the interdependent relations between man and nature through these stories.

In her first adventure, Aditi is accompanied by the nonhuman creatures such as the one-eyed monkey, the ant, and the elephant. We often misjudge the person or animal with its external appearance. Namjoshi attempts to eradicate the human prejudice towards the animals as she presents these characters with special abilities. Aditi's friendship with these animals encourages her to connect herself with the natural wisdom. She maintains a fine balance of negotiation and friendship between the tiny and huge harmless and deadly creatures. Though she is endowed with human qualities of courage and perseverance, she acknowledges the support of her uncommon friends.

Although children's books are emphatically nature-themed, the animals in them are often anthropomorphized. Siril the Ant is one of the unlikely friends of Aditi. His friendship with Aditi looks fantastic. His talking with her and other human and non-human characters exemplifies the mode of fantasy. Namjoshi has given the human attributes to the animals like him. It indicates one of the characteristics of fantasy literature. Fantasy exploits the anthropomorphic animals, who can talk to other different species, particularly with humans. Talking animals are often found in folktales and fairytales. Aditi is quite friendly with them as they assist her in the adventures. Siril the ant loves to travel the world. Consequently, he joins Aditi to defeat the dragon in the first book. He is quick in decision and calculating by nature. With the magic clay that

he receives from Aditi's grandparents, he can form different useful objects. Thus Siril, the ant is quite cable to transform the magical objects into useful tools.

The characteristics that the animal figures exhibit are always culturally mediated. For instance, the fox is associated with cunning and deceit, the ant's insignificance; the elephant as a mighty and unintelligent creature, the dragon with fiery and destructive nature are all projections of human attributes as manifestation of the instinctive behavior of the animal.

It is seen that having animals in a child's life is important for that child's moral development. A connection with live animals can increase a child's empathy and awareness about the existing phenomenon. In their second adventure in London, Siril points out that the rubbish, the chemicals and the poisonous substances have poisoned the Thames. Though tiny creature, Siril overflows with teeming confidence and presence of mind. He inwardly thinks about his potentialities. Suniti Namjoshi rightly admires this character as she writes: The ant sometimes wished he could do something clearly useful like flying everyone about the way the dragons did. And sometimes he wished that he was at least as strong and powerful as his friend, the elephant. At other times he just wished he was little bit bigger; say a hundred times his present size, or perhaps a thousand times. On the whole though he didn't worry about these things much and was usually content to be who he was and to do what he could do (Namjoshi 2000 : 50).

Through the portrayal of the character of Siril, Suniti Namjoshi has inculcated the significance of small insects in the environment. Even the smallest insects have considerable amount of value to sustain and protect the environment. Namjoshi rightly asserts the role of non-human characters in her fiction as she states: "to me a beast wasn't "bestial" in the Western sense. To me a bird or a beast was a creature like anyone else. Hinduism is after all pantheistic; and the popular notion of reincarnation attributes a soul to everyone." (Namjoshi Web: 28).

The second book in the series '*Aditi and the Thames Dragon*' (2002), is abound with the fantasy, philosophy and social message. This time, the five adventurers such as Aditi, the ant, the elephant, the one-eyed monkey and the dragon set out to help the twins Roshan and Rohit, the inhabitants of London. Their dragon friend promises them to carry over to London. They carry the magic weapons such as the Sword of Courage, the Cloak of invisibility and the magic clay. They land on the Shadwell Park of London. They search out for the River Dragon. They notice that the river Thames has turned into an island of junk and debris. They decide to save the river dragon from the polluted water by making her smaller by applying the magic sandal wood ointment. Their dragon friend turns itself into miniature and dives into the river. It takes out the river dragon to a shore. They cover her with the cloak of invisibility and rub ointment on her. They keep her in the goldfish bowl of fresh water.

The adventurers are astonished at the grave site of the river Thames as it is poisoned through the rubbish, the chemicals and numerous poisonous substances that dissolved into the water. Being eco-friendly, they decide to create awareness about the pollution of Thames by reaching to the people. They exploit something sensational, strange and unusual method to attract the people. Consequently, they decide to carry two dragons with small size in a bowl and others would explain the people on the television, the most popular media, about the water pollution.

Thus, Aditi and her friends rescue the life of a River Dragon and imbibe the values such as cleanliness, friendship with nature and its myriad endangered species and the responsibilities of a citizen etc. Suniti Namjoshi blends the fantasy with a philosophy. It interweaves fantasy, environmental issues and emotions to make it an interesting. It also reiterates the role of animals and other myriad living species to maintain the harmony in environment that leads ultimately to human happiness.

The One-eyed Monkey is also one of the comates of Aditi who joins her from the first adventure. She is curious to explore the world. Having one eye is not her disability, but she overcomes it with her unflinching attitude. She has a good sense of observing changes in the nature. As she states:

"And they say that in the autumn the Canadian forests turn orange and red and seem to catch fire. Once, in my youth, when I had been to the Himalayas, I saw the trees change colour-not the evergreens-the other ones-the oaks and the maples" (Namjoshi 2000:14).

Thus, through the character of One-eyed Monkey, Namjoshi engages young reader's attention in her remarkable ability to overcome physical disabilities and her conscious efforts to explore the environment. The elephant or the Beautiful Ele is one of the unlikely friends of Aditi. Although she is mighty, she is a good-natured beast who rarely gets angry with somebody. She joins the first adventure with Aditi that will make her angry. She carries off Aditi, the Monkeyji and Siril. She shows presence of mind and strong commitment of friendship and properly utilizes her strength for the noble cause.

Aditi also gets support from her dragon friends. Jonathan Evans opines about the inclusion of dragon into medieval folklore and literature as he states, “the dragon's ubiquity in European legend was a result of biblical associations of it with the arch-figure of diabolical evil” (Namjoshi Web: 235). The dragon often represents the weird looking alien figure who acts differently. German fairytale writers' Andreas and Angela Hopf's *'The Five Dragon Minimax'* (1973), exhibits how the strange and weird-looking creature such as dragon is often utilized by people in power as a scapegoat to distract attention from the real enemy. The friendship between Hilde and the dragon is based on mutual recognition. It also relates to feminism and prevention of cruelty to animals. Like Hilde, Aditi also asserts herself and uses her talents for the benefit of oppressed creatures.

The dragons of '*Aditi Adventures Series*' are remarkably known for their benevolent nature. They are able to expel their earlier image as evil or monster creature through their timely support and friendship with the female protagonist and her friends. Suniti Namjoshi drastically changes their medieval roles as they appear normal and loving.

There is a long tradition of anthropomorphic animal stories, or 'beast fables'. Animals have become integral part of children's literature. Fables use animals as metaphors in order to teach lessons about moral and social behavior. According to Steve Baker, 'Children are said to have some innate sympathy or connection with animals and to imagine that they can communicate with them.' (Baker 1993: 123) In the stories attributed to Aesop, for example, various ideas about industry, perseverance, gratitude, moderation and prudence are being taught. Tolkien noted, the 'animal form is only a mask upon a human face' (Tolkien 1964: 20). Suniti Namjoshi exploits the animals in her fairytale fantasy of Aditi to project her environmental concerns, human and non human bondage, and her vision of harmonious world. In the books for children, animals have been used to educate children both linguistically and socially and the children are taught to 'identify' with characters as John Stephens rightly notes that it is, 'a product of our tendency to encourage children to situate themselves within the book by identifying with a principal character.' (Stephens 1992: 4)

It is still important for us to imbibe the environmental awareness among the children through such stories as they are vitally concerned with the relationship between the 'human' and the 'animal' As Lévi-Strauss famously declared, 'Animals are good to think with' (Lévi-Strauss 1962: 89).

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A Short History of Realism in English Poetry

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Abstract

Realism has a meaning that is difficult to define. Etymologically, the word denotes fidelity to fact or the tendency to regard things as they really are. William Dean Howells, one of the most vigorous advocates of realism in literature, has defined the term as "the truthful treatment of materials." The term is also loosely used as synonymous with verisimilitude, that is the appearance or semblance of truth or actuality in literature. Semblance of truth means a faithful impression of actuality as it appears to the normal human consciousness and "actuality" includes both tangible objects and mental processes. Realism, therefore, not only refers to a very accurate rendering of the concrete details of the actual world around us, but also to an accurate picture of man's inner world of emotions and mental processes. The devices which create this impression of truth by producing the illusion of reality may collectively be called realism. However, it should be kept in mind that an artist can't transcribe things as they really are; he can only convey his sense of things. In general, the realist espouses the mimetic theory of art, but he does not reproduce reality slavishly. Balzac, who made realism fashionable as a modern doctrine, says: "The mission of art is not to copy Nature, but to express her. You are not a vile copyist but a poet. We have to seize the spirit, the soul, the expression of beings and things." Hence, a Realist may exaggerate or accentuate features in the objects or suppress others, deepen the shade or fade the light that is actually in nature, in order to produce a better impression. Just as in painting, a green pigment makes a sky look blue; in architecture, a curve sometimes gives the impression of a straight line; specially poetry even when dealing with the objects of everyday life in the most realistic manner must modify, suppress, emphasize and invent.

Keywords: Realist, Semblance, Emotions, Impression and Expression.

Introduction:

The poetry of realism is an essential and characteristic part of the English poetic heritage. Its briefest survey must begin with Chaucer, the greatest realistic poet of the Middle Ages. He was the first poet who revealed the truth about life as he saw it. Before him, the writers were dreaming dreams and weaving allegories, but Chaucer threw away these artificial shackles and gave a realistic description of contemporary society in his Prologue to the Canterbury Tales. The Prologue is the crown and flower of Chaucer's dramatic and humorous realism. Here the fantastic world of romance and allegory melts away: Troy and Thebes, palaces made of glass and temples of brass, allegorical gardens and marvelous fountains evaporate, and in their place we see the whole stream of English society in the 14th century. Chaucer worked like a true interpreter or chronicler, relating in a most realistic manner, without change of wording or tone, the stories, he had heard. Chaucer's realism is seen at its best in his characterization and vivid dialogues. Let us have a look at his Wife of Bath. There is nothing ethereal or idealistic about her, and yet she belongs to the world of poetry as much as Spenser's Una, Shakespeare's Juliet, and Milton's Sabrina. She is a very large, very vulgar, garishly dressed female, rather deaf, with a terrific past. Chaucer has not missed a single significant detail, from her moist, new shoes and scarlet stockings to her large hips and bright red face. All these details make the Wife of Bath an immortal character in English poetry. How has Chaucer been able to achieve this miracle? His poetic sensibility is also excited not by anything strange or exceptionally beautiful, but by the commonest facts of daily life. To this day, Chaucer's Prologue remains the greatest monument of realism in English poetry. Realism is found all through English medieval poetry, in Piers Plowman, in the ballads, and in many excellent popular poems like The London Lickpenny and The Nutbrown Maid. To the ballad writers especially there was no subject which we call ordinary or unpoetical. Hence, we find fine flashes of realism in their works.

Review of Literature:

In the 16th century, the medieval tradition of poetic realism was, for the most part, eclipsed by Petrarchan and Platonic idealism. All the sonnet-writers of the 16th century had a poetic mistress to inspire them and with most of them the mistress was a mere pretention and as such she remained invisible, inaccessible, cold, unknown and absent. The recent critics have condemned these unreal and superficial imitations of Petrarch. It does not, however, mean that realism wholly died out in the 16th century poetry. It can be traced in Spenser and there is a good deal of it in Shakespeare. He may be reckoned as the last of the great poetic realists in the medieval manner when he writes such poetry as the song of Autolycus;

*When the daffodils begin to peer,
With heigh! The doxy, over the dale,
Why, then comes in the sweet O' the year;*

*The White sheet bleaching on the hedge,
With heigh! the sweet birds, O, how they sing!
Doth set my pugging tooth on edge;
Far a quart of ale is a dish for a king.
The lark that tirra-lyra chants,
With heigh! With heigh! The thrush and the jay,
Are summer songs for me and my aunts,
While we lie tumbling in the hey.*

In the poetry of Ben Jonson also we get some glimpses of realism. In him we find a reaction against roses and lilies. The year 1789 marked the advent of the French Revolution and ushered in a new kind of realism in English poetry. It made English poetry, a poetry concerning the lives of the common men and women, who had been miserably ignored by the earlier poets. It taught the poets to shun the poetry of rigid intellectualism and sordidly artificial affection and formalism. No longer were the poets fascinated by the so-called aristocracy of art; now they took up the democratic view of life as the main theme of poetry. Wordsworth, the fore-runner of the Romantic movement was fundamentally a realist, perhaps the greatest English realistic poet since Chaucer. He alone among the poets of his time understood that the supreme task of modern poetry would be to use the material of everyday experience and reveal its inner spiritual meaning in his famous words, "to choose incidents and situations from common life, and relate or describe them throughout in a selection of language really used by men and at the same time to throw over them a certain coloring of the imagination whereby ordinary things should be presented to the mind in an unusual aspect." Thus, in *The Prelude* he can recall some perfectly common place scene and invest it with the significance of prophecy.

Hypothesis:

A research hypothesis is (also called a scientific hypothesis) is a statement about the expected outcome of a scientific study (for example, a dissertation or thesis). Hypothesis is a logical prediction of certain occurrences without the support of empirical confirmation or evidence. In scientific terms, it is a tentative theory or testable statement about the relationship between two or more variables i.e. independent and dependent variable.

Methodology:

The present data of the study have been gleaned from various sources which have been duly acknowledged. Information on realism has been obtained from various colorful writers books. Information is also taken from national and international journals.

Objectives of the Study:

Wordsworth is the first and perhaps the only realist in English poetry who is also a prophet. Byron, like Wordsworth, was temperamentally realistic, but unlike Wordsworth, he was neither a prophet nor a mystic possessing a spiritual vision. He abandoned the romantic view of imagination and practiced a new realistic art. He follows the satiric vein of Dryden and Pope and shows a fierce appetite for reality. Unlike Shelley who walked amidst the clouds, or Keats, who sought beauty in Gothic arches and Grecian urns, Byron was of the earth, wedded to the actual and the realities of the mundane world. Byron scorned to leave his times, for as Symonds affirms, 'He loved the world for its own sake and for good and evil.' Shelley moves among the clouds, says Prof. Grierson, "Byron never quits the earth." From first to last he is concerned with realities and nothing but realities, mundane realities, real person and scenes and happenings. His realism sometimes becomes too gross and nauseating and then we are tempted to adopt Pope's line on Defoe for Byron. 'Earless on high stands unabashed Byron.' It is this realism of Byron so passionately touched and expressed in *Don Juan* that separates and distinguishes him from other romantic poets. "Of all the great poets of the time Byron presents the peculiar and piquant combination of an ardent romantic imagination and an intellect and outlook essentially worldly and matter-of-fact. With Keats it was the past, with Shelley the future, with Byron it is the present that really interest and grips him. His ardent fancy dallied with the past on occasion: but he is most at home with the England of his day, it is social hypocrisies, its literary conventions and affections. He is always at heart a society gentleman and both in its good and bad sense a man of the world. His *Don Juan* is an epic of the age as it gives a panoramic view of contemporary life, and in the poetic searchlight turned on several facts of actual life we discover a wide range of the poet's taste and the wonderful varieties of his response to experience. The Victorian Age was marked by a spirit of enquiry, criticism, skepticism, religious unrest and spiritual struggle. The analytical and critical state of mind, fostered by the progress of science, led to the development of realism in English poetry. Tennyson was the true expositor of his age, and his age gratefully found its reflection heightened and enriched in his glowing page. He gave a new kind of realism to English poetry that is Scientific Realism. His scientific perception is clearly noticeable in his nature poetry where he shows his admirable

pictorial sense and his use of common place detail in order to produce an atmosphere of emotional intensity: All day within the dreamy house,

*The doors upon their hinges creak'd ,
The blue fly sung in the pane, the mouse,
Behind the mouldering wainscot shriek'd,
Or from the crevice peer'd about,
Old faces glimmer'd thro' the doors,
Old footsteps trod the upper floors,
Old voices call'd her from without.*

But everywhere the observation of the scientist is glorified by the sensibility of the artist; the stark fact is clad in lovely imaginary.

Analysis:

On the other hand, Browning also introduced another kind of realism in English poetry. This is known as Psychological Realism. During the later part of the 19th century science and criticism gained in vigor and this growth of the scientific spirit encouraged the habit of analysis and reasoning in people. The artists came under the influence of this spirit became more interested in the investigation of motive rather than in the study of thought and emotion. So, the tendency was towards a ruthless analysis of life and of the soul of man. The complex inner life of an individual became more attractive to the writers than the outward form of things. Writers of fiction carried this habit to an extreme. In poetry, it did not have much vogue. But in Browning we find this tendency towards intellectual analysis of human nature almost from the beginning of his career. In his dramatic monologues, he laid bare the inner working of the human mind. The other Victorian poets like Swinburne, Rossetti and William Morris kept themselves proudly aloof from the rationalistic and scientific tendencies of the time. The only poets, who wrote realistic poetry outside the works of the two great masters, are Arthur Hugh Clough and Coventry Patmore. Clough faces contemporary realities and gives expression to the skeptical tendencies of his age. So, Patmore makes use of social realism:

*I hope you're well, I write to say,
Frederick has got, besides his pay,
A good appointment in the Docks;
Also to thank you for the frocks,
And shoes for Baby.....*

These lines were laughed at by Patmore's contemporaries, but his realism has lasted better than most Victorian romance. Victorian poetic realism ends with Hardy and Housman, most of whose poetry belongs chronologically to the 20th century. Both sought for roots in the earth, as it were, by making their poetry representative of a locality with ancient traditions. Thomas Hardy owed much to Crabbe and consciously continued his tragic realism, enriching it enormously by his understanding of Wessex country life and also by giving it a philosophic tone and a world outlook that Crabbe lacked. So, the 20th century poetry saw the birth of a new kind of poetic realism. Since then English poets have been trying to achieve a realism at once wider and deeper than that of the Georgians. T. S. Eliot has extended the scope of poetic realism by interpreting the boredom and frustration of modern life, and also by linking poetry again to religious traditions. But modern poets also maintain a queer realism, which has a rebellious tendency. They rebel against the modern society, its conventions, the modern government and even the modern religious institutions.

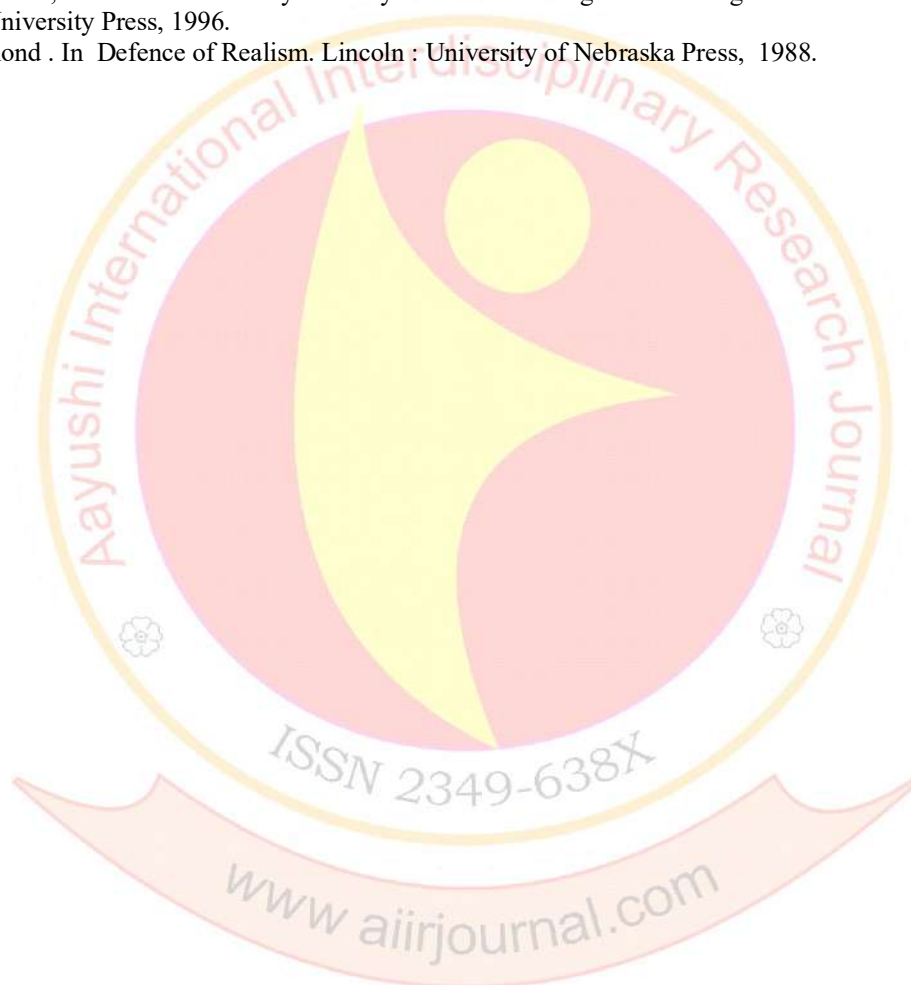
Conclusion:

It should not be, however, thought that by making this brief survey of realism in English poetry, we are trying to under-value the idealism and the romance which have produced so much great English poetry; nor do we associate ourselves with the superficial type of modern criticism which condemns all idealistic and romantic poetry as an 'escape from reality.' We have simply tried to draw attention to some of the ways in which English poets of the past had dealt with common life and common experiences. This realistic type of poetry is the characteristic English contribution to the realistic way of thought which is the supreme gift of the democratic peoples of Western Europe to the world. Moreover, it is likely to have a great significance for the future, when, if poetry is to survive at all, it will no longer be able to rely on the help of mythology, or even on that 'willing suspension of disbelief for the moment' of which Coleridge spoke, but will have to continue the great adventure begun by Wordsworth. To succeed greatly it will have to achieve a realism which, in the words of Stephen Spender, must be 'not an imitation but an analysis of the society in which we are living,' and at the same time it will have to live:

*Not in Utopia, subterranean fields,
Or some secreted island, Heaven knows where!
But in the very world, which is the world,
Of all of us,-- the place, where in the end,
We find our happiness, or not at all.!*

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Global Warming

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Summary :-

Global warming is a phenomenon of disastrous consequences. From the last 2–3 decades, entire world has been talking about global warming but the global effort to check this phenomenon is still preliminary and inadequate. Greater evaporation, untimely melting of ice caps, sea level changes, coastal inundation, etc., have been reported. It is important to think locally and globally the changing scenario due to global warming in the field of agriculture. The role of temperature and precipitation on biological productivity analyzed district by district using computer simulation models. Future research should aim at combating the evils of global warming to use alternative source of energy and evolving new methods to reduce pollution. Otherwise, this will take lot of toll year after year due to the incidence of incurable diseases.

Introduction

Lot of discussions and deliberations are taking place across the globe on the issue of global warming and its long term consequences on climate changes. Global warming is a phenomenon of disastrous consequences. From the last 2–3 decades, entire world has been talking about global warming but the global effort to check this phenomenon is still preliminary and inadequate. Greater evaporation, untimely melting of ice caps, sea level changes, coastal inundation, etc., have been reported. As revealed by U.S. Satellite, 125 Siberian lakes have been disappeared and two large lakes have shrunk. The chain of events caused by global warming has impact on world economy and the developing countries like India are worst affected.

The green house effect

Earth absorbs incoming solar radiation and then tries to cool by emitting long wavelength infrared radiation. The radiation is absorbed by green house gases and hence they cannot escape. The net effect should be to increase mean annual temperature.

Some of the important Green house gases

- CO₂** – Burning of carbon based fuels
- CH₄** – Anaerobic bacteria in rice field, cows, sewage (4 –9%)
- N₂O** – Fossil fuel and fertilizer
- CFCs** – Refrigeration and spray cans
- Ozone (O₃)** – 3 –7%

Green house gases are absorbed by infrared radiation, which in turn much of the energy is re-radiated to the surface and lower temperature. The mechanism is named after the effect of solar radiation passing through glass and warming a green house. It retains heat and fundamentally by reducing air flow, isolating the warm air inside the structure so that heat is not lost by convection.

Joseph Fourier, a French mathematician discovered the green house effect in 1824, first reliably experimented on by Irish physicist John Tyndall in 1858 and first reported quantitatively by Swedish scientist Steve Arrhenius in 1896.

In the atmospheric green house effect, sun light encounter forests, grasslands, ocean surfaces, ice caps, deserts and cities all absorb, reflect and radiate radiation differently. Sun light falling on a white glacier strongly reflect back into space resulting in minimal heating of surface and lower temperature. Sun light falling on a desert soil is strongly absorbed and contributes significantly the heating of the surface and lower atmosphere. Cloud cover also affects green house warming by both reducing the amount of solar energy reaching the earth's surface and by reducing the amount of radiation energy emitted into space.

Real green houses

Green houses effect are named analogy to 'Green house'. The major difference between green house effect and green houses is that the heat retained are different and both limit the rate of thermal energy flowing out of the system. Through convection i.e., sensible heat support, the absorbed heat is not allowed to leave the green house. Green house gases absorb the outgoing radiative energy and green house gases affect the heat of earth and reemit some of it back toward earth.\

The green house is built by means of glass or plastic which allows the sun light to pass through it. Primarily the sun light heats the ground surface inside which then warms the air in the green house. The air within the green house continues to heat since it is confined within the green house and in the atmosphere, warm air near the surface rises and mixes with the cool air aloft. This can be demonstrated by opening a small window near roof of green house, the temperature will drop considerably. Thus, green house work primarily by preventing convective cooling. In the green house effect, rather than retaining (sensible) heat by physically preventing movement of the air, green house gases act to warm the earth by re-radiating some of the energy back towards the surface.

Green house gases

Green house effect is brought about by several gases and these gases namely Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (), Chlorofluorocarbons (CF_xCL_x) and tropospheric Ozone (O₃). CO₂ plays a major role and accounts for about 55% of change in the intensity of green house effect. Chlorofluorocarbons contribute 25%, 15% by Methane and 5% Nitrous oxide respectively. The role of ozone towards enhancement of green house effect is yet to be quantified.

In the year 2005, the average concentration of CO₂ were about 380 ppm. Prior to 1900, the CO₂ concentration was about 280 ppm. Due to increased urbanization and industrialization, the CO₂ concentration has enormously gone up which is entering the atmosphere. The main reason for emission of CO₂ is due to burning of fossil fuel combustion for transportation, generation of electricity, space heating and cooking, deforestation and destruction of bio-diversity. Emission due to fossil fuel combustion accounts for 65% extra CO₂ now found in atmosphere. The remaining 35% is derived from the conversion of Prairie woodland and forested ecosystem primary into agricultural ecosystem can hold 20–100 times more CO₂ per unit area than agricultural system.

Chlorofluorocarbons are artificially created are the strongest green house gases. These gases are also known to make holes in the ozone layer which has far reaching effect on the human beings. General decline in global stratospheric ozone levels over the last two decades has caused many nations to cut back on their production and use of these chemicals. As per the Montreal Protocol Agreement by forty six nations established a pact and immediate time table for the reduction of chlorofluorocarbons production and use.

The average of concentration N₂O is increasing 0.2–0.3% per year. The important reasons for the increase is due to biomass burning, land-use conversion, fossil fuel combustion and soil fertilization. Nitrous oxide is also produced due to conversion of Savanna and grassland ecosystem to agriculture field. These processes reduce the amount of nitrogen stored in living vegetation through decomposition of organic matter. When biomass and fossil fuels are burnt, Nitrous oxide is released into the atmosphere. Extensive usage of nitrate and ammonium fertilizers to enhance the growth is another source of nitrous oxide.

It is difficult to determine the role of ozone in the atmosphere. Concentration of ozone gas are found in two different regions of earth's atmosphere. Majority of ozone (about 97%) found in the atmosphere is localized in stratosphere at an altitude of 15–55 kms above the earth's surface. Of late, the concentration of the stratospheric ozone has been decreasing because of the buildup of chlorofluorocarbons in the atmosphere. Since the late 1970s, scientists have discussed that total column ozone present over Antarctica in the spring time have decreased as much as 70%. Ozone is highly concentrated at the earth's surface and most of this ozone is created as an artificial byproduct of photochemical smog.

Green concentration that is different concentration of the green house gasses are given here

Green house gas	Conc. 1750	Conc. 2003	Per cent change
Carbon di-oxide	280 ppm	376 ppm	34 %
Methane	0.71 ppm	1.79 ppm	152 %
Nitrous oxide	270 ppb	319 ppb	18 %
CFC	0	880 ppt	Not applicable
Ozone	Unknown	Varies with latitude and altitude	-

Basic mechanism of solar radiation

Most of the radiant energy from the Sun is concentrated in the visible and near visible part of the spectrum. Visible light which represents 43% of the total radiant energy emitted lies between 400–700 nm of the narrow band of visible light. Wave length shorter than the visible account for 7–8% of the total, but are extremely important because of their high energy per photon. Shorter the wave length of light

more energy it contains. The ultraviolet light is more energetic. The remaining 49– 50% of radiant light is spread over the wave length longer than those of visible light.

Most of the thermal radiation is absorbed by the atmosphere and re-radiated both upwards and downwards; that radiated downwards is absorbed by the earth's surface. This trapping of long wave length thermal radiation leads to a higher equilibrium temperature.

The incoming radiation from the Sun is mostly in the form of visible light and nearby wave lengths largely in the range of 0.2–4 μ m corresponding to the Sun's relative temperature of 6000 K. Half of the radiation is in the 'visible' light to which our eyes are adapted.

- Earth's surface absorbs 50% of Sun's energy and rest is reflected or absorbed by the atmosphere.
- The absorbed energy warms the surface and surface of the earth is warmed to a temperature around 255 K, radiates long wave length, infrared heat in the range 4– 100 μ m. At these wave lengths, green house gases are transparent to incoming solar radiation and are more absorbent. Increasing the concentration of gases increases the amount of absorption and re-radiation thereby further warms the layers and ultimately the surface below.

Projected effects of global warming in India:

Several effects of global warming, including steady sea level rise, increased cyclonic activity, changes in ambient temperature and precipitation patterns have affected or are projected to affect the sub continent. Projected global average surface warming result in temperature increases world-wide at the end of 21st century ranges from 0.6 to 4°C.

Environmental:

Land slides and flooding are projected have an impact on states such as Assam. Ecological disasters, such as coral bleaching event that killed more than 70% of corals in the reef ecosystem off Lakshadweep and the Andamans. This is brought by elevated ocean temperatures tied to global warming also projected to become increasingly common

Economic:

Indira Gandhi Institute of Development Research reported that climate related factors could cause India's GDP to decline by up to 9% and because of this reason would result in shifting growing seasons for major crops such as rice, production of which could fall by 40%. About seven million people will be displaced due to submersion of parts of Mumbai and Chennai, if global temperature were to rise by a mere 2°C.

Pollution:

Burning of biomass in north western India and air pollution from industrial cities in north India, often concentrate inside the Ganges basin. Black carbon and dust which are blown towards the higher altitudes by winds at southern faces of Himalayas can absorb shortwave radiation and heat the air over Tibetan plateau.

Glaciers in India:

Glaciers acts as sensors of climate change. Out of the 3% fresh water available on the earth, 67% is stored in glaciers and ice caps. It is estimated that Himalayas alone contribute 30–40% of water to the Ganges which is particularly critical in the dry season prior to monsoon rains in India. Glaciers are the result of continuous snow fall over long period of time that compresses into large, thickened ice masses. As per the latest report provided by the Geological Survey of India, Government of India that Himalaya contains 9,575 glaciers distributed in the Jammu and Kashmir, Himachal Pradesh, Uttarakhand etc. Gangotri glacier is alone more than 30 Km long and covers an area of about 148 Sq Km.

Desert:

Global warming causes higher temperatures and less rainfall overall. This problem is commonly seen in desert biomes, because the soil dries out, particularly the layer of top soil that holds the most nutrients. This makes it easier for dust storms to sweep the nutrient-rich top soil and carry it to other areas which will prevent plant life from thriving and disrupt the entire ecosystem. In addition to dust storms and during monsoon rain fall wash away the top soil and potentially flood the area, since the ground is so dry the water which cannot soak fast into the soil.

Havoc's due to global warming

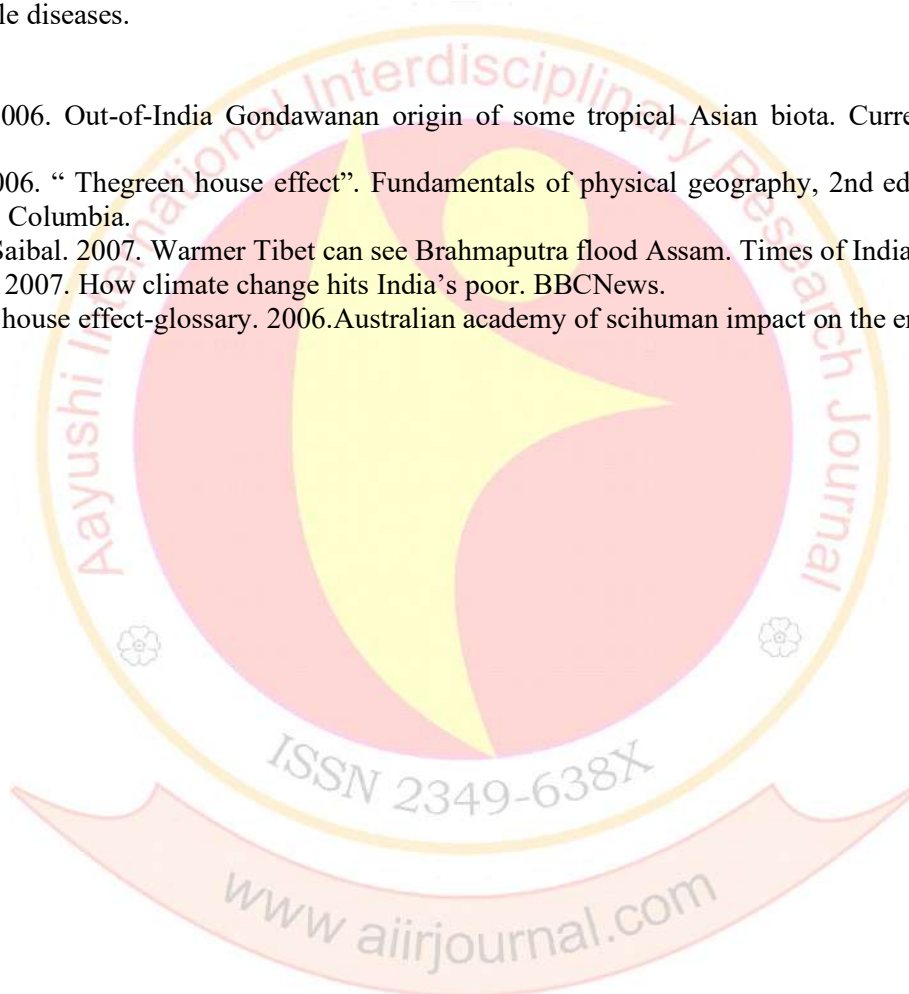
- Hurricanes, flood, Tsunamis and wild fires are becoming common and as a consequence of these destructive events escalate in 21st century. Due to global warming higher wind speeds are recorded so also the increased ocean temperatures. These in turn increase the frequency of cyclones.
- Alarming rise in the sea level – due to green house effect, polar ice caps are melting at a faster rate. Some experts believe that arctic could be ice-free within five years raising sea levels by several feet worldwide.
- Diseases and fungi attack crops lowering the quality and production.

- Natural disasters will destroy existing crops.
- Once abundant food may disappear or become expensive.
- Human beings won't be able to eat healthy food.
- Uncontrollable epidemics are on rise.
- United Nation projects 2.11 billion people will face severe water shortages by 2025 if the consumption continues at current rate.
- Electrical power production likely to be limited by water shortages.
- Despite energy efficiency trends, total energy consumption will rise by about 50% over the period 2005-2025.
- It is predicted that there is likelihood of 190 gigatons of green house gases into the atmosphere.
- Greenland's coastal lands projected to rise at a rate of 2 inches/year due to melting of Greenland's ice sheet.

Future research should aim at combating the evils of global warming to use alternative source of energy and evolving new methods to reduce pollution. Otherwise, this will take lot of toll year after year due to the incidence of incurable diseases.

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Impact Of Natural Environment On The Contemporary Literature

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Abstract

The present study focuses on the impact of literature in the development of environment. The environment is the compilation of the socioeconomic, biological or chemical factors that comprise the atmosphere of a human nature. It includes both living and non-living beings that survive in union with each another. In demonstrating our environment, literature plays a crucial role and is the reflection of today's world. 'Eco-criticism' is the term about environment and literature. Chiefly, it is the study of depictions of life and the association among literature as well as the environment. There is also a strong bond between nature and literature that most of the writers have wonderfully described. In modern time, environmentalism, eco-criticism and ecology have become relevant concepts. Nature seems to have been a real concern in several Contemporary literatures and globalization has been the leading power in environmental demolition.
Keywords: literature, Environment, Eco-criticism, globalization, Contemporary.

Introduction:

In a very ease language, the ambience is the environment that covers all of us. The evocative term for the state in which individuals exist is known to contain of air, water, food and light, which have been the primary needs of any and all human beings to perform their daily activities. Simply, the environment is the collection of the socioeconomic, biological or chemical factors that make up the ambience of a human acting as both originator and mediator of his own environment. It includes both living and non-living beings that exist in agreement with one another.

In demonstrating our environment, literature plays a vital role and is the signal of today's world. We consider the state or situation of our environment, which persisted mainly through ancient writings and deeds. The environment was really energetic before, because it was not tainted by pollutants. Formerly, there has been secure and normal air to exhale and water was tremendously clear from springs and reservoirs as there were no air as well as water pollution. As a result, not also humans, but even birds and animals have enjoyed an often-long lifespan. Pollution is at its height presently and is triggering a very quick corrosion of our ecological unit and the flora and fauna that live in it. If this quantity of pollution persists for another few years, then the whole environment will quickly fade away. All animals will be eliminated, all plants and trees would die due to the noticeable high level of pollution and little sunshine that would impact human beings because their food supply would fade away and our whole ecosystem would end in this way. Therefore, it is very essential to pursue some solemn method rapidly in order to free our ecological unit. To decrease emissions, we people should take some sturdy and efficient initiative. Perhaps the leading approach should be to broaden knowledge among all people, which will be achieved by using literature for aid. We can extend knowledge amongst each citizen by releasing newsletters, articles, magazines, etc. concerning our environment and ecological unit. Also, information of pollution and its impacts could be conveyed by means of brochures, flyers and billboards. We will address huge, vast spectators in this way and thereby protect our world from pollution. 'Eco-criticism' is the term for the association among literature and the environment. Basically, it is the analysis of depictions of life and the connection among literature as well as the environment. In the 1990's, ecocriticism began primarily to deepen its origins. A very minimal line exists between literature and eco-criticism. It is essentially focused with the relationship between the individual and his surrounding environment. Ecocriticism is originated from ecology, which is the analysis of the interaction between various species and their natural environment, while critique is the relationship between literature and the environment. On the basis of problems related to nature, a number of novels, poetry and other literary phenomena have been portrayed. In the presence of separate literature such as books, poetry, etc the relationship between literature and the environment was expertly demonstrated by multiple writers and artists including Arvind Adiga, Robert Frost, Anita Desai, Amitav Ghosh, and many more. Eco-criticism is an area of literary criticism that has now been explored globally as an interdisciplinary review of literature and the environment. It provides the study of items i.e. science, psychology, etc and aims to observe humanity's approach about nature. Eco-criticism is not just the functioning of concepts of ecology and its principles, but rather the study of literature and conceptual approach to the interrelationships of nature, culture, and often even supernatural contents in nature. Nowadays, environmental concerns are becoming a reason of concern for many departments and disciplines. For a literary critic, researching the perspectives of

writers that have explored the special connection between man and nature is a fascinating study. Nature has been a big question in several literary works in Literature. Colonialism has been a huge component of the global destruction of the environment. The evolution of the world's social and cultural environment has drastically transformed man's approach regarding nature in works of literature. Eco-criticism is a field that is increasingly developing and encompasses a broad spectrum of texts and theories that probe the relationship between human being and nature. Environmental studies have much wider importance in global literature through nature, gender construction, tourism, tradition, etc. than what is represented across literary phrases. There are several literary articles in Indian texts that showed the motif of ecocriticism in them as well as several forms in which writers discussed environmental concerns. It is central to the books in certain articles, although secondary to the plot and other themes in others. Some Indian articles, primarily by Anita Desai, Amitav Ghosh, the majority tried to understand ecocriticism. The novel *Nectar in a Sieve* by Kamala Markandaya (1954) describes the effort by the female protagonist Rukmani to recover and restore elements of the local culture of her family and a deep sense of rootedness in their territory. She and her husband both worked on their land and had a deep feeling of connection to it. Their relying solely for survival on this piece of land, however, was also a cause of their poverty. A significant insight into recognizing her feeling of connection to the rural world was the association among land and Rukmani. The connection between Rukmani, the land and her rural environment was the subject of the novel's very beginning. This was how her earlier married days were remembered by Rukmani. Rukmani compared the appreciation of her husband for her appearance with the attractiveness in her lands that she observed. The balance with nature, however with which she associated her rural life, was somewhat temporary. Advanced technology that kept human beings away from nature and ultimately insolvent his bond with nature very soon approached Rukmani's life. Tanneries are a sign of modernity. It changed the village's climate as well as its financial environment. It also brought in a dramatic shift in the villagers' relationships. Rukmani saw it as a danger to the life of the village, while Kunthi was happy about the tannery. The principal cause in the death of her three sons was the tannery. Arjun, Thambi, and Raja were helped by the tannery to cope with the dire poverty they had been dealing with. Although it created work for them it also turned them away from their relatives, thus decreasing their family life's significance. In Anita Desai's *Cry, the Peacock* (1963), the relation amongst nature and man is vital. In this novel, the undiscovered female psychology is explored by natural imagery. In order to reflect mental state of Maya, the female protagonist of the novel, used myriad photographs of botanical, zoological, meteorological and color-representing acts. The symbolism of nature examined Maya's internal mind, explored her mindset and unfolded her warped world. Bitter, unhappy and painful were the pictures used. They showed the fragile temperament of Maya that drove her quite crazy toward the climax of the book. The animal images employed within the novel illustrated the alienation motif that eventually contributed to the motive of death, as the primary signs of the psychic illness of Maya "the body lay rotting in the sun all day." It could not be pushed on to the back deck because the waft of dead flesh was overpowering in the April heat and would have reached the rooms soon. Crows were sitting around the corpse in a circle, and the crows were going to eat something, entrails, teeth, anything. The utilization of botanical imagery contributed to the hollowness of the Maya. A further explanation for her neurotic nature was her infertility. Maya understood the polarity of sensitivities existing between her and Gautama, her husband. With him, her dream to experience a happy and fulfilling life will never be accomplished. She was more like a petunia bed, nostalgic, intemperate flowers, while Gautama resembled a lemon tree blossom, a bigger, more vibrant personality. The forecast of the early demise of either her or her husband by the albino astrologer, Gautama, forced Maya to opt death or life and brought an end to her mental anguish. She also perceived the idea of killing Gautama, who was the primary cause of her current state, as she anticipated her own demise. The forecast of the astrologers played on her subconscious and she continuously thought of the way of carrying out the crime. She supported her intentions and at the first chance open to her, eventually decided to kill Gautama. One of the first Indian novels to actively address ecological concerns in India is Amitav Ghosh's *The Hungry Tide* (2005). The novel exposed the relationships between the state, the poor, the plants and animals, and the surrounding environment, and this work thus illustrated both the disaster and the irony embedded in Sunderbans' conservation efforts. Ghosh challenged the conflict inside and between human cultures, their separate relationships with the natural environment, and the additional fact of nature that society is evolving and changing at the same time. In the Sunderbans, the friction between the ground and the sea produced a steady friction between fauna and flora. The persistent intrusion of the Sunderbans habitats by Mans only supported the conflict between the different natural elements. The *Hungry Tide* was set in the Sunderbans, an island that was not only stunning and moreover interesting in the Bay of Bengal. The Sunderbans delivered an incredibly volatile and dangerous life for colonists. Instability and displacement were the constant threats and perhaps the most frequent were attacks by tigers. With no alert, tidal floods disrupted the sustainability of civilization on the

island. In the background of the Sundarbans in India and in Bangladesh, this novel continuously explores the struggle between nature and man. The book represents the tensions between the people and the water and the wildlife of the Sundarbans. Amitav Ghosh cautioned humanity against the over-exploitation of the environment. The tide area was a rugged area, filled with danger and disaster in several ways. At no time should humans question the aggression of the terrain to its existence, its strength and perseverance, its willingness to kill or eject them. Conclusion Literature has indeed been linked to descriptions of natural environment and relationships between humans and the world. However, the long-standing involvement of literature review in these concerns has only developed the effort most widely known as eco-criticism since the mid-nineties. Literary analysts give importance to the research and review of environmental principles. Academics and educated people are forced to ponder it quite seriously by the existing disparity of the environment and its extreme consequences. Several writers and novelists have been environmentally-conscious. A message can conveniently be delivered to the hearts and souls of individuals via the novels/books. So, in recent times, the full novels are visualised and there is the demand of safe and well-balanced environment. the utmost part of a balanced environment has already been deteriorated, so it's the time to literally save nature. The successful and essential tasks of literature are to disseminate the awareness and to concentrate on the practises with real and concrete examples. Thus the study is about impact of nature on literature and vice versa.

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Democracy And Sustainable Development (Socialism effected broadly)

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Abstract –

Here I am express Lay man life which is fulfill lots of struggle and Pain in the time of Covid -19 and still they have patience one day govt. make changes and lots of time I thought we all are citizen of Democratic country which is mean supreme authority of all powers but still we are weak in all aspect such as education , health ,technical , economic in all aspect because we all are silent on where all policies manage by government and government take help various angle for public welfare insure the integrity of all group of resources but in the current pandemic COVID -19 all types of things just opposite India their laws and policies structure is very good no any types of corruption so firstly this is necessary we understand our liability not be depend upon any one life is my little experience of different situation some time inflation ,some time rescission and current pandemic of covid -19 so this is phrases lots of time we become hopeless because all this things are negatively impacted human life no job ,no employment ,no courage for study and youth knowledge are suffer and no one help their still our India is very good . we never say India's deliberately do this but at present situation is very worst, poor people become completely struggler and not be enjoyed their life because of no earning sources in this situation life become hopeless their and man facing lots of challenges for their livelihood so this broadly impacted human life so my study pertain to All this factors which is supported a caring society and their welfare.

Keyword - organized economic sources , curiosity to know about challenges of welfare , increase and boost morale of youth and make caring society .

Introduction –

I am express socialism the word derive from Latin sociare this is the related ideas for society and this is technical in roman and then medieval law was societies and this is not a word only this is show welfare for society and societal enjoys the all types of benefit such as cheaper goods and services in cheaper way through this socialism, our society our nation adopted lots of policy but ignoring the theory of socialism still I am say we are living the very good country as I am talking business ,core sector become so competitive all types of industry closed in the pandemic no any types of resources allocate for general people and all types of risk mitigate in the life of general people because they are weaker in society and no any benefit for their family due to covid 19 many families struggles their life and their health condition become down and no one source for their earning still pharmacy and hospitals taking higher fees of their families .if we are live a socialism society so why each and every people struggling their life become totally uncomfortable number of death increase but government don't provide more relief and advantage of middle class family so this is broadly effected our country lives become too difficult because no one good economic source for their families so this condition how can we say we are living in socialism society because the word socialism means socialize govt. who produce good policy for country provide maximum welfare but all these objective of socialism as equality , good governance policy ,standardized goods and services in affordable price are failed and this is not continue in current scenario so which types of following measures will be come in this time as cheap medical facility ,without any restriction hospital admitted patient and it's also have equipment in sufficient way and its cheaply available in all the time because our country struggle against good hospital ,family and life saving equipment too costly in this time and hospital charge higher price so this is showing molestation for our countries people no any types of committee for this ambiguity so how can we say we are living in societal country our Prime minister give big promises but no one relief and safety measures provide for this issue so we have challenges how can we survive in this condition because economic resources finished lives also go to risky path so its my humble request if our country follow safety measures and make economically strong on self so this type resources can mitigate risk because if each and every people protect on self so Govt. policies will be effectively run because people are not working so they are struggle more .

Mitigate the challenges of societies and provide bulk opportunity –

Make strong and build up societies provide day-to-day earning resources and this is helpful to our country because economically if all population will become working so one any types of distortion come in their lives.

Society struggling so many challenges and Indian govt. not be able to solve this entire problem in better way this is big drawback big polices not be effective in all parameter so Indian Govt. should be provide economic help of lay man people assist their requirement as health education which is main priority area.

If govt. provide more help to institution and organization in this time mostly institution, trust, firm and govt. hospital adopt illegal and wrong activities as amount cheated by them and this news not spread anywhere so such activities broken trust of layman people because govt. services not be receive by them but its show people benefited so wrong data always harmful and this draw back only not smaller part each and every area of our country effected by this situation .

So govt. have to emphasis more help to layman people and time to time investigated firm ,industries and govt. institution who is involve this activities and must be take tight action as types of action very necessarily for layman welfare .

But all these parameters are hidden no politician ,social activist come for this work all types of dilemma strongly interpret our society and one day this concept will be removed my country belongs to socialism.

Organized economic source-

Economic source must be connected with one gate one channel and all goods and services will digitally organized so that no one able to do any wrong types of activates and this will be effectively work to remove corruption because is the Termite which affect societies badly no one higher authority able to do strongly avoid this activities so we have to change all old policies and effectively come with new policies.

Socialism is very broad concept but its affected due to some reason as depreciation of hormonal community, humanity so this is big responsibility of government enhance civilianization of thoughts and time to time check ambiguity which is persist in our err because lots of real example I am able to give .In the present scenario Covid -19 completely effected mankind lots of patient loss their lives because doctor not treat carefully this is show level of humanity completely disbursed and we find ambiguity in lots of area as teaching , public administration but no one govt. entity come for this welfare work.

Literature Review-

various types of article and paper I already read but my article based on the another theme how can we process sustainable growth of society 1- Rosa Luxemburg, "Reform or Revolution" (1900),2- Clara Zetkin, 1914 Preface to Edward Bellamy's Looking Backward (1887),3- Eric Foner, "Why Is There No Socialism in the United States?" (1984),4- Sarah Leonard, "What is Socialist Feminism?" (2020),Red Nation, "Communism Is the Horizon" (2020),5- Mark Ecology in the 21ST Century By: Brett Clark and John Bellamy Foster.

Survey questionnaire

Impact of my study based depreciation of hormonal community, , man prove as machinery, various health issues and their mental phenomenon in the view of personal survey of peoples in the time of Covid -19 .

A General Background

Age 2. Gender M F 3. Ethnic background, 4. Education 5. Profession 6. Average monthly income 7. District

Objective of the study –

My study pertain when my country manage all resources and services in better way so we can achieve sustainable development in all level because societal harm and layman struggle show we are not sustain in economic parameter and this is show true picture in the time of Covid -19.

Aspects of socialism -

How to make ideal socialism

- Government have enhance more welfare community and economically boost their work but after the investigation because lots of organization take fake funds so this is loss of govt. so govt. have to make rule and criteria to deal with all social organization as NGO, old people shelters and poor child organization etc .
- Time to time provide extra circular activity which is promote humanity so this courses must be attached in all organization so that each and every employees worker enhances for social welfare.
- Government have to amend laws to maintain socialism if anybody harm community so firstly suit penalty.
- Socialism is very broad word so its duty of all to belief trust on self and not do any misbehaves with other this is respective word for socialism.

Research methodology –

Here I am choose a exploratory method and collect the data by people and this survey method fulfill lots of information by Questionnaire and this survey conducted by broad level through door to door data

samples and descriptive method explore ambiguity in the time of covid -19 and my samples of studies covid -19 patients 200-300 in prayagraj city and here we make a article according to their views.

Limitation of the study –

My research noteworthy that it is impossible to assemble all the works in the fields of the evils of socialism which is impacted of our country, depreciate of communal harmony and layman struggles which is bunch of unemployment, unequal distribution of goods and services and drawback of systematic plan and policies so I connected to continue process more data but we are cannot be covered more data in one time but due to time of passage we included more data.

Conclusion –

Socialism is ongoing process we respect to all us do not show single attitude because it's our moral responsibility to we conduct socially and adopt norms and behaviors or attitude of others individual of society so this is necessary.

We adopt Right path to protect hormonal community who is focused social phenomenon because if you not come in social err so always victims of distortion so this is necessary people attached socially with each other and do help for all and this is Helpful to remove social evils which is present in our society as corruption, but one thing necessary Peoples understand their duty and don't harm any govt. assets and not to show greediness to get more because if we maintain our mind and give importance to all us so we protect our society .

Political propaganda, Nepotism and all so firstly its depends upon man if we want to finish all root of evils so we have to socialized one self and then we can fight easily this is safe our society and improve situation which is persist in the time of covid –19 and finish all types of broke chain which is affected badly of our society.

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Cost Benefit Analysis of Sugarcane Production under Flood and Drip Method of Irrigation

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Abstract

The Present Study deals with the cost and return of sugarcane production under drip and flood method of irrigation in the Indapur tahsil of Pune district. The primary data was collected for the year 2017- 2018 from the sample respondents by conducting personal interview and pretested. 600 farmers were selected randomly from eight division of the study area. On an average, farmers received yield of sugarcane 36 to 41 tonnes per acre under flood method and 53 to 60 tonnes per acre in all divisions of the study area. The net return of cultivation of sugarcane was found averagely in range of Rs.7808 to Rs.21020 per acre under flood method and Rs.40235 to Rs.50020 per acre under drip method. Profit margin is the major concern of the study and found to be quite high on drip method than flood method.

Introduction

Man has developed various agriculture activities for his stable life. Agriculture is one of the most important activities which help the farmers for his socio - economic development. Agriculture activity provides various employments in rural part of the country, not only foods and labour but also services, trade, industry, transportation and market etc. Farmers take production of various crops on their physical, social and economic condition. The production is variable and change according to region to region, therefore, the production of any crop is necessary to check out benefit or profit analysis.

Irrigation is basic need for crop growth. It helps in the development of agriculture as well as human life. Canal, river, well, tube well and tanks are the main sources of irrigation, developed by man from last several years. Sugarcane cultivation depends on farmer's behaviour in various operations. There are traditional and drip methods for sugarcane cultivation but farmers use traditional methods on large scale.

In last decade, input price of sugarcane in the study area has increased continuously. Sugarcane growing farmers are facing various problems, such as rate given by sugar industry, increasing transportation expenditure, diseases on sugarcane, water scarcity, irregular supply of electricity, increasing labour rate etc. Today's situation, especially in Maharashtra state and in study area, farmers are demanding to the Government to increase the FRP of sugarcane. So we can say that there are some problems in sugarcane cultivation. Therefore, it is necessary to study the economics of sugarcane production at micro level.

Study Area

Indapur tahsil is situated in Pune district. The northern and eastern border is demarcated by Bhima River in Pune and Solapur districts while southern boundary is confined by Nira River in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daund tahsil of Pune district. The region extends between 17° 53' to 18° 15' north latitudes and 74° 35' to 75° 8' east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 140 rural settlements and three urban settlements.

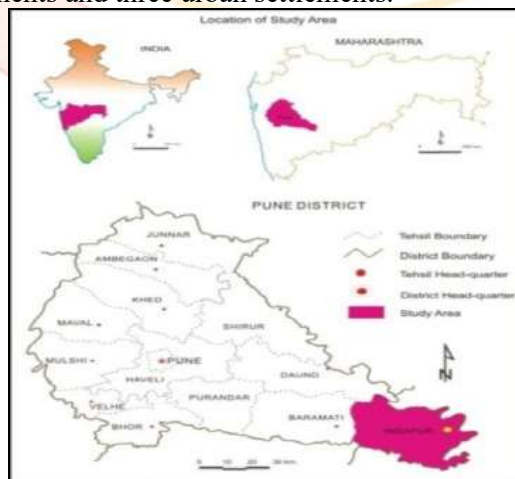


Fig-1: Location of Study Area

Objectives

1. To find out production, yield and net return of sugarcane cultivation under drip and flood method of irrigation.
2. To understand how much drip method is profitable than flood method for sugarcane production.

Methodology

The database for the study comprises data collected from primary sources. The primary data is collected in the year of 2017-18 through questionnaire. Indapur tahsil have eight divisions for administrative purpose. Therefore, farmers from eight divisions are randomly selected. Each division has 13 to 22 villages. All physical and social factors are considered for selection of villages. The required primary data is collected from selected farmers through personal interview and group discussion. The data obtained from 600 farmers randomly selected from 30 villages had been compiled. 300 farmers adopted the method of drip and 300 adopted the flood method for producing sugarcane in the study area.

Formula

The data is presented by various statistical techniques used by various scholars. Analysed Gross return income, Net return, Cost of sugarcane production, Profit margin Rs/tonnes and Profit margin in percentage etc. The researcher used this formula suggested by **Teshu Kumar. (2014)**

Gross Return = Total Yield X Price per/tonnes

Net Return = Gross Return – Total Expenditure

Cost Cane Production = $\frac{\text{Total Expenditure}}{\text{Total Yield}}$

Profit Margin Rs. /tonnes = $\frac{\text{Net Return}}{\text{Total Yield}}$

Profit Margin in % = $\frac{\text{Net return} \times 100}{\text{Total Expenditure}}$

Result And Discussion**Table 1:Yield and Return of Sugarcane (Flood Method)**

S.N.	Particulars	Bhigwan	Indapur	Loni	Bawada	Kati	Nimgaon	Anthurne	Sansar
1	Yield (Per Acre)	39	41	38	41	37	36	41	40
2	Price (Rs. / Tonnes)	2300	2300	2300	2300	2300	2300	2300	2300
3	Gross Return (Rs./Acre)	89700	94300	87400	94300	85300	82800	94300	92000
4	Total cost of Production (Rs./ Acre)	78698	81028	79594	77096	72050	70333	73280	74001
5	Net Returns (Rs./ Acre)	11002	13272	7806	17204	13250	12467	21020	17999
6	Cost of Production (Rs./Tonnes)	2018	1976	2095	1880	1947	1954	1787	1850
7	Profit Margin (Rs./Tonnes)	282	324	205	420	358	346	513	450

Source: Computed by Researcher

1. Yield and Return of Sugarcane (Flood Method):

Yield and return of sugarcane in various divisions under flood method of irrigation is presented in table 1. On an average, farmers received 36 to 41 tonnes per acre yield of sugarcane under flood method in all divisions. Total cost of production is found from Rs.70333 per acre to 81028Rs. per acre. Net return is found averagely in range of Rs. 7808 to Rs. 21020 per acre, So we can conclude that it is less and farmers does not get profitable return. Farmers get gross return of sugarcane Rs. 89700 in Bhigwan, Rs. 94300 in Indapur, Rs. 82800 in Nimgaon and Rs. 92000 in Sansar division. These farmers have spent Rs. 78698 for sugarcane cultivation in Bhigwan, Rs. 65100 in Indapur, Rs.70333 in Nimgaon and Rs. 74001 in Sansar division. Thus considering this result there is no big difference found in total cost of production and gross return (Rs./Acre) under flood methods of irrigation.

Table 2: Yield and Return of Sugarcane (Drip Method)

S.N.	Particulars	Bhigwan	Indapur	Loni	Bawada	Kati	Nimgaon	Anthurne	Sansar
1	Yield (Per Acre)	58	58	56	60	55	53	57	59
2	Price (Rs. / Tonnes)	2300	2300	2300	2300	2300	2300	2300	2300
3	Gross Return (Rs./Acre)	133400	133400	128800	138000	126500	121900	131100	135700
4	Total cost of Production (Rs./ Acre)	83850	92530	87665	87980	81945	80520	90865	90500

5	Net Returns (Rs./ Acre)	49500	40870	41135	50020	44555	41380	40235	45200
6	Cost of Production (Rs./ Tonnes)	1446	1595	1565	1795	1490	1519	1594	1534
7	Profit Margin (Rs./Tonnes)	853	705	735	833	810	781	706	766

Source: Computed by Researcher

2. Yield and Return of Sugarcane (Drip Method):

Yield and return of sugarcane in various divisions under drip method of irrigation is presented in the Table 2. The table revealed that the average yield of sugarcane received is 53 to 60 tonnes per acre in all divisions of the study area. Lowest yield is registered in Nimgaon division. Bawada division recorded highest yield of sugarcane which is 60 tonnes. The price received by the farmers from sugar industries is Rs. 2300 per tonnes. The gross return per acre received was Rs. 133400, 138000 and 121900 per acre for the division of Bhigwan, Bawada and Nimgaon respectively. Per acre cost of cultivation was found to be less than the gross return. Therefore, under drip method net return per acre was found more than flood method.

3. Profit margin of sugarcane cultivation under drip and flood methods:

Difference in percentage of profit margin of sugarcane cultivation under drip and flood methods is presented in table 3. Farmers get 44.17 % to 59.03 % profit in drip method and in flood method 9.80 % to 26.68 %. Highest profit margin (59.03%) is recorded in Bhigwan division and lowest profit margin (44.17) is registered in Indapur division under drip method of irrigation. Whereas highest profit margin (26.68) is recorded in Anthurne division and lowest profit margin (9.80%) is registered in Loni division under flood method of irrigation. Profit margins under flood method were considerably lower than the drip method. Farmers received maximum profit under drip method for sugarcane cultivation. They also saved amount spent on labour, irrigation and intercultural charges. Therefore, their profit margin is indicating fewer ratios in all division.

Table 3: Profit Analysis

Sr. No.	Division	Drip Method Profit Percentage	Flood Method	Profit Percentage
1	Bhigwan	59.03		13.98
2	Indapur	44.17		16.37
3	Loni	46.92		9.80
4	Bawada	56.85		22.31
5	Kati	54.37		18.39
6	Nimgaon	51.39		17.72
7	Anthurne	44.28		26.68
8	Sansar	49.94		24.32

Source- Complied by Author

Conclusion

Profit margin of sugarcane cultivation was found to be almost more than double under drip irrigation as compared to flood irrigation. Profit margin is the major concern of the study and found to be quite high on drip method than flood method. Sugarcane is one of the water-intensive crops. Farmers can decrease the input cost by adoption of drip irrigation by applying less water, irrigating more area and reduced energy cost and produce higher and quality output. Although, the cost of cultivation was high on drip irrigated farms, on account of higher input use, especially irrigation cost, the returns realization were also more and impressive on account of higher yields of sugarcane. Integrated and comprehensive efforts are necessary to ensure faster adoption of drip irrigation for conservation of water and energy resources, enhancing quantity and quality of agricultural productivity and improving rural livelihoods.

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A Study on Mobile Banking- A Platform For Modern Banking

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Abstract:

The study "A STUDY ON MOBILE BANKING- SSA PLATFORM FOR MODERN BANKING" has been conducted in order to analyse the customers and their satisfaction towards Mobile banking. The study evaluate issues which are encountered by the customers. The data collected from the customers are in the form of primary data. The mode of collecting data is in the form of well-structured questionnaire. The furnished questionnaire supports the study to collect maximum data from the Union bank customers. Secondary data is collected from reference books, internet browsing and textbooks. This study gives information to the Andhra bank regarding the banking activities which bank customers are receiving from the banker. The data collected and analysed from the "50" customers of the bank helps to suggest the Union bank for further improvement in banking activities. Data analysis and interpretation is done with tables. The study is tested to know the significance level of data collected from population. As banking activities are innovated with different modes of banking like mobile banking, internet banking and card banking. So test is conducted on mobile banking and gender to know the association among them. Chi-square test is applied to know the significance level between mobile banking user and gender.

Key words: Mobile banking, Card banking, Internet banking, Chi-Square test.

Introduction

Banking In India:

Banking in India, originated in the last decade of the 18th century. Among all the banks first bank were Bank of Hindustan, which was established in 1770 and the General Bank of India, established in 1791. The largest bank, and the oldest still in existence, is the state bank of India. It originated and started working as the Bank of Calcutta in mid-June 1806. In 1809, it was renamed as the Bank of Bengal. This was one of the three banks founded by a presidency government. The other two were the Bank of Bombay in 1840 and the Bank of Madras in 1843. The three banks were merged in 1912 to form the Imperial Bank of India. After India's independence, Imperial became the State Bank of India in 1955. For many years the presidency banks had acted as central banks. The Reserve bank of India was established in 1935, under the Reserve Bank of India Act, 1934.

In 1960, the State Bank of India was given control of eight state-associated banks under the State Bank of India Act, 1959. These are now called its associate banks. In 1969 the Indian government nationalised 14 major private banks, one of the big bank was Bank of India. In 1980, 6 more private banks were nationalised. They dominated the banking sector because of their large size and wide spread networks. These nationalised banks are the majority of lenders in the Indian economy. The Indian banking sector is broadly classified into scheduled and non-scheduled banks. The schedules banks are those included under the 2nd schedule of the Reserve Bank of India Act, 1934. The scheduled banks are further classified into Nationalised Banks, State Bank of India and its associates, Regional Rural Banks, Foreign banks, and other Indian private banks. The term commercial banks refer to both scheduled and non-scheduled commercial banks regulated under the Banking Regulation Act, 1949.

Generally banking in India is developing day by day but they fail to reach in rural India and to the poor. The government has developed initiatives to addresses this through the State Bank of India expanding its branches all over India. The National Bank for Agriculture and Rural Development (NABARD) was established to ensure that banking facilities should be available to rural India and poor.

Objectives:

- To analyse the factors influencing customer preferences towards Mobile banking.
- To determine the issues which are encountered during Mobile banking
- To analyse the satisfaction of the customers in banking activities.

Significance:

- The study gives brief information about customer preferences and satisfaction towards Mobile banking
- It makes the customers to get awareness about banking.

- It improves the innovation system in banking activities. Like digital banking, paperless banking, etc.

Scope:

- The sample size of the study is limited to “50” Union Bank customers.
- The study restricted to the customer preference satisfaction and issues encountered during Mobile banking services.
- The study focused only on Mobile banking not on other activities of the bank.

Research Methodology:**Primary data:**

Primary data are obtained by a study specifically designed to fulfil the data the data needs of the problem at hand. Such data are original in character and are generated in large number of surveys conducted mostly by government and also by some individuals and research bodies.

In this study primary data collected is in the form of well-structured questionnaire which was filled by the Andhra Bank customers.

Questionnaire:

Questionnaire under this study is a list of questions pertaining to the study is prepared and sent to various respondents. The questionnaire contains various questions and provides space for answers. Request is made to the respondents through a letter to fill up the questionnaire and send it back within a specified time. In this study for collecting the data well-structured questionnaire is designed to analyse and interpret the data.

Secondary data:

Data which are not originally collected but rather obtained from published or unpublished. It constitutes the chief material on the basis of which statistical work is carried out in many investigations.

In fact, before collecting primary data it is desirable that one should go through the existing literature and learn what is already known of the general area in which the specific problem falls and all surrounding information that may give us leads and lessons.

In this study Secondary data is collected from various sources like reference books, textbooks and from official sites related to banks.

Sampling Techniques:**Sampling Methods:**

In this study, sample is obtained by using simple random sampling techniques in which each and every unit of the population has an equal opportunity of being selected in the sample. In simple random sampling which items get selected in the sample is just a matter of chance personal bias of the investigator does not influence the selection. It should be noted that the word random does not mean haphazard or hit or miss it rather means that chance only determines which items shall be included in sample.

Sample Size:

An important decision that has to be taken in adopting a sampling technique is about the size of the sample. Size of the sample means numbers of sampling units selected from the population for investigation.

In this study the sample size is “50” Andhra bank customers. It is more than “30” respondents and it is considered as large sample.

Definitions For Important Terms:**Bank:**

A bank is a financial institution that accepts deposits from the public and creates credit. Lending activities can be performed either directly or indirectly through capital markets. Due to their importance in the financial stability of a country, banks are highly regulated in most countries. Most nations have institutionalized a system known as fractional reserve banking under which banks hold liquid assets equal to only a portion of their current liabilities. In addition to other regulations intended to ensure liquidity, banks are generally subject to minimum capital requirements based on an international set of capital standards, known as the Basel Accords.

Physical Banking Or Manual Banking:

A manual transaction is any transaction that's completed with the help of our staff – including cheques and transactions in branch, by phone or at the Business office. The banking activities which are done by directly contacting with bank staff or Manual going to bank office for doing all kinds of banking transactions is called physical banking or Manual banking.

Mobile Banking:

It is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smart phone or tablet. Unlike the related internet banking it uses software, usually called an app, provided by the financial institution for the purpose. Mobile banking is usually available on a 24-hour basis. Some financial institutions have restrictions on which accounts may be accessed through mobile banking, as well as a limit on the amount that can be transacted. Mobile banking is dependent on the availability of an internet or data connection to the mobile.

Internet Banking Or Online Banking:

Online banking, also known as internet banking is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services.

Internet banking software provides personal and corporate banking services offering features such as viewing account balances, obtaining statements, checking recent transaction and making payments.

Card Banking:

A bank card is typically a plastic card issued by a bank to its clients that performs one or more of a number of services that relate to giving the client access to funds, either from the client's own bank account, or through a credit account. It can also be a smart card.

Physically, a bank card will usually have the client's name, the issuer's name, and a unique card number printed on it. It will have a magnetic strip on the back enabling various machines to read and access information. Depending on the issuing bank and the preferences of the client, this may allow the card to be used as an ATM card, enabling transactions at automatic teller machines; or as debit card, linked to the client's bank account and able to be used for making purchases at the point of sale; or as a credit card attached to a revolving credit line supplied by the bank.

Literature Review**Article 1:**

M VASAN (Assistant professor): In the article Customer's satisfaction towards internet banking of ICICI bank Ltd. He conducted is study in order in order to evaluate and examine the level of satisfaction towards internet banking services. This study is also to observe and analyse the using of internet banking, reasons for chosen internet banking, satisfaction of the customers towards internet banking and to find out the problems encountered by the customers. In his study clearly indicated that the majority of the users of internet banking were in the high level of satisfaction. Hence by the study the important points that ICICI bank's top management must consider in order to increase the number of internet banking users and to improve their service quality.

In this study MR M VASAN has collected primary data from well-structured questionnaire which was filled by "120" ICICI bank customers.

In this article he suggested that

1. The banker should configure security systems and firewalls to the highest security consistent with the level of protection according to customer requirements.
2. The bank must increase their ability to control and manage the various risks inherent from e-transaction activities.
3. The banker should reduce the formalities for getting internet banking facilities.
4. The banker should reduce the processing charges for NEFT & RTGS.36
5. Since private employees and students have got good perception on the internet banking, banker has to adopt right strategies to attract even people of other categories like government employees, professionals, etc.

Article 2:**Dr.M.Maharaj (Ph.D) Research Scholar (Management):**

In the article Customer attitude towards mobile banking makes the change in the traditional processing of the bank works. Customers of the bank moved according to the technology because of their busy schedule of their work. During non-availability of the banking services in holidays they are moving towards the internet banking or other services to the transfer the amount for their purpose, where the mobile banking helps them to transfer and do all activities in same place without moving anywhere. Based on the attitude of the customer

there is a change in the banking process with the help of mobile banking which is more comfortable. Banks that are started to develop their activities with the help of mobile banking which is effectively used by the customers.

In this study he analysed the factors influencing the customer attitude towards mobile banking. He also determined the behaviour, expectations of the customers in mobile banking and services in banks respectively. He further analysed the overall customer satisfactions on mobile banking.

After analysing and determining the study, he finally concluded that mobile banking has become one of the important factors that has been effectively used by the customer based on this innovation banks has to retain and satisfy the customers. Mobile banking updates the knowledge of the behavioural intention to adopt mobile banking with usage for transfer of amount, funds, credits, debit, etc. besides he found this study will provide the knowledge of behaviour towards the mobile banking.

Analysis And Interpretation Of Data Analysis Of Data:

The technique used for interpretation the detail percentage method. Percentage method is technique which analyse the data in numerical. It helps to compare one variable with other. With this analysis we can easily draw the inference from the data. In this study interpretation is done through Tables and Pie charts. The table is used to convert the raw data into a structured form so, that everyone can easily analyse the data and can draw conclusions. Pie chart is other form of interpretation of the data. It is in chat form. By observing the chart we can analyse the data. Tables and pie chart are time saving techniques to interpret and analyse the study.

Rating For Banking Services:

Table no: 1

Ratings	Respondents	Percentage
Superior	25	50%
Good	37	74%
Fair	11	22%
Poor	3	6%
Total customers (N)	50	100%

Source: primary data

From the above table it can be concluded that there are different rating for banking services. Out of 50 customers

- 25 (50%) customers are given their opinion as “Superior” for banking services.
- 37 (74%) customers are given their opinion as “good” for banking services.
- 11 (22%) customers are given their opinion as “fair” for banking services.
- 3 (6%) customers are given their opinion as “poor” for banking services.
- Among them maximum respondents are rated for “good” services. I.e.: 49%.

Table no: 2

Factors	Physical Banking	Mobile Banking	Internet Banking	Card Banking	TOTAL
Gender:	Frequency	Frequency	Frequency	Frequency	
Male	9	10	10	7	36
Female	6	2	2	4	14
Total	15	12	12	11	50

Source: primary data

From the above table and bar diagram it can be observed that the respondents of different gender and their preference towards modes of banking. Male Customers are using both mobile banking and internet banking and female customers are using physical banking.

CHI-SQUARE:

In this study it was observed that users of mobile banking are higher. So, to know whether there is any association between mobile banking and gender. Apply chi-square to find association.

The chi-square test is one of the simplest and most widely used non-parametric tests in statistical work. The symbol χ^2 is the Greek letter CHI. The chi-square test was first used by KARL PEARSON in the year 1900. The quantity χ^2 describes the magnitude of the discrepancy between theory and observation. It is defined as:

$$\chi^2 = \sum (O-E)^2/N$$

STEPS: To determine chi-square

1. Calculation the expected frequencies. In general expected frequency for any cell can be calculated from the following equation

$$E = RT \cdot CT / N$$
- 2 Take the difference between observed and expected frequencies and obtain the square of the difference.
- 3 divide the value $(O-E)^2$ obtained in step 2 by the respected frequency and obtain total $\sum [(O-E)^2/E]$. This gives the value of χ^2 which range from 0 to infinity.

If chi-square is zero it means that observed and expected frequencies are completely coincide. The greater the discrepancy between the observed and expected frequency, the greater will be the value of chi-square.

Let us take NULL HYPOTHESES that there is no significant difference between mobile banking and gender.

Degree of freedom is 1, chi-square 5% = 3.84

Table of observed frequency:

Attributes	Mobile banking (A)	Other banking(α)	Total
Male(B)	10	26	36
Female(β)	2	12	14
Total	12	38	N=50

Expected value (AB) = $RT \cdot CT / N = 8.64$

Expected value (αB) = $RT \cdot CT / N = 27.36$

Expected value ($A\beta$) = $RT \cdot CT / N = 3.36$

Expected value ($\alpha\beta$) = $RT \cdot CT / N = 10.64$

Table of expected frequencies:

8.64	27.36
3.36	10.64
	N=50

OBSERVED(O)	EXPECTED(E)	(O-E) ²	(O-E) ² /E
10	8.64	1.8496	0.2141
2	3.36	1.8496	0.5504
26	27.36	1.8496	0.0676
12	10.64	1.8496	0.1738
			$\sum (O-E)^2/E = 1.0059$

$$\chi^2 = \sum [(O-E)^2/E] = 1.0059$$

$$v = (r-1)(c-1) = (2-1)(2-1) = 1$$

$$v=1, \chi^2_{0.05} = 3.84$$

Calculated chi-square value is 1.0059 less than table value 3.84. So, null hypothesis is accepted.

There is no significance. It means null hypothesis is accepted.

Findings ,Conclusions And Suggestions

Findings:

In the study “A STUDY ON MOBILE BANKING-A PLATFORM FOR MODERN BANKING” the following are the findings:

- In this study it was found that retail customers are more than corporate customers.
- The respondents of different income groups and their preference towards Mobile banking. Income group of 0-1lks are using physical banking, 1lks-2lks are using both physical and mobile banking, 2lks-3lks are preferring internet banking and 3lks-4lks are preferring internet banking.
- The respondents of different gender and their preference towards Mobile banking. Male Customers are using both mobile banking and internet banking and female customers are using physical banking.
- The respondents of different ages are their preference towards Mobile banking. Customers of 0-20 ages are using card banking. 20-40 are using mobile banking, 40-60 ages are using physical banking and 60-80 ages are using physical banking.
- The respondents of different education qualification and their preference towards Mobile banking. The respondents with qualification of SSC are using physical banking, intermediate are using physical

banking, graduation are using mobile banking and other respondents are using both internet banking and card banking.

- In this study the association between gender and mobile banking is tested through chi-square. It was found that there is no significance difference between gender and mobile banking.

Conclusions:

In this study “A STUDY ON MOBILE BANKING-A PLATFORM FOR MODERN BANKING” it has been analysed that there are some factors which are influencing consumer preference in choosing Mobile banking. They are age group, income levels, gender, occupation, marital status, qualification. All these factors are analysed and interpreted in table. The age group of 20-40 are more and they preferred mobile banking.

The issues which are encountered by the customers while doing banking are time consuming, formalities, improper counter design, banking services, facilities in bank, high charges and transaction limit. With the help of analysis it can be found that maximum number of customers are facing problem of formalities in banking activities, further they faced the problem of transaction limit in mobile banking, internet banking and in ATM e corners.

There are some expectation of the customers from the bank are innovative technology, digital banking, paperless banking, appropriate banking charges, loans for abroad education and awareness to customers. It can be found that maximum percentage of customers are expecting innovation in banking technology, then loans for abroad studies and digital banking.

Suggestions:

- From this study it is suggested that bank management should reduce formalities in banking activities, because majority of the customers are facing problem of formalities.
- Further study suggests that transaction limit like withdrawal, transfer of funds, etc. should be increased. It make convenient for the customers to make transactions.
- The study suggests that expectation of the customers is innovation the technology in banking activities helps the bank to compete in the market.
- The study suggests the bank to support students for higher studies by issuing loans for abroad studies.
- It suggests the customer to prefer mobile and Mobile- banking, so that your banking activity will be in your fingertips.

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Agro-Tourism: A Tool To Sustainable Development Of Farmer**Prof. Dr. KshirsagarVikasVasant**

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Abstract :

Agriculture is the backbone of Indian Economy Tourism is termed as an instrument for Employment Generation, Poverty alleviation and sustainable human development. Today the concept of traditional tourism create additional source of income and employment opportunities to the farmers.

Promotion of Agrotourism involves some more important stakeholders, namely Ministry of Agriculture and Farmers.

Introduction:

Agro-tourism is an alternative enterprise where you invite the public on to his farm. An alternative to Enterprises is marketing what you produce differently, adding value to the product you produce. It is also using your natural or other resources differently or using the same resources in multiple ways. Expanding farm businesses to include Argo-tourism opportunities can provide a mechanism for keeping farms financially sound. Besides benefiting farm owners, agro-tourism businesses benefit visitors by offering a diversity of agriculture experiences. Maharashtra is one of the major tourist centres in India and there is large scope and great potential to develop agro-tourism. Tourism is now well recognised as an engine of growth in the various economies in the world. Several countries have transformed there has been changed. Some new areas of the tourism have been emerged like Argo-tourism. Promotion to tourism would bring many direct and indirect benefits to the people. Argo-tourism is an innovative agricultural activity related to tourism and agriculture both. It has a great capacity to economies by developing their tourism potential. Tourism has great capacity to generate large-scale employment and additional income sources to the skilled and unskilled. Today the concept of traditional tourism create additional source of income and employment opportunities to the farmers. Maharashtra is one of the major tourist centres in the India and there is large scope and great potential to devel Agro-tourism.

Objectives Of The Study:

The main objectives of this paper are as follows:

1. To study the scope of agro-tourism development in Maharashtra.
2. To study the benefits of agro-tourism centers to the small and holding farmers in the Maharashtra.

Tourism Potential In Maharashtra

Maharashtra is the third largest state of India, both in area and population. It is located on the west coast of India with a 720km long coastline along with lush green Kankan region of Maharashtra with its dense forests is home to serval wild life sanctuaries and nature parks. Maharashtra abounds in numerous tourist attractions ranging from ancient cave, temples, unspoiled beaches, ancient forts and monuments, forest and wild life, unique hill stations, Pilgrimage Centre's, a rich tradition of festivals, art and culture. More than 40 percent population is living in the urban areas of the Maharashtra, which can become customers of the agro-tourist centers which are located in the rural areas. Others than nature and culture there is an enough road on railway connectivity in urban rural areas to travel in rural Maharashtra. Thus all the districts of Maharashtra have a tourism potential, because of drivers agro climatic condition, diverse crops, huge horticulture area, fruit spices, medical and aromatic plants, people deserts, mountains which provide scope for promotion of all season, multi-location agro-tourism. The culture of Maharashtra is very glorious with great variety. Some of the popular folk dances in rural Maharashtra like lavani, povadas, koli dance and Tamasha will definitely attract tourist with the strong background in Maharashtra, such as four agricultural universities, strong Co-operative movement, well developed industrial base, development of SHG's there is an opportunity to farmers to increase their income through agro-tourism centers.

Scope Of The Study:

The scope of this study is limited to examine the scope and benefits of agro-tourism entrepreneurship in Maharashtra.

Research Methodology:

The present study of conducted on agro-tourism is based on secondary data. The data has been collected from reference books, articles, research papers, reports, some data has been collected from the website of the Government of Maharashtra and India and ATDC, MART Pune, data also collected from various newspapers.

Concept Of Argo-Tourism:

Agro-tourism is defined as "Travel which combines agricultural or rural settings with products of agriculture operations- all within a tourism experience." Product can be "experience itself." Agro-tourism is an alternative enterprise where you invite the public into your farm, where a set of activities that occur when people link travel with the products, services and experiences of agriculture".

Nature Of Agro-Tourism And Income Producing Opportunities For Your Farm And Community:

Agro-tourism is different business than farming; two major changes will occur. First, you are no longer a price-taker but a price setter. Secondly, you are now in the people of business. You are producing memories, adventure, experiences and friendship, someone to succeed at agro-tourism.

Thinking about the 'customer' is probably more important than thinking about 'Production' in this scenario today. Indian farmers are thinking about production only and not about the customer now change is required to grab the opportunities.

These farm income- producing opportunities may be put into fourteen groups:

- 1) Farm markets and specially products: These markets provide an excellent opportunity to sell all types of value added products from food to crafts depending upon the rules of the farmers market. Specially, product markets exist everywhere. The internet has made this more easily accessible market. Also many farmers are now marketing to restaurants, schools and nursing homes.
- 2) Product Processing: These products include sugarcane juice, lime juice, mango juice, dairy products, wood products and wine production and what not.
- 3) Fairs, festivals and special events : These festivals range from food and crafts to nature, flowers, art, heritage and culture themes, like Lavani, Tamasha, Mimigri, traditional dance, songs and what not which are very profitable events to attract customers.
- 4) Horses and other Animals: This includes range from petting farms to the training of horses, sheep's and other fiber producing animals, sale the milk, meat to local customers.
- 5) Unique Dinning Experience: Opportunities exist for farms to serve food to the public in our Solapur district Curd, groundnut chatni and Roti attract most of the Maharashtrian people. Dinning is the number one tourist activity.
- 6) Wildlife and Fish : this includes fish production, bird watching, haunting and fishing. You can rise several species and release the game birds for hunting or manage your land for improved **game habitat**.
- 7) Nature based Recreation: These include walking, swimming, float trips, cycling, bullock cart rides, tractor rides, boating and other water base activities, practical demonstration of various experiments on crops and fruits and so on.
- 8) Floriculture: It includes flowers marketing by farmers. Fresh flowers on the table have a high priority in most of our homes today. In addition one can raise bedding plants for the wholesale and retail markets.
- 9) Education: Education can become a part of almost every agro-tourism and alternative enterprise. Education may can even be focus to the enterprise. It includes invitation to the school students.
- 10) Heritage and Culture: This is one of the fastest growing tourism activities. Indians are very much interested in the history of India. Since most people come from an agriculture ancestry, they want to learn more about what their great grandparents for grandparents did for living. Agriculture has a tremendous heritage and culture.
- 11) Arts and Crafts: Local arts and crafts are always been in the demand by domestic and foreign tourist. Tourist's secondfavourite activity is shopping. This includes food items and other value added products produced on the farm. Quality in products are needed to attract and keep tourist coming back.
- 12) Farm/Ranch stays: There are three types of stays: Vacation(Visitors are looking for rest and relaxation), working vacation(visitor participated in the farm/ranch daily chores and work) and dude ranches/farm(visitors are specially treated by staff members, who do all the necessary preparation for the activities during their stay)
- 13) Tours and Touring: Tourists travel to see farm harvesting activities such as threshing, bees, jaggery processing. Cheese, ice-cream, dairy products processing. Either a group of farmers or community sponsors such events.
- 14) Pick, Cut, Gather or Grow your own: Farmer have been selling pick your own fruits and vegetables events, some have been renting trees, land, cow etc.

Conclusion And Suggestion:

- Development of agro-tourism in Maharashtra is still in primary/initial stage.
- Maharashtra has perfect opportunities to enhance its agro-tourism offer and it also represents one of the few states.

- Though there has not been much initiative taken by the state government for agro-tourism development, it has been successfully initiated through the farmers efforts.
- The response of tourist is satisfactory and they are now becoming regular customers.
- State Government, MTDC, NABARD, Ministry of Agriculture are planning and supporting to Agro-tourism to some extent.

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A Geographical Study of Major Crops in Drought Prone Area of Nashik District (M.S.)

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Abstract

Drought is an environmental hazard which is highly influence on socio-economic status of drought prone area. The rainfall of Eastern part of Nashik district is low and scarcity of water is increasing day to day. This research paper has given emphasis on the study of major crops in drought prone area of Nashik district. The intensity of drought is highly impact on agricultural field founds in study region. This area is purely depending on the South-western monsoon. The major crops of the study area are highly affected by drought. The agricultural pattern of this area indicates and demarcates the drought area of Nashik district.

Key Words: Drought, Cropping Pattern, Major Crops, Cropping Intensity etc.

Introduction:

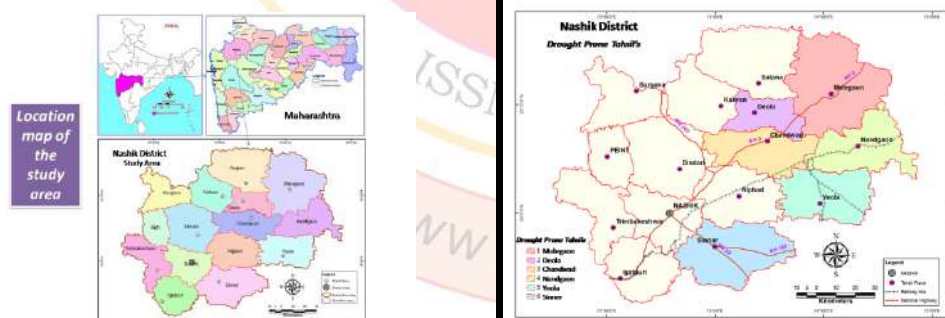
Drought is a climatic anomaly, characterized by deficient supply of moisture resulting either from sub-normal rainfall, erratic rainfall distribution, higher water need or a combination of all the three factors. About two thirds of the geographic area of India receives low rainfall, which is also characterized by uneven and erratic distributions. On an average, severe drought occurs once every five years in most of the tropical countries, though often they occur on successive years causing severe losses to agriculture and allied sectors. The water needs in agricultural sector are going to be very high, as several thousand tons of water is required to produce each metric ton of food grains.

Aims and Objectives:

1. To study the Geographical setup of study area.
2. To study the Major Crops of study region.

Study Area:

Nashik district is situated in the Deccan trap of Maharashtra which is partly in the Tapi Basin and partly in the upper Godavari Basin. It lies between 19° 35' 18" North latitude to 20° 53' 07" North latitude and 73° 16' 07" East longitude to 74° 56' 22" East longitude. It is surrounded by Dhule district in the North, Jalgaon and Aurangabad district in the East, Annednagar district in the South, Thane district in the South-West and Gujarat state in the North-West (map 1.1). Nashik district has an area of 15530 sq. km. and population of 6,109,052, as per the 2011 census. There are 15 tahasils and 66 revenue circles are in the Nashik district.



Since last 27 years the grape has acquired dominance on the agricultural economy of the district. Due to water shortage in Kalwan, Deola, Baglan & Malegaon blocks, the farmers have shifted to pomegranate from sugarcane & grape crops. Some progressive farmers are cultivating flowers in green houses. These developments also indicate that the farmers in the district adopt new technologies & methods of cultivation very fast.

Methodology:

Present study includes data collection from various sources, data analysis, map preparation and results. The methodology is adopted to fulfill the objectives of the present study. Field work component mostly comprises with collecting secondary data of selected crops from various government offices and rainfall data of the study area. Base map of the study area has been prepared using SOI topographical maps on 1:50,000 scale. DEM of the study area has been generated by contour digitization in GIS environment. The data of crops take

into consider for the period of 1991 to 2019. Gross cropped area has been used for the comparative study. To measure cropping area is calculated in the hector and unit of Average is considered for the present study.

Explanation

Nashik district is divided into two division on the basis of rainfall. The western part of the district is in the high rainfall due to the relief rainfall. This region is in the mountainous area of *Sahyadri*. The eastern part of the district is in the rain shadow zone so rainfall is very low. These two regions characteristics highly influence on the cropping pattern of the study area. The present research work throws limelight on the study of selected crops which are the indicators of high rainfall and drought areas of study area.

A) Crops in the High Rainfall/ Irrigated Area:

1) **Rice:** This crop is dominant in the western part of study area. According to the crop data of 1990-91 (Table-1) in Igatpuri tehsil 37.42 % area was under this crop to gross cropped area which is highest in the district followed by Peth (20.69) and Surgana (11.25). According to the crop data of 2018-19 (Table-2) Igatpuri Tehsil is also at highest level i.e. 51.54% to gross cropped area which is followed by Trimbak (30.98), Surgana (30.33), Peth(20.73), Nashik(12.41) and Kalwan(8.43).

Table No 1. Nashik District: Tahsilwise Proportion of Crops Gross Cropped Area- 1990-91 (Percent)						
Sr. No	Name of Tahsil	Crops				
		Rice	Wheat	Jawar	Bajara	Maize
	Surgana	11.25	2.2	8.62	0	0
	Kalwan	3.27	4.67	16.87	19.56	8.49
	Deola	N.A.	N.A.	N.A.	NA	NA
	Baglan	1.54	12.39	3.95	50.28	2.51
	Malegaon	0.5	7.13	4.29	54.68	0.65
	Nandgaon	0.07	2.96	4.33	69.04	0.21
	Chanvad	0.53	3.19	6.71	65.64	0.36
	Dindori	3.25	26.39	12.94	3.81	0
	Peth	20.69	0	0.43	0	0
0	Trimbak	N.A.	N.A.	N.A.	NA	NA
1	Nashik	9.92	14.77	2	11.51	0.03
2	Igatpuri	37.42	4.64	0.66	0.07	0.7
3	Sinnar	0.55	6.59	12.49	48.25	0.01
4	Niphad	0.67	12.07	11.29	40	0
5	Yeola	0.06	14.79	17.41	44.71	0.03

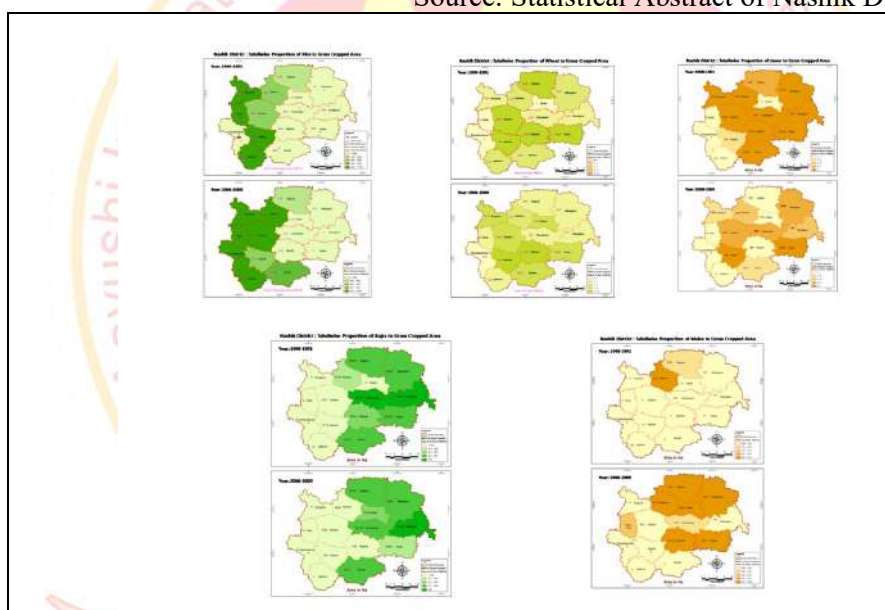
Source: Statistical Abstract of Nashik District 1991

2) **Wheat:** This crop is occupied in the central part of Nashik district which is also high to medium rainfall area. In this region Dindori tehsil is densely occupied by this crop which is 26.39% to gross cropped area in 1990-91 followed by Nashik (14.77), Baglan (12.39) and 12.07 Niphad tehsil.(High irrigation). But according to cropping data of 2018-19 highest cropped area is found in Nashik district which is 13.52% to gross cropped area followed by Niphad (12.25), Deola (11.57), Surgana(10.29) and Dindori(9.28).

Table No 2. Nashik District: Tahsilwise Proportion of Crops Gross Cropped Area- 2018-19 (Percent)						
Sr. No	Name of Tahsil	Crops				
		Rice	Wheat	Jawar	Bajara	Maize
	Surgana	30.33	10.29	1.59	0	0
	Kalwan	8.43	7.17	2.49	14.5	30.52

	Deola	0.01	11.57	0.47	37.54	19.11
	Baglan	2.33	3.74	0.23	46.92	15.08
	Malegaon	0.05	3.36	3.52	52.74	21.72
	Nandgaon	0	2.26	2.22	66.1	1.99
	Chanvad	0.35	1.22	3.21	57.45	2.87
	Dindori	9.14	9.28	3.03	2.26	1.19
	Peth	20.73	1.18	0	0.03	4.34
0	Trimbak	30.98	0.4	0	0	0
1	Nashik	12.41	13.52	4.07	1.5	0
2	Igatpuri	51.54	3.29	0.01	0	0
3	Sinnar	4.98	8.73	1.04	49.05	0
4	Niphad	0.23	12.25	0.39	1.87	19.6
5	Yeola	0	9.67	4.25	27.22	12.52

Source: Statistical Abstract of Nashik District 2020



3) Maize: This crop is highly occupied in the Kalwan tehsil which is 8.49% to gross cropped area according to 1990-91 data. Baglan tehsil is also occupied by 2.51% . According to cropping data of 2018-19 Kalwan is the highest cropping area i.e. 30.52% followed by Malegaon (21.72), Deola(19.11), Niphad (19.6), Deola (19.11) and Baglan(15.08).

B) Crops in the Low Rainfall/ Drought prone Area:

1) Jawar: The eastern and central part of Nashik district densely occupied by this crop according the data of 1990-91. The gross cropped area 17.41% of Yeola tehsil is largely occupied by this crop. Afterwards Kalwan (16.87), Dindori (12.94), Sinnar (12.49) Niphad (11.29) and Sargana (8.62). According to data of 2018-19 the gross cropped area of Jawar is decreased rapidly due to changing cropping pattern of study area. Still Yeola tahsil is occupied by 4.25% to gross cropped area followed by Nashik(4.07), Malegaon (3.52) and Dindori (3.03).

2) Bajara: The high cropped area of this crop is the indicator of low rainfall area i.e. drought prone area. The cropping data of 1990-91 shows that this crop is highly occupied in the Nandgaon tehsil (69.04%) followed by Chandvad (65.64), Malegaon (54.68), Baglan (50.28), Sinnar (48.25), Yeola (44.71), Niphad (40), Kalwan (19.56) and Nashik (11.51) respectively. The cropping data of 2018-19 shows that the gross cropped area of

Chandvad tehsil area is highly occupied by this crop (57.45%) .The occupied area of this crop is decreased as Malegaon (52.74), Baglan (46.92), Deola (37.54), Yeola (27.22) and Kalwan (14.22).

Conclusions:

1. The area under rice crop is very low in percent in the drought prone areas of study area.
2. The area of rice crop is higher in the Igatpuri, Surgana, Trimbak and Peth tehsils which are the high rainfall areas of study area
3. The cropped area of wheat is higher in the Nashik, Niphad and Deola tehsil where irrigation facilities are adequate.
4. The area of Jawar is found decreasing rapidly in study area.
5. Bajra is one of the sole crop found in high amount in the drought prone areas of Nashik district.
6. The percentage of gross cropped area of Bajra and Jawar indicate and demarcate the drought prone areas of Nashik district.

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Use of Natural Resources and Environment

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Nature is something that should be left intact as much as possible. We have no right to destroy the land or to tear the earth a part. Natural resources are materials, creatures or energy found in nature that can be put to use by humans. Human is a great destroyer and exploiter as natural resources are merely a source of wealth and power for him. Further, a world human population of over six billion cannot exist without affecting the shape and condition of the environment which is under continuous pressure due to over-exploitation of natural resources. Nature has blessed us with a wide variety of resources. These resources are very vital for the existence of living being especially the human beings. They are sources of materials which meet our requirements of food, shelter, energy etc. According to Zimmermann, "the word 'resource' does not refer to a thing or a substance but to a function which a thing or a substance may perform or to an operation in which it may take part."¹

India is a vast country and is blessed with many natural resources. We will discuss some general features about India. The availability and distribution of these resources will be described in detail so that you can appreciate the resource wealth of our country. We are fortunate in having all the vital natural resources such as land, water, minerals and a large variety of living organisms.

The consumption of natural resources is increasing because of many factors such as increasing population, increasing pace of development including industrialization, urbanization, mining and related activities etc. However, the amount of natural resources is limited and they are depleting at a very fast rate.

The natural resources can be broadly categorized into the following these categories:

- One category of resources consists of raw materials and energy resources used by humans. Usually these are used as inputs into the economic system. These have traditionally being regarded as natural resources. There example are minerals, ores, coal and oils.
- The natural environment also provides the essential life support system for human, including oxygen to breath and water to drink as well as material goods such a food.
- Thirdly, another group of resources comprises part of the environment that can provide services rather than material goods. They provide the sump into which the waste products of the economic system and human life, in general, are disposed in addition to purification of air, other natural processes such as nitrogen fixation, soil formation and fertility are very important for the survival of human beings.

Natural resources can be classified in various ways. The natural resources are divided into two parts like biotic and abiotic. Abiotic resources are physical resources like land, water, soil and vegetation etc and biotic resources are natural resources like plants, animals and living organisms etc. There are another types of natural resources is renewable and non-renewable resources.

Renewable Resources: These resources are natural resources that can be replaced by nature over a period of time. Trees, wild life and soil are renewable resources. Air, water and sunlight are also renewable resources on which all life depends.

Non-Renewable Resources: These resources are natural resources that are available only in limited amounts and are not easily replaced by nature. Many of the products you depend on every day are made from non-renewable resources.

Environment is the source of life on earth and it not only directs but also determiners the existence, growth and development of mankind and all its activities. The human environment is the earth we live on. It includes all the physical parts of the earth, such as air, soil, minerals, rocks and water and all its living organisms, such as animals and plants. Environmental science provides and approach towards understanding the environment of our planet and the impact of human life upon that environment. In fact, environmental science is a vast subject including all those branches of knowledge which deal with ecology as an interdisciplinary science driving upon subject like zoology, botany, geography and social and natural sciences.

The term environment etymologically means surroundings. Literally, it is an English word formed by two words i.e., 'environ' and 'ment' which means 'encircle' or 'all round'. Thus, "Environment is a complex of many variables which surrounds man as well as all living organisms."² Any external force, substance or condition, which surrounds and affects the life of the organism in any way becomes a factor of its environment. These factors have been variously called as environmental factors, ecological factors or simply, factors and may

be living, biotic as well as non living, abiotic. There are main definitions of the environment which is given below:

“The sum total of all conditions agencies and influence which affect the development, growth, life and death of an organism, species or race.”³

“The entire range of external influences acting on an organism, both the physical and biological (in other organism) forces of nature surrounding an individual.”⁴

The human population is increasing at very fast rate and at all the same time the human needs are also growing. Hence, more and resources and required to meet the ever increasing human requirements. But the resources are available in a limited amount. Also, the natural resources on the earth are not distributed evenly. Hence, there is a great pressure on the existing resources. In other words, we can say that these resources are being over exploited. Thus, the resources are being consumed at a very fast rate. The non-renewable resources are being depleted and would exhaust one day. Also, classifying something as a renewable resource, however does not mean that it cannot be depleted and that it will always stay renewable. The highest rate at which a renewable resource can be used without decreasing its potential or renewability throughout the world or in a particular area is called sustainable yield. If the natural replacement rate is exceeded, the available supply of a potentially renewable resource beings shrink and this process is known as environmental degradation.

If such unsustainability continuous, the resources can become non-renewable on a human time scale or sometimes non-existent. The key of maintaining the supply of a non-renewable resource is to keep its rate of use at or below natural replacement rate. Today many of the natural resources are being damaged as a result of human activities. Air pollution, water pollution and the problem of solid waste disposal are headlines in newspapers daily. Natural resources like soil, forests and wildlife are in danger because of reckless human action and insensitivity which are stressing and degrading the resources in an unprecedented manner. So now we need to conservation of resources at present time. There are several strategies for the conservation of natural resources. These are as follows:

1. Reduction in consumption
2. More efficient use of existing resources
3. Substitution of non-renewable resources by renewable ones
4. Development of new materials and newer cleaner technologies
5. Use of more abundant resources in preference to less abundant ones
6. Recycling and reuse
7. Judicious use of resources with minimum wastage

When humans use natural resources wisely, they can live in harmony with the community and environment around them. Because the human population continuous to grow, people are becoming more aware of how important it is to conserve and protect our natural resources. There are so many ways to balance the human need for natural resources with the availability of these resources.

Concept of Resource Conservation: The word conservation is derived from two Latin words, ‘con’ meaning ‘together’ and ‘servare’ meaning to ‘keep’ or guard. Literally, therefore, conservation means “to keep together”. The word was coined by Gifford Pinchot shortly after the White House Conference of 1908. Some of the definitions of resource conservation are:

“Resource conservation is the scheduling of resource use so as to provide the greatest yield for the greatest number over the longest time period.”⁵ (P. Haggett).

“The optimum allocation of natural, human and cultural resources in the scheme of national development, whereby maximum economic and social security will be assured.” (Harold M. Rose)

The conservation of natural resources is a concept that deals with the rational use of resources so that a harmony between man’s resource requirements and its availability can be established. While renewable resources need a proper resource management system, the non-renewable resources require a long term strategy for their proper use. This is not only necessary ti assure long term resource use but also to protect the ecosystem. Nowadays, every country is very particular regarding its natural resources and tries to genuinely adopt conservation policies. During the colonial period of 18th century to mid 20th century most of the countries of Asia, Africa and Latin America have suffered a lot due to their resource exploitation by colonial powers.

The conservation wave was not limited to the US only but started in European countries as well as in Russia and soon all the countries of the world realized the need to conserve natural resources. Therefore, apart from national efforts by each country, efforts on global level have also been started under United Nations. Different agencies of the UN are now playing a key role in setting the world on the long road towards conservation of natural resources and protection of the environment. The increase in public support for

conservation measures both at international and local levels has given this movement a new life, but still there is a long way to go in this direction.

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Regional Distribution and Intensity of Lift Irrigation Technology in Indapur Tahasil of Pune District (Maharashtra)

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Abstract:

Indian agricultural sector accounts for 18 per cent of India's gross domestic product (GDP) and provides employment to 50 per cent of countries workforce. The overall growth of the Indian economy has depended much on the performance of agriculture. It is signal largest sources of employment in India, even though it contribution. The Rangrajan Committee has been suggested in the report 2006-07 that agricultural sector should be prominent by attending irrigation and electricity facilities. Irrigation constitutes one of the most effective technical means of raising agricultural production in the rainfall is both inadequate and unpredictable, it affects badly on agricultural landuse and also productivity. The application of irrigation water by using different irrigation techniques it helps to stabilizing production under ceteris paribus condition. Indapur Tahasil located on south – eastern part of the Pune district. The region has semi-arid zone area because of rain shadow effect of the Western Ghats. Therefor the region presents heterogeneous characteristics in environmental conditions reflecting in the regional variations in agriculture. Now the region has been characterized by the adoption of new technology in agriculture transforming the agricultural landscape. In this paper, find out the regional distribution and intensity of lift irrigation technology of indapurtahasil during the study period.

The data calculated by different statistical methods for this purpose. Secondary as well as primary data has been used. Cartographic techniques have been used for presentation of the data. The dominance of lift irrigation is observed all along the river course and back water of Ujani dam. The Central part of the region has low proportion of lift irrigation is observed.

Key words – Irrigation, Lift irrigation, cropping pattern, current pattern, soil quality, soil degradation, ceteris paribus condition.

Introduction:

Indian agriculture sector accounts for 18 per cent of India's gross domestic production (GDP) and provides employment to 50 per cent of countries workforce. Irrigation is an age old art and sciences. In many old world Countries like India, Pakistan, China, Egypt, Israel, Greece and Rome are some of the ancient works. Throughout the world rainfall varies due to the variation in rainfall, large portion of world crop land require irrigation. It influences the development of human society in the world scenario. Irrigation is the artificial application of water to the soil for crop production. It has been therefore considered as one of the important technology components of progressive agriculture. The lift irrigation can be regarded as an important component of improved technology which has been diffused widely due to rural electrification. The irrigation sector in Maharashtra is one of the largest in the country. In the state the major and medium projects are owned by the government in all respects. The lift irrigation can be regarded as an important component of improved technology which has been diffused widely due to rural electrification. Indapurtahasil is one of the progressive tahasil in Pune district regarding the use of irrigation technology. Heavy capacity electric pumps ranging from 5 to 10 HP have been used to lift the water from wells and 20 to more than 500 HP are used to lift the water from river and back water of Ujani dam.

Lift irrigation is a recent form of irrigation, which differs from other traditional means of Irrigation Lake, well, canal and tank. The last five decades have witnessed the development of lift irrigation causing into deep and far reaching impact on the agricultural economy of the region. Through it requires heavy capital outlay it has been practiced on co- operative basis along the river banks. Here the researcher has attempted to analyse such irrigation technology with reference to extent of lift irrigation, schemes of lift irrigation technology, regional distribution and intensity of lift irrigation technology base on primary and secondary data. The study region manifest that the region has typical monsoon climate with three market seasons. The annual rainfall is 450 to 550mm, but it is not evenly distributed throughout year. Indapur is a quiet hot place as it receives scanty rainfall. Therefor artificial water supply is provided in the field using various irrigation techniques and one of them is lift irrigation. Ujani dam backwater along with Nira left irrigation. Ujani dam backwater along with Nira left canal and khadakwasla canal system, Nira and Bhima Rivers are major sources of irrigation and water supply for Indaportaluka.

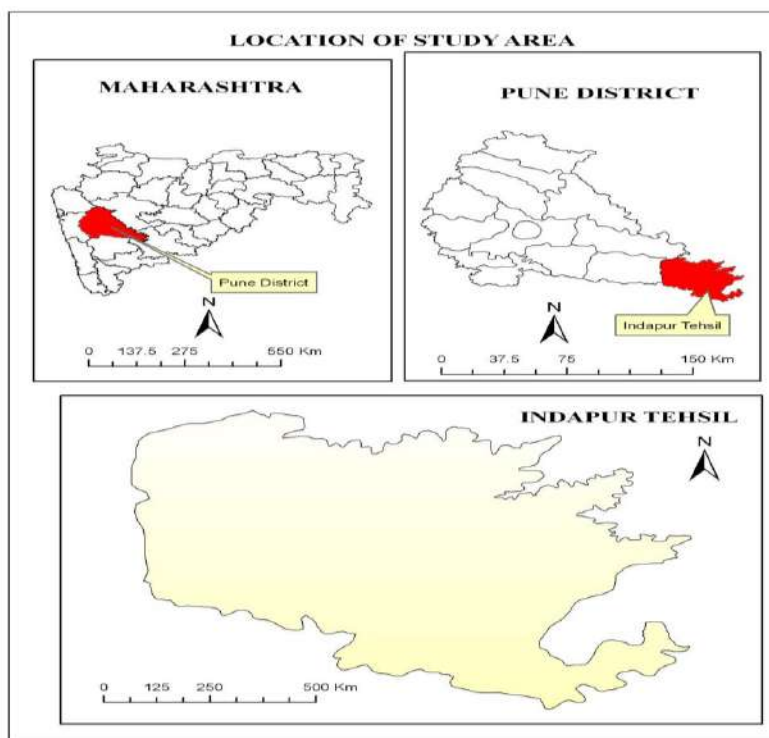


Fig.1 Location of Indapur Tahsil

Study Area:

The indapur tehsil is one of the tahasil in Pune District of Maharashtra state. The tahasil is located between $18^{\circ}07'$ to $18^{\circ}12'$ north latitude and $75^{\circ}02'$ to $75^{\circ}03'$ East longitudes occupying 1478 km² area of South-Eastern Pune district.(fig.1) The tahasil comprises of eight revenue circles viz. Indapur, LoniDeokar, Bhigwan, Nimgaonketki, Kati, Bawada, Anthurne and Sansar. The indapurtahasil is surrounded by back water of ujadi dam in north side, daund tahasil on the North West, Bhima river basin and Madhatahsil of Solapur District is on east side, South side demarcated by Nira river basin, Malshirastahasil of Solapur and Phaltan Tahasil of Satara district. The medium black and deep black soil appears within study region. The population of the study has 424029 and the density of population is 287 persons per sq.km which varies regionally (2011 census)

Objectives:-

- 1) Study the extent of lift irrigation in the region
- 2) Study the schemes of lift irrigation technology during the study period.
- 3) Find out the regional distribution of lift irrigation schemes
- 4) Find out the intensity of lift irrigation technology.

Hypothesis:-

Regional distribution and intensity of lift irrigation techniques are closely related to the sources of water supply, tendency of farmer to accept the new agricultural techniques, purchasing capacity of the farmers, land holding capacity of farmers and Government policy, electricity supply etc.

Data Base and Methodology:-

The present study is based on primary and secondary sources of data. The primary data is collected through intensive field work. The secondary data collected through tahasil office, Circle office, Sugar factories of study area etc. Revenue Block or circle is considered as areal unit of the present work. Data generated through the help of stratified random sampling technique. The period of present investigation is considered from 2001 to 2011. The different statistical and quantitative techniques are used for processed and representation of collected data from different sources. Cartographic techniques have been used for presentation of data. The analysis and integration of multivariate and multi data may be carried out and presented using GIS technique.

Result Analysis and Discussion:

This study area reveals the about lift irrigation scheme therefore analysis of spatial distribution village to village and their changes in 2001 to 2011 as following.

A) Schemes of lift irrigation Technology:-

There are 5131 private and 13 co-operative lift irrigation schemes including small and big. The lift irrigation schemes in private and co- operative sector have average capacity ranging from 3 to 10 H.P and 20 to 700 H.P respectively. It is observed that out of total lift irrigation more than 80 present are small having an average command area of 4 hectares with average 5 H.P capacity of each.

It is interesting to note here that the big schemes are located in the command area of K.T.W. and back water of Ujani dam, due to availability of water. It is farther observed that K.T weirs and numbers of lift irrigation schemes and the length of pipe line have positive relationship. Today 18 weirs have been completed. The weirs make water available up to April in their command areas. The table shows that the region has 13 co – operative lifts of 2680 H.P irrigation 3059.31 hectares of land of 9 villages. Whereas providing water to 23422.3 hectares of in 99 villages. Thus individual lift irrigation are also playing more important role compared to co – operative lift irrigation schemes.

Lift Irrigation Schemes in IndapurTahasil- 2011(Area in hectares)

Type	No of Lifts	Capacity in H.P	Irrigated land	Total Villages
Private	5131	32829	23422.3	99
Co-operative	13	2680	3059.31	9
Total	5144	35509	26481.61	108

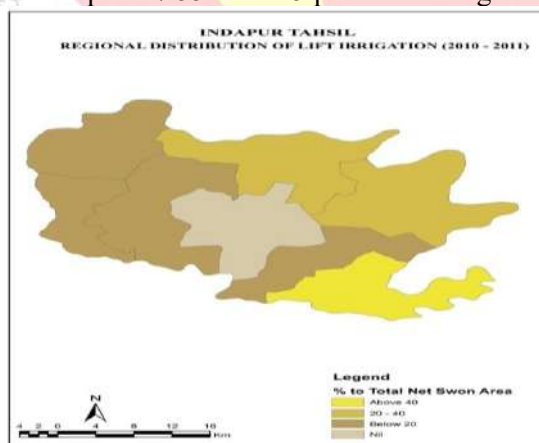
Source:-i) Nira Left Bank canal office, Baramati.
ii)Division of Ujani Back water, Bhimanagar.
ii)Bhima irrigation Branch, Narshinpur, Bhimanagar.

B)Extent of lift irrigation in the Region –

The dominance of lift irrigation is observed all along the river course and back water of Ujani dam. There is high concentration at three locations i.e. north, south and East part of the region. There are 108 villages in the region taking the advantage of lift irrigation. It is above 53 per cent villages have advantage of (above 75 per cent) lift irrigation of the total irrigated area. There are about high 57 villages located in relatively levelled extensive flood plains and therefore, these are capable of taking advantages of lift irrigation schemes. (fig.2) The moderate per cent (40 -60) is observed in the 31 villages and low proportion (below 40) in remaining 20 village. This is because these villages are located at a considerable distance and they cannot enjoy the vicinity of river courses as in the case of above villages.

C) Intensity of lift irrigation Technology

Along the Back water of Ujani dam and river course, lift irrigation has become major source of irrigation. During 2000 – 2001 to 2010 – 2011, the net area irrigated by lift increased by 35.11 per cent while the net area irrigated by all the source of irrigation was about 22.68 per cent. The net area irrigated by lift as percentage of total irrigated area went up to 27.55 from 25 per cent during the same period.

**Fig.2 Regional distribution of Lift Irrigation**

The ratio of the irrigated area by lift irrigation to net area sown is (fig.2) high (above 40 per cent) in Revenue circle of Bawda. Bawda Revenue circle has recorded highest proportion of (46.22 per cent). Because of these Revenue circle has on the river course of Bhima and Nira. Moderate percentage (20 to 40 per cent) is noted in the Revenue circle of LoniDeokar and Indapur Revenue circle. LoniDeokar and Indapur Revenue circle has recorded 29.37 per cent and 36.05 per cent lift intensity respectively.

It is due to the development of lift irrigation schemes on the Back water of Ujani dam which could bring additional land under irrigation. Low percentage (below 20 per cent) is observed in Revenue circle of

Bhigwan, Kati, Anturne and Sansar due to unfavorable physiographical condition and more distances for the River course and Back water of dam.

The changing intensity of lift irrigation over 40 per cent observed in Bawda Revenue circle is high intensity.(fig.3) Moderate intensity (20 to 40 per cent) is observed in Indapur and LoniDeokar Revenue circle. Low intensity (below 20 percent) is observed in Bhigwan, Kati, Sansar and Anturne Revenue circle. NimgaonKetki Revenue circle has no found the lift irrigation due to the adverse physiographic condition and want of natural source of water.

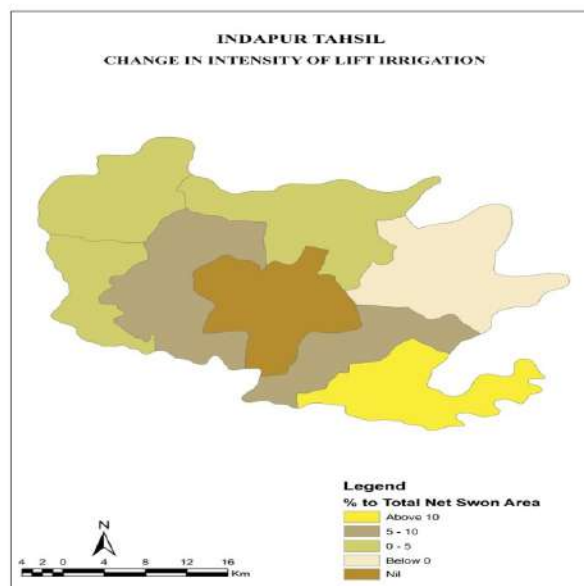


Fig.3 Changes Intensity of Lift Irrigation

Conclusion –

Irrigation technology occurs to be the stimulated factors for the development of agriculture upon which the degree of using other technologies depends largely. The Tahasil has different sources of irrigation. The lift irrigation is a typical form of irrigation technology is mainly confined along the Bhima and Nira rivers and back water of Ujani dam, out of the total irrigated area lift irrigation accounts for 27.55 per cent. Rural electrification heavy electricity subsidies and institutional financing for pump sets and constructions of K.T. weirs on rivers have played an important role in promoting the development of lift irrigation. This paper the following finding is the ratio of the irrigated to net area by lift irrigation to net area sown is high in Bawada revenue circle. Moderate percentage is noted in Loni-Deokar and Indapur revenue circle and low intensity is observed in revenue circle of Bhigwan, Kati, Anthurne and Sansar. Last ten years have witnessed O positive change in the region as a whole as for as the development of lift irrigation is taken into consideration.

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Yet Amber Light For Women Empowerment In Road Infrastructure!!**Miss. Pradnaya V. Dseshpande**

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Abstract:

I measure the progress of a community by the degree of progress which women have achieved....Dr. B.R. Ambedkar. Moving ahead with this delightful thought, India – a nation having demographic dividend in its favors, contain approx.50% of its population as female. It's a paradox situation in India that being 50% of its population as female still they are deprived of: economic, socio-political, security rightsetc. One of the major reason behind this are age old – Obsolete infrastructure, and road infrastructure is one amongst it. Respective work amylase the role of road infrastructure in making society more engendered before its becoming in endangered, and provided lacunas in existing infrastructure as well as way forward for same.

Key Words:Demographic dividend, engendered, road Infrastructure, endangered.

Introduction:

Sustainable development goal No. 5 Throws light upon Gender equality, to achieve this India needs to feel concern over upliftment of women's in our society. Nirbhaya case of New Delhi 2012 exposed deficiency of infrastructure, and shown that relation of women safety with infrastructure are strongly co-related. According to national crime record bureau 2019 Report Rape, Is one of the 4th most common crime against women in India, 32033 Rape cases were registered across a country, on an average 88 cases daily. On other side issues of female driving licenses are also there, although number of license for female are increasing but not more as compared to male. In most populist state like Uttar Pradesh only 4% of license are issued to women in 2019. There may be age old stereotypes attached with women's that they are not made for driving. By this analysis it is clearly evident that road transportation work on both the aspect i.e. women's safety as well as women empowerment. Respective work provide picturesque for role of roads in women empowerment and women safety. However, nothing is perfect in its self on the same way road transport in India also needed some enhancement for increasing women safety and holistic development of nation.

Literature Review:

To analysis research gap in respective work, existing research work which is closely related with respective issues are analysed. Few among them are listed as follows:

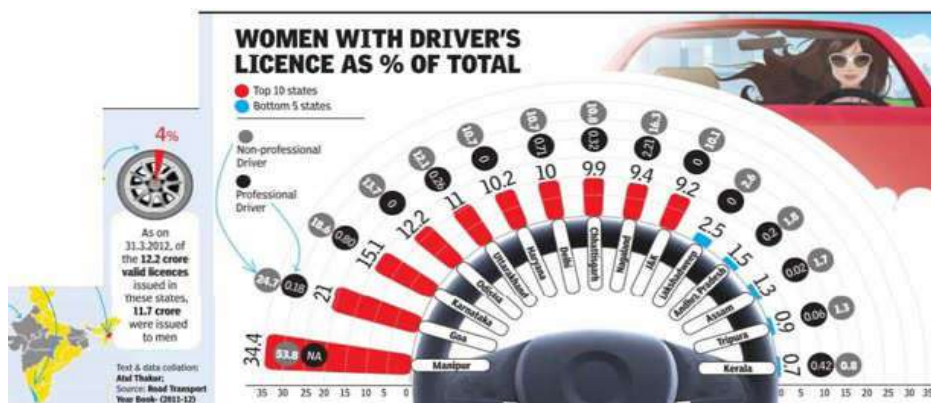
1. This paper highlighted importance of private efficient transport facilities in economic employment position of women. It analysis link between women choices of transport and labor market as per availability of transport facilities. **Ref.1**
2. It highlighted the importance for consideration of women safety while designing roads for public transport. **Ref.2.**
3. It highlighted how off-road markets are at disadvantages for women traders. Off-road market with poor road connectivity put hindrance on economic empowerment of women. **Ref. 3.**

Methodology:

It is Descriptive theoretical framework for role of road infrastructure in women empowerment and women safety, simultaneously it highlighted lacunas in existing road infrastructure and provide way forward for future policies. Following data highlighted No. Driving Lenience issued among females in majority of the state for financial years 2017.

State's in India	Number of Driving Licenses issued in thousands
Maharashtra	446.48
Kerala	234.94
Karnataka	205.18
Tamilnadu	97.97
Madhya Pradesh	85.99
Uttar Pradesh	72.41
Chhattisgarh	62.13
Delhi	50.18
Telangana	46.25

Haryana	38.9
Odisha	35.98
Jharkhand	32.5
Andhra Pradesh	28.33

Source: www.statistica.comSource: [stastoistics:https://timesofindia.indiantimes.com](https://timesofindia.indiantimes.com)

- Its depicted that yet there is more needs to done, for occurred economic development of women by encouraging them in issuing driving license, as well as their holistic development.

Objective:

1. To investigate Role of Road infrastructure in women empowerment.
2. To investigate Lacunas in road infrastructure which hindered women empowerment.
3. To provide way forward for future road policy

Role of Roads infrastructure in women empowerment:

1.Educational empowerment:

Parents bears fears in mind related to safety of girls, while sending them out of home for education. Better connectivity to educational institute will insure less drop outs rate of women from education.

2.Health Empowerment:

Better connectivity to health care center ensure less mortality rate and better regular health checkup accessibility for women's in remotest part of nation.

3.Economic Empowerment :

If Roads are better connected to market then women's needs not to sell their product at lower cost, just in fear of wastage if not reach to market within stipulated time. Following are the areas in which in road infrastructure play vital role for women employment and empowerment.

1. For dairy worker women's market accessibility can be enhanced via efficient roads.
2. For self-help group women's or tribal women's products like agarbatti, Matts, packets, etc. can Reach to market via efficient road, will fetch good value for their products.
3. In highly qualified skilled women's workforce sector's also, road infrastructure provide them better accessibility to their work place. Which enhance contribution of service sector's GDP for India.
4. Road construction provide employment opportunity for MGNREGA women work force.

4.Social Empowerment:

If women will have employment, fearless travel, then they can be play decisive role in decision making and can take leadership role in society.

5.Skill Building:

Many women's lacks in skill building, due to far away location of skill training center from their native place. If affordable, accessible, and acceptable mode of transport is their then they can't miss the opportunity of skill training.

6.Aglomeration Effect on Other Services:

If affordable efficient road connectivity is there, then other services like banking, agriculture service, health service, co-operative service etc. can reach to remotest part of our nation which ultimately leads to women empowerment.

Lacunas in Road Infrastructure pertains to women empowerment :

- Increasing crimes against women's due to age old Infrastructure are green signal for existing lacunas in road infrastructure, which hinders women empowerment in letter and spirit for India. Following are areas which are really concerning for women empowerment on which we need to redressed grievances.

1. Lack of inefficient street lighting over roads are nothing but invitation to crime against women's and play with their safety at night.
2. It is stereotype attach in society that, women can't be best driver while men can, although it's not true because death of men are more in road accident as compared to female.
3. Not considering about gender equality while designing road infrastructure resulted into Safety issues of women.
4. In male dominated society women's are less opted for driving classes which hampered their driving skills as compared to men.
5. Inefficient connectivity to health care centre Increase mortality rates.

Way forwards:

- In designing phase itself consider/ design road infrastructure from Gender equality point of view.
- Use modern Intelligent traffic lightning system over road which ensure women safety.
- Govt. Needs to provide extra separate budgetary allocation for women's safety in road transport sector.
- There must be safety stay stops for women on roads after certain interval of time, where she can feel safe with installed CCTV Over there.
- Ensure worthy road connectivity to remotest part nation, so that real women empowerment provide fruitful results for rural women's also.
- Encourage more female in traffic police sector thus we can ensured more women's safety on roads.

Conclusion:

Development must be equal in gender; its fruits must reach to all remotest part of nation. development must touch to all (**here all means all**) -**let women's not being exception for this**. Respective papers provide arena of women's empowerment from road infrastructure perspective. We need to breaks Gender discriminative serotypes, Inclusion of women's sensitive issues , while designing any Infrastructure is need of an hour, and let road infrastructure not exception for it. **After all road belongs to all gender: male/female/transgender, to all strata: cycle/bike/luxuries, to all section: rich/poor- for all, let it be for all.**

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Water Resources Development and Management in India**Mr. Amar Raju Jadhav**

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Kolhapur**Mr.Sanjay Maruti Patil**

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ShivajiUniversity,KolhapurShivajiUniversity,
Kolhapur**Abstract:**

Water is one of the most essential natural resources for sustaining life. Its development and management play an important role in agriculture production. Integrated water management is vital for poverty reduction, environmental sustainable and sustainable economic development. In view of the rapid increase in population, industrialization, and urbanization, the demand for water for meeting various requirements is continuously increasing. Therefore, we are facing many challenges in the water sector, which include reducing per capita water availability, the decline in groundwater table in many areas, and saltwater intrusion in coastal aquifers. The quality of surface water and groundwater is also deteriorating because of increasing pollution loads from various sources. Climate change may also adversely affect the availability and distribution of water resources. This article presents to development and management of water resources in India.

Introduction

Water is essential to human life. In fact, since 60% of the human body is water, it can be said that water is life itself. Without water, no field of human activity can be complete. Today, the world is debating if the flow of information is more important than the flow of energy. That is a good question. But the flow of water is still more important. It is fundamental to the economy and to ecology – and to human equity. The issue of water is becoming still more critical in view of climate change and related environmental concerns.

Water is central to some of the flagship programs in India. The modernization of India may be largely dependent on the modernization of its water management. This is not surprising since India supports 17% of the global population but has only 4% of the world's water resources. Better and more efficient use of water is a challenge for Indian agriculture and industry alike. It requires setting new benchmarks in both villages and in the cities. In India, 54% of people are dependent on farming for their livelihood. Yet, their share of national income is only 14%. To make agriculture more remunerative and to improve the prosperity of farming communities, the Indian government has introduced many new projects. Like a: 'HarKhet ko Paani' (Water for Every Farm), Per Drop, More Crop etc.

Now, 75% of water in India is used by agriculture and only 14% by industry. In the coming years, this ratio may change. The total demand for water will also rise. The efficiency of water use and reuse, therefore, has to be built into the blueprint of industrial projects. Business and industry need to be a part of the solution. India is urbanizing at a rate not seen in its history. An effort is being made to build or upgrade 100 modern cities as part of the Smart Cities initiative. Reuse of water, solid waste management and better sanitation infrastructure and practices are benchmarks to assess Smart Cities. In urban India, 35 billion liters of wastewater is produced every day. It is vital to adopt technology to reduce the toxic content of this water, and to deploy it for irrigation and other purposes. This has to be part of any urban planning program.

Objective-

1. To study the water resource planning and development in India
2. To Analyze Management of Groundwater Resources

Methodology

This research paper is based on secondary data. The secondary data is taken from the various sources like a government of India, economic survey, ministry of finance, census of India 2001 and 2011, planning commission reports.

Water for agriculture

In order to meet the challenges of overall water scarcity scenario in the country, various measures can be taken, such as the construction of water harvesting structures, mass awareness among citizen for water conservation, construction of new water storage structures, interlinking of rivers, renovation, and repair of existing water bodies etc.

Water budgeting and planning the cropping patterns for the oncoming agricultural season(s), the strategy for avoiding water-intensive crops to the extent in consultation with the relevant expert departments are

also crucial for checking such situation. Micro-irrigation (sprinkler and drip) should be adopted to achieve more crops per drop. Six decades of investment in the irrigation sector notwithstanding, 40% of the 142 million hectares of agricultural land has only been covered under assured irrigation. With cost-intensive dam-based large projects unlikely to expand irrigation any further, the shift in focus for 'har khet ko pani' through in situ water conservation under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) is a step in the right direction.

Water conservation and cutting down on wastage holds the key to bringing irrigation facilities to every farm in the country. This makes the introduction of sustainable water preservation practices and optimization of water resources just as important as the introduction of new irrigation facilities. Methods to treat and re-use municipal water are also required to augment irrigation water supply.

Drought and Flood Management

Significant regional variations exist in India when it comes to the experience with water. On the one hand, groundwater sources are being savagely exploited and depleted in some of the northern and western states. on the other hand, in eastern and north-eastern states, there is the challenge of overflowing rivers and regular flooding. Year after year, this damages human habitation and is leading to tragedies in countless families. only a multi-stakeholder and multi-pronged approach can address such calamities. This includes achieving an interlinking of rivers where feasible. It also necessitates a basin-wide management of river systems to both keep rivers clean as well as serve the purpose of different types of users.

The drought has many definitions, but mostly it originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. Drought should be considered relative to some long-term average condition of balance between precipitation and evapotranspiration in a particular area, a condition often perceived as "normal". It is also related to the timing (i.e., the principal season of the occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with it in many regions of the world and can significantly aggravate its severity. There can be *Meteorological Drought* (degree of dryness and the duration of the dry period)

Because of the large variability of rainfall both in space and time, semi-arid regions are subjected to the problems of drought. The problems of arid areas wherever one good crop is not possible in normal years are quite different from those of semi-arid areas where one good crop is normally expected but it is frequently lost due to scanty rainfall or due to the variability of rainfall. Even normally high rainfall areas face the failure of rains and consequent upsetting of human water requirements. Water conservation and water management measures are need of the day to achieve a strong and stable economic base, especially in the arid and drought-prone areas of the country. There are no general solutions possible. They will have to be area specific, because of the hydrological peculiarities. It has also to be remembered that development of drought-prone areas cannot be modeled on the lines of the development of other favorably placed areas. The pattern of development of the drought-prone areas will have to be quite different from that of the others. Some of the methods that may be suggested as technical strategies to mitigate the adversities of drought are mentioned below.

Cropping pattern, Creation of surface storage, Planning for less dependable yield, Prevention of evaporation losses from reservoirs, Adjustment in sanctioned water to a reservoir or its releases, Reduction in conveyance losses, Equitable distribution, Maintenance of irrigation systems, Better irrigation practice, Irrigation scheduling etc. The present trend to reduce the losses incurred by flooding is equally towards non-structural measures. Some such techniques are mentioned below.

Flood Proofing, Floodplain management and zoning, Flood forecasting and warning, Flood fighting, Flood insurance.

Water Quality of Ganga River

River cleaning and development is a continuous process and National Mission for Clean Ganga (NMCG) supplements the efforts of state government in the cleaning of Ganga river by providing financial assistance to the state government. NMCG has sanctioned a total of 105 projects of sewerage infrastructure in Ganga basin states at an estimated cost of Rs 17,484.97 cores for river cleaning and Ganga rejuvenation. Out of these, 26 sewerage infrastructure projects have so far been completed resulting into creation of approximately 422 Million Liters per Day (MLD) additional STP capacity through construction/rehabilitation and approximately 2050 KM new sewer lines have been laid. Rest of the projects is under different stages of execution. The Central Pollution Control Board (CPCB) carries out water quality monitoring of river Ganga from Gangotri to West Bengal. Comparison of observed water quality (2016) with bathing water quality criteria indicates that Dissolved Oxygen which is an indicator of river health has been found to be within acceptable

limits of notified primary water quality criteria and satisfactory to support the ecosystem of the river across all seasons and for an almost entire stretch of river Ganga. Biochemical Oxygen Demand (BOD) is found above the acceptable limit in part of stretches downstream of Haridwar to Kannauj, at Kanpur, at Allahabad, at Varanasi; and some stretches in West Bengal (e.g. Bahrapore, Serampore, Palta, Dakhshinewar, Howrah, Garden Reach, Uluberia and Diamond Harbour).

Management of Groundwater Resources

Groundwater in India provides for about 50% of the country's irrigation needs, 80% of rural drinking water requirements and 50% of urban water needs. Unmindful exploitation of groundwater on large scale has led to a sharp decline in groundwater level and deterioration of water quality in major parts of the country. As per 2014 data, 4% of groundwater assessment units in the country are in a critical state and 10% in a semi-critical state due to over-exploitation and contamination. The reasons for this over-exploitation and contamination include increasing demand of groundwater for agriculture, industrial and drinking purposes; change in cropping pattern and growing of paddy and cash crops that consume large quantities of water; scanty rainfall in arid and semi-arid regions; flat rate/ free subsidized electricity for extracting groundwater in certain states; haphazard sewage and waste disposal; large groundwater extraction during droughts when all other sources shrink; and rapid pace of urbanization resulting in reduced natural recharge to aquifers.

Development of groundwater resources in different areas of the country has not been uniform. Highly intensive development of groundwater in certain areas in the country has resulted in over-exploitation leading to declining in groundwater levels. As per latest assessment of groundwater resources carried out jointly by CGWB and the States as of 2013, total annual replenishable groundwater resources of the country have been estimated as 447 Billion Cubic Metres (BCM). Net annual groundwater availability is estimated at 411 BCM. Annual groundwater draft for the entire country is estimated at 253 BCM per year. The stage of groundwater development is 62%.

Groundwater Legislation and Aquifer Recharge

Water being a State subject, it is primarily the responsibility of the concerned State Governments to make suitable legislation to regulate utilization of groundwater. With a view to protecting groundwater regime and taking measures against over-exploitation and to ensure equitable distribution of this resource, the Union Government circulated a Model Bill to regulate and control the development of groundwater to all State/UTs in 1970. The Model Bill was re-circulated in 1992, 1996 and again in 2005 for adoption. So far, 15 States/UTs have adopted and implemented the groundwater legislation on the lines of the Model bill. Sixteen other States/UT's have also initiated action for adoption and implementation of Model Bill.

Central Groundwater Board (CGWB) has prepared a conceptual document entitled "Master Plan for Artificial Recharge to Groundwater in India", involving groundwater scientists/experts. The Master Plan envisages construction of 1.11 crore rainwater harvesting and artificial recharge structures in the country at an estimated cost of Rs. 79,178 crores to harness 85 BCM (Billion Cubic Metre) of water. The augmented groundwater resources will enhance the availability of water for drinking, domestic, industrial and irrigation purpose. The Master Plan has been circulated to all State Governments for implementation.

Central Groundwater Authority (CGWA) has issued directives to the Chief Secretaries of all States and the Administrators of all UTs to take measures to promote/adopt artificial recharge to groundwater/rainwater harvesting. Thirty States/UTs have made roof-top rainwater harvesting mandatory by enacting laws or by formulating rules and regulations or by including provisions in Building bye-laws or through suitable Government orders.

Groundwater Contamination

Central Groundwater Board (CGWB) regularly monitors groundwater quality of shallow aquifers on a regional scale, once every year. Groundwater quality data generated during various scientific studies and groundwater quality monitoring indicate that groundwater in major part of the country is potable. However, some parts of various states are contaminated by salinity, arsenic, fluoride, iron, nitrate and heavy metals beyond the permissible limits of BIS. The possible sources of contamination of groundwater are either geogenic or anthropogenic in nature. Anthropogenic contamination of groundwater is due to industrial discharges, landfills, diffused sources of pollution like fertilizers and pesticides from agricultural fields etc.

Groundwater Resources: Assessment and Planning

The current practice of groundwater resource assessment in India does not have any provision for the static storage that is necessary for mitigation of droughts – an important role of the groundwater system. There is a need to develop the discipline of Drought-hydrogeology by integrating the domains of drought analysis and groundwater modeling. This may broadly require following components: drought analysis, deficit irrigation,

estimation of static storage need, incorporation of static storage in the planning process, development of soft models of the state variables

Participatory Water Management

Water shortage is one of the biggest problems that the country faces today. A big reason for this problem is the poor management of available resources. On one hand, we over-exploit our rivers, lakes, groundwater and other sources of water, but on the other hand, we allow colossal amounts to run off into the sea unutilized. The role of participatory water management needs to be emphasized in addressing the problem of water scarcity in the country. To address this problem, the Government, the civil society and the local level communities must all work together to find ways to preserve, protect and augment the available water resource. There are examples from states like Maharashtra and Gujarat where such participatory management of water have helped turn water-starved, barren farmlands into fields producing multiple crops in a year.

Conclusion

Most of the water planning and development in the country has been done as per administrative boundaries rather than by using river basins as the hydrological unit. This has led to water conflict as most river basins are shared by several states and water demand for meeting domestic, industrial and agricultural needs within each state has gone up significantly. In the absence of river basin management plans and active river basin authorities, these issues have intensified.

The variability of water resources across India demands a basin-by-basin analysis. Variation in rainfall means replenishment is unevenly distributed over time. This makes the management of water including with storage facilities for recharge, even more important than just absolute quantity of water availability. A localized water management approach is need of the hour. It should empower village and neighborhood communities and build their capacity to manage, allocate and value their water resources. Any 21st century water policy must factor in the concept of the value of water. It must encourage all stakeholders, including communities, to expand their minds – and to graduate from allocating a quantum of water to allocating a quantum of benefits. Of course, this quantum of benefits will be dynamic. It will inevitably be linked to the mapping and forecast of livelihood patterns in human society.

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The Challenges & Scope of Reducing Carbon Footprint for Ecological Balance And Sustainable Development in Indian Scenario

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Introduction

Dignitaries and august gathering of this scholarly event of national seminar on natural resources and sustainable development, indeed I am honoured to present my paper on “scope of reducing carbon footprint for ecological balance and sustainable development in Indian scenario” Hope this paper and outcomes of its presentation would reduce my obligation to the planet on which I am living not in big scale rather not negligibly as everyone of has this moral obligation to contribute for sustainable development.

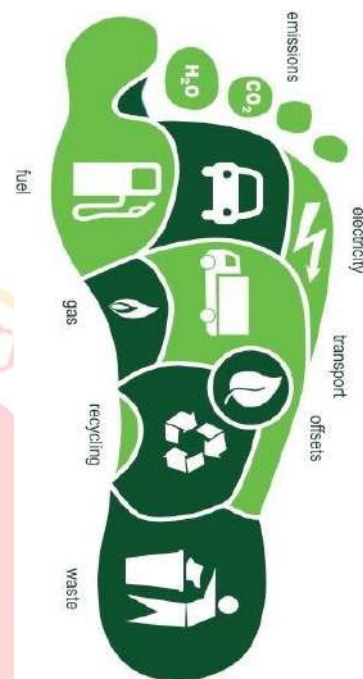
It is high time to learn and unlearn many of our practices which were knowingly and unknowingly damaged this planet. We have plan B for many of our day-to-day challenges but understand the truth that there is no Planet-B as of now.



Climate change is increasingly recognised as a major challenge. It is widely accepted that the greenhouse gas emissions caused by humans are having a negative impact on the environment.

The most important greenhouse gas, arising from human activity, is carbon dioxide (CO₂). Virtually all human activities cause the CO₂ emissions that lead to climate change. By using electricity generated from fossil fuel power stations, burning gas for heating or driving a petrol or diesel car, every person is responsible for CO₂ emissions. Furthermore, every product or service that humans consume indirectly creates CO₂ emissions; energy is required for their production,

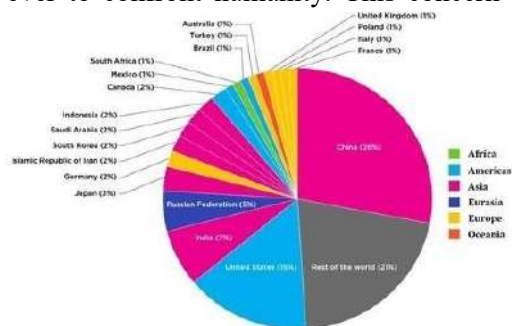
transport and disposal. These products and services may also cause emissions of other greenhouse gases. Understanding and addressing the full range of our impact is crucial for the effects of climate change to be minimized.



Carbon Footprint

The total set of greenhouse gas emissions caused directly and indirectly by an individual, organisation, event or product is commonly called their carbon footprint. Establishing the carbon footprint of an organization can be the first step in a programme to reduce the emissions it causes.

Carbon emissions and thereby Global warming has emerged as one of the most important environmental issues ever to confront humanity. This concern arises from the fact that our everyday activities may be leading to changes in the earth's atmosphere that have the potential to significantly alter the planet's heat and radiation balance. It could lead to a warmer climate in the next century and thereafter, portending a potpourri of possible effects – mostly adverse.



For India, the climate change issue has several ramifications. Although India does not currently have any obligations under the International Conventions to reduce its greenhouse gas emissions, international pressure will keep increasing in this regard. It is therefore important for us to develop a clear understanding of our emission inventory. We also

need to document and analyse our efforts in areas such as renewable energy, wasteland development and afforestation

– all of which contribute towards either reducing CO₂ emissions or increasing CO₂ removal from the atmosphere. Considering that these efforts may often be undertaken for a variety of reasons not directly related to global warming, but yet have benefits as far as climate change is concerned, we may be able to leverage such efforts in the international context.

India's Challenges

While comparing the first world countries of the world our carbon emissions are comparatively low, even though we cannot ignore this considering few facts which may pose a great challenge in the coming decades in India's fight against global warming and in our efforts to ensure sustainable development. I would like to highlight few such challenges

Firstly, the household energy consumption pattern indicates that carbon emissions from Indian households will account for a significant share of global greenhouse gas emissions (GHG) in the future. This rise in carbon emissions will be correlated with increasing direct and indirect energy requirements of households. However, energy consumption and carbon footprints vary with what and how households consume and also the consumption patterns, their dynamics, and their respective carbon intensities for the different groups of households. Population growth rate of 1 percent and above with this pattern of energy consumption will be great challenge in the future. We need war footed efforts to change our dependency to renewable sources of energy.



Secondly, rising transportation activity—the ever-increasing demand to move more people and goods further and faster—is both a cause and an effect of India's rapid economic growth. The growth in personal as well as freight vehicles, and the corresponding surge in fuel use, is expected to continue for the next several decades. As necessary as the increase in mobility may be to boost the standard of living, there are some unpleasant consequences associated with it. These include growing reliance on imported fossil fuels, which are responsible for climate change, and increasing emissions of pollutants responsible for adverse human health effects. Even this time of pandemic the sale of Cars and SUVs increased by 148% in June 2021.

Indian agriculture remains vulnerable to the vagaries of weather, and the looming threat of climate change may expose this vulnerability further. But my fear is that are we protecting our environment which in turn can last for long and sustain crop productivity? The list of faulty agricultural practices in India is also a major reason for emission of gases vulnerable and it should be understood that this happens in a large scale as the number of people engaged in agriculture is the maximum in India.

Our challenge also lies in our ability to bargain with developed nations of the world. The domination of developed countries in climatic agreements and in their influence in deciding the terms and conditions of the international climate treaties is really questionable. They are imposing terms and conditions on the third world countries while as they are conveniently forgetting the facts that the industrialization in those countries was the major contributor in carbon footprint in the last century. The policy is unacceptable because of the burden of CO₂ reduction is put on third world countries. The historic responsibility of developed countries in causing global warming should not go unnoticed even though the industrial activity in the developing nations is a worrying fact but to a much lesser extent. This challenge highly depends on diplomatic policies and bargaining with international organizations.



Scope

Our scope of reducing carbon footprint lies in our own cultural heritage and environmental values which we have forgotten during the course of modernization. I would suggest a method blended with our ancient values to overcome this global challenge.

The time has come that we go back to a village economy with resource and conservation method even during this era of globalization. Along with a centralized planning mechanism to curb carbon emissions we must also educate our mass in the rural areas and make understand their contribution in this regard. Production should be decentralised with community involvement. Every household have a role to play in it.

Our scope also lies in enormous availability of renewable sources of energy. Unfortunately, the renewable energy use in India is just 18% of the total consumption. This can be increased to a large extent to keep ourselves in the limit of permitted carbon output.

Reaffirming to the global call of sustainable development goals is also an important step towards our drive for reducing carbon output. How deeply we educate our children in climatic issues is a serious concern. Is it really finding sufficient attention in our curriculum and researches? Probably India is country which invest least amount in the field of research with regard to climate change and sustainable development. A fair share our time and money should be invested in these serious issues which is worrying and related to the future generations.

Finally, to conclude I have a question, is it really possible to reduce carbon output and global warming or are they beyond human control? The answer is, yes, they are controllable but not by one man, one country and one organization but by the entire humanity, and the beginning should start from one, that is me!!

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An Overview Of Waste Water Management By Sangli City

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Abstract

The 74th Amendment has given local self-government an important place. The corporation is of special importance among the local self-governing bodies. SangliMirajKupwad Municipal Corporation is known as one of the important corporations in Maharashtra and especially in Western Maharashtra. This corporation was established within the year 1998. The Corporation provides various facilities to its citizens including water supply, schools, sanitation, solid waste management, gardens, libraries, hospitals. Drainage and gutter facilities are very important for the health of the people. In this research paper, I have done an in-depth study of the manner in which the Municipal Corporation has provided gutter and drainage system in Sangli cities. It also studies the amount of wastewater generated and the number of treatment plants set up for its disposal. In this research, SangliMirajKupwad Municipal Corporation has been told what can be done to improve its sewage system.

Key words – Sangli, gutter, drainage, waste –water

I.Introduction :

The government plays an important role in developing the economy of the country. As the country's economy develops, so do the expectations of the people from the government. Therefore, the role of government in the economy of any country seems to be changing. SangliMirajKupwad Municipal Corporation is known as one of the important corporations in Maharashtra and especially in Western Maharashtra. This corporation was established within the year 1998. At that time, SangliMiraj and Kupwad were merged to form the Municipal Corporation. In the last 22 years, the corporation has certainly developed in many aspects. It mainly provides school facilities, parking facilities, garden facilities, hospitals, library facilities, roads, etc. The 74th Amendment changes the duties and responsibilities of local bodies. In this research paper, I have studied how the Sangli-Miraj-Kupwad Municipal Corporation has made changes in the last 22 years in terms of drainage, gutter, gutter system, wastewater disposal. I have also explained in my research papers what measures the Corporation should take to improve drainage, gutter facilities.

II .Objectives Of The Research Study

1. To study the gutter and drainage facility by sangli city.
2. To study the waste water management by the sangli city.

III.Hypothesis Of The Research Study :

1. Waste water management is not well available to the citizens of Sangli city. (H₀)

IV. Research Methodology :

This research paper collects information on the gutter, drainage, effluent and wastewater disposal in Sangli city. This research paper is based on a secondary source. For secondary sources, information has been collected mainly from all the information published by Sangli-Miraj-Kupwad Municipal Corporation, various reports of the Government of Maharashtra, various reports of the Central Government, research related books, various research papers. Primary information is also taken mainly from the visits made in different areas, the situation seen in the flood and the current situation. The tabulated data is analyzed by necessary statistical tools like mean, coefficient of variation, compound growth rate and percentage. The analysis of the info is administered by using computer software packages like Excel and SPSS.

V Results And Discussion:

Urbanisation is considered as one of the indicators of economic growth. It is said that, greater the urbanisation then higher the economic growth and vice versa. It is a fact that we found the concentration of the economic growth in the urban areas, especially in the developing countries like India. Nevertheless, the centralisation of the economic growth along with the availability of economic and social infrastructures results in the rapid growth of the cities and metropolitan cities. (Kamble P.S, 2013, p-1) Here we will see how the Corporation has provided drainage and gutter system in Sangli cities. The Corporation is seen as the most important institution among the local self-governing bodies. And that is why it is the duty of any corporation to provide civic amenities to the people. The most important civic amenities are drainage and gutter. This is because in cities

where drainage and gutter systems are in good condition, the citizens get better health. To tackle the problem of environmental deterioration and to achieve effective environmental management in India, the 74th Constitutional Amendment Act (CAA) 1992 was passed. The Twelfth Schedule of this Act has listed a number of functions in the context of urban local bodies such as regulation of land use, water supply, solid waste management, and urban forestry, provision of urban amenities and protection of environment and promotion of ecological aspects. It has ushered in a new era of urban governance and environmental management in India. (Thatte L.R and Chande H.A, 2012, p-1) The Municipal Corporation performs a large number of functions, undertakes a variety of activities so as to discharge assigned responsibilities having intension to provide civic amenities and public utility services for its jurisdiction. (Kamble P.S, 2001, p-330). The table no.1 shows that the Drainage and Gutter system of Sangli city.

Table No.1

DRAINAGE AND GUTTER FACILITY OF SANGLI CITY

Year	Drainage (K.M.)	Per 1000 People	Gutter (K.M.)	Per 1000 People
1	2	3	4	5
1998-99	80	0.08	160.31	0.16
1999-2000	80	0.08	160.31	0.16
2000-01	82	0.08	166.72	0.16
2001-02	83.5	0.08	168.15	0.16
2002-03	85	0.08	169.57	0.16
2003-04	86.3	0.08	173.14	0.17
2004-05	88	0.08	185.25	0.18
2005-06	90.2	0.09	190.95	0.19
2006-07	91.5	0.09	199.5	0.2
2007-08	93	0.09	208.76	0.2
2008-09	94.6	0.09	215.89	0.22
2009-10	96	0.09	225.15	0.23
2010-11	97.2	0.09	242.25	0.24
2011-12	98.3	0.09	270.75	0.27
2012-13	100	0.1	413.25	0.41
2013-14	100	0.1	426.79	0.43
2014-15	102	0.1	430	0.43
2015-16	102.5	0.1	434.7	0.43
2016-17	104	0.1	438.2	0.43
2017-18	105	0.1	443.4	0.44
2018-19	107	0.1	450	0.45
2019-20	112	0.11	453	0.45
Average	94.46	0.09	283.00	0.28
CGR	1.53		6.43	
C.V	9.78		42.98	

Source: Water supply and Drainage Department SMKMC

In the table No. 1 drainage (k.m) and gutter (k.m) provided by SMKMC have been shown. The table indicated that how much of drainage (k.m) and gutter (k.m) facility was provided by SMKMC to its people. The column no.2 shows the drainage (k.m) facility of SMKMC. In 1998- 1999 drainage availability was only 80 k.m which increased to 83.5 k.m in 2001-02, 91.5 k.m in 2006-07, 96 k.m in 2009-10 and 112 k.m in 2019-20 respectively. The drainage availability year by year was increased. The average of drainage availability is 94.46k.m. The CGR of drainage facility is 1.53 percent per annum and C.V was 9.78. The column no. 3 shows per 1000 people how much drainage facility is provided by SMKMC during 1998-99 to 2019-20. In 1998 – 99 it was only 0.08 k.m drainage per 1000 people provided by the SMKMC that increased to 0.09 k.m in 2005-06 and 0.11k.m in 2019-20. The column no.4 shows Gutter k.m provided by the SMKMC. In 1998- 1999 gutter facility was 160.31 k.m which increased to 173.14 k.m in 2003-04, 190.95 k.m in 2005-06 242.25 k.m in 2010- 11 and 453 k.m in 2019-20. The average of Gutter provided is 283.00k.m. The CGR of Gutter facility is 6.43 percent per annum and C.V was 42.98. The column no. 5 shows per 1000 people how much Gutter facility was provided by the SMKMC during 1998-99 to 2019-20. In 1998 – 99 it was only 0.16 k.m Gutter per 1000 people provided by the SMKMC, which increased to 0.17 in 2003-04, 0.18 k.m in 2004-05, 0.19 k/m in 2005-06, 0.20 k.m in 2007-08 k.m 0.24 k.m in 2010-11 and 0.45 k.m in 2019-20. The average of per 1000 Gutter facility is 0.28k.m.

The development of any city depends on how well the drainage and gutter facilities are provided. In the case of Sangli city, both Miraj and Sangli have drainage and gutter facilities, but when we visit Kupwad, drainage and gutter facilities are not available. We understand how inadequate drainage facilities are available in Sangli cities when floods occur. Whether it was a flood in 2005, a flood in 2006 or a flood in 2019, many of the drainage facilities were still in short supply. In the same way that the corporation has allowed the construction of houses in the past, the citizens have to bear the brunt of it. Following areas are covered by the existing Drainage system.

1. Sangliwadi central except Gunthewari area developed along Kawathe –Piran Road.
2. Gaonbhag
3. Prashiknagar (Chakkarsadak area)
4. Khan bhag
5. Nalbhad
6. Ambedkarnagar, Ganesh nagar
7. Ganesh mandir area
8. Patel Chowk and GanpatiPeth.
9. Ambarai and wakharbhag.
10. North Shivajinagar
11. Pithi khan and Ram mandir area
12. Civil Hospital and Zillaparishad area
13. Market Yard and South Shivaji Nagar
14. Patrakar Nagar and Kolhapur Road area

Following are the areas substantially developed but not severed with Drainage facility of the SMKMC so far are,

1. SangliwadiGunthewari area along Kawathe–Piran road.
2. Area partly along and totally south of 100 ft road.
3. Government colony 4. Shinde Mala, Sanjaynagar
5. Ratanshinagar.6. Shamraonagar 7.Kalanagar(SMKMC Annual Budget 2019-20 p – 21)

The above analysis shows that SangliMirajKupwad Municipal Corporation has collected a large amount of money through taxes, but it does not appear that the money was spent on providing drainage and gutter facilities. The corporation needs to increase these facilities in a big way to save the citizens from the flood and dirt empire in the future. There is also a need to relocate the citizens of the area where the precedent is created every year. It is unfortunate that industrial cities like Kupwad do not have such drainage facilities today. Therefore, the municipality should immediately work to provide this facility in those areas.

It is important to look at the amount of wastewater generated and disposed of in Sangli cities. An inadequate provision of piped water and proper sanitation are identified as serious problems affecting poor urban dwellers (Satterthwaite, 2003. WHO (1999) also observed that because of an inadequate provision of water, sanitation, drainage and garbage collection, urban areas pose serious health hazards for human populations, since many disease vectors tend to thrive where there is an inadequate provision of these services.(Pore S.M and Randive S.D, 2014, p-2)study of Sangli-Miraj-Kupwad Municipal Corporation shows that there are three major wastewater disposal facilities. There is a plant at Bedag where 10 MLD of water is disposed of. Another plant is at Dhamani Road. Even there 10.5 MLD of water is disposed of.The third plant is at Miraj where 7 MLD of water is disposed. This means that 69% of the water is still discharged into the river without being disposed of.Due to this, a big environmental problem has arisen in Sangli city. A large amount of polluted water from streams like Sheri Nala is mixed in the river without any treatment, which has increased the water pollution. At present entire Sewerage is not collected through underground network.(SMKMC, 2011, p-17)Minimize the waste going to scientifically engineered landfills (SLFs) and dispose of only rejects from the treatment plants and inert material at the landfills as per the standards laid down in the rules.(Nashik Municipal Corporation, 2011, p-4).Thetable no.2 shows that the collection and disposal waste water of Sanglicity.

Table No - 2

Collection And Disposal Waste Water Of Sangli City

Year	Waste water per day (MLD- Per Day)	Collection and Disposal waste water Per Day (MLD)	% of collection and Disposal Waste Water Per Day (MLD)
1	2	3	4
1998-99	20.0	15.2	76.0
1999-2000	20.0	15.2	76.0
2000-01	21.5	15.2	70.70
2001-02	22.0	15.2	69.09

2002-03	23.4	15.2	64.96
2003-04	24.7	15.2	61.54
2004-05	27.6	21.0	76.08
2005-06	32.3	21.0	65.015
2006-07	34.8	21.0	60.34
2007-08	36.2	21.0	58.01
2008-09	37	21.0	56.76
2009-10	37.5	21.0	56.0
2010-11	40.1	21.0	52.37
2011-12	42.6	21.0	49.30
2012-13	58.0	21.0	36.21
2013-14	61.0	21.0	34.43
2014-15	68	24	35.29
2015-16	73	25	34.25
2016-17	75	25	33.33
2017-18	77	25	32.46
2018-19	84	25	29.76
2019-20	85	27	31.76
Mean	45.49	20.55	52.71
CGR	7.99	2.8	-4.8
C.V.	49.82	18.59	18.58

Source: Health and Water Supply Department of SMKMC

MLD: Million Liters per Day

In the table No. 2 waste water collection and disposal of waste water per day of SMKMC have been shown. The table indicated that how much of Waste water per day collected and disposed of this waste water per day have highlighted. The column no.2 shows waste water per day (MLD) collected and disposed SMKMC. In 1998-99 waste water was 20 MLD per day which increased to 24.7 MLDper day in 2003-04 ,36.2 MLD per day in 2007-08 , 73MLD per day in 2015-16 and 85.0 MLD per day in 2019-20.The average of waste water per day collected and disposed MLD is 45.49 MLD per day. The CGR of waste water per day MLD is 7.99 percent per annum and C.V was 49.82. The column no.3 shows how much waste water collected and disposed per day MLD by SMKMC. In 1998-99 15.2 MLDwaste water collected and disposed by SMKMC that increased to 21.0 MLD in 2004-05. The SMKMC waste water collection and disposal efficiency not increased in 2005-06 to 2013-14 . The average20.55 MLD waste water collected and disposed of SMKMC. The CGR of waste water collection and disposal is 2.8 percent per annum and C.V was 18.59. The column no.4 shows percentage of collection and disposal waste water per day. In 1998-99 , 76.0 percent waste water being collected and disposed corporation but, year by year waste water increased but collection and disposal efficiency not increased by SMKMC.In 2003-04 61.54 % , 2009-10 59.0% , 34.43 % in 2013-14 , 31.76 % in 2019-20 waste water collected and disposal by the SMKMC. The average of waste water collection and disposal is 52.71 percent. The CGR of waste water collection and disposal is -4.8 percent per annum and C.V is 18.58.The CGR indicates that waste water collection and disposal is efficiency year by year has declined. Waste water collection and disposal most important work of municipal corporation but SMKMC only 31.76 percent waste water collected and disposed and above 68 percent waste water goes to Krishna river that affects pollution of river which year by year increased.

The above analysis shows that SangliMirajKupwad Municipal Corporation generates a large amount of wastewater, but there is no doubt that the Corporation has completely failed to dispose of it. If the polluted water collected by the corporation is not disposed of, it goes into the Krishna River, so the Krishna River is polluted to a large extent. Vasantdada Co-operative Sugar Factory near Sangli. Is on the rise and is having an adverse effect on the health of the citizens.During the monsoons, many epidemics are seen spreading in Sangli cities. Therefore, the municipality needs to improve its wastewater treatment system. In the same way that sewage is treated and discharged into the river in other cities, Sangli needs to be treated in the same way.

VI. Recommendations :

Further recommendations can be taken to improve the drainage system in Sangli.

1. In Sangli city, the corporation needs to increase its funds to improve drainage and gutter system in Gunthewari area. To increase it, the city's drainage and gutter problems can be solved permanently if the funds are increased by the city's industrialists, wealthy business families, the central government and the state government.

2. There is a big problem of sewage in Sangli cities. To solve this problem, various schemes of the Central Government and the State Government are underway. If the funds of the Corporation are increased through these schemes, the problem of sewage can be solved permanently.
3. There are many industrial companies in Sangli cities as well as co-operative sugar factories which produce a large amount of contaminated water. To address this issue, these industrial companies and co-operative sugar factories should be required by law to set up systems to treat contaminated water, which can help reduce the amount of contaminated water produced by the factories.
4. As contaminated water has adverse effects on human health, the corporation should facilitate how to take contaminated water through underground water.
5. Industrial companies that emit large amounts of contaminated wastewater should be taxed more so that they do not cause more pollution.

Looking at the daily effluent and wastewater disposal in Sangli for the 22 years from 1998-99 to 2019-20, it appears that 76 per cent of the total effluent generated daily in 1998-99 was collected and disposed of, while in 2019-20 only 31. % Percent of wastewater was being disposed of. If we look at the CGR of wastewater collection and disposal, it is -4.8 percent. The hypothesis I have made from this is strongly true, so I accept this hypothesis.

VII. Conclusions :

The above analysis shows that SangliMiraj and Kupwad Municipal Corporation have failed to provide drainage and gutter facilities in the area. At the same time, the corporation seems to have failed to dispose of the daily generated wastewater and that wastewater. There is no doubt that the Corporation has made some good efforts in the last 22 years in terms of gutter facilities but it has not been possible to increase the required number of gutter and drainage systems. At present more than 5 lakh people live in Sangli-Miraj-Kupwad city. Therefore, a large amount of wastewater is generated; this wastewater must be well managed. If you look at a city like Kupwad, you can see that there is not much gutter and drainage in this place today, but in Sangli and Miraj there is a small amount of gutter and drainage. Considering the Gunthewari area, it seems that there are no roads, no water, and no sewers in this area. Therefore, the corporation needs to improve this by increasing its funds.

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The Impact of Natural Disasters on Human Life: A Study with John Steinbeck's Novel, 'The Grapes of Wrath'

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Abstract:

A natural disaster is a major adverse event resulting from natural process of the earth. It can cause loss of life or damage property and typically leaves some social and economic damage in its wake. An adverse event can have disastrous consequences and leave lasting damage, which can take years to repair. It also impacts the mental health of the affected communities often leading to post traumatic symptoms. It creates social disorder and sometimes strengthens social evils. The present research paper aims to analyse the direct and indirect impact of natural disasters on human life through John Steinbeck's realistic novel, 'The Grapes of Wrath'

Key Words: Natural disaster, social disorder, social evil, property, human life

Introduction:

John Steinbeck's realistic novel 'The Grapes of Wrath' is a classic piece of literature that captures the plight of the poor workers affected by a devastated economy during a time of natural disaster. The novel has background of the Great Depression of the 1930s in America and it focuses on the family of share croppers. They are driven from their Oklahoma home by drought, economic hardships and the change in the agriculture industry. They set out for California along with thousands of others in search of land, jobs and dignity. The root cause of their displacement is the Dust Bowl and its consequences. All were making their way to the promised land of California where they felt they would get good jobs and wages. The novelist also describes the collective action by lower classes against the individualistic self interest represented by corporate bank elites who have sole aim of maximizing their profits even at the cost of starvation of the poor. All this was the result of natural disaster, which is 'Dust Bowl'.

Discussion:

The novel has the background of the Great Depression of America in 1930s. It begins with the description of the Dust Bowl in which the poor farmers in Oklahoma had got their crops ruined. The Joads are the representatives of them. Through the description of the family, the novelist pictures the impact of natural disaster that is the 'Dust Bowl' on the lives of farmers in Oklahoma. Tom Joad, the central character in the novel is released on parole from prison. In the hot summer, he starts walking to the farm where his father works as a share cropper. Unfortunately, the Dust Bowl had made the land untenable for the small farmers and many of them were deserting their unprofitable land.

The Joads had deserted their house and land. They were making preparations to leave Oklahoma for California. They loaded the truck to its limits. All members were eager to move to California. But, Grampa was not ready to leave and uproot himself from the land. Finally, the family members decided to give him medicine that made him unconscious and they took him with them. His refusal to leave highlights the fact that how important the land was for these people. In this way, the drought and dust storm forces the Joads and other to leave the house and village.

The migrants were traveling to California. It was a big city but not big enough to accommodate and give promising work to their hands. All migrants were hopeful about their dream land, California. But Jim Casy, the religious icon in the novel believed that something more devilish than the devil itself was awaiting for them against which they needed to fight. At the beginning of the journey, the family dog of the Joads met with an accident and died. After that it was the turn of Grampa who suffered from stroke and died. After losing their land, they lost their first family member.

During the journey, the Joads met the Willsons, a family from Kansas; going to California. They began to help each other in their journey. Day by day, the working class people began to come together for their collective interests. These changes were a threat to the selfish owners. The migrants' problems had moved from 'I' to 'We', which had become the major concern for the owners. Here, the disaster helped the poor to come together for their benefits. During the day their vehicles and cars were separate but at night all families were coming together. In a real sense, the sense of word 'We' started growing.

"And the little screaming fact that sounds through all history: repression works only to strengthen and knit the repressed"....

It is clear that every disaster brings human beings together. It may be the only positive impact of the disaster.

When the Joads reach Arizona, a border guard stopped them but eventually they reached the deserts of California. Some migrant workers told them how California hates migrant workers. During that time Granma was suffering from delusion. Finally, she died as they reached in California. This was another loss for the family. Unfortunately, they could not afford last rites. It is clear that the natural disaster led not only the Joads but also many migrant workers to social and economical crisis. The worst conditions in California disturbed many families like the Joads. Connie Rivers, Rose of Sharon's husband and the son in law of the Joads left his pregnant wife. It was a big emotional jolt to the family.

The Joads got shelter in the government camp which was a little comfortable. At this time Tom was in search of the job. Finally he could succeed to find the job in a farm but the owners had cut down the wages in which they just afford grocery. Their condition at the Hooper Ranch was so bad. The strike by the migrants had proved adverse in raising the prices of the items they needed to live on. The owners also made the counter attack through inflation. It was another tragedy for the Joads that Jim Casy was killed while protesting in the strike. In a fit of anger, Tom killed the man who had killed Jim. So the police was behind Tom. But the family members hide him somehow. Finally, they had to leave Hooper Ranch to escape capture from the police. In this way, the family was scattering day by day.

The Dust Bowl in Oklahoma had started the plight which was never ending. The natural disaster led the Joads and others to social and economical disasters which are manmade but the root cause of all this was the natural disaster. At the end of the novel, it was raining heavily. It had damaged cars and tents of the migrants. The greatest terror than this had arrived that no work would be available for next three months. As a result of all this, there was no work, no food. Many were begging and dying on the road. In such conditions, there was no government relief. So, life in the region had become worst than animals.

After three days of heavy rain, they decided to go on. Suddenly, Rose of Sharon went on labour pains. That's why, the Joads could not leave the box car. The men in the camp built up embankment to prevent the flooding. When they reached at the car, they found Rose of Sharon had delivered a dead baby. Uncle John placed the body in an apple box and floated into the stream. When the family was in the barn to get shelter, on the other side there was a starving old man and a boy. Rose of Sharon and her mother realised what to be done. Finally, Rose of Sharon fed the old man. The flood had washed out everything but humanity was alive in a corner. The worst flood had affected the migrants but it brought them together to concern for each other. On the other hand, the flood and drought had also brought the owners together to exploit migrants. Here, the impact of natural disaster can be seen on the lives of the migrants and owners. It also strengthened the Great Depression of 1930s in America

Conclusion:

In the novel, John Steinbeck has depicted the impact of natural disaster on the lives of people in some parts of America. Generally, every disaster leaves positive and negative impact on human life. In the present novel, the only positive impact of the natural disaster is the unity of migrants against the cruelty of the owners. Otherwise, it leaves worst impact on human life. The disaster ruined the Joads who are the representatives of the tenants and the poor. It ruined three generations of the Joads. It shows that any disaster can directly ruin the present generation and indirectly hits upcoming generations. There is one more notable thing that a natural disaster aids the devils in the society. At the beginning in the novel, the Dust Bowl helped the banks and the rich to exploit tenants. At the end, the heavy rain stopped the harvesting season early. It left the tenants jobless and helped to cut wages. Moreover, it washed away what the tenants had to survive. All these helped social and economical devils in the society to grow up. The most powerful devil of that time, the Great Depression of 1930s in America got boosts from such natural disasters and ruined economical base of America and the world.

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Abstract –

Today the entire sector in the world economy is facing huge challenge to deal with the environmental problems and their related impact in their day to day globalization. Banks are financial institution's are environmentally neutral. They are not directly related with the environment. Green banking is different from traditional banking as it is the concept of promoting sustainable development in the country. Banks are now playing a vital role towards the green growth through their green banking practices. The role of banks in energy saving & cutting emissions is well established in developed economics, but it is still in the infant stage in India. Indian banks are not taking any big initiative towards the direction of environment and they have really a big role to play. Green banking means environment friendly banking practices by the bank in its operational area. The concept of going green is new in India and has been adopted by the Indian banks in many forms. Banks have started providing services of online banking, Mobile Banking, Green Loans, E-statement etc. The bank may ensure its green banking activities through in-house green decoration, Solar energy consumption offering green products to customers and paperless communication in national and international area. In the present paper green banking and sustainability has been discussed in detail. The paper also highlights on the stages, initiatives, benefits and future of green banking in India. The banking industry can play an outstanding role between economic growth and environment protection in promoting environmentally sustainable and socially accountable institution.

Keyword – Green banking, Strategies, Benefits, Challenges, Sustainable development.

Introduction –

Banks and all the financial institutions are focusing on the environmental protection with the purpose of fulfilling the dual role. The first role is to work towards ethically and socially responsible banking and second as an important role of their corporate social responsibility. The opportunity in green banking, Indian banks are far behind in the implementation of green banking, Only some of banks have initiated towards green banking. None of the Indian banks have so far adopted green banking as a business model for sustainable banking. There is more scope for all banks and they can not only save our earth but can transform the whole world towards energy conscious. The present paper explores and examines Strategies, benefits and challenges of green banking.

What is Green Banking ? Green banking means promoting environmental friendly practices and reducing your carbon footprints from your banking activities. Green banking aims at improving the operations and technology along with making the clients habits environment friendly in the banking business.

Green banking is also called as the ethical banking which aims to protect the environment and reduce the carbon footprint form banking activities. It encourages banks to carry out environment friendly investments by combining its operational improvements and technology know-how in banking business activities. Green Banking has started priority tending to those industries which are already green or putting its efforts to go green. The aim of going green is to increase the energy efficiency & to use the biodegradable products. The concept of "Green Banking" would be mutually beneficial to the bank, industries and the economy. Green banking will also ensure the greening of the industries but it will also facilitate in improving the asset quality of the banks in future. Climate change is the change in temperature and weather patterns due to certain human activity like burning fossil fuels. The changes include global average air and ocean temperature, widespread melting of snow and ice and rising global sea levels. Therefore, a common thread running across all these initiatives is the focus on reducing the demand for fossil fuels by implementing the 3R's viz. Reduce, Reuse and recycle.

Scope of Green Banking –

The Scope of green banking, as understood by most authors, could be delineated on the basis of the activities of the banks related to the environment. These activities could be divided into two groups, related to the two types of aspects and hence the two types of impacts on the environment : Direct and Indirect ones are actually the important ones and to them the indirect ones are actually the important ones and to them the attention of the bank management should be concentrated. The direct aspects and consequently – impacts are related to the usage of resources by the banks for the purpose of its operations electricity, oil, heating, paper, toners and others, and the waste related to their consumption where relevant. Indirect impacts are related to all kinds of activities through which banks can indirectly have influence on the environment.

Steps in Green Banking –

There are various step or alternative delivery channels by adopting with bank can go green. Some of the steps as follows -

- 1) Go Online
- 2) Internet Banking-
- 3) Green Checking of Accounts –
- 4) Green loans for Home Improvements-
- 5) Use of Green Credit Cards –
- 6) Save paper -
- 7) Power saving equipments-
- 8) Mobile Banking
- 9) Use of Solar and Wind Energy –
- 10) ATM

Green Banking strategies –

Indian Banks can adopt green banking as business model for sustainable banking, some of following strategies little reflected in there banking business must be adopted by banks.

- 1) **Carbon Credit Business (CCB)** – All Nations must reduce green house gases emission and reduce carbon to protect our environment. These emission must be certified by certified Emission Reductions commonly known as to carbon credit.
- 2) **Green Banking Financial products** – Banks can develop innovative green based products or may offer green loans on low rate of interest. As Housing and can loan segments are the main portfolio of all banks so they adopt green loans facility. SME loans on the basis of National Environmental policy and its certification.
- 3) **Paperless Banking** – All banks are shifting on CBS or ATM platform, also providing electronic banking products and services. So there in scope of banks to adopt paperless banking. Private and foreign banks are using electronics for office correspondence but still in PSU banks they are using huge paper quantity.
- 4) **Energy Consciousness** –Banks have to install energy efficient equipments in their office. Use CFL and avoid mis-utilization of these equipments. Banks have to transform this green banking hardware, waste management in office Energy efficient Technology products. Banks can donate energy saving equipments to school hospitals, etc.
- 5) **Using mass Transportations systems** – Banks have to provide common transport for groups of officials posted at one office.
- 6) **Green Buildings** –Banks have their residential houses, Branches or ATMs So bank may adopt green building to protect our environment.
- 7) **Plantation** – Most of the banks at Jaipur are conducting plantation program in the rainy season to save our environment. They plant trees, grass etc at local gardens, schools or colleges & shows that banks are very careful about environment.

Benefits of green Banking towards the Environment –

Adoption of green banking practices will benefits the environment in many ways. Banks can do much more to help the environment by just promoting green banking. Use of green banking practices will result savings of energy, fuel, paper as well as water. As for example - use paperless ATMs, Online Banking, Mobile Banking and Tele-banking will result saving of fuel well as paper for green banking operation customer need not go to the bank physically. This will reduce the consumption of fuel and also minimize carbon emission. This will also result less vehicles on the road. Green banking practices are paperless banking practices. Hence it will save paper.

Challenges of Green Banking –

While adopting green banking practices the banks would face the following challenges.

- 1) **High Operating Cost** – Green bank requires talented and experienced staff to provide proper services to customers. Experienced loan offers are needed additional experience in dealing with green business and customers.
- 2) **Reputational Risk** – If banks are involved in those projects which are damaging the environment they are prone lose their reputation. There are few cases where environmental management system has resulted in cost saving, increase in hand value.

3) Diversification problem – Green banks restrict their business transaction to those business entities who quality screening process done by green banks. With limited number of customers they will have a smaller base to support them.

4) Start up face – Many banks in green business are very new and are in start up face. Generally it takes 3 to 4 years for a bank to start making money. Thus it does not help banks during resession.

5) Credit Risk – Due to climate change and global warming there will be direct as well as indirect costs to banks. It has been observed that due to global warming there had been extreme weather condition which affects the economics assets financed by the banks thus leading to high incidence of credit default. Credit risk can also arise Indirectly when banks lead to companies whose businesses were affected due to changes in environmental regulation.

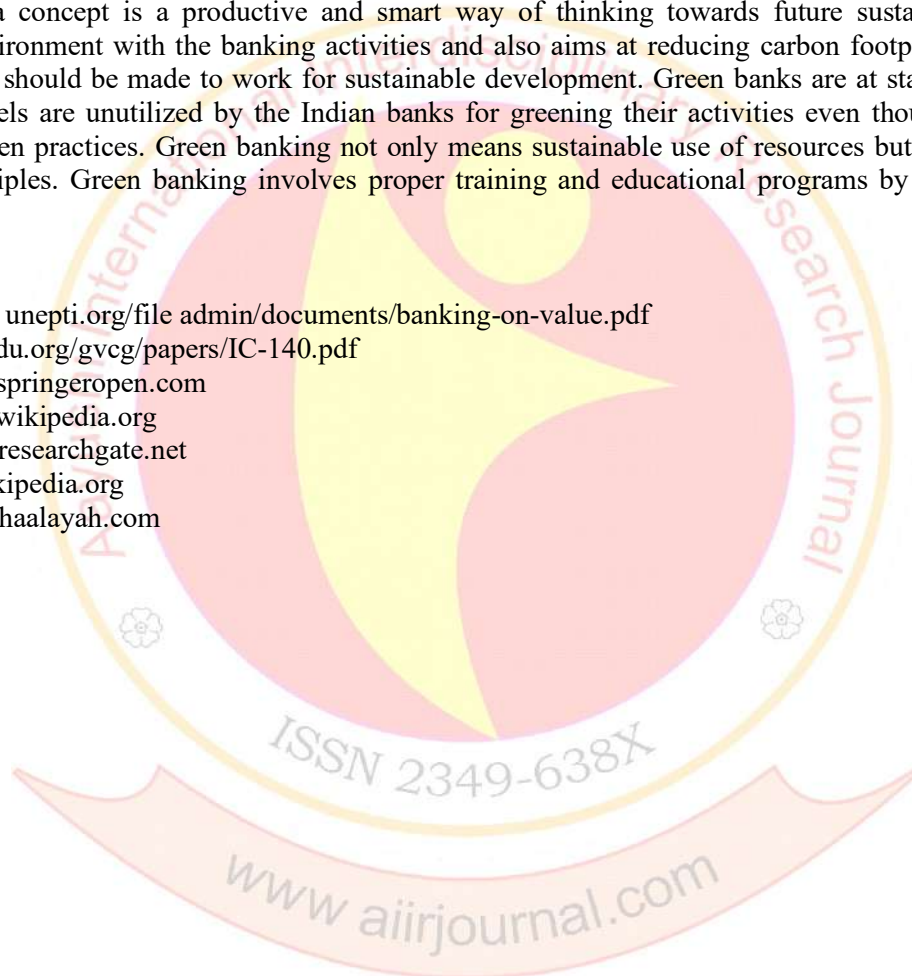
6) High Operating Cost – Green bank requires talented and experienced staff to provide proper services to customers. Experienced loan officers are needed, they give additional experience in dealing with green business and customers.

Conclusion –

Green banking refers to the initiatives taken by banks to encourage environment friendly investment. Green banking as a concept is a productive and smart way of thinking towards future sustainability. The management of environment with the banking activities and also aims at reducing carbon footprints. Banking and financial sector should be made to work for sustainable development. Green banks are at start up made in India. Lot of channels are unutilized by the Indian banks for greening their activities even though they have started adopting green practices. Green banking not only means sustainable use of resources but also adopting green lending principles. Green banking involves proper training and educational programs by banks for the green initiatives.

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Importance of Protection of Natural Resources with Special Reference to Drinking Water**Dr. K. Sudhakar Reddy**Associate Professor
Siddharth College of Law**Abstract*****“Conserve the water today and protect the life tomorrow”***

Natural resources are those resources of environment which are inherently created by nature for supporting life. These resources are very essential for sustaining life of all creatures on earth. Even if water provides no vitamins, calories, or any healthy stuff, but, water plays an important role in maintenance of good health. It is very vital for all life. All over the world there is a pollution of water and its source and the scarcity of water problem. And yet, most people take water for granted. We waste water needlessly and don't realize that clean water is a very limited resource. Natural resources are very important to all living beings. These natural resources are essentially two types: renewable and non-renewable. The former refers those resources that can renew themselves in time without intervention. These resources are including wind, water, sunlight, forests etc. Non-renewable resources are those that can no longer be preserved once the available resources at a site are completed. For example mineral resources, fossil fuels are non-renewable.

Because of population growth unpredictable way, all nations face the drinking water problem as all water sources are polluted. If governments provide clean and affordable drinking water to public then people spend less time for collecting water at the same time they can save the time and can spend that time for other economic development. When the public get free and clean drinking water, they maintain good health and these human resources can be useful for economic and sustainable development of the countries.

Water is the centre piece of all life. Water is an essential resource for all life on the planet. Of the water resources on earth only three percent of it is useful and fresh for human consumption. And yet, most people take water for granted. We waste water unnecessarily and don't recognize that clean water is a very limited resource. More than one billion people around the world have no access to safe, clean drinking water. Over 2.5 billion do not have adequate sanitation service and drinking water. Each year over two million people die because of unsafe water and most of them are children. There is more demand for drinking water due to over population, recently it has increased considerably.

When water comes from improved and more accessible sources, people spend less time and effort physically collecting it, meaning they can be productive in other ways. This saves the time of the people and risky journeys in collecting drinking water. Access to clean and safe drinking water means it protects the people from water borne diseases and this leads to maintenance of good health maximum utilization of human resources and sustainable development.

On this background this research is under taken to analyse the importance of natural resources and protection of drinking water which is very essential element of not only sustaining human life but also other living creatures.

Rational of the Study

Protection of natural resource is very important in present day situation because of population growth which leads to excessive demand for it. Natural resources are renewable and non-renewable.. Non-renewable resources, however, can be depleted if not properly managed or conserved. Water is one of the important resources that earth provides us. Water and water resources must be properly maintained, conserved and utilized; otherwise not only present but also future generations face the scarcity of water problem throughout the world.

Water is one of the most renewable resources of our planet earth. Water comes from the sky in the form of rain and deposited in the seas, lakes water reservoirs and other water bodies. These are the most important sources of drinking water which must be preserved and protected for the sustainable development of environment without polluting the water resources. Water is the source of life on Earth. The source of that water are different types like surface water from rivers, lakes, or reservoirs, or groundwater, which is treated before delivery to people or consumers.

Modern Technology and methods should be identified for harvesting of rain water during monsoons and the same can be consumed /supplied to the public throughout the year. For this purpose private, government and common people's cooperation and coordination is required. There are many regions where fresh and clean drinking water is not accessible to most of the people which lead to serious obstacle to the human resource and sustainable development.

Objective of the Study

Water resources are potentially useful to society not only for drinking but also for agricultural, industrial or recreational purposes. Depletion of water resources whether surface water or ground water, is very serious problem faced by all regions of the globe.

Water is one of the important resources of the planet. Depletion of water sources means scarcity of drinking water which ultimately affects the development of human resources.

Achieving the goal of sustainable development depends on the access to safe and affordable drinking water to all sections of the society. Healthy people and healthy society contributes to the sustainable development. The main objective of the study is to suggest the measures to be taken to protect the natural resources and the sources of drinking water which are depleted drastically day by day.

Hypothesis of the Research

Our planet earth is not functioning properly the way it was functioned some decades ago. Now planet is facing so many problems including environmental degradation and global warming because of presence of chloro-fluoro-carbons in the environment. Even water bodies like rivers, lakes, reservoirs are polluted which ultimately leads the scarcity of safe and clean drinking water.

This study has been under taken to put the test of following hypothesis-

- To what extent it is importance now for protection of natural resources?
- Why water sources are polluted/contaminated which leads to the scarcity of safe drinking water. ?
- Water Pollution is an undesirable change in biological characteristics of water which affects the human resources and sustainable development. Ground reality?
- Will Conservation of water and prevention of depletion of water sources will become critical as freshwater becomes more scarce?

Methodology

Keeping in view the aforesaid objectives, the author has followed the traditional doctrinal approach. For this purpose a lot of literature has been referred and relied upon mainly secondary sources such as text books, legislations, web sites, online books and other sources.

Conclusion

In recent decades the percentage of increase in water use and consumption in the world has exceeded twice that of population growth. This has created more demand for supply and consumption from the public and society. But water sources are limited and demand is more this has resulted stress on the water resources in the world .Population growth resulted in the pollution of water and its resources also one of the reasons for scarcity of water in the society.

Water is the most important resource to animals and human's survival and valuable resource to industrial and agricultural production. With the development of economy and industry, more kinds of pollution materials are discharged into the water bodies such as rivers, reservoirs and lakes, and more water pollution disasters have happened. For example Ganga water pollution, Yamuna water pollution etc.

During the last fifty years, the number of industries in India and in the world are grown rapidly which resulted dumping of industrial wastages in to the rivers, seas and other water bodies and pollution of drinking water and its sources. Water consumption is increasing day by day because of basic needs of public increased tremendously for different purposes such as domestic, industrial, agricultural and other purposes. But at the same time water and its sources are polluted because of deforestation, urbanization, industrialisation and population growth. Pollution of water sources means it is an unwanted change in physical, chemical or biological characteristics of water and its sources which is dangerous to the consumption of humans and animals and aquatic life.

Suggestions

Natural resources very important for supporting the life on the planet earth. We have to preserve and protect the resources for present and future use. Healthy managed forest provides natural filtration resulting in clean drinking water to public. Maintaining good water conservation programmes ensures safe and reliable drinking water for current and future generations.

Water and water resources should be protected from being polluted. Population growth is the basic problem which almost all nations facing today .population growth demands more resources for the lively hood and other economic development. We cannot create natural resources at the ratio of population growth. Natural resources are very limited that is why it is the responsibility of all governments of all nations, public and NGO's to preserve and protect the natural resources for the sustainable development. Governments are helpless without

the support of common people who are also responsible for preservation and protection of natural resources which ultimately leads to the proper maintenance of resources and sustainable development.

Conservation of water is very important as it keeps our drinking water pure, clean and fresh while protecting the environment. Conservation of water means using the drinking water very wisely and diligently without wasting a single drop of water. Our livelihood completely depends on water so we must learn how to keep these limited resources pure, clean and without being polluted. Every drop of the conserved water today on the planet earth will help us all in the longer interest of the society. People must be educated about the importance of water conservation which will be helpful not only present generations but also coming generations. If we do not learn how to conserve the water today, we will all be fished out of water.

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Ichthyofaunal Diversity of Kapshi Lake, Kapshi, Dist. Akola (Maharashtra), India**Dr. U.P. Lande**Assistant Professor, Department of Zoolgy
Shri Shivaji College of Arts, Commerce & Science, Akola, (M.S.), India**Abstract:-**

The present work is an attempt to assess the biodiversity of fish fauna in Kapshi Lake at Kapshi, Dist. Akola (Maharashtra), India. It located between the latitude of 20 34'43" N and longitude 7657'18" E. During the study period, total of 22 species belonging to 03 orders (Cypriniformes, Siluriformes, and Osteoglossiformes) and 03 families were recorded. These families were Cyprinidae (20), Siluridae (01) and Notopteridae (01). Of these species; 03 were Abundant, 01 was Common, 02 were Frequent while 02 were Rare. In this study an attempt has been made to evaluate the ichthyofaunal diversity in the region and suggests mitigating measures.

Introduction

The country is endowed with sort of resources possessing freshwater ecological heritage and rich biodiversity. During the last two-decade, biodiversity attracted attention of the many workers exploring the flora and fauna of various habitat of the planet. India is a megadiversity country within the world. Aquatic biodiversity encompasses freshwater ecosystem including lakes, ponds, reservoirs, rivers and streams, spring water, and wetlands. Maharashtra is rich in freshwater fish diversity (Pawara et al., 2014). Pisces are the main group of vertebrates which shows a huge diversity in shape, size, biology, and habitat (Bobdey, 2014). Fishes influence our lives in various ways. Fresh water ecosystems support large numbers of species of plants and animals. Aquatic biodiversity encompasses freshwater ecosystem including lakes, ponds, reservoirs, rivers and streams, spring water, and wetlands. The freshwater diversity has declined faster than either terrestrial or marine over post three decades. During the last century, freshwater ecosystems have suffered from intense human intervention as a resulting in loss of habitat, degradation & as a consequence of many species have become highly endangered. The important causes behind the loss of biodiversity in freshwater were dreadful nature & breakup of habitats, water abstraction, industries & private use, introduction of exotic species, pollution & global climate change impacts.

In India, various workers have studied diversity and distribution of freshwater fishes from different parts of country. Hence attempt has been made here to present piscine inventory from this well-known district. Studies on fish fauna of this reservoir are still lacking. It is partly for this reason the current study on the fish diversity of Kapshi Lake is planned.

Materials And Methods

The present investigation on Ichthyofauna is carried out on the Kapshi Lake of Akola. The Kapshi Lake of Akola is located in Akola talshil of Akola district in Maharashtra, India, it is situated 20 km away from sub-District headquarter Akola. As per 2009 status, Kapshi Lake is in the gram panchayat of Kapshi village. The latitude 20 34'43" N and longitude 7657'18" E are the geocoordinate of Kapshi lake.

**Kapshi Lake District- Akola**

The studies were conducted on last week of every month, between 6.00 and 8.00 am the fish samples were captured with the help of local skilled fisherman in three preselected sampling sites.

Dragnet, cast net, scoop net, basket trap and so forth were used for capturing fish. Fish species available at the local market and caught by local fisherman from the reservoir were also purchased. All fish species were preserved in 10% formaldehyde solution for identification of genus and species level using Taxonomic keys and standard literatures. Identification of fishes was done based on morphometric characters descriptive characters and fin formula. Morphometric characters include total length of the body, standard length of the body, length and depth of the head, position and diameter of the eye, length of snout maximum and minimum girth, length pre dorsal fin, pre pectoral fin, pre anal fin and precaudal fin. Descriptive character includes profile and shape of the body, skin texture and colouration, position and shape of the mouth lips and snout, Barbells and jaws scales and lateral lines system origin, shape, size and type of median, paired and caudal fin rays and fin formula tail and special marking. A field kit, containing measuring tape, rope, buckets, preservative, enamel trays, digital cameras etc. was prepared for regular use.

Result and Discussion

During the study period, total of 22 species belonging to 03 orders (Cypriniformes, Siluriformes, and Osteoglossiformes) and 03 families were recorded. These families were Cyprinidae (20), Siluridae (01) and Notopteridae (01), Of these species; 03 were Abundant, 01 Common, 02 were Frequent while 02 were Rare.

A	ORDER: CYPRINIFORMES		Common Name	Status
I	Family: Cyprinidae			
	1	<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Mopda	O
	2	<i>Catla catla</i> (Hamilton-Buchanan, 1822)	Catla	A
	3	<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Lalpari	R
	4	<i>Crossocheilus latius</i> (Hamilton, 1822)	Borai	C
	5	<i>Cyprinus carpio</i> (Linnaeus, 1758)	Kaman	A
	6	<i>Garra mullya</i> (Hamilton, 1822)	Dende	C
	7	<i>Labeo rohita</i> (Hamilton-Buchanan, 1822)	Rohu	A
	8	<i>Labeo calbasu</i> (Hamilton, 1822)	Karaunt	F
	9	<i>Puntius sophore</i> (Hamilton, 1822)	Kharati	C
	10	<i>Rasbora daniconius</i> (Hamilton-Buchanan, 1822)	Ajra	F
	11	<i>Osteobrama catio</i> (Silas, 1952)	Kharpati	F
	12	<i>Puntitus chola</i> (Hamilton-Buchanan, 1822)	Tepri	O
	13	<i>Labeo boga</i> (Hamilton-Buchanan, 1822)	Tembti	C
	14	<i>Labeo pangusia</i> (Hamilton-Buchanan, 1822)	Boharya	O
	15	<i>Puntius sophore</i> (Hamilton, 1822)	Kharati	C
	16	<i>Puntius sarana</i> (Hamilton, 1822)	Shikkar	C
	17	<i>Puntitus ticto</i> (Hamilton – Buchanan, 1822)	Pepdi	R
	18	<i>Rasbora daniconius</i> (Hamilton-Buchanan, 1822)	Ajra	F
	19	<i>Salmostoma bacaila</i> (Hamilton, 1822)	Chal	C
	20	<i>Thyririchthys sandkhol</i> (Sykes, 1838)	Sandkoli	O
B	ORDER : PERCIFORMES			
	Family: Siluridae			
	21	<i>Ompak bimaculatus</i> (Bloch, 1797)	Patola	A
C	ORDER: OSTEOGLOSSIFORMES			
	Family: Notopteridae			
	22	<i>Notopterus notopterus</i> (Gunther, 1839)	Bhangad	R

For fishing, the methods commonly employed within the concern area mainly fall under five categories viz. Disabling types, Trap and barrier types, filtering types, entangling types and Miscellaneous types and have been discussed. Disabling types included rod and wire, drift long line and fixed ling line; Trap and barriers included the pot traps, bundh methods and cover basket method; filtering type covers the drag net and gunny bags; entangling type had gill nets and cast nets while the Miscellaneous type had the mosquito net, muslin cloth, hand net, stick, iron rod etc. such types of method are also reported by Joshi et al. (2013), Mukwane and Avinashe (2016).

The present study cleared that the Kapshi lake accommodates the rich diversity of edible fishes. It was also noticed that fish production plays an important role in the socio-economic life of study area. It is an important source of income and employment to millions of rural farmers. Hence it is necessary to adopt the better strategy

for conservation of water body and fish diversity of Kapshi lake of Akola District of Indian state Maharashtra. The result of present investigation confirmed the occurrence of diverse species of fishes. Due to multiple uses of fisheries resources, fishing has become a major industry and many these aquatic communities are under a big threat of extinction. Habitat loss and environmental degradation has seriously affected the fish fauna. Therefore, it is important to practice and manage this resource according to ecological principles.

Conclusion

During the study, total of 22 species belonging to 03 orders (Cypriniformes, Siluriformes, and Osteoglossiformes) and 03 families were recorded. These families were Cyprinidae (20), Siluridae (01) and Notopteridae (01). Of these species; 03 were Abundant, 01 were Common, 02 were Frequent while 02 were Rare. The maximum diversity was reported during late monsoon and winter. The least species were encountered during the months of summer to early monsoon. The catch success was high during winter, and it was least during summer while moderate in the months of monsoon. A species diversity attributed in fish fauna revealed that faunal diversity was maximum.

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Productivity Growth In Indian Agriculture

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Abstract :

India is predominantly an agricultural country about 65% of the people are depend on agriculture for their livelihood. Globalization of the economy is the objective of the new economic policy.

The concept of productivity growth gained importance for sustaining output growth as it forms the basis for improvement in real incomes and welfare.

Introduction:

The Indian agriculture sector has been undergoing economic returns since the early 1990 in the move to liberalize the economy to benefit from globalization. Globalization is the new buzzword that has come to dominate the world since the nineties of the 20th century with the end of the Cold War and the breakup of the former Soviet Union and the Global trend towards the rolling ball.

In fact globalisation of the economy is the ultimate objective of the new economic policy by 1991 there was growing awareness that the inward looking import substitution and In fact globalisation of the economy is the ultimate objective of the new economic policy by 1991 there was growing awareness that the inward looking import substitution and overvalued exchange rate policy coupled with various domestic policies first during the past four decades In fact globalisation of the economy is the ultimate objective of the new economic policy by 1991 there was growing awareness that the inward looking import substitution and overvalued exchange rate policy coupled with various domestic policies first during the past four decades Impact globalisation of the economy is the ultimate objective of the new economic policy by 1991 there was growing awareness that the inward looking import substitution and overvalued exchange rate policy coupled with various domestic policies pursued during the past four decades Limited entrepreneurial decision making in many areas and resulted in a high cost domestic industrial structure that was out of line with world prices

India's membership and commitment to world Trade Organisation WTO in 1995 was a clear Sign of Indian's intention to take advantage of globalisation and face the challenge of accelerating it's economic growth.

One measure of economic growth is given by productivity growth at it term the basis for improvement in real income and welfare the concept of productivity growth gained importance for sustaining output growth and forms the basis for improvement in real income and welfare the concept of productivity growth gained important for sustaining output growth over the long run at input growth alone is insufficient to generate output growth because of diminishing return to input use.

Definition:

Globalisation world - What does it mean?

- Does it mean the fast movement of people with results in Greater interaction
- Does it mean that because of Ipe revaluation people can be in touch with each other in any part of the world
- Does it mean trade and economy of each country is open in noa intensive or so that all varieties are available to consumer of his choice
- Does it mean that mankind has achieved emancipation to a level of where we can say it means a social economic and political globalization

Indian Is Global:

The liberalization of the domestic economy and the increasing integration of Indian with the global economy have helped Step Up GDP growth safely which pick up from 5.6 % in 1990 91 to a peak level of 17.8% in 1996

Growth rate have slowed down since the country has still been able to achieve 5.6 % growth rate in three of the last six years though growth.

Rate head slumped to the lowest level for point 3% in 2002 to 2003 mainly because of the worst draught into the set the growth are expected in go up close to 70% in 2003 2004 Global comparison shows that Indian is now the last text growing just after China.

This is major improvement given that Indian is growth rate in the 1970's was very low at 3% and GDP growth in countries like Brazil, Indonesia, Korea and Mexan was place than twice that of India

Though India's average growth rate almost doubled in the eighties to 5.9% it was still lancer than the growth rate in China, Korea and Indonesia. The pick up in GDP growth has helped improve India's global economy has improved from the 8th position in 1991 to 4th place in 2001. When GDP is calculated on a purchasing power party basis.

The expert group of planning commission observes that 38th if the population (i.e. 30.18 corers) is below poverty line. Thus is a challenge to the Economic return.

GDP Growth Rate:

Indian Economics passing through a difficult phase East by several unfavourable domestic and external development domestic output and demand conditions were adversely affected by poor performance in agriculture in the past 5 years the Global economy experienced on overall declaration and recognize on output growth of 1.1 % during the past year growth in the real GDP in 2021 (12 was 5 poor performance service in 2000 - 01. The Performance in the first quarter of the financial year is 5.8% and second quarter is 6.1%

The Implication of globalisation for a national economy is many. Globalisation has intensified interdependence and competition between economics in the world market. This is reflected in independent in regard to trading in goods and services and in movement of capital. As a result of domestic economic development are not determined entirely by domestic policies and market condition.

Impacts Of India:

India has done very little returns in agriculture to enable private and individual economic initiatives that would help harness benefits of globalisation this government created hurdles to globalisation Indian agriculture has benefited substantially from whatever little globalisation that has been allowed in Indian agriculture

Globalisation in the form of increased integration the trade and investment is an important reason why much progress has been made in reducing poverty and global inequality over recent decide but it is not the only reason for this of an unrecognised progress good national policy sound Institution and domestic political stability also method.

Understanding the current status of globalisation is necessary for setting Force for future for all Nations to reap the full benefits of globalisation it is essential to create a level playing field event. President Bush's recent proposal to eliminate all Tarrifs on all manufactured goods by 2015 will do it in fact sheet exchangeable the prevalent in quality according to this proposal traffic of 5% will be lowered to 8% starting 2010 the 8% traffics will be lowered each year until they are eliminate by 2015

Indian Agriculture Today:

Agriculture form the backbone of the Indian economy and discrete control Ltd industrialization in the last 6 digits agriculture occupies a place of bride being the largest industry in the country agriculture. Agriculture form the backbone of the Indian economy and despite concerted industrialisation in the last 6 decades agriculture occupies a place of tried being the largest industry in the country agriculture provides employment to around 60% of the total workforce in the national economy can be best explained by considering the role of error provides employment to around 60% the total workforce into the national economy can be best explained by considering the role of agriculture under different heads.

The Indian economy has grown at 7% per annum for the last decade and at more than 90% for the three years. Ironically there is significant slowdown in agriculture sector agriculture growth should from 4.69 percent in 1991 to 2.6% in 1997 and to 1.1 % in 2004 25 due to power agriculture was only 0.7 % in 2004-05 due to poor monsoon but increased to 2.3 % 2005-06.

Year	1984-85	2002-03	2003-04	2004-05	2007-08	2008-09
Agriculture	35.2	26.5	21.7	20.5	17.8	18.00
Industry	26.1	22.1	21.6	21.9	26.6	22.00
Service	38.7	51.4	56.7	57.6	55.4	60.00

Source- economic survey 2000-2009 (% of GDP)

Major causes decline is 4 and unplanned investment in agriculture sector the agriculture sector in measure employment generator of this country but investment in this sector is very less compared to the industrial sector this for investment in basic infrastructure and education in agriculture resulting in poor

performance of this chapter poverty and less calorie consumption of citizen of this country compared to citizen of other countries.

Conclusion:

Since 1991, Indian adopted the Liberalization, globalization due to this policy Indian agriculture sector faced more problems, because in Indian more farmers are small-scale farmers with low land sector so that they could not get advantage of globalization. Hence some Economist says that, in an age of market liberalization, globalization and expanding agribusiness, there is danger that the small-scale farmers will find difficulty fully participating in the market.

A survey of globalization policies followed Indian reveals that the promised benefits of globalization in the form at sharp increase in GDP, exports, foregin direct investment, rehducation of proverty, declaration of unemployment could not be realize by India during the 1990's globalization has adversely affected Indian economy.

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The Law Relating To Preservation, Conservation And Protection Of The Forests

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Abstract:

Deforestation causes ecological imbalance and leads to environment deterioration. Deforestation has been taken place on a large scale in the country and it has caused wide spread concern. Forest is an important natural resource of India. They influence against floods. They protect the soil against erosion. They provide raw materials to a number of important industries, viz., furniture, matches, paper, rayon, construction, planning, etc. There is a need to increase forest areas in the entire country. The main problem is the deforestation, arising from the developed countries to major extent, and also the poor countries to minor extent. The development countries have established several thousands of industries and exported the finished goods to the remaining world and consume goods themselves. This harmful and dangerous process started since the beginning of the twentieth Century and it is still continuing. In the development countries, the population is very high. Up to the ending of the nineteenth Century, this problem was not so severe. Because the number of the people and number of the industries were lesser in quantity and quality. Due to modern technology, industrialisation and urbanisation heavy quantities of dangerous, noxious and hazardous substances are released in highest quantities. Day- by -day these are accumulated. If it is not stopped and controlled, it will adversely affect upon the earth. Environment is God gift. Forest, Water, Air, Soil are the most important things for living beings. Since the starting of existence of living beings, physical and biological processes have been continuing in the environment. However these normal environmental processes are adversely affected by the contamination by human beings by excess use of natural resources and human resources. To prevent the indiscriminate feelings of the trees, worldwide agitations took place. The forest legislation has become necessary to administer the forests, develop them, prevent from deforestation, pilferage forest, forest produces and to protect the wild life.

Introduction:

Forest is the beautiful gifts given by the nature. Forests have abundant natural resources. They generate abundant quantity of oxygen. They maintain the Ozone Layer in tact. Forests cause rains. Forests occupy a pride of place. They play an important role in the environment. Every forest has different ecosystems. It gives shelter for wild animals. Since the birth of human beings, the forests were the main source of living. Man lived along with other animals in his non- civilized state. He took shelter under the trees. He ate wild animals' meat. He ate the fruits of forests. As man learnt the civilization and culture and began to cultivate then too the forests helped him providing necessary timber, firewood to him, food medicinal plants, etc. If there are no forests, there will be no rains and no wild life and then no life for man. We get teak, sandal, red sandal woods, etc., from the forests. Forests protect the innumerable forms of wild life. They are rich in flora and fauna.

Minor Forests Produce: Minor forest produce means any forests produce other than timber, trees (excluding bamboos) and charcoal. Abnus (beedi) leaves are the important minor forest produce. Several lakhs of people especially the Tribals earn their livelihood on beedi leaves. Thus the forests help human beings, animals in several aspects. They are important economically, ecologically, socially and historically. This is one side of the coin. The second side of the coin is not good. As the population grew abnormally, the people began to encroach forest area for residential, mining and industrial purposes. They began indiscriminate cutting of the trees. Deforestation is one of the worst incidents occurred on the globe in the twentieth century. In this century, the people cut the forests indiscriminately without forethought. Mining operations have been undertaken in the forests. Modern technology replaced saw mills in place of axes the traditional weapon. The modern technology has given deadly weapons by which wild animals have been killed mercilessly. As a result several species of them gradually extinguished. If the forests are cut like this continuously, in future we cannot see the trees. It will badly effect on the flora and fauna. Most of the precious species of plants and animals shall exhaust. Forest ecosystems will be destroyed. It will effect on the rains. When the forests are cut, the open lands cannot produce evaporation and oxygen in the atmosphere, thus it will affect on monsoons. The rains will be decreased. Desertification increases. The Ozone depletion and Global Warning increase further. Therefore it is needless to say the people should be concerned about the preservation of forests.

The Forest Policies of India: -

After independence, the Indian Government formulated two Forest Policies, 1952 and another in 1988. The aims of these policies were to improve the forestation and to prevent the environmental pollution and

erosion. They provide raw materials to a number of important industries, viz., furniture, matches, paper, rayon, construction, planning, etc. Forest is an important natural resource of India. They influence against floods. They protect the soil against erosion. They provide raw materials to a number of important industries, viz., furniture, matches, paper, rayon, construction, planning, etc. There is a need to increase forest areas in the entire country. The forests are under the control and ownership of the States. About 95% of the forests are owned by the States. A small portion, i.e., 5% is under the ownership of corporate bodies and private individuals. There is need to increase forest areas in the entire country. Especially in the northern States the forests are very less. The Central and State Governments have been adopting certain measurements in increasing the extent of forests with the support of the people, such as social forestry, community forests, private forests, etc. Previously some of the forest plants were not allowed to cultivate privately. Such restrictions were removed on the cultivation of sandal, red sandal, teak, etc. Now several agriculturists and rich people have been cultivating.

The Forest Policy, 1952:- In the first year plan 1952- 57, the Government of India declared it's Forests Policy, 1952. That policy aimed to raise the forest area to one hundred million hectares, which would come to 33% of the country as a whole. The Forest Policy, 1952 have the main objectives : (1) to increase the productivity of forests ; (2) to link up forest development with various forest based industries; and (3) to develop forests as a support to rural economy.

- (1) A forestation Measures: - The Indian Government found that there was a great deficiency of supply of wood for the industries and housing purposes for which constantly the demand has been increasing. For that purpose the Government proposed to take afforestation measures. These measures included (a) Plantations of quick growing species; (b) Plantations of economic species, viz., teak, sea sol, sandal, eucalyptus, etc. (c) Plantations to be raised under the scheme of rehabilitation of degraded forests. The Government proposed various a forestation schemes under State plans. As a result, about five million hectares were brought under man- made plantations between 1951- 1991.
- (2) Social Forestry: - Under this Plan the Indian Government wanted the co-operation of the people in developing the forest and at the same such social forests shall be utilizes by the people. By the social forestry, the needs of the fuel, papers, and such needs shall be met. Under social forestry three steps were taken :- (i) Farm Forestry: - The Central and State Governments encouraged the private persons to plant the trees in their own land. For this purpose the State Forest departments supplied the seedlings to the farmers and other people without any cost. (ii)Public Woodlots: - The Forest Department planted the seedlings in the road sides, canal banks and other public lands. (iii) Community Forests: - Seedlings were supplied by the Forest Department. The people planted them in the public Government lands with their own efforts. The profits were equally shared by the villagers. Like this the Indian Government encouraged the people to participate in the social forestry. The World Bank and other foreign aid agencies financed such social forestry programmes. About 90,000 million seedlings were planted and 4.5 million hectares were covered under this social forestry.
- (3) Promotion Methods for Increased Production: The 1950 World statistical reports proved proved that an average the growing stock per hectare in India was only 28 cubic meters. Whereas the world average was 110 cubic meters. It is also found that the average annual increase of the wood growth was only 0.5 cubic meters per hectare in India, whereas the world average was 2.0 cubic meters.

The reasons for the vast difference between the Indian forests and the world forests was that the developed countries have been using the most sophisticated modern technology for the fast growth of trees. The Forest Policy, 1952 proposed to adopt the methods and scientific manners to increase production.

- (4) Forest Development Corporations:- The Indian Government established Forest Development Corporations. These are autonomous. The functions of these corporations are many faceted, which induced raising new plantations, developing infrastructure in the forests and surrounding areas, marketing timber and minor forest produce.

The New Forest Policy, 1988:-

After Forest Policy, 1952 was totally failed, the Government of India declared New Forest Policy 1988 in December 1988. The main **features of this policy are :-**

- (1) Role of Tribal's: The Forest Policy, 1952 adopted anti-people and anti- tribal policies in implementation. The Government recognised the people's role. It pleaded the Tribal's and people to participate in the forestation. The New Policy says that all agencies are responsible for forest management and they should associate with people mainly with Tribal people closely for the protection regeneration and development of forests.

- (2) Discouragement to forest based industries: - The New Policy took the new dimension of discouraging the forest based industries, such as furniture, paper, etc.
- (3) Contractors: - The 1952 Policy allowed the private contractors in felling, transportation of the forest produce. This led to indiscriminate fallings of trees in abnormous and huge quantities with the collusion of contractors and bureaucrats. Hence the 1988 Policy put the full –stop for the intervention of private contractors.
- (4) Green cover: - The 1988 Policy targeted to refill the depleted forest area. It aimed to increase the forest area to 33%
- (5) Forest lands to be forests only: The Indian Parliament declared its dedication that the forest lands should ne intact. No person or people shall be converting the forest area into residential or industrial areas.

The deforestation and indiscriminate fallings have been continuous process in India. The people are not aware about the importance of the forests. Thus after implementation of 1988 Plan in stead of raising to aimed 33% of the area, it has come down to 12% now. We know the reasons behind the destruction of forests. Now all the countries are facing environmental problems. Our country is too facing environmental problems more. The deforestation enhances ecological imbalance and environmental pollution. The Government policies are remained as blue prints, but they have not come into reality. The main reasons for the failure of policies are bureaucrats' indifference, negligence and corruption. The people too are indifferent, negligent and selfish.

The Forest (Conservation) Act, 1980:-

This Act was enacted by the Central Government and came into force with effect from 27th December, 1980. This Act contains only 5 Sections. This Act to provide for the conservation of forests and for matters connected therewith or ancillary or incidental thereto. Deforestation causes ecological imbalance and leads to environmental deterioration. Deforestation has been taking place on a large scale in the country and it has caused wide spread concern. Therefore the Government decided to take necessary steps to prevent deforestation. Restriction on the dereservation of forests or use of forest land for non forest purpose:

Section 2 states that notwithstanding anything contained in any other law for the time being in force in a State, no State Government or other authority shall made, except with the prior approval of the Central Government any order directing-

- (i) that any reserved forest (within the meaning of the expression "Reserved Forest" in any law for the time being in force in that State or any portion thereof, shall cease to be reserved;
- (ii) that any forest land or any portion thereof may be used any non-forest purpose;
- (iii) that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation not owned, managed or controlled by Government;
- (iv) that any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for re-forestation.

Constitutional of Advisory Committee: Section 3 empowers the Central Government to constitute, a committee of such number of persons as it may deem fit to advise the Government with regard to the grant of approval or/and any other matter connected with the conservation of forest which may be referred to it by the Government. Section 3-A imposes penalty for contravention of the provisions of the Act that the person contravened shall be punishable with simple imprisonment for a period, which may extend to 15 days.

Conclusions:

The Preamble of the Act, explains the objects of the Act. It is to be remembered that this is the first Act enacted on the environment by the Indian Parliament inspired by the Stockholm Declaration. The objects of this Act more or less similar with the principles of Stockholm Declaration. An Act to provide for the prevention and control of deforestation and the maintaining or restoring or wholesomeness of forest. The industrialization is the main factor and source of the environmental pollution. It is more dangerous than the two sources above cited. The Industrial Revolution had been started in Britain in eighteenth century. Later it was spread in the remaining world, especially in other western countries. The traditional energy consumption, produced from charcoal in limited extent, was replaced by the industrial energy, for the industries and domestic purposes. Added to it, development in technology brought new ways to exploit the new sources of energy, such as coal, gases, oils, thermal energy, nuclear energy, etc. The new technology introduced new means of transportation, such as railways, motorcars, aero planes, rockets, etc; all these new means consume huge quantities of natural resources. Automobiles are major contributors for air pollution in the urban cities. Whereas Parliament has no power to makes laws for the State with respect to any of the matter aforesaid except as provided in Art. 249 and 250 of the Constitution. And whereas in pursuance of clause (i) of Art. 252 of the Constitution, resolutions has

been passed by all the Houses of Legislatures of the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal to the effect that the matters aforesaid should be regulated in those States by Parliament by law". In conclusion, we must use COVID-19 as a learning moment. It has shown humanity that our ill-treatment of the planet has consequences. It has shown that the warnings of scientists can and do come true. It has shown that we must listen, plan and prevent.

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Management of Natural Resources

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Introduction –

Natural resource management (NRM) is the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations (stewardship).

Natural resource management deals with managing the way in which people and natural landscapes interact. It brings together natural heritage management, land use planning, water management, bio-diversity conservation, and the future sustainability of industries like agriculture, mining, tourism, fisheries and forestry. It recognises that people and their livelihoods rely on the health and productivity of our landscapes, and their actions as stewards of the land play a critical role in maintaining this health and productivity.

Natural resource management specifically focuses on a scientific and technical understanding of resources and ecology and the life-supporting capacity of those resources. Environmental management is similar to natural resource management. In academic contexts, the sociology of natural resources is closely related to, but distinct from, natural resource management.

Management of the resources

Natural resource management issues are inherently complex and contentious. First, they involve the ecological cycles, hydrological cycles, climate, animals, plants and geography, etc. All these are dynamic and inter-related. A change in one of them may have far reaching and/or long-term impacts which may even be irreversible. Second, in addition to the complexity of the natural systems, managers also have to consider various stakeholders and their interests, policies, politics, geographical boundaries, and economic implications. It is impossible to fully satisfy all aspects at the same time. Therefore, between the scientific complexity and the diverse stakeholders, natural resource management is typically contentious.

Management of Natural Resources – Objective

The aim of natural resource management is to achieve sustainability by creating a healthy equilibrium between the following three factors:

- Social factors: people, communities, etc.
- Economic factors: employment, jobs, money, etc.
- Environmental factors: animals, plants, biodiversity, etc.

These three factors are correlated to each other, and the only way to achieve a good equilibrium between all three is by managing the natural resources properly.

Why do we need to manage our Natural Resources?

Energy is required for the evolution of life forms on earth. We obtain energy from different sources. The natural resources that we use today are the prime source of energy for day-to-day activities of humans, without which we would still be lurking around in the Stone Age. In this article, we will discuss why there is a need to manage and conserve our natural resources.

Why is Management of Natural Resources Important?

Following are the reasons why the management of natural resources is important:

- To maintain a balance in the ecosystem.
- To avoid further destruction of the environment.
- To avoid over-consumption of the natural resources.

What are the Three R's of Waste Management?

Following are the 3 R's of waste management:

- Reduce
- Reuse
- Recycle

Reduce:

Reduce refers to smart purchasing of the products. The best way to reduce waste is by not producing waste. Following are the ways to reduce:

- Avoid using disposal products like paper cups and plates, straws instead switch to reusable products.
- Check for the durability of the products.
- Stop asking for carry bags at shops, instead carry cloth bags.

Reuse:

Reuse refers to using products that are economical and also environmentally friendly.

Following are the ways to reuse:

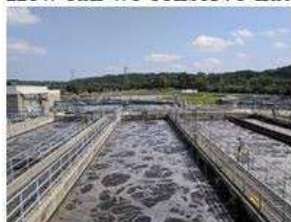
- Donate or sell old clothes, electrical appliances, furniture, etc.
- Reuse the paper and plastic bags.

Recycle:

Recycle refers to reusing of the products to get creative and by-products. Following are the ways to recycle:

Recycling used papers to make paper bags.

Purchasing products that can be recycled and also that are recycled.

How can we conserve natural resources?

Wastage of water is one of the major concerns that need to be addressed. The treatment of water gathered from domestic and industrial waste is necessary in order to fulfil the huge daily demand of the vast population.



Careless dumping of substances such as plastics and glassware has a harmful effect both on soil and water. Instead of disposing them into nature, recycling and reusing them can be counted as a better option.



Stringent laws and policies should be implemented as part of natural resource management. Perpetrators should be imposed heavy penalties in order for them to grow enlightened on the urgent requirement of natural resource conservation.



Soil management practices should be practised to reduce the soil lost due to soil erosion and improper land use.

Conclusion –

Sustainable management of natural resources is a difficult task. In addressing this issue, we need to keep an open mind with regard to the interests of various stakeholders. We need to accept that people will act with their own best interests as the priority. But the realisation that such selfish goals will lead to misery for a large number of people and a total destruction of our environment is slowly growing. Going beyond laws, rules and regulations, we need to tailor our requirements, individually and collectively, so that the benefits of development reach everyone now and for all generations to come.

Suggestions -

- Everything that we use today – food, clothes, house, vehicles, fuel, notebooks, furniture, cooking gas, utensils, toys, roads, etc. are obtained from resources on the earth.
- A significant portion of the energy which we use today is obtained from the non-renewable sources. This implies that once they are used up, they cannot be replenished. The most important source of non-renewable energy used extensively is the fossil fuels which have taken millions of years to be formed.
- Managing the resources would not only ensure its rational use but also put a limit to the degradation it is causing to the environment. For example, the usage of resources in different forms generates a lot of waste which is being disposed of into the water bodies. This, in turn, is polluting the rivers and lakes. Limiting usage will also reduce waste generation and pollution.
- Our resources like forests, wild life, water, coal and petroleum need to be used in a sustainable manner.
- We can reduce pressure on the environment by sincerely applying the maxim of 'Reduce, Reuse and Recycle' in our lives.
- Management of forest resources has to take into account the interests of various stakeholders.
- The harnessing of water resources by building dams has social, economic and environmental implications. Alternatives to large dams exist. These are locale-specific and may be developed so as to give local people control over their local resources.
- The fossil fuels, coal and petroleum, will ultimately be exhausted. Because of this and because their combustion pollutes our environment, we need to use these resources judiciously.

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Environmental View of Mahatma Gandhi

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Abstract

Mahatma Gandhi's environmentalist approach is not only part of environmental protection but also a way of sustainable life. Considering Mahatma Gandhi's approach towards nature, modernization, the zeal for rural development, way of life, shows the direction of sustainable development & environmental vision. Today, human beings are entangled in consumerism and plunder of nature and resources. As a result, human life is leading towards insustainable. If we change the attitude our 'way of life' minimize our needs & control our consumerism approach we would move towards the goal of protection of environment rather than destruction & it is way of sustainable development we can understood his environmental view from his attitude towards go to villages, modern civilization & relationship with man and nature his quote 'Nature can provide every one's need but not greed' itself talk much more.

Keywords--environment. view consumerism, need, man nature, modern civilization.

1. Introduction

Before we understand the environmental view of M Gandhi it is necessary to see what s the current satiation & why it is needed to understand the environmental view of M. Gandhi in the current era ?. After the industrial revolution we have made remarkable progress in each & every aspect of human life. But in last few decades due to increased population, rapid growth of urbanization & industrialization our natural environment is posing much pressure & it has badly affecting not only on human life but also on whole earth. Such as water pollution, air pollution, solid waste pollution, global warming, climate change, land degradation, acid rain etc. are the burning issues. As per 2011 census the population of India is 121 crore & population living in urban areas is 31 percent it is estimated that in the coming decade it will reach up to fifty. Environmental consciousness has been spread world wide after the Stockholm conference of UNDP & firstly recognized the need to judiciously use the natural resources for the safe future of the coming generation. But M. Gandhi almost hundred years before has voiced his concern for the environment. It is seen in his speeches. Writing & messages. His quote 'Nature can provide every one's essential needs but not greed' itself talks about the environmental issue. In recent years different laws are enacted against pollution & about environmental protection & various environmental movements are working on the issues but apart from that it is necessary to change our attitude, our lifestyle, our way of development & we can find the solution from M. Gandhi's approach.

2. Objectives

The main purpose of the paper is to understand the day to day's environmental problems & highlight the view of M Gandhi about the environment which is the best solution to minimize the problems. For the paper secondary materials like books different journals are referred & analyzed with current situations to cover the topic.

3 Environmental View of M. Gandhi

M. Gandhi is Known as 'Father of India' great political leader, philosopher but he was also known as great environmentalist. We can understand his environmental view from his various philosophies. His philosophy of Satyagraha is based on non voidance & truth, simple life style which indicates how we can move towards sustainable development without doing any harm to nature. & our fellow beings. Raghunath Mashelkar says 'engineers & industrialists always strive for 'more from less' but he had the idea from 'Gandhian Engineering' which would produce more from less resources for more people, the development model fit for Gandhian philosophy. '

3.1.Man & Nature

According to M. Gandhi Nature is a source of inspiration but not exploitation Man & nature is closely related to each other Trees animals & other living being has given much importance He always says, man has no power to create life therefore he has no right to destroy life Gandhi fully understood the primordiality of man nature relationship & his theory & philosophy of life. Simple living is the formula of M. Gandhi's living lifestyle is an attack on modern civilization & luxurious lifestyle which is based on consumerism. He advised men, 'Shun machinery the chief symbol of modern civilization that represents a great sin, he stated ' what is

good for one nation situated in one condition is not necessarily good for another situated. 'One man's food is another man's poison' In nature each & every one is unique like that every nation has a unique identity therefore one nation could not imitate to others sometimes it is not digestible consumerism in western culture is not applicable for India He always praise the simple way of life

Gandhi's approach revolved around the concept of need & greed, the boundaries of nature can be used only according to our needs. Actually he was not an activist to protest against but he did much more than that. He led his life completely in harmony with his surroundings & nature.

3.2. To Go Back to villages

M.Gandhi gave the message of '*Khedayakade Chla*' (go back to villages) He insisted on to develop the villages Villages are the real energy of nation so the people of villages should be free from diseases that is good health education hygienic sanitation facilities can change the rural life positively It was the model of development which is based on sustainable development that is on renewable resources that can produce again & again. As per his opinion villagers can recognize nature truly because they spend their whole life with nature. They know their existence depends upon nature & only they could save nature.

3.3.Modern Civilization

Modern civilization has a large impact on human life as well as on the environment. Gandhiji believed that true civilization values are not present in modern civilization but in ancient civilization or in villages. They know the environment as 'God' ; they respect the total environment & they try to worship it, that is they conserve it, protect it. But in modern civilization it is the indicator of destruction of natural resources under the name of development. They are destroying an egregious amount of violence against nature, which is largely seen. According to Gandhi civilization is in real sense not the maximization of wants but in deliberately & voluntarily reduction of wants but is happening reversely in today's world. We people forgot the word need & demand has become more significant, Today's production is not need based but demand oriented which increases the demand unnecessarily & it leads to degradation of natural resources. Gandhi was against this system.Natural resources are roughly exploited like forest Every year thousands of forest cutting down it means loss of forest animal's habitats it impact on reduction of that animal which destroy the whole food chain of ecology Gandhi believes that everyone has right to live on the earth hence in the sense modernization is harmful. We can deeply realize his environmental view from his attitude towards going to villages, man. & nature and modern civilization

4.Conclusion

In real sense M. Gandhi was not an environmentalist. He hadn't written as an environmentalist or actively participated in the environment movement because at that time there was not the big issue of environment as it is today. but whatever he had spoken, written was the root of environmental protection oriented. He gave stress on health & hygiene sanitation cleanliness etc are the core environmental issues. His simple lifestyle gives ideas about minimizing the needs and control on consumerism . Today's modern age is trapped on it Various environmental organization are taking environmental conservation activities, various laws are formed but there is ignorance about M. Gandhi's vision towards environment which is not only conservative but is way of life which is based on thinking attitude If we change the attitude our 'way of life' minimize our needs & control our consumerism approach we would move towards the goal of protection of environment rather than destruction & it is way of sustainable development. Here I would like to note the Quote of M. Gandhi,

'The Earth the air & the land & the water
are not an inheritance from our forefathers,
but on loan from our children, so
we, have to hand over them at least
As it was handed over to us',

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Retirement Policy In Human Resource Management Of Family Owned Manufacturing Businesses In Kolhapur District.

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Abstract:

The retirement policy of the family owned business is different from the corporate business entity. In the case of corporate business entity the retirement of the manager of the business can held in single day. On single day the manager gets the retirement by giving charge to next personnel. However the retirement in the case of family owned and managed business is a gradual process which goes through various phases. The researcher is addressing the issue of retirement policy in human resource management of family owned business with special reference to the manufacturing units in Kolhapur district, in this research paper

Key words: - Family Owned Business, Human Resource Practices And Management, Retirement Policy.

Introduction

The family owned and managed business is such a business entity where the family members exclusively, own and manage the business activities. From legal entity wise, the business unit may be a sole proprietary concern, a partnership firm, a HUF or body incorporate. In all of these types of business entities, if final decision making authority remains in the hands of family members only, in this condition the business entity is considered to be family owned and managed business. The human being thinks in terms of “अहं मामेति” i.e. “Me and Mine”. This tendency is inherently imbibed within person’s consciousness. Because of this tendency, almost every businessperson tries to keep decision-making authority of the business within family members. In this case, family members control and influence almost all of the important activities of the business. The business person don’t let go, the controlling ownership stake of the business outside of the family. In this perspective, every business decision is taken to keep intact the family ownership of the business. This may limit the progress of the business from growth and expansion. Still, many family business owners maintain traditional management style of the business. Despite these facts, the family businesses are universally, contributing to the progress of economy, they are earning profits, generating employment, and are engaging in productive activities.

Review of Literature:

1. The book entitled as “Building family business champions” written by Eric G. Flamholtz and Yvonne Randle(2016)(G.Flamholtz and Randle 2016) , in this book the writers have vividly explained the dynamics behind developing a successful family owned and managed business. The book is divided into three parts containing ten chapters in all. In the first part entitled as ‘Building Family Business Champions’ the writers have explained a framework and evolution of family oriented business. A second part being very important part of the book, in which the writers explain the tools for developing the family business. The writer explains strategic planning, SWOT analysis, developing organizational structure Developing objectives and goals for each level of the organizational structure. This book also considers the important part of cultural practices in the family and business and how to blend the family culture with the business culture. In the last part of the book the cases of succession and leadership is discussed. However, the books do not provide any information about how to carry forward the culture and transaction together. It appears that the book inconspicuously assumes full rationality at the part of family members. Due to emotional bonding and intricate mental set up of family members, it goes very difficult to establish very accurate organizational structure. The concept of favoritism becomes prominent role in recruitment and other human resource practices. These things are not completely covered by the author. Which stands as the research gap .

2. In the book entitled “The ten commandments of Family Business” the writer Kavi IRamchandran (Ramachandran 2015) shared his broad experience regarding management of family business. The writer provides ten commandments which are very much helpful and guiding to manage the family business. Different stories, cases, models have been described by the writer. He considers the dioramic elucidation for the defining

the concept of family ownership of the business. In the first chapter after introducing the concept of family business, the writer offers the first commandment i.e. to communicate and build trust. In this commandment he vividly explains various techniques of communication in differentiated situations. These communication techniques surely help to reduce the communication gap within the family members. The second commandment the writer advises about professionalizing the family business. The third commandment describes about preserving and practicing values. The forth commandment provides for dynamics of dealing with ownership challenges. The fifth and sixth commandment describes about retirement and succession planning. The seventh commandment emphasis about developing entrepreneurial qualities for keep going the business. The eighth commandment describes about development of long term business strategy. The ninth commandment provides the explanation for role of family philanthropy in business. The last commandment explains about compassionate leadership. The book is in written in Indian context. In addition, provides for commendable explanation for intricacies involved in family owned and managed business. However, there is no explanation about legal framework facilitation of succession in Indian context. In addition, there is no detail explanation about strategic management process. There is no narration about how to handle the emotional conflicting situation.

3) The book titled as “Keep The Family Baggage Out of the Family Business” and written by Ouentin J. Fleming(Q. J. Fleming 2000) : The book accounts for basics of family managed business, family system and business systems , family forces driving the business forces, effects of training children in families on succession of business, family roles and relationships and communication, succession difficulties in entrepreneurial families , concept of evolutionary v/s revolutionary succession, dangers of delaying to plan for succession process, contributions of spouse inthe family and in the business, conditions of divorce affecting successions, complications arising out of multiple marriages and multiple marriage partners, etc. In the book the author vividly suggests about the various solutions to deal with the family baggage such as , creating council of advisers, creating strong team to run the company, skills required to run the company, need of critical analysis are the topics covered in this book. However, the book deals on American background, doesn't discuss much more about Indian family culture which is the research gap. The book doesn't discuss any example of successful family business which is another research gap.

4) The book titled as “Succession” written by Noel M. Tichy (Tichy 2014): In the book the writer very lucidly revels his deep analytical study of process of transformation of leadership from one generation to another generation. He addresses for various technical, political, and cultural issues relation to succession planning. The writer studies the succession planning and transformation of leadership at corporate organization like Ford, DuPont, JCPenney, etc. The book provides detailed explanation about the role of the Board, the role of existing CEO, the role of HR practices followed in the organization, the dilemma of inside verses outside successor. The book also takes into account the family business organizations' succession planning with the example of TATAs', S.C. Jonson and sons, etc. The book also covers organizations like non-profitable and farming. The book also provides a scheduled plan to transform the leadership to next generation. The book also gives emphasis on 360 degree feedback mechanism. The writer has provided a very good guiding mechanism for succession planning. However, the book is specially written on the background of western culture. The book does not take into account functional aspects of management specially Human resource management and its impact on succession of business. This is the research gap.

Statement of Problem:

Unlike the corporate businesses the family business entity differs in the case of following human resource practices. In the corporate business structure the retirement of personnel can occur in the single day. The human resource or manager in the corporate field gets retired on the single day by giving charge of the work to the next joining person on that post. But in the case of family owned and managed business the retirement of an owner manager is long term phenomenon. This has not been addressed by the modern day human resource theory in the books and in the principles. This research paper is an attempt to study the exiting scenario about the retirement planning of owner managers of family owned businesses.

Significance of Study:

Retirement planning is the part of succession planning. In the family business retirement cannot be a single a day phenomenon. The retirement of family members is a gradual process. Unlike the corporate sector or public sector the retirement of family members has to undergo succession planning. In order to study the retirement procedure in the family business, the researcher has opted to ask the retirement policy of family members.

Objectives

To study the retirement policy of the owner- managers from the family owned manufacturing business.

Conceptual and Theoretical Background:

Kolhapur is the city of spiritual heritage. Along with being very famous tourist destination is the the city of UDYOG. Rajshree Chhatrapati Shahu Maharaj led the foundation of modern day mechanical industry. The Kolhapur district has five MIDC's and nine industrial estates. In these industries more than 2500 industries are working. The are industrial units in micro, small, medium, large scale businesses.

Scope and Limitations of Study:

The researcher has collected the data from different manufacturing industrial units in Kolhapur district vicinity.

Research Methodology:**Sources of Data Collection****Primary Data :-**

The research paper is based upon primary data collected with the help of questionnaire. The data was collected from 500 business owner- managers.

Secondary data was collected from the books, periodicals, journals, internet,. Websites etc.

Method of data collection

The primary data was collected with the help of questionnaire from 500 owners out of 250 industrial units.

Analysis and presentation of Data**Table no. 1 Retirement Policy of family members**

Sr. No.	Particular	Yes	Sometime	No	Can't say	Total
1	Deciding retirement age for family member	52 (10%)	0 (0%)	274 (55%)	174 (35%)	500 (100%)
2	Listing down areas of responsibilities of retiring person	46 (9%)	10 (2%)	270 (54%)	174 (35%)	500 (100%)
3	Phasing transfer of responsibility to next generation of family member	58 (12%)	10 (2%)	262 (52%)	170 (34%)	500 (100%)
4	Appointing outsider in case family member is not available to take responsibility.	50 (10%)	6 (1%)	270 (54%)	174 (35%)	500 (100%)
5	Preparing roadmap of activities for retiring person after retirement	50 (10%)	4 (1%)	274 (55%)	172 (34%)	500 (100%)
6	Periodic reporting of business development to retired family member	48 (10%)	6 (1%)	272 (54%)	174 (35%)	500 (100%)
7	Seeking advice and taking help in building family harmony and training young generation	56 (11%)	4 (1%)	270 (54%)	170 (34%)	500 (100%)
8	Definite planning for retirement benefits	44 (9%)	10 (2%)	274 (55%)	172 (34%)	500 (100%)

(Numbers in Bracket and Italic shows percentage in vertical dimension) (Source: Field Work)

Analysis:-

The table no. 1 presents the analysis of Retirement policy of family members.

In the case of 'deciding retirement age for family member' out of 500 sample respondent owners 52 i.e. 10% have opted for 'Yes', 0 i.e. 0% sample respondents owners opted for 'Sometimes', 274 i.e. 55% sample respondent opted for 'No', and 174 i.e. 35% have opted for 'Can't say'.

In the case of 'Listing down areas of responsibilities of retiring person' out of 500 sample respondent owners 46 i.e. 9% have opted for 'Yes', 10 i.e. 2% sample respondents owners opted for 'Sometimes', 270 i.e. 54% sample respondent opted for 'No', and 174 i.e. 35% have opted for 'Can't say'.

In the case of 'Phasing transfer of responsibility to next generation of family member' out of 500 sample respondent owners 46 i.e. 9% have opted for 'Yes', 10 i.e. 2% sample respondents owners opted for 'Sometimes', 270 i.e. 54% sample respondent opted for 'No', and 174 i.e. 35% have opted for 'Can't say'.

In the case of 'Appointing outsider in case family member is not available to take responsibility' out of 500 sample respondent owners 50 i.e. 10% have opted for 'Yes', 6 i.e. 1 % sample respondents owners opted for 'Sometimes', 270 i.e. 54% sample respondent opted for 'No', and 174 i.e. 35% have opted for 'Can't say'.

In the case of 'Preparing roadmap of activities for retiring person after retirement' out of 500 sample respondent owners 50 i.e. 10% have opted for 'Yes', 6 i.e. 1 % sample respondents owners opted for 'Sometimes', 274 i.e. 55% sample respondent opted for 'No', and 172 i.e. 34% have opted for 'Can't say'.

In the case of 'seeking advice and taking help in building family harmony and training your generation' out of 500 sample respondent owners 56 i.e. 11% have opted for 'Yes', 4 i.e. 1 % sample respondents owners opted for 'Sometimes', 270 i.e. 54% sample respondent opted for 'No', and 170 i.e. 34% have opted for 'Can't say'.

In the case of 'Definite planning for retirement benefit' out of 500 sample respondent owners 50 i.e. 10% have opted for 'Yes', 6 i.e. 1 % sample respondents owners opted for 'Sometimes', 274 i.e. 55% sample respondent opted for 'No', and 172 i.e. 34% have opted for 'Can't say'.

Interpretation:-

It can be interpreted that in the case of retirement age for family members maximum family business owners either have not decided the age of retirement or unable to tell anything. In the personal interaction it is revealed by the owners that they would like to work in the business as long as they have physical and mental strength.

In the case of listing down areas of responsibilities of a retiring person, the maximum family business owners either have not listed down responsibilities of the retiring person or are unable to tell anything. Retirement does not mean withdrawing from business activities. Rather there is a requirement for a new set of activities. Maximum owners of family businesses don't predetermine the activities of retiring owners. Rather there is no sufficient value added retirement planning.

In the case of phasing, transfer of responsibilities to the next generation of family members, is also not considered by the maximum family business owners as a part of retirement. In the personal interaction it is revealed that in the case of next generations' taking up the responsibilities there is no planning. But gradually the next generation grows in the business as and when they get training and mentoring from the older generation. Till the older generation has physical and mental fitness, the older and younger generations both can work together. When the older generation becomes unable to work physically then only it is considered as a retirement.

In the case of appointing an outsider in case family members are not available to take responsibility, it is observed that maximum family business owners are not giving their acceptance or they are not expressing their views.

In the case of preparing a roadmap of activities for a retiring person after retirement, the maximum number of sample respondent owners are not preparing any such roadmap.

In the case of maintaining periodic reporting to the retiring person about business development, the maximum number of sample respondents have not succeeded in developing such formal practice.

In the case of seeking advice and taking help in building harmony and training for the younger generation, it is also observed that there is no formal policy given by maximum family business owners respondents.

In the case of definite planning for retiring benefits also it is observed that maximum family business respondents don't have formal policy.

It can be interpreted that very few sample respondent owners have succeeded to develop formal retirement policy. It can be interpreted that there is no adequate planning to utilise cherished experience of senior family business owners

Conclusion

It can be concluded that maximum numbers of sample respondent owners don't have formal retirement policy. They believe that physical and mental inability is the and should be the only criteria for retirement. In many instances there is no professional investment plan for after retirement benefits. However, there are some savings maintained, which remain useful after retirement. Also there is no formal policy for reporting about business development after retirement. Thus it can be concluded that the family business experiences the retirement of the owner due to physical or mental disability and not by predetermined plan.

Suggestions:-

It is suggested that the family business owners should adopt the foresighted approach. They should plan in advance for gradual retirement. They should enlist the responsibilities and train the next generation to accept

the responsibilities of the business. They also should find new engagements after retirement. The new engagement can be related to the business or to the family. However, they (the retired owner) should provide and share experience to the young generation.

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Energy Resources – A Need For The Future Of The Society

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Abstract

Energy is an indispensable or a vital component in the process of growth and development of a country. The energy consumption of a nation is basically considered as an index of its all round development. Because, almost all the developmental activities are directly or indirectly dependent on energy. Therefore, the demand for energy is increasing at a faster rate all over the world. But the energy production and their supply has not grown up at the same rate to meet the requirements of the present state of affairs. The urgent of an energy shortage indicates to the alarming situation to take conservation measure to the energy resources for near future. This article will present different types of energy resources and the conservation measures. The main aim of this article is to draw attention to the non-renewable and renewable energy sources, effect on climate and their sustainability. A qualitative study was done by reviewing literatures.

Introduction

The first form of energy technology was probably the fire which the early people used it for cooking and heating purposes. As the time passes, the burning of wood, coal was subsequently replaced to a great extent by oil. In 1970's due to Iranian revolution and Arab oil restriction, the prices of oil shot up and this ultimately led to the exploration as well as use of several alternating sources of energy.

Development in different sectors such as agriculture, industry, mining, transportation, lighting, cooling and heating in buildings relies basically upon energy. With the demands of growing population the world is still facing further energy shortage. The fossil fuels such as coal, oil and natural gas which at present are supplying 95% of the commercial energy of the world resources, are not going to last for many more years. In the present scenario, the life style of human being is changing very fast from a simple way of life toward the luxurious life style. Also, there is rapid explosion of human population which further resulted more consumption of energy. It is overwhelming to know in today's world that 1.4 billion people lack access to electricity, while 85% of them live in rural areas. As a result of this, the number of rural communities relying on the traditional use of biomass is projected to rise from 2.7 billion today to 2.8 billion in 2030 (Kaygusuz, 2012) ¹.

Developed countries like U.S.A. and Canada represent about 5% of the world's population but they consume one fourth of the global energy resources. An average person of that developed countries consumes 300 GJ (Giga Joules) per year which is equal to 60 barrels of oils. But an average person in poor countries consumes less than 1 GJ in a year. Thus, a person in a rich country consumes almost as much energy in a single day as a person does in a whole year in a poor country. This clearly reflects the life style of a person of that country and hence, the standard of living are closely related to energy needs. The energy consumption of a nation is usually considered as an index of its development.

Besides the domestic use, societies exploit energy for transportation, manufacturing, illumination, heating and air conditioning, communication, and for industrial, commercial purposes. Non-renewable resources are extensively used up by human exercise, whereas renewable resources are produced by continuing processes that can sustain indefinite human utilization².

Mainly, four types of alternative energy sources are harnessed from natural processes such as water, wind and sunlight. They are the most sustainable forms of energy. Sunlight is one of the main renewable sources of energy we know of today.

Classification of energy resources

Energy resources may be classified as primary resources, suitable for end use without conversion to another form, or secondary resources, where the usable form of energy required substantial conversion from a primary source. Examples of primary energy resources are solar power, wind power, wood fuel, fossil fuels (such as coal, oil and natural gas) and uranium. Secondary resources are those such as electricity, hydrogen, or other synthetic fuels.

One more important classification is based on the time required to restore or rejuvenate an energy resource. Renewable resources are those that recover their capacity in a time significant by human requirements. Examples are wind power or hydroelectric power, when the natural phenomena that are the primary source of energy are continuing and not depleted by human needs. Non-renewable resources are those that are significantly depleted by human practice and that will not recover or improve their potential significantly all the way through human lifetimes.

Some energy resources are mentioned below :

a) Fossil fuels

Fossil fuels are primary non-renewable sources. There are three main types of fossil fuels: coal, petroleum, and natural gas. Another fossil fuel, liquefied petroleum gas (LPG), is chiefly derived from the production of natural gas.

The use of fossil fuels in the 18th and 19th century set the juncture for the industrial revolution. Fossil fuels make up the bulkiness of the world's current primary energy sources. In 2005, 81% of the world's energy needs was met from fossil sources.³ Liquid fuels derived from petroleum deliver a great deal of usable energy per unit of weight or volume, which is beneficial when compared with lower energy density sources such as a battery.

Fossil fuels will sooner or later decline in production⁴ and become exhausted. Extraction of fuels becomes increasingly costly as society consumes the most easily reached fuel deposits⁵. Further, extraction of fossil fuels results in environmental degradation. The combustion of fossil fuels in vehicles and power plants also heat up the atmosphere and result to a heat island⁶ in the urban area. Conventional production of oil has peaked between 2007 and 2010. It was estimated in 2010 that an investment in non-renewable resources of \$8 trillion would be required to maintain current levels of production for 25 years⁷. In 2010, governments subsidized fossil fuels by an estimated \$500 billion a year⁸. Fossil fuels are also a source of emitting green house gases which may cause global warming, if consumption is not reduced.

b) Solar energy:

Sun is the ultimate source of energy, directly or indirectly for all other forms of energy. The nuclear fusion reactions occurring inside the sun release huge amount of energy in the form of heat and light. The solar energy received by the near earth space is about 1.4 KJ/second/m², known as solar constant. Being a tropical country, India receives sunlight of about 1648 – 2108 KWH/ m² per year for nearly 250 – 300 days. The daily solar energy incidence is between 4 and 7 KWH/ m² at different parts of the country⁹. The total amount of solar energy incident on Earth is vastly in excess of the world's current and predictable energy requirements. If suitably harnessed¹⁰, this highly diffused source has the potential to assure all future energy requirements. In the 21st century solar energy is expected to become ever more attractive as a renewable energy source because of its inexhaustible or never- ending supply and its nonpolluting character in contrast to the finite fossil fuels. A relatively minor additional loss of solar energy is due to Earth's atmosphere and clouds, which absorb or scatter as much as 54 percent of the incoming sunlight. The sunlight that reaches the ground consists of nearly 50 percent visible light, 45 percent infrared radiation, and smaller amounts of UV and other forms of electromagnetic radiation.

In recent years, because of increased demand for renewable energy sources, the manufacturing of solar cells and photovoltaic arrays has advanced considerably. Solar photovoltaic is a sustainable energy source¹¹. By the end of 2018, a total of 505 GW¹² had been installed worldwide with 100 GW installed in that year¹³. In Europe, for example, energy from renewable sources made up 34 percent of gross electricity consumption, up from 32 percent in 2018. The expansion of renewable energy source is happening on both a large and small scale, from rooftop solar panels on homes to giant off shore wind farms and battery plants. The renewable sources have become so reliable, in fact, that some rural communities rely on it entirely for lighting and heating purposes.

Some important solar energy harvesting devices are :

i) Solar cooker, ii) Solar water heater, iii) Solar cells, iv) Solar heat collectors, v) Solar furnace and vi) Solar power plant.

Other renewable¹⁴ energy resources are-

- c) Wind energy
- d) Hydropower
- e) Tidal energy
- f) Ocean thermal energy (OTE)
- g) Geothermal energy
- h) Biomass from plants etc.

Tester (2005) defines¹⁵ sustainable energy as, “a dynamic harmony between the equitable availability of energy-intensive goods and services to all people and preservation of the earth for future generations”. Reliable energy supply is important for all economies for heating, lighting, industrial equipment, transport, etc. (International Energy Agency, 2014). If fossil fuels are replaced by renewable energy supplies, it reduces the emission of greenhouse gases significantly. Since renewable energy supplies are obtained naturally from ongoing flows of energy in our surroundings, it should be sustainable. For renewable energy to be sustainable, it

must be limitless and provide non-harmful delivery of environmental goods and services. The wind and solar power are bringing about a clean energy revolution.

Sustainable Approach to Energy Management

Sustainability requires that the four pillars – economic, political, social, and environmental—are considered to be equally significant or important. Thus sustainable energy resources must be economically feasible, politically supported, socially equitable, and environmentally tolerable. Sustainable energy requires a balanced composition between energy security, economic development, and environmental protection. It includes energy systems, which are based on three core aspects: energy security, social equity, and environmental impact alleviation. Sustainable energy management requires many changes in the traditional way of understanding and interpreting energy management at all levels. So, the sustainable energy management may put together many features of the environment. It must be constantly modified and adjusted in accordance with changes in the three areas that define it and in accordance with the specific country or region where it has been applied. Basically, the concept of sustainable energy management is defined¹⁶ by the following parameters:

- i) Management, i.e., accepted theories, existing experience, state regulations, company orientation, the requirements of all stakeholders etc.
- ii) Energy industry, legislation, existing energy resources, new energy resources, energy efficiency level, the level of technology development, production and consumption levels, system stability, connectivity with other systems, and the degree of self-sufficiency; and
- iii) Sustainable development which includes acceptance of the concept at the state level, the ratification of international agreements, the parameters of the national strategy of sustainable development, and the list of priorities.

Sustainable management¹⁷⁻²⁰ of energy must therefore be regarded as an idea that greatly differs from traditional management which mostly ignored the need for conservation, restoration and saving of energy resources. Thus, the concept of sustainable energy management is a major global change whose effects are felt throughout the world. Some energy benefits of Strategic energy management (Figure 1) include reduced energy consumption through improved energy efficiency and energy conservation, reduced demand charges, decreased overall energy cost, reduced energy costs and improved reliability through integration of distributed energy resources and improved electrical price stability and reduced greenhouse gas (GHG) emissions through integration of long-term renewable energy contracts.



Figure 1: Strategic energy management (Source: <http://www.energystar.gov/>)

Thus, the idea of sustainable energy management can be treated as a challenge of modern mankind, which opens the possibilities for proposals and development of numerous solutions having long-term consequences for the development of human society as a whole. The way to approach the problem of sustainable energy management is that, we are to respect the scientific achievements and practical experience as well as by taking into consideration of the subject that initiates, accepts, and implements the energy management in a sustainable way.

Conclusion

The main aim of the paper was to highlight the different energy resources and their conservation through sustainable energy management. The energy is required in our everyday life for improving human

development which reflects the economic growth and productivity. The non-renewable energy sources are a risk to the environment and human health. The renewable energy sources will help to mitigate climate change in an excellent way but needs to be sustainable in order to ensure a sustainable future for generations to meet their energy needs. Knowledge regarding the interrelations between sustainable development and renewable energy in particular is still limited. This study is to ascertain if renewable energy sources were sustainable and the move from fossil fuel-based energy sources to renewable energy sources would help reduce climate change and its impact. A qualitative study was done by reviewing literatures from different sources. Further, the creation of global opportunity through international cooperation which supports least developed and developing countries towards the accessibility of renewable energy, energy efficiency, clean energy technology and research and energy infrastructure investment will reduce the cost of renewable energy, reduce hurdles to energy efficiency and promote new potentials towards climate change alleviation. Hence, it is very much alarming for us to save energy sources by proper utilizing it so that these will balance a sustainable future for generations to meet their energy requirements.

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Carbon Border Tax by EU: Protest by India**Akhilesh, PhD Scholar**19-BMU-6161 Department of Geography,
Baba Mastnath University, Asthal Bohar, Rohtak (Haryana)**Abstract:**

India along with the U.S, China and Japan are some of the countries that are hardest hit by climate impacts. In order to mitigate the condition and reduce the GHG emissions, one smart approach is pricing Carbon. Carbon tax is levies a fee on the production, distribution or use of fossil fuels based on how much carbon their combustion emits. The government sets a price per ton on carbon, and then translates it into a tax on electricity, natural gas or oil. Because the tax makes using dirty fuels more expensive, it encourages utilities, businesses and individuals to reduce consumption and increase energy efficiency. Carbon tax also makes alternative energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. Carbon tax offers social and economic benefits. It is a tax that increases revenue without significantly altering the economy while simultaneously promoting objectives of climate change policy. The carbon tax is the most practical method to reduce the fossil fuel consumption. In this paper firstly meaning of carbon taxation and pricing is discussed in special context with India and why India needs such pricing with its advantages and disadvantages. Later critical analysis has been done regarding proposal of European Union to introduce Carbon Border Tax recently in July 2021 and protest of India with this policy of EU seeing its poor impacts on India.

(Total Word - 226) Keywords : Carbon Tax , Green House Gas emissions, climate change, Carbon pricing

Rationale of the study:

Climate Change in today's world is a worldwide phenomenon in fact with greater speed in recent decades causing global warming and many other harmful impacts. Reason of study lies in the fact that Carbon pricing is one of the most efficient way to reduce GHG emissions and to use the resources efficiently and an urgent requirement for India.

Objectives of the study:

Major objectives of the study is to have thorough knowledge about the recent concept of carbon pricing and its benefits in reducing emissions of greenhouse gases and efficient use of resources.

Hypothesis of the Study:

Carbon taxation and carbon pricing is an efficient way to combat climate changes by pricing emissions of Green House Gases and to make efficient use of resources.

Data base:

The present paper is based on secondary data. Most of the data is accessed from newspapers, articles, journals, media reports, unpublished reports.

Methodology:

The data and information acquired from various sources is critically interpreted, explained and arranged systematically in sequence according to the need and objectives of the paper.

Introduction

India already feeling the impacts of climate change. Heatwaves are becoming more common and severe; heavy rain events have increased threefold since 1950; and rising sea levels are posing new risks as a third of India's population live along the coast. Low-income and other marginalised groups are most vulnerable to these hazards. This literature review finds that the economic costs of climate impacts in India are already immense. In 2020, a single event – Cyclone Amphan – affected 13 million people and caused over \$13 billion in damage after it made landfall. One study suggests that declining agricultural productivity and rising cereal prices could increase India's national poverty rate by 3.5% by 2040 compared to a zero-warming scenario; this equates to around 50 million more poor people that year. Lower-carbon development could yield immediate benefits such as cleaner air, greater energy security and rapid job creation. India's climate targets are considered to be '2°C compatible', i.e. a fair share of global effort. However, pursuing a cleaner, more resource-efficient path could stimulate a faster, fairer economic recovery and secure India's prosperity and competitiveness in the long term. In 2019, monsoon continued for a month longer than normal in India. From June to the end of September 2019, 110% of the long-period average was recorded. Flooding caused by heavy rain was responsible for 1,800 deaths across 14 states and led to the displacement of 1.8 million people. Overall, 11.8 million people were affected by the intense monsoon with the economic damage estimated to be US \$10 billion. There were eight tropical cyclones in India. Six of the eight cyclones intensified to become "very severe."

Extremely severe cyclone Fani affected 28 million people, killing nearly 90 people in India and Bangladesh, and causing economic losses of US \$8.1 billion, the report said.

Carbon tax is a form of pollution tax. It levies a fee on the production, distribution or use of fossil fuels based on how much carbon their combustion emits. The government sets a price per ton on carbon, and then translates it into a tax on electricity, natural gas or oil. Because the tax makes using dirty fuels more expensive, it encourages utilities, businesses and individuals to reduce consumption and increase energy efficiency. Carbon tax also makes alternative energy more cost-

What is Carbon Taxation and Pricing

competitive with cheaper, polluting fuels like coal, natural gas and oil. Carbon tax offers social and economic benefits. It is a tax that increases revenue without significantly altering the economy while simultaneously promoting objectives of climate change policy. The carbon tax is the most practical method to reduce the fossil fuel consumption. It checks the use of fossil fuel. • It helps India to reach the committed INDC of 33% by 2030. • This will benefited to protect the environment and ensure good quality of air in cities especially cities like Delhi and Kanpur. • A carbon tax is a step towards helping India meets their voluntary target to reduce the amount of carbon dioxide released per unit of gross domestic product by 25% from 2005 levels by 2020. • The clean energy tax will help to finance a National Clean Energy Fund (NCEF). Industry bodies have not favored the levy and fear that the resultant higher price of coal could trigger inflation. • The carbon tax charges a fee based on the carbon emission. So, to reduce the fee, users try to use less of the fossil fuel. • The alternative energy such as solar, hydro and wind energy are costlier than the fossil fuel energy. The carbon tax on fossil fuel makes the alternative energy competitive to the fossil fuel. It results in more use of alternative and clean energy. Perhaps, that will help India to promote the flagship programmes like International solar Alliance, start up India and Make in India by reducing use of non renewable fossil fuels. • All the money raised by the tax. It can help subsidize environmental programs and clean energy. Instead of investing more amount on importing the energy bill from outside the country. • Can make the correct and more use of fund availability for the programmes like afforestation and ISA. Problems related to Tax are: Production may shift to countries with no or lower carbon taxes. (so called 'pollution havens'); the cost of administrating the tax may be quite expensive reducing its efficiency; Higher taxes may encourage firms to hide carbon emissions. Further a global carbon tax may curtail economic activity in the poor developing world because they can't afford the small increase in energy costs, but the developed world may simply be able to pay.

Carbon Tax – How Does it Work?

The Government will set a price per ton on carbon. It gets translated into Tax on the following.

1. Tax on electricity
2. Tax on Natural Gas or Oil.

Different Fuels – Different Carbon Tax

The Carbon tax will not be the same for different fuels because the carbon content is not the same in all the fuels. The amount of carbon dioxide released is directly proportional to the fuel's carbon content. Taxes on different fuels will be based on the British Thermal Unit (Btu) heat units. It won't be based on weight or volume. This is done to encourage the use of efficient fuels.

Carbon Tax – Who Gets Taxed?

Carbon tax would be levied at different stages of consumption and production. Examples are listed below.

Producers

1. Oil Wellheads
2. Coal mines

Suppliers

1. Shipping companies that transport coal.
2. Oil refining companies

Distributors

1. Oil Marketing Companies
2. Utilities

Consumers

1. Here the consumers will be charged directly through the imposition of higher electricity bills.

Why India needs Carbon Tax

- Air pollution is one of the biggest public concerns in world and India today.
- After LPG reform and particularly from early 2000s, carbon emissions have increased because of high growth in the Indian economy.

- The aim of carbon tax is to set a price on the carbon content of goods & services to discourage their use.
- Emissions can be curbed only if people move away from polluting fossil fuels and adopt greener forms of energy.
- A part of the carbon revenue thus generated can be used for a systemic overhaul of the energy mix and in promotion of green energy.
- Energy mix needs to be remodelled through investments in clean renewable energy and low-emissions bioenergy.
- It raises the level of energy efficiency by investing in building retrofits, grid upgrades, and industrial efficiency using green technology.
- This energy mix requires an additional 1.5% of GDP annually over the next two decades.
- This amount can be obtained by the carbon tax, which will be a revenue-neutral policy with no Implications on the fiscal deficit.
- According to Lancet report around 19 lakh people die prematurely every year due to diseases caused by indoor and outdoor air pollution.
- A study shows that the lungs of children who grow up in polluted environments like Delhi Mumbai are 10% smaller compared to the lungs of children who grow up in the pollution free environment. This is a public health emergency.
- In 2014, India's total carbon emissions were more than three times the levels in 1990, as per World Bank data.
- India is heavily dependent on fossil fuels and there is dramatically low level of energy efficiency.
- Industry actors do not need to actively monitor and limit their CO₂ output.
- About 75% of all greenhouse gas emissions are CO₂ emissions produced through burning fossil fuels - oil, coal and natural gas.

To achieve all the objectives and reduce impctas as mentioned above we need a comprehensive policy of carbon taxation.

Pros and Cons of Carbon Taxation with special reference to India

Pros

- Will Balance Marginal social costs: The carbon tax will be a Pigovian Tax which balances the marginal social costs such as disease etc and additional emissions.
- Greener alternatives: high price of the materials or energy source according to their carbon content will induce households, including the rich, to shift towards greener alternatives.
- Employment generation: It will provide more employment since the employment elasticity in greener forms of energy is higher than those in fossil fuel-based energy.
- Expenditure will come down: a significant part of more than 3% of India's GDP currently spent on pollution-induced diseases will come down.
- Increase tax-revenue : It will also increase tax-revenue which can be used for other green projects.
- Higher incentive for people to avoid the use of fossil fuels.
- Companies have an incentive to go green as well and Pressure for a faster energy transition process increases.
- People will adjust their consumption behavior and the price of carbon dioxide emissions can be adjusted.
- Encourages Research &Development spending for renewable energies.
- People and companies who emit more CO₂ are charged more.

Cons

- Carbon tax is regressive in nature -it affects the poor more than the rich.
- Inflation : high transportation cost will lead to inflation and affect the informal sector.
- Alone insufficient: increasing carbon taxes is alone insufficient to reduce emissions as income levels rise.
- The highest rise in price will be in fuel and energy which affects the poor.
- Companies may relocate their headquarters to other countries
- Effectiveness depends on the design of the tax.
- Many products may become more expensive.
- Companies may lobby against the carbon tax.
- Lack of acceptance of the general public.
- Implementation will take a long time.
- Monitoring and administration costs may be significant.
- Individuals may be more affected than companies.
- May hurt poor developing countries.

- Will likely not be suitable for basic goods.
- Firms may hide their true level of CO₂-emissions

Carbon Border Tax Proposal by European Union 2021

On 14 July 2021, the European Commission adopted a series of legislative proposals setting out how it intends to achieve climate neutrality in the EU by 2050, including the intermediate target of an at least 55% net reduction in greenhouse gas emissions by 2030. The package proposes to revise several pieces of EU climate legislation, including the EU ETS (Emissions Trading System), Effort Sharing Regulation, transport and land use legislation, setting out in real terms the ways in which the Commission intends to reach EU climate targets under the European Green Deal.

The EU ETS is a cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one.

A 'cap and trade' system

The EU ETS works on the 'cap and trade' principle. A cap is set on the total amount of certain greenhouse gases that can be emitted by the installations covered by the system. The cap is reduced over time so that total emissions fall. Within the cap, installations buy or receive emissions allowances, which they can trade with one another as needed. The limit on the total number of allowances available ensures that they have a value.

After each year, an installation must surrender enough allowances to cover fully its emissions, otherwise heavy fines are imposed. If an installation reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another installation that is short of allowances. Trading brings flexibility that ensures emissions are cut where it costs least to do so. A robust carbon price also promotes investment in innovative, low-carbon technologies.

Sectors and Gases covered

- The EU ETS covers the following sectors and gases, focusing on emissions that can be measured, reported and verified with a high level of accuracy:
- Carbon dioxide (CO₂) from
- electricity and heat generation,
- energy-intensive industry sectors including oil refineries, steel works, and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals,
- commercial aviation within the European Economic Area;
- nitrous oxide (N₂O) from production of nitric, adipic and glyoxylic acids and glyoxal;
- perfluorocarbons (PFCs) from production of aluminium.
- Participation in the EU ETS is mandatory for companies in these sectors, but
- In some sectors, only installations above a certain size are included,
- Certain small installations can be excluded if governments put in place fiscal or other measures that will cut their emissions by an equivalent amount,
- In the aviation sector, until 31 December 2023 the EU ETS will apply only to flights between airports located in the European Economic Area.

Why India is Protesting EU's Carbon Border Tax

In mid July 2021, Indian environment minister Prakash Javadekar opposed the European Union's (EU) plan to levy an additional 'carbon border tax' on imports from countries such as India that do not have strict norms for controlling industrial greenhouse gas (GHG) emissions. Earlier, on March 10, 2021, the EU Parliament had adopted a resolution to implement a 'Carbon Border Adjusted Mechanism' (CBAM), a June 2021 draft regulation pertaining to which proposed that goods entering the EU would be taxed at the borders. Such a tax would promote "low-carbon, resource-efficient manufacturing", the resolution says. The UK and the US are also considering such proposals.

The BASIC (Brazil, South Africa, India and China) countries' grouping had opposed the EU's proposal in a joint-statement in April, terming it "discriminatory" and against the principles of equity and 'common but differentiated responsibilities and respective capabilities' (CBDR-RC). These principles acknowledge that richer countries have a responsibility of providing financial and technological assistance to developing and vulnerable countries to fight climate change.

Why EU want a Carbon Tax

For two reasons: its environmental goals and its industries' global competitiveness.

Recently, the EU declared it would cut its carbon emissions by at least 55% by 2030 compared to 1990 levels. EU's greenhouse gas emissions have fallen by 24% compared to 1990 levels. But imports from emissions--which contribute 20% of the EU's carbon dioxide emissions--are increasing, the resolution said. Such a carbon tax would incentivise other countries to reduce GHG emissions and further shrink the EU's carbon footprint. Second, the 27 EU member states have much stricter laws to control GHG emissions. It has an 'Emissions Trading System' that caps how much GHG individual industrial units can emit; those that fail to cap their emissions can buy 'allowances' from those who have made deeper cuts.

This makes operating within the EU expensive for certain businesses, which, the EU authorities fear, might prefer to relocate to countries that have more relaxed or no emission limits. This is known as 'carbon leakage' and it increases the total emissions in the world.

How does this Impact India

As India's third largest trading partner, the EU accounted for €62.8 billion (\$74.5 billion) worth of trade in goods in 2020, or 11.1% of India's total global trade. India's exports to the EU were worth \$41.36 billion in 2020-21, as per data from the commerce ministry.

The EU's March resolution stated that to begin with, by 2023, the CBAM would cover energy-intensive sectors such as cement, steel, aluminium, oil refinery, paper, glass, chemicals as well as the power sector.

By increasing the prices of Indian-made goods in the EU, this tax would make Indian goods less attractive for buyers and could shrink demand. The tax "would create serious near-term challenges for companies with a large greenhouse gas footprint--and a new source of disruption to a global trading system already roiled by tariff wars, renegotiated treaties, and rising protectionism", the consultancy BCG said in an analysis on June 30, 2020.

BCG estimated, for example, that a levy of \$30 per metric ton of CO₂ emissions could reduce the profit pool for foreign producers by about 20% if the price for crude oil remained at \$30-40 per barrel.

Suggestions and Recommendations:

India being a developing nation needs an urgent policy of carbon taxation.

European Union's policy of Carbon Border Tax is discriminatory in nature especially for developing nations and needs some modifications to make it more productive.

Conclusion:

Such a mechanism to charge imported goods at borders may spur adoption of cleaner technologies. But if it happens without adequate assistance for newer technologies and finance, it would amount to levying taxes on developing countries and It is currently unclear how the EU would assess emissions of an imported product. Would it be from the entire value chain, upstream and downstream?" There are many small businesses that will face difficulty in quantifying their emissions and additional costs will be passed on to the consumers, eventually. There are many such practical impediments. In the draft proposal, the EU has acknowledged several challenges in assessing emissions along global value chains and the possibility of tax being passed on to consumers. It suggests a fixed duty or tax on imports. The design of such a levy matters if it discourages sectors and industries that are already adopting cleaner technologies, and becomes another procedural and compliance hassle, it could prove counterproductive.

At last it can be concluded that Developing Countries like India surely needs Carbon tax policy for efficient usage of resources and consequent reduction of GHG emissions but the policy of Carbon Border Tax by EU is certainly discriminatory in nature and can not be adopted by India in its present form in any sense.

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Biodiversity of Gaganbavada Taluka: Study and Applications of its Geographical View**Janardan Shrikant Jadhav***

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Abstract:

Gaganbavada is situated in Kolhapur District, Maharashtra state, India. It is Taluka place, situated in the Sahyadri Range. The most of the area of this place is covered by mountains, valleys, and forest. There are very few areas covered by agriculture. This is also heavy rain fall place in Maharashtra. Gaganbavada Taluka has rich biodiversity because there is no industrialization yet today. There are three major dam such as Kode, Andur, and Vesarf Dam. The surrounding area of dams is covered by green and huge forest. There are numbers of medical plants; trees as well as we can also see their various types of wild animals and birds which is becoming great attraction of tourist and researchers. There are various types of diversity of flora and fauna. For nature extremists Gaganbavada has many surprises. More than 120 species of birds, 50 species of butterflies, 21 species of mammals inhabit the forests of Gaganbavada. These forests are also home to many medical plants and herbs. In short, though rich in biodiversity, Gaganbavada has remained a backward in many aspects hence; it should be given special status and efforts to be directed for its development.

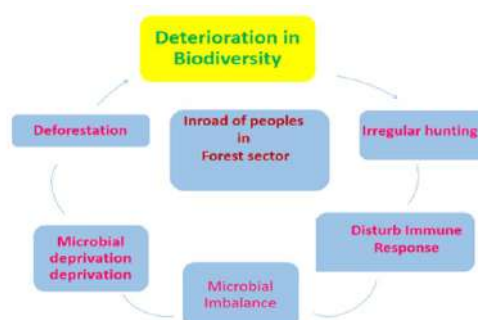
Introduction

Gaganbavada Taluka is situated in the district of Kolhapur, Maharashtra state, India. It is placed 55 km from Kolhapur by road. It is Taluka Place of Kolhapur district. Gaganbavada situated in the Sahyadri range of the Western Ghats. In the Gaganbavada has a very famous historical fort name is Gagangad. Gaganbavada has an ancient history, this area or region actually belongs to Chalukya Empire of Badami. We can see more evidences related to Chalukya Empire. Gagangad fort is also witness of Maratha History and various political events which was related to the Kolhapur State. So these historical places and sources are more valuable in view of history. Gaganbavada is hilly area place of the district. Gaganbavada gets heavy rainfall during the rainy season. The advantage of Gaganbavada Taluka has natural beauty and it has risen up tourist place in Maharashtra. Due to this natural beauty Gaganbavada Taluka also known as Mini Mahabaleshwar. Gaganbavada is on threshold of famous Karul Ghat and Bhuibavada Ghat. Perhaps, the only place having two Ghats originating at a single place but going towards Kharepatan-Rajapur, Sindhudurg District. Gaganbavada Taluka is backward in view of socially and economically but environmentally rich place in Kolhapur district. There are rich diversity of flora and fauna. In this area various numbers of trees such as Jamun, Jackfruit Cashew, Mango, BlackBerry, etc. There are also some beautiful places like Ramling caves, Dams, Mountain and valleys as well as green forestry. In short this place has a natural beauty and great biodiversity but it's remained backward due to lack of transport facilities. Hence it should be given a special status and efforts being directed for its development. The present research paper is to focus on the importance of Gaganbavada Taluka in view of biodiversity and ecotourism.

Objective of the study:

The objective of the present study is to introduce the following importance of Gaganbavada Taluka:

- To study of various flora and fauna.
- To emphasis on wild animals, birds, etc.
- To attention on climate, crops, lands, etc.
- To focus of rivers and forest.

Hypothesis:

Methodology:

The data collection of the research method has been obtained from the primary and secondary sources which are utilized for the study. Primary data collected by visiting the real places, taking photographs, contact to local peoples, etc. And secondary data was collected from the reference books, research thesis, Gazetteer of Kolhapur District, Newspaper articles, literature survey and Internet sources, etc.

Rationale of the Study:

Gaganbavada Taluka is one of the most significant historical and geographical place in Kolhapur District. This place represent dispersed physical properties such as Sahyadri range, versatile climate, land, crops, social and economical condition, heavy rainfall, green forestry, and water reservoirs, etc. Due to that versatile biodiversity, Gaganbavada place becoming great attraction of worldwide tourist, students and researchers. This place has massive biodiversity includes of easy-going flora and fauna, historical places, tourism places, vast forest area, mountains and deep valleys so it is must need of preserve them as heritage place.

Geographical situation of Gaganbavada Taluka:

Gaganbavada Taluka has god gifted place and blessings of nature. This place actually situated on range of Shayadri. Gaganbavada Taluka has god gifted place and blessings of nature. This place actually situated on range of Shayadri. So we can see there are many small waterfalls, huge mountains and valleys, consisting plains, plateau and hill range. The forests around Gaganbavada are extremely rich in diversity of flora and fauna. The Gaganbavada Taluka is situated in Western Ghat of Kolhapur district as well as Maharashtra State. Its area is about 24 sq. km. It is attached East, North and South.¹ Its length about 40 miles and width is about 25 miles but its population and geographical figures are not available in the recent document. However, we can get information in 20 century about its geographical figures and its population.

This region is occupied with mountains and valleys by that we find the rain is more and more. In 1938-39 censuses we found 320cm rains in this region. Bhogavati and Bhadra Rivers are the main sources of water.²In Gaganbavada Taluka the main crops are taken by the people that is Rice, Nagavali, Wari, Kurit, Groundnut as well as Jackfruit, Pineapple and Kohol, etc. This region is occupied with green forestry and hilly region³ therefore, there found percentage of rainfall is heavy in comparison to the other part Maharashtra.

Climate:

The climate of Gaganbavada is very versatile and all time pleasurable. The advantage of Gaganbavada Taluka is a natural exquisiteness it has highly rainfall region in Maharashtra. The annual rainfall is about 4900 mm.⁴ Gaganbavada Taluka also known as Mini Mahabaleshwar.

Land:

Gaganbavada Taluka is occupied with various mountains and valleys most of the region of this place is covered by giant forest and uncultivated area. The land distribution is in various sections like a forest, Barren, Non agricultural area, waste area, pasture, miscellaneous trees, crops and groves so that percentage of agricultural area was remain very short. The color of the soil was found in reddish and brown color. There is originated a drained land so it is not accumulate and store water for long time. Therefore, there is no found muddy soil even in heavy rainfall.⁵

Crops:

Due to heavy rainfall region, farmers are interested to take crops which are need more water. In this place there is a small area occupied by various types of crops but main crops taken by peoples are Rise, Nagawali, Wari, Kurith, Til, etc. In Gaganbavada area there are two types of crops taken by people in 'Kharif' season and 'Rabi' season. Most important crop is Rice taken by people in rainy season because of there is heavy rainfall. Agriculture only depends upon natural sources therefore, agricultural production is found in less in capacity. Besides, Gaganbavada Taluka has 18,277 acres area is protected by forest.⁶so there is another production taken by peoples are fruits such as Cucumber, Mango, Pineapple, Bit, Cashew Nuts (Kaju), Jackfruit (Fanas), Shikekai, Palas, etc.

Water reservoirs and green forestry:

Gaganbavada Taluka has found rich biodiversity. There are three major water reservoirs (Dam) such as Kode, Andur, and Vesarf dam,⁷ these dams are found in various places in Gaganbavada Taluka. The surrounding area of dams is covered by forest. There are various types of medical plants, trees as well as we can also see their various types of wild animals and birds.⁸ particularly in rainy season, many numbers of tourist

and researchers have come from out of the state and India as well. But there are no sufficient facilities, such as Lodges Hotels and transport. So it will be create a job opportunities. Income sources can be generated through tourism. Tourism place can be brought into development process by providing good transport facility and roads.

Wild Animals:

In Gaganbavada forest, there is found more than 120 species of birds, 50 species of butterflies, 21 species of mammals, etc. These forests are also home of many medical plants and herbs.⁹ In Gaganbavada Taluka found following wild life:

Tiger:

Tiger is a key animal of biodiversity ecosystem. Before few years ago, tigers are found in a sufficient numbers in the forest of the Sahyadri Ghat but now a day, they are depleted and rare due to illegal activity of human. Now, they are rare in numbers and only found in the deep forest like border range 'Karul Ghat', 'Sadure' village and Gaganbavada also.

Squirrel:

It is highly destructive of forest seeds both in the nurseries and in plantation. It is very useful animal is found in Sahyadri range and Gaganbavada.

Sambar:

Mainly found in border range such as 'Palsambe', 'Saitwade' and 'Asalaj' village.

Giant squirrel:

It is very attractive due to its bright reddish brown color. It is found rarely in the Ghat forest.

Hare:

It is regularly found in Gaganbavada forest but now a day their numbers are decreases due to their regulated hunting.

Gaur:

It is found in Gaganbavada range, Kitwade range and Gargoti sites.¹⁰

Above animals are found in a rare in number due to deforestation and irregular hunting as well as inroad of peoples in forest sector.

Conclusion:

In Kolhapur district, Gaganbavada Taluka is known as a heavy rain and hilly area. Gaganbavada Taluka has the natural beauty and huge biodiversity. It is also recognized as the name of Mini Mahabaleshwar. Now this is becoming attraction of worldwide researcher and tourists. But due to deformation, irregular hunting and inroad of peoples in forest sector, numbers of medicine plants and animals are decreases. So it is need of preserve and protect biodiversity of Taluka in view of remain ecosystem. Because it will be helpful to Gaganbavada Taluka as a risen up to ecotourism place in Maharashtra.

Suggestions:

1. It should be take an initiate towards the sustainable development in view of ecotourism.
2. It should be strictly prohibited irregular hunting and deforestation.
3. It should be take action towards preserve and protect of biodiversity of Taluka.
4. It should be strictly prohibited to inroad of peoples in the forest sector.
5. It should be strictly implementation of forest act and law.

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Need of Biodiversity Conservation

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Biodiversity refers to the variety and variability among living organisms and ecosystem complexes in which they occur. It is the natural biological capital of the earth. The diversity of species involves genetic diversity, habitat diversity, and species diversity. India's biodiversity is one of the most significant in the world. Since the dawn of human civilization, man has depended on the biodiversity around himself. The process of extinction has become particularly fast in the recent years of human civilization due to the activities of modern man armed with the power of science and industrial product. It is a matter of prime concern that biodiversity should be conserved. Such a rich diversity needs a multifaceted approach for its conservation. The major policy instruments of diversity conservation include the creation and assignment of property rights, internalization of benefits from biodiversity conservation, education and national and international laws, regulations and conventions. A comprehensive strategy of ecosystem based development planning and management is necessary for biodiversity conservation. To make eco-development and biodiversity conservation projects self-sustaining; people's participation in their formulation and implementation is a must. To conserve the diversity the immediate task will be to devise and enforce time bound program for saving plants and animal species as well as habitats of biological resources. The national biodiversity strategy and action plan need to be implemented faithfully so as to protect and preserve biodiversity through appropriate policies and programmes. India predominantly depends on agriculture and hence policy makers should realize that conservation and sustainable utilization of biodiversity is the centre to all developmental planning.

Keywords: Biodiversity Conservation, Eco-development, Biotic Resources

“The earth provides enough to satisfy every man's needs, but not every man's greed”

Mahatma Gandhi

Introduction:

The word 'Biodiversity' has become popular after 1992; 'Vasundhara Shikhar Parishad' in Rio de Janeiro (Brazil). Biodiversity is the biological variety and variability of life on earth. It is the natural biological capital of the earth. India's biodiversity is one of the most significant in the world. The process of biodiversity deterioration has become fast in the recent years due to so many developmental activities. Biodiversity is important in most aspects of our lives, so it should be conserved. India is one of the country which has rich biodiversity, so multifaceted approach is needed to save biodiversity. If we have to achieve sustainable development, a comprehensive strategy of ecosystem based development planning and management is necessary.

Objectives:

The present paper is undertaken with the following objectives:

- 1) To know the concept of biodiversity
- 2) To study the importance of biodiversity
- 3) To suggest solutions for biodiversity conservation

Methodology:

The present paper is divided into five parts. The first part introduces the concept of biodiversity. The second part explains the types of biodiversity. Third part gives information about importance of biodiversity. Fourth part focuses on the threats to biodiversity and its conservation. Conclusions are drawn in the fifth part. The information for the present paper is obtained through secondary sources. The secondary data is collected from various books related to environmental science, resource economics etc.

I

The Concept of Biodiversity:

Biodiversity refers to the variety and variability among living organisms and the ecosystem complexes in which they occur. It means all the variety of life which can be found on earth. It includes plants, animals, micro-organisms, communities etc.

Definitions:

1. Biodiversity refers to the amount of diversity between different plants, animals and other species in a given habitat at a particular time.
2. Gaston and Spicer (2004): 'Biodiversity is variation of life at all levels of biological organisms'

II Types of Biodiversity:

Biodiversity is classified into different components based on the level of differences. They can be cited as:

- 1) **Genetic Diversity:** This type of diversity is expressed at the genetic level by every single in a species.
- 2) **Species Diversity:** This type of diversity is seen within a community.
- 3) **Ecological Diversity:** It is the diversity seen between the eco-system in a region.

III Importance of Biodiversity:

All the above types of biodiversity help in keeping the balance in nature. Biodiversity is important to most aspects of our lives. Biodiversity provides number of natural services.e.g. –

1) Eco system services-

Biodiversity boosts eco-system productivity such as- supply of oxygen, protection of water resources, soil conservation, absorption of pollution (CO₂), eco-system maintenance.

2) Biological resources-

It includes food, nutrition, energy resources, diversity in genes, species etc.

3) Economic benefits-

Biodiversity supports economic opportunities and leisure activities that contribute to overall well being and development.

4) Social benefits-

It includes cultural values, research, education, and recreation etc. A huge variety of plants are used in decorating homes and other buildings and become an attraction for tourist and foreigners. It leads to create job opportunities and make profits.

IV Threats to Biodiversity:

The loss of biodiversity can badly affects our environment and nature. Therefore, biodiversity has now become a matter of prime importance. Several types of biodiversities have now been become extinct. The rate of extinction has increasing and it directly affects our environment and creates imbalance in nature. Therefore, the importance of biodiversity has to be understood and every human being should try to preserve biodiversity. Threats to biodiversity include habitat loss and fragmentation, overuse of resources, invasive species, pollution and global climate change, unplanned development etc.

Conservation of Biodiversity:

Biodiversity is the key indicator of the health of our ecosystem. Healthy ecosystem cleans our water, purify the air, control the change in climate, recycle nutrients and provide us with food. Biodiversity conservation is important for human because our survival depends on plants and animals.

Biodiversity conservation has three main objectives:

1. To preserve the biodiversity of species
2. Sustainable utilization of species and eco-system
3. To maintain life supporting systems and essential ecological processes

Ways to Biodiversity Conservation:

Biodiversity can be conserved in the following ways:

- In-situ Conservation
- Ex-situ Conservation

In-situ Conservation:

In-situ conservation of biodiversity is the conservation of species within their natural habitat. In this method, the natural ecosystem is maintained and protected.

The in-situ conservation has several advantages. Following are the important advantages of in-situ conservation:

1. It is a convenient method of conserving biodiversity.
2. A large number of living organisms can be conserved simultaneously.
3. Since the organisms are in a natural ecosystem, they can evolve better and can easily adjust to different environmental conditions.

Ex-situ Conservation:

Ex-situ conservation of biodiversity involves the breeding and maintenance of endangered species in artificial ecosystems such as zoos, nurseries, botanical gardens, gene banks, etc. There is less competition for food, water and space among the organisms.

Ex-situ conservation has the following advantages:

1. The animals are provided with a longer time and breeding activity
2. The species bred in captivity can be reintroduced in the wild
3. Genetic techniques can be used for the preservation of endangered species

Suggestions:

1) Support local farms-

Buying things from small local farms helps in supporting agricultural efforts to conserve biodiversity.

2) Save the bees-

Bees play an important role in preserving biodiversity. They are increasingly under attack from Varro mites.

3) Plantation of local flowers, fruits and vegetables-

By planting local flowers, fruits and vegetable we can help to preserve the biodiversity of our area and support local ecosystem.

4) Respect local habitats -

Plants growing the park and nature preserves near you often play significant role in preserving the local ecosystem.

5) All renewable and non-renewable resources should be utilized efficiently and economically.

6) The reserves and protected areas should be developed very carefully and systematically.

7) There should be strict restrictions on deforestation.

8) The levels of pollution should be reduced. We should reduce the activities which creates pollution.

9) Laws regarding environment protection should be followed strictly.

Conclusion:

Biodiversity is the natural biological capital of the earth. India's biodiversity is one of the most significant in the world. The process of extinction has become fast in the recent years of human civilization. A multifaceted approach is needed to conserve such a reach biodiversity. A comprehensive strategy of ecosystem based development planning and management is necessary for biodiversity conservation. Public awareness should be created regarding importance of biodiversity conservation. Most biodiversity resources are consumed by humans so it is their primary responsibility to preserve and protect biodiversity to protect the earth. It is necessary for all the countries to come together and work for biodiversity conservation and then only we can remove poverty and detoritation of natural resources and can achieve sustainable development in true sense.

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Geographical Analysis Of Demographical Characteristics Of Shegaon, Dist-Buldhana

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Abstract

Dimensions of population occupy the central position in geographical study of an area because these form the foundation upon which other aspects of geography largely depend. Demographic properties are an imperative concern which impedes management and development planning of a region. This study is examined in the context of various components of population in Shegaon, which is famous for religious tourism. Shegaon is situated in the Buldhana district, this district located in the Amravati division of Maharashtra, India. It is situated at the western border of Vidarbha region of Maharashtra. Population of Shegaon is increased in assessment period i.e. 100 years. Here category wise, various casts had observed at the time of study. Also literacy is showing little bit well in number i.e. 78.80. And occupational structure is showing complex composition of the society.

Keywords: Demographic properties, Development planning, Religious tourism, Literacy

Introduction:

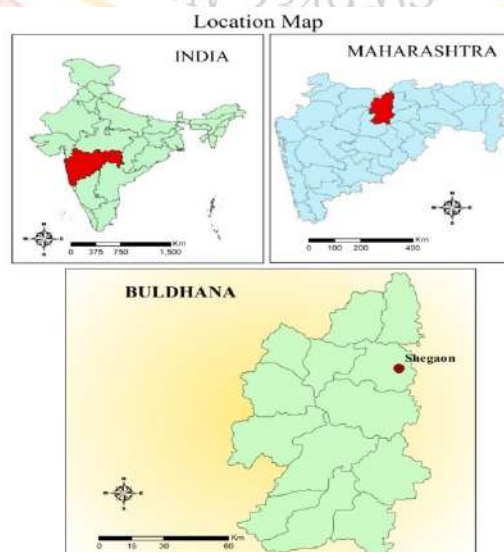
Traditionally, Geography has been concerned with man-environment relationship. Population is a demographic factor which directly made influence on the development. Population is the best resource playing vital role in the development. The changing trend and pattern of population characteristics serve as a convenient tool to the planners and help them in determining, establishing and formulating plans and policies for balanced development of the region in general and for the development of community, institutions and services for the development, utilization and supply of human resources etc. in particular.

Population characteristics depend on population density or distribution, Thus change in density or distribution also changes the population characteristics. Again it may be said that population characteristic changes population density or distribution. Thus, the wide regional variation in the patterns of fertility mortality and mobility give rise to regional differences in the magnitude of pressure being exerted by population. This study is examined in the context of various components of population in Shegaon, which is famous for religious tourism. Shegaon is situated in the Buldhana district, this district located in the Amravati division of Maharashtra, India. It is situated at the western border of Vidarbha region of Maharashtra. Shegaon has become a pilgrimage centre due to the influence of Shri sant Gajanan maharaj, who is considered a saint by Hindus.

Database:

The study is grounded on primary and secondary data. Primary data is collected at village level from visits, observations, various interviews and also questioners have been prepared. Secondary data had been collected with the help of Primary Census Abstract, Directorate of Census operation, Census of India, Various data and reports collected from local governing bodies for the period of 1911 to 2011.

Location of Shegoan:



Growth of Population

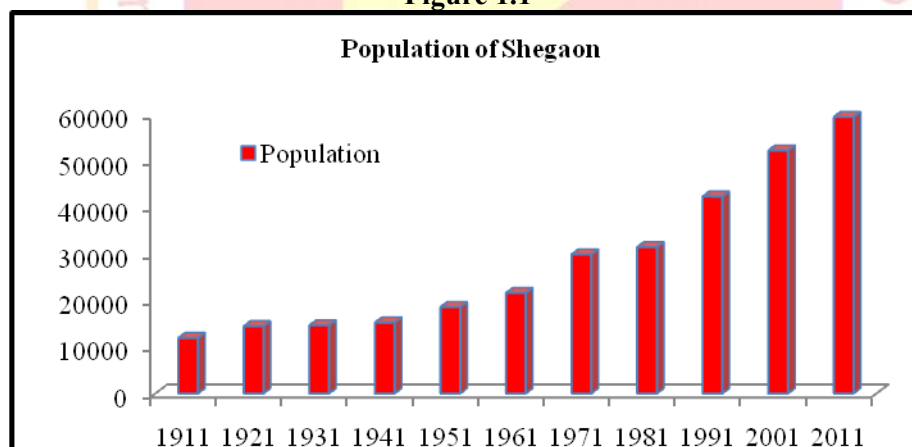
Population characteristics vary considerably among different nations/regions and also among different sections of a society. Such variations are the result of the operation of a host of factors. In the following table decadal growth and growth in percentage has been calculated. This table no. 1.1 and figure no. 1.1 shows trends of total population, growth rate of population and variations in population of Shegaon from 1911 to 2011.

Table 1.1: Population of Shegaon

Sr. No.	Year	Population	Decadal Variation (Growth of population)	Growth of Population in Percentage
1	1911	11962	----	----
2	1921	14531	2569	21.47
3	1931	14699	168	1.15
4	1941	15294	595	4.04
5	1951	18655	3361	21.97
6	1961	21674	3019	16.18
7	1971	29993	8319	38.38
8	1981	31580	1587	5.29
9	1991	42492	10912	34.55
10	2001	52423	9931	23.37
11	2011	59672	7249	13.82

Source: District Census Handbook

Figure 1.1



Source: Compiled by researcher

The Shegaon population has slowly increased during 1911 to 1961 and shows the population growth is slowly but, in the year 1971 the population and growth of population of Shegaon is rapidly increased, the growth rate has increased by 38.38 percent and the total population of Shegaon is 29993. The growth rate and variation of the population has suddenly increased during 1991 because at that time various types of health facilities are increased. The population of Shegaon town is 38.38 percent increased and variation of the population between 1981 and 1991 is 10912 and growth rate was 34.55 percent noticed.

The growth rate of Shegaon town is decreasing during 2001 and 2011 and which is noticed with 13.82 percent and the variation of the population is noticed with 7249. The decreasing population and growth of population because of the awareness of the people is increasing and increasing literacy so the population growth rate is decreasing day by day.

The total population of Shegaon tehsil is 96444 in 2011 and out of that Shegaon town has acquired 61 percent population (59672) in 2011 as per the census and it has divided into 51.20 percent male population and

48.80 percent female population out of the total population of the Shegaon town. In the town 7512 population is in between 0-6 age group.

Social Category Wise Population

In the Shegaon municipal area there is total Scheduled Castes population is 9015 and which is 15 percent out of the total population as well as the Scheduled tribe population is 2 percent (1328) out of the total population of the Shegaon town. The town involves 83 percent is non S.C. and S.T. population out of the total population.

Table 1.2: Social Category Wise Population of Shegaon in 2011

Sr. No.	Category of Population	Population	Population in Percentage
1	Non S.C./ S.T.	49329	83
2	Scheduled Caste	9015	15
3	Scheduled Tribe	1328	2
	Total	59672	100

Source: District Census Handbook, 2011

Figure 1.2



Source: Compiled by researcher

Literacy

Illiteracy is one of major matters of great concern to the policy makers for the development of the concern region. Right from the independence and adoption of planning government has trying to achieve literacy. And as a part of that policy, every year government is spending very huge amount on education. Shegaon as a famous pilgrimage tourism spot and economy of Shegaon is directly connected with the tourism. Therefore it is essential to highlight the scenario of literacy and illiteracy of the native population.

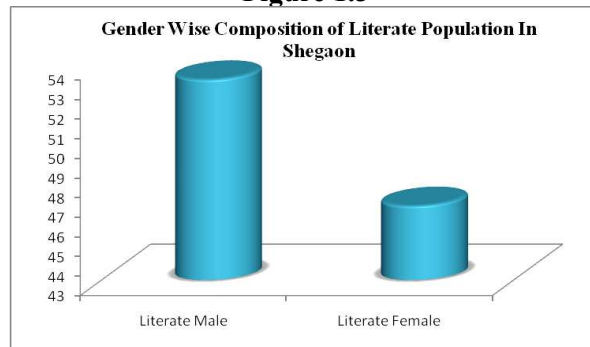
Table 1.3 indicates the gender wise literacy and illiteracy of Shegaon town. The literacy rate as per 2011 is 78.80% has been observed. And the 21.20 % people from Shegaon municipal area have been observed illiterate. Also literate males are little bit more in number 53.22 as compare to literate females i.e. 46.78.

Table 1.3: Gender Wise Composition of Literate and Illiterate Population In Shegaon (2011)

Sr. No.	Demographic Aspects	Shegaon
1	Total Population	59,672 (100)
2	Literate Persons	47,020 (78.80)
3	Literate Male	25,021 (53.22)
4	Literate Female	21,999 (46.78)
5	Illiterate Persons	12,652 (21.20)
6	Illiterate Male	5,526 (43.67)
7	Illiterate Female	7,126 (56.33)

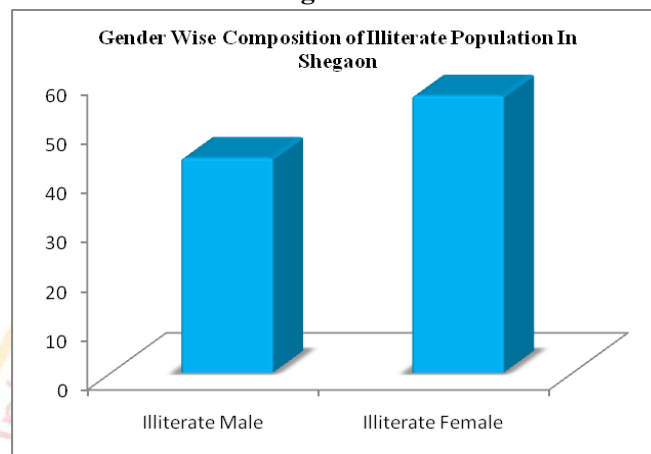
Source: District Census Handbook of Buldhana 2011

Figure 1.3



Source: Compiled by researcher

Figure 1.4



Source: Compiled by researcher

Figure 1.3 and 1.4 show overall gender wise literacy and illiteracy percentage of Shegaon city. The percentage of literate female is only 47 percent which is a matter of great concern to the local government. The illiteracy among the female is around 56 percent. Thus it implies that there is need to pay attention towards women literacy in Shegaon city.

Occupational Structure

Occupation structure is defined as particular in any economically productive activity such participation can be physical or mental in nature. The occupational structure involves not only actual work but also effective supervision and direction of work. According to this definition, the entire population has been classified in to three main categories i.e. main workers, marginal workers and non workers.

The main workers are all those workers who basically work in whole year and who are engaged in economic activities at least 183 days or more than that is considered under the main worker category.

Marginal workers may be defined as all those workers who had worked any time at all in the year and did not work in the major period of year. In other, words marginal workers are all those workers who work less than 183 days in a proceeding year.

The non workers category indicates proportion of non-productive population in total population. Non workers are all those workers who had not worked any time in a proceeding year.

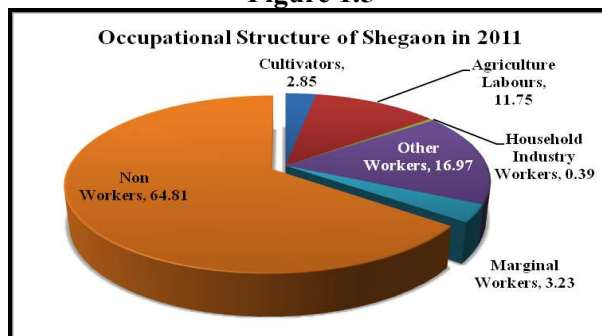
Table 1.4: Occupational Structure of Shegaon in 2011

Sr. No.	Category of Main Workers	Persons	Percentage
1	Cultivators	1704	2.85
2	Agriculture Labours	7010	11.75
3	Household Industry Workers	230	0.39
4	Other Workers	10129	16.97
5	Marginal Workers	1925	3.23
6	Non Workers	38674	64.81
	Total Population	59672	100.00

Source: District Census Handbook of Buldhana, 2011

The occupational structure of Shegaon has been presented in table 2.6 and figure 2.9. It has been also seen that nearly 11.75 percent population of Shegaon is agriculture labour and 16.97 percent are engaged in other occupations like pilgrimage activities, small business etc.

Figure 1.5



Source: Compiled by researcher

It has been seen from the data that around 64.81 percent population of Shegaon falls under the non workers category. It implies that majority of the population is economically dependent on other working population.

In Indian population census the total workforce has been divided into six major groups namely main workers, cultivators, agricultural labours, household industry workers, marginal workers, and other workers.

Summary:

Shegaon town is managed by municipal council authority, which is under the Buldhana district. The Shegaon population has slowly increased during 1911 to 1961 and shows the population growth is slowly but, in the year 1971 the population and growth of population of Shegaon is rapidly increased due to the overall development of religious tourism. Also Shegaon is well connected with the rail and roads. There is well developed infrastructure is observed needed to population development.

In the Shegaon municipal area there is total Scheduled Castes population is 9015 (15 percent) out of the total population as well as the Scheduled tribe population is 1318 (2 percent) out of the total population of the Shegaon town. The literacy rate as per 2011 is 78.80% has been observed. And the 21.20 % people from Shegaon municipal area have been observed illiterate. Here it is observed that numbers of males are more illiterate as compare to females and this is due to the social and cultural aspects of traditional India. Also in the Shegaon town there is complex nature of occupation is observed. Non working population is more in number due to the family business related to the religious tourism.

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Plant Resources of Medicinal Interest and their Utilization in Udgir Region**Chate, S. V.**Assistant Professor, P.G. Department of Botany,
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Dist-Latur (Maharashtra, India)**Biradar, R. P.**Assistant Professor, P.G. Department of Botany,
Shivaji Mahavidyalaya Udgir,
Dist-Latur (Maharashtra, India)**Abstract**

In the present investigation, information was gathered about the occurrence of plant resources of medicinal significance and their uses from the Udgir region of Latur District, Maharashtra, India. As there is very little information available about the knowledge of medicinal plants from the study area, hence survey was undertaken to explore wild as well as cultivated potentially significant medicinal plants to make available the literature and uses of these plants from the study region. The present study incorporates information about sixteen plant species that are in abundance and known to the people. The present study suggests the need for the sustainable use of wild plant resources by minimizing the 'overexploitation' and rational use of resources by commercial cultivation and their utilization leading to the conservation of biodiversity wealth of this region.

Introduction

In ancient times, man recognized the role of plants as a source of food and distinguished between poisonous and non-poisonous plants. Gradually, a knowledge of drugs developed. As early as the period between 5000 to 1500 B.C., Rig Veda mentioned the use of plants for medicinal purpose. Later, between 2500 and 500 B.C., his use of medicinal plants developed in the Ayurvedic system of treatment of human diseases. Sometime around 1000 B.C., herb cures were described in detail in two well known treatises on Indian medicines by Charaka and Susruta [9]. While several thousand plants have been used for medicinal purposes, comparatively few of them are cultivated. Therefore, medicinal plants growing in the wild in different parts of the world, especially in tropical regions, is the source of supply for most medicines.

In the beginning, drug plants were used as such or drugs were prepared in the crude form and used as pastes, decoction, etc., but with the advance of science and technology, the active principles of several drugs have been isolated for use. Complex chemical substances are responsible for the curative properties of drugs and hence the medicinal value of drug plants. The most important of these chemical substances are alkaloids, glycosides, corticosteroids, essential oils etc. A rapid extension of the allopathic system of medical treatment, which has taken place in India during the last few decades, has been responsible for creating a great demand for pharmacopoeial drugs and their products.

In order to discover more potent drugs than those available, the pharmaceutical industry has made large investments during the last four decades or so on researches all over the world and these have led to the identification of a number of new drug plants. The Indian pharmacopoeia 1966, incorporated 85 medicinal plants, whose ingredients were used in different pharmaceutical preparations [5]. The Indian pharmacopoeia 2014 incorporates 2567 monographs of drugs out of which 577 are new monographs consisting of apis, excipients, dosage forms, herbal products, biotechnology products and radiopharmaceuticals etc.[12].

India has a rich wealth of medicinal plants, a large number of species and types being found in different parts of the country. Although good knowledge is now available on the use of drugs obtained from plants, not much attention has been paid to their cultivation in this country. Udgir is a town and municipal council in Latur district of Maharashtra state India. It is also the headquarters for the Udgir subdivision and Udgir Taluka. It is located very near to Karnataka Border. Vast agricultural land is situated in and around Udgir in different villages. People from this area are aware of a number of medicinal plants and know them by their common names. It is extremely necessary to undertake extensive excursion studies to explore and identify various drug plants for their commercial cultivation to make drugs and plant products to be easily available to the masses.

Material and Methods

For the survey of medicinal plants, extensive excursions and collections were made in and around Udgir town and along main roads and railway track and randomly selected field visits. All types of plant forms such as herbs, shrubs and trees of medicinal importance were selected for the survey.

Detailed morphological characters were observed and noted for correct identification and locality of plants were also noted in the field notebook for further study. Most of the plant specimens were brought to the laboratory for identification. The plants were thoroughly observed, classified and described with their medicinal

uses. The identifications of the plants were carried out by referring to literature like floras and different text books mentioned in the references. The medicinal principle and uses of different parts of the plants were noted down, particularly pant parts like roots, stems, bark, leaves, flowers, fruits and seeds were taken into consideration.

Several medicinal plants are available around Udgir as an uncultivated form which can be used for medicinal purposes. A few important medicinal plants belonging to different plant families with their medicinal uses are discussed in the present survey. Some important herbarium specimens were deposited in the Department of Botany, Shivaji College, Udgir. Survey regarding medicinal uses of plants was carried out by the information gathered from the discussion with various Ayurvedic medicine dealers, laymen and local farmers.

Observations and Description

The plant description, parts used and the uses of plant resources are discussed and mentioned in the present survey with their occurrence and medicinal importance in the study area. Most of the plant species found and utilized by the people are mentioned in Table 1 along with the common name, botanical name and the name of the family with their uses. The most commonly used part is the leaves, followed by roots barks and fruits. The drugs are given in the form of decoctions, pastes and powders. The most frequently used plants in this region are *Ocimum sanctum*(Tulsi), *Datura stramonium* (Datura), *Tridax procumbens* (Jakhamjod), *Azadirachta indica* (Kaduneem), *Asparagus officinalis* (Shatavari), *Adhatoda vasika*(Adulsa), *Phyllanthus emblica* (Awala), *Butea monosperma* (Palash) etc. People use all parts of plants for treating various disorders. Single plants like *Azadirachta indica* (Neem) are used for treating many ailments. The major ailments treated using the plants in the study area are fever, joint pain, gastric disorders, inflammatory reactions, and skin diseases.

Table 1.

Sr No.	Plant Resource and its medicinal use (Botanical name, Common Name, Family, Occurrence, Plant Parts utilized, Active principle and uses)
1.	<i>Adhatoda Vasica</i>(Adulsa) Acanthaceae: Wild The leaves, flowers, fruits and roots are extensively used. The drug vaska constitutes the fresh or dried leaves of the plants. Leaves contain an alkaloid vasicine and an essential oil. The main use of vasicine is an expectorant. It is given in the form of juice, syrup or decoction. Uses: Treating cold, cough, whooping cough, chronic bronchitis and asthma. It acts as a sedative, expectorant, antispasmodic and anthelmintic. It is bronchial antiseptic, bronchodilator and expectorant. The roots, leaves and flowers and active principles of the plant possess a number of pharmacological properties and are used in cough, chronic bronchitis, rheumatism, asthma and bronchial asthma. Fresh juice of leaves has been used in treatment of tuberculosis. Its local use gives relief in pyorrhea and in bleeding gums.
2.	<i>Aegle marmelos</i> (Bel) Rutaceae: Wild Fruits, leaves, roots, bark Fruits and root bark contain amino acids, arabinose, galactose, D-galacturonic acid, rhamnose, xanthotoxol, scoparone, scopoletin, umbeliferone, marmesin; leaves contain aeglenins, skimmianine, lupeol, sitosterol and aegelin; roots contain xanthotoxin, marmin, tembamine etc. Uses: The ripe fruits are edible, cooling, alterative and laxative. They are beneficial in habitual constipation, chronic dysentery and dyspepsia. The unripe fruits are used as an astringent, stomachic, digestive and also in the treatment of diarrhea. The mucilaginous substance, secreted round the seeds is used as cement and is also employed as a varnish. The leaves are expectorant and febrifuge. They are used in dropsy and bronchial asthma. Its root or stem bark benefits in fever, melancholia and stomach pain. Other Health benefits according to Ayurveda: Gastro protection properties, Control of diabetes, Cholesterol control, Antimicrobial properties, Anti-inflammatory properties, Constipation, Dysentery and diarrhea.
3.	<i>Argemone Mexicana</i> (Satyanashi) Papavaraceae: Wild Argemone resin contains berberine and protopine, and is used medicinally as a sedative. The whole plant is analgesic, antispasmodic, possibly hallucinogenic and sedative. It contains alkaloids similar to those in the opium poppy (<i>P. somniferum</i>) and so can be used as a mild pain-killer. Uses: The fresh yellow, milky, acrid sap contains protein-dissolving substances and has been used in the treatment of warts, cold sores, cutaneous affections, skin diseases, itches etc. It has also been used to treat cataracts and has been taken internally in the treatment of dropsy and jaundice. The root is alterative and has been used in the treatment of chronic skin diseases. The flowers are expectorant and have been used in the treatment of coughs and other chest complaints. The seed is demulcent, emetic, expectorant and laxative. An infusion, in small quantities, is used as a sedative for children, but caution is advised since the oil in the seed is strongly purgative. The seed has also been used as an antidote to snake poisoning. The

	pounded seeds, mixed with mustard oil, are applied externally to treat itchy skin. The oil from the seed is demulcent and purgative. It has been used externally in the treatment of skin problems. Caution is advised in the use of this oil, prolonged ingestion produces toxic effects resembling those occurring in epidemic dropsy. It is also used in the treatment of eye diseases [48, 49].
4.	<i>Asparagus racemosus</i> (Shatavari) Liliaceae: Wild/cultivated A prickly prostrate under shrub growing wild as well as cultivated. Fleshy tuberous roots of the plants are used in the preparation of traditional medicine. Uses: The plants are propagated by seeds. The dried roots (about 700 gm) are burnt and fumes are inhaled under blanket for curing a fever. The root preparation of asparagus is used as diuretic. Shoots of asparagus have a marked sedative effect on heart contraction. The plant of asparagus with honey is used as indigestion, diarrhoea. The young shoots are eaten. The roots are bitter, sweet, emollient, cooling, nervine, tonic, constipating, opthalmic, anobryne, aphrodisiac. They are useful in nervous disorders, dyspepsia, tumours, scalding of urine, throat infections tuberculosis, cough bronchitis and general debility. Roots are used externally to treat stiffness in the joints. The rhizome is a soothing tonic that acts mainly on the circulatory, digestive and respiratory system
5.	<i>Azadirachta indica</i> (Neem) Meliaceae: Wild/cultivated Neem is one of the most valuable and yet the least exploited of tropical trees. The Neem tree has great potential for agriculture, industrial and commercial exploitation because of its multiple uses such as firewood, timber and in pharmaceutical and entomological preparations. Neem can also be planted on a road side. The tree is well suited for afforestation. Parts-Used: Whole tree. Uses: The dry flowers are considered as stimulant, tonic and stomachic. The flowers are useful in some cases of atonic dyspepsia and general debility. The oil extracted from the flowers is useful in skin diseases. The oil is used for massage of the body. It is also an active remedy against boils and ulcers. Oil is useful in bleeding gums, pyorrhea and asthma. Leaves are used to cure many diseases of the bladder, kidney, eyes and skin. The bark preparations are useful in fever, thirst, nausea, vomiting, skin diseases, scorpion and snakebites. The fresh, tender twigs are used to clean the teeth, particularly in cases of pyorrhea. In veterinary surgery, the oil is used for foul sores. Several pharmaceutical preparations like liquors, emulsions, ointments, as well as medicinal cosmetics like creams, lotions, soaps shampoos, and toothpastes have been prepared with neem. The bark is used for malaria, stomach and intestinal ulcers, skin diseases, pain, and fever. The flower is used for reducing bile, controlling phlegm, and treating intestinal worms. The fruit is used for hemorrhoids, intestinal worms, urinary tract disorders, bloody nose, phlegm, eye disorders, diabetes, wounds, and leprosy. Neem twigs are used for cough, asthma, hemorrhoids, intestinal worms, low sperm levels, urinary disorders, and diabetes. People in the tropics sometimes chew neem twigs instead of using toothbrushes, but this can cause illness; twigs are often contaminated with fungi within 2 weeks of harvest and should be avoided. The seed and seed oil are used for leprosy and intestinal worms. They are also used for birth control and to cause abortions. The stem, root bark, and fruit are used as a tonic and astringent.
6.	<i>Butea monosperma</i> (Palash) Fabaceae: Wild It is a medium sized deciduous tree, grows up to 15 m. Normally it grows in open grasslands and scattered in mixed forest. The tree has medicinal value in Ayurveda. Parts-Used: Whole tree. Uses: The seed is useful in tumors, bleeding piles and ulcers. The decoction is useful in cold, cough, fever and menstrual disorders. Roots are useful in elephantiasis and in curing night blindness and other eyesight defects. The gum from the tree is used in certain food dishes along with diarrhea and dysentery. The seeds are mixed with lemon juice and then applied in the treatment of eczema and ringworms. Leaves are used in treatment of boils, pimples, skin ulcers, swellings and diabetes.
7.	<i>Calotropis procera</i> (Rui) Asclepiadaceae: Wild A shrub about 3-6 feet high, all parts contain milky latex. The active principles are uscharin, calotoxin, calactin and calotropin. Uses: A poultice of the leaves is applied for rheumatism, filarisis, wounds, glandular swellings, eczema, pigmentation and other skin inflammations.; The latex acts as a purgative, used in the treatment of ascites of kapha type and hepatosplenome galyascites.; The flowers and root bark decoction taken for treating blood impurity, filariasis, syphilis, asthma, cough.; When <i>Calotropis procera</i> is dried, it can be used internally as a tonic, antihelminthic and expectorant.; The dried and powdered root is chiefly administered for bronchitis, asthmas, leprocy, eczema and elephantiasis.; The latex is used in treating vertigo, baldness, hair fall, tooth aches, intermittent fevers, rheumatism and paralysis. Leaves of <i>Calotropis procera</i> are heated in the oil which is applied externally in treating joint pain and swelling.; The pungent latex from the leaves and flowers acts as an eye tonic.; The whole plant alcoholic extract induces spermicidal and anti-microbial activities, stimulates estrogens in the reproductive tract, and acts anti-fertility.; <i>Calotropis</i>

	<i>procera</i> plays an important role in improving soil fertility and improve soils water holding capacity.; The root bark is febrifuge, anthelmintic, depurative, expectorant and laxative. The powdered root promotes gastric secretions and useful in asthma, bronchitis and dyspepsia.; Dried whole plant is good tonic, expectorant, depurative and anthelmintic, Madar rot bark is very largely used in India as a treatment for elephantiasis, leprosy and in chronic eczema.; It is also used as antidote substance and for abortive purposes. Leaves are useful in the treatment of paralysis, arthralgia, swellings and intermittent fevers. Flowers are useful in asthma, catarrh, inflammations and tumors.
8.	<i>Catharanthus roseus (Sadabahar) Apocynaceae</i> : Wild/cultivated Perennial cultivated herb, with watery juice (milky latex) is present. The plant has medicinal importance owing to the presence of indole alkaloids raubasing and serpentine in its roots and of vincristine and vinblastin in its leaves. Uses: The leaves are emetic and diaphoretic. The plant infusion if gargled is said to relieve Sore throat. It is also believed that leaf decoction is anti diabetic. The squeezed leaf juice is applied to wash string. Leaf infusion is also beneficial for indigestion and dyspepsia. The decoction of leaves and stems are used for regulating menstruation for promoting abundant flow of urine in cases of scanty and reddish urine and is also beneficial for kidney. The roots are also used to relieve toothache. The plant has also been reported that a decoction of few flowers with a few drops of alcohols is used as an eye wash for infants. In roots vincaleukoblastine is used for the treatment of hodgkins disease and leurocristine is employed for breast cancer. These are also used for treating malignant lymphoma. Vincleukoblastine has also been Prepared as an ointment for treatment of psoriasis. Several combinations of different leaf Alkaloid have also been used in multiple cancer therapy with varying degree of success. Among root alkaloids ajmalbine is said to be hypotensive and antiarrhythmic agent. Experiments on animals have shown the certain extracts of catharanthus are useful in leukaemia.
9.	<i>Datura stramonium (Dhatura) Solanaceae</i> : Wild/cultivated It is a coarse, bushy, consists of annual herb, It is a woody-stalked, leafy herb. It produces spiny seed pods and large white or purple trumpet flowers that face upward. Parts-Used: Whole plant. Uses: Leaves may be made into cigarettes or smoked in a pipe, with or without tobacco, to relieve asthma. It is a narcotic, an antispasmodic and anodyne and is used chiefly to relieve the spasma of bronchitis or asthma. It is also used in Parkinson's disease. It is also used as a pre-anaesthetic in surgery and childbirth, in ophthalmology, and for the preservation of motion sickness in the form of its salt, hyoscyne hydrobromide.
10.	<i>Hibiscus rosa sinensis (Jaswand) Malvaceae</i> : Wild/cultivated, ornamental perennial shrub. Hibiscus rosa-sinensis contained tannins, anthraquinones, quinines, phenols, flavanoides, alkaloids, terpenoids, saponins, cardiac glycosides, protein, free amino acids, carbohydrates, reducing sugars, mucilage, essential oils and steroids. Uses: Hibiscus flower preparations are used for hair care .The flowers themselves are edible and are used in salads. The flowers are used to shine shoes in parts of India. Hibiscus rosa sinensis is considered to have a number of medical uses in Chinese herbology. The young leaves and flowers are used in inducing abortion and as a cure for headache .The roots are sweetish with acid taste, demulcent and are used in cough, vernal disease and in fever. The leaves are refrigerant emollient. Young leaves are sometimes used as a spinach substitute. Root is edible but very fibrously, it is a good for hair treatment .The leaves and flowers are beaten into a paste and poulticated on to cancerous swelling and mumps .The lotion made from leaves is used in the treatment of fevers ^[46] .
11.	<i>Madhuca latifolia (Moha) Sapotaceae</i> : Wild A deciduous tree, 10-15m tall and with a spreading, dense, round, shady canopy. Bark is rough, brown in color, slightly cracked and fissured, inner bark red, exudes white, milky sap when cut. Madhuca latifolia commonly called as mahua is such a kind of tree involved in day to day activity of tribal people. It belongs to the Chickoo family Sapotaceae, an important economic tree growing throughout India. Uses: In diarrhoea a cup of infusion of bark is taken orally twice a day by the tribals. Besides the stem bark is used in chronic tonsillitis, leprosy and fever. It is commonly used for the treatment of snakebite as antidote. Decoction of stem bark is used to cure skin disease, hydrocoele and skin disease. Powdered bark is employed for the treatment of scabies. Madhuca latifolia leaves are expectorant and also used for chronic bronchitis and cushing's disease. The leaves are applied as a poultice to relieve eczema. Antipyretic, hepatoprotective, anti-inflammatory, analgesic, antitumor, antiprogestational, antiestrogenic and wound healing activity. Traditionally M. latifolia bark is used in rheumatism, ulcers, bleedings and tonsillitis.
12.	<i>Ocimum sanctum (Tulsi) Lamiaceae</i> Wild/cultivated

	Tulsi or Holy basil is a sacred plant in Hindu belief. Tulsi leaves contain a bright yellow volatile oil which is useful against insects and bacteria. The plant is cultivated for religious and medicinal purposes, and for its essential oil. Contains vitamin C, A, K and antioxidants. Uses: The essential oils and leaves are used in flavoring foods, chewing gums, sweets, teas, soft drinks, energy drinks, milk products, cosmetics, shampoos, soaps, shower gels, body lotions, and toothpastes. It works as a great mosquito repellent to prevent malaria and dengue fever. It is used specially for treating diabetes. The herb can be used to treat colds, fevers, parasitic infestations on the body and inflammation of joints and headaches. The traditional medicine recognized its value in the treatment of fevers, dysentery and tooth problems. Parts-Used: Whole Plant.
13.	<i>Phyllanthus emblica</i> (Amla) Phyllanthaceae :Wild/cultivated Amla is a deciduous, small or middle-sized tree with a crooked trunk and spreading branches. Amla is one of the oldest Indian fruit. It is also known as Indian Gooseberry. It is widely used in Indian medicine for the treatment of various diseases. Various parts of the plant are used to treat a range of diseases, but the most important is the fruit. Amla is indigenous to tropical Southeast Asia, particularly central and southern India. Besides India, it is also reported to be found growing in Sri Lanka, Malaysia and China. The tree is common in the deciduous forests of India, growing up to 1350 m above MSL on the hills. Amla is commercially cultivated in northern states like Uttar Pradesh and Himachal Pradesh. Uses: Amla is considered to be good liver tonic. The fruit is useful in the treatment of haemorrhage, menorrhagia, diarrhea, toothache, sores, fever, anemia, epilepsy, pimples. It is also valued as an antiscorbutic, diuretic, laxative and antibiotic. Phyllembelin, obtained from the fruit pulp, has been found to have a mild depressant action on the central nervous system. The leaves are antipyretic and anti-diabetic. The leaves are also useful in treating conjunctivitis, inflammation, dyspepsia and dysentery. The bark is useful in cases of jaundice and diarrhea. The green fruits are made into pickles. Amla is used for products like hair oil, dye, shampoo, face creams and tooth powder. The seed is used in asthma, bronchitis and biliousness. Parts-Used: Fruit
14.	<i>Syzygium cumini</i> (Jamun) Myrtaceae: Wild/cultivated It is a large and much-branched tree; Jamun tree grows really fast and can reach up to a height of 30m. Bark of the tree is brown or greyish, extremely smooth and is about 2.5 cm thick. Tree is tall and evergreen. Uses: Extracts are very useful in diabetes and reduce blood sugar. Decoction used as mouth-wash and gargle and powder in diarrhea and dysentery. Flowers are also a major source of honey in North India. The fruit possesses antibiotic properties and is used to formulate medicines to treat a number of ailments. Fruits are widely used for making jelly, jam, preserve, squash and wine-making. The seeds are used as an effective medicine against diabetes. Fresh fruits are tasty to eat and also if taken with salt. Juice of the raw fruit is used to fabricate vinegar. Bark is used for dyeing and tanning ^[47]. Parts-Used: Whole tree
15.	<i>Tridax procumbens</i> (Jakhamjod) Asteraceae: Wild/cultivated Tridax procumbens is known for several potential therapeutic activities like antiviral, antibiotic efficacies, wound healing activity Uses: Some reports from India states that, the leaf juice can be used to cure fresh wound to stop bleeding as a hair tonic. The plant has proven anti bacterial, anti inflammatory properties and is also prevents and helps reduce high blood sugar levels. As mentioned earlier the leaf juice has wonderful wound healing properties. Leaf juice possesses antiseptic, insecticidal and parasiticidal properties the crushed leaves are applied to arrest bleeding. In bruises and cuts. Leaves are used to treatment of bronchial catarrh, dysentery, diarrhoea and for the restoration of hairs.
16.	<i>Withania somnifera</i> (Ashwagandha) Solanaceae Wild/cultivated Ashwagandha is an important cultivated medicinal crop of India. It is also known as Ashgandh in Hindi. It is commonly known as Winter Cherry in English. It is mentioned as an important drug in ancient Ayurvedic literature. Uses: The roots are used for curing rheumatism, dyspepsia, skin diseases, bronchitis, ulcers and sexual debility. The root is used to treat snakebite. An infusion of leaves is given for fevers. For the treatment of piles, a decoction of the leaves is used both internally and externally. The leaves are used for eyes, boils and swelling of hands and feet. An infusion of the bark is given for asthma. As an insecticide, it is useful for killing body lice. The decoction along with milk and clarified butter is considered as a cure for female sterility, if taken for a few days after the menstrual period. Parts-Used: Whole plant.

Table 2.

Other plant resources of medicinal importance found in study area.				
15.	<i>Acacia catechu (L.)</i>	khair	Mimosoideae	Wild
16.	<i>Abutilon indicum</i>	Karandi	Malvaceae	Wild
17.	<i>Aloe vera</i>	Korphad	Liliaceae	Wild/cultivated
18.	<i>Bauhinia racemosa</i>	Aapta	Caesalpiniaceae	Wild
19.	<i>Cassia fistula L.</i>	Bahawa	Caesalpinaceae	Wild/cultivated
20.	<i>Dalbergia sissoo</i>	Sissam	Fabaceae	Wild/cultivated
21.	<i>Ficus benghalensis L.</i>	Bargad	Moraceae	Wild/cultivated
22.	<i>Ficus religiosa L.</i>	Pimpal	Moraceae	Wild/cultivated
23.	<i>Eucalyptus globulus</i>	Nilgiri	Myrtaceae	Wild/cultivated
24.	<i>Lantana indica</i>	Ghaneri	Verbinaceae	Wild
25.	<i>Nerium indicum</i>	Kaner	Apocnaceae	Wild/cultivated
26.	<i>Ricinus communis</i>	Erاند	Euphorbiaceae	Wild/cultivated
27.	<i>Solanum nigrum</i>	Kamoni	Solanaceae	Wild

Results and Discussion

Information gathered from this region indicates that wild plants are dispersed all over the study area while most of the cultivated medicinal plants are seen in the gardens, roadside, home gardens etc. The review of the literature indicates that the Latur district of Maharashtra is botanically unexplored. Even today certain communities practice herbal medicine to cure a variety of diseases and disorders. In all, 27 plant resources of medicinal interest have been recorded after screening with the available literature. Out of which 16 plant species have been described in the present study. Though, some of the plants mentioned in the present study are common medicinal plants. It highlights the need for scientific assessment of these herbal medicines based on Pharmacognosy, Phytochemistry and pharmacological studies.

People of this region possess a good knowledge of plants used for different purposes, but their continuous and progressive exposure to modernization may result in the extinction of such heritage of knowledge over time. Medicinal plants are required for pharmaceutical and drug industries, therefore the cultivation of such plants in addition to the traditional crops will help the farmers to improve their agricultural economy as several medicinal plant resources are available in and around Udgir in wild. Therefore, the present study suggests the need for the sustainable use of wild plant resources by minimizing the overexploitation and rational use of resources by commercial cultivation and their utilization leading to the conservation of biodiversity wealth of this region.

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Theatre For Sustainable Development and its Role in Community Development

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Abstract:

Theatre is a strong communication medium since ages. Theatre has played a vital role in community development through educating people for their needs in changing time. There are many forms of theatre which have shown their potential to understand the emotion, environmental needs and mobilizing masses to achieve developmental goal. Development is a continuous process which is regulated by human behavior and their needs in ancient time people were illiterate so it was difficult to communicate in written and verbal means where theatre emerged as an instrumental tool to communicate effectively their vision. Sustainable development is the need of present time where our environment severely degraded because of over consumption and negligence of vitality of environment united nation developed millennium development goal which was implemented from year 2002-2015 and sustainable development goal which includes, no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, partnerships for the goals which were implemented since 2015 and it will end by 2030(4). Sustainable development goals could be the foundation for ideal community development. community development is a dynamic process where number of stakeholders involved and keeping the interest of all stakeholders which includes equality, quality of life, self-respect for biotic and a biotic factor. In this study we have evaluated the role of theatre for conservation and protection of environment through theatre forms Jatra, Swang, BhandPather and theatre techniques Mime and Movement, Role play, Invisible theatre. It is concluded that theatre form and technique should be selected on the basis of demographic analysis for optimum result.

Keywords: Theatre, community development, sustainable development, Theatre of oppressed, environment.

Rationale of the study:

Community development is based on sustainable development so there is need to save and conserve natural resources and biodiversity. Environment is a long term concern thus the role of theatre has been explored to educate people.

Objective of the subject:

1. Evaluation, identification and optimization of theatre forms and technique for sustainable development .
2. Development of theatrical strategies for educating and empowering people for clean environment and community development.

Hypothesis:

It has been considered on the bases of literature analysis that different forms of theatre can be used to educate and empower community in respect of sustainability of environment.

Methodology:

1. We have collected research article, books related to theatre, environment, sustainable development and community development using google scholar and further screened them on the basis of relevant information and these has been used for evaluation.
2. We have organized theatre workshop to educated people regarding environment and selected role play, mime and movement, invisible theatre, Jatra, Swang, BhandPather and further observed the effect of these theatre forms and technique.

Conclusion:

Community development help people and environment go together to have safe future. The community developers have recognized the value of storytelling to educate community for certain goal (8). Community includes oppressed class of people and we can also consider degrading environment as oppressed class. Performing arts has a branch named Theatre that is concerned with acting out stories in front of an audience, using a combination of speech, gesture, music, dance, sound and spectacle. Brazilian theatre director Augusto Boal developed the Theatre of the Oppressed (TO) during the 1950's and 1960's. He wanted to transform the "monologue" of traditional performance into a "dialogue" between audience and stage. Boal experimented with many kinds of interactive theatre, believing that dialogue is the common, healthy dynamic

between all humans, that all human beings desire and are capable of dialogue, and that when a dialogue becomes a monologue, oppression ensues. The Theatre of the Oppressed helps human beings to recover a language they already possess—they learn how to live in society by playing theatre. They learn how to feel by feeling; how to think by thinking; how to act by acting (3). Theatre of the Oppressed is a rehearsal for reality. The oppressed are those individuals or groups who are socially, culturally, politically, economically, racially, or in any other way deprived of their right to dialogue or in any way impaired to exercise this right.

Eugene Odum devised the concept of the ecosystem which means interaction between biotic (flora and fauna and abiotic) (lithosphere, hydrosphere). Ecological balance continuously changing which is a great concern of sustainability of communities.

Pollution is an undesirable, physical, chemical and biological change in the quality of air, water, soil which has harmful impact on biodiversity and natural resources.

To educate the people about environment we should use regional folk theatres for high efficiency. We have to evaluate regional folk theatres. Bhand Pather a Kashmiri folk theatre, Bhand Pather is a kind of social drama in which there are mythological legend and social satire. Bhand is a jester (traditional entertainer) and plays of the Bhand are called Pather. Bhand Pather has been the most popular and effective strategy against various social issues and exploitations and in the today's world when mankind is affected by numerous hazards like environment, cancer, covid 19, pollution, population one hopes that the Bhand Pather becomes a popular theatre form to educate masses. Bhand Pather can play an important role to educate people for sustainable and community development (2).

Swang is a famous folk form of Haryana and western Uttar Pradesh. Swang as an old form of communication is a deep rooted tradition in India. Swang is a composite art which includes versification, ballads, music, epic, dance etc. In this theatre form folk tales and religious stories are presented by a group before the people in an open air theatre. This folk theatre has been used in India to address critical issues such as cultural, social, political in the form of theatrical messages for the community development (7). Delhi NCR suffers with smog problem during winter season because of burning of remnants of crops that create smog cloud and this leads to the degradation of air quality. Air quality index of Haryana, Delhi NCR mostly goes high which causes many health issues such as Asthma, Bronchitis and breathing issues. To overcome this smog problem Swang can be used as a tool to educate the Haryana farmers about severe impact of air pollution on health and also educate about the alternate solution of remnant of crop burning.

Jatra is a folk theatre of Orissa and Bengal. Jatra is a well structured theatrical art form in India. Jatra (yatra) means procession is a musical theatre form. Jatra being an instrumental to address social and the cultural needs of the people (5). Jatra can be successfully applied in the field of education. West Bengal is suffering from forest degradation, water pollution, soil pollution that causes bio-diversity in endangered. Orissa is the state of India which is severely affected by cyclones and forest degradation and wet land degradation that leads to bio-diversity in endangered. To combat with these environmental issues Orissa and West Bengal can use their traditional folk theatre jatra to aware their masses about fragility of environment and its protection. Jatra also can be used by the government to educate people at large scale to take appropriate action during natural calamities (1).

We have also evaluated different types of theatre techniques which may be appropriate for sustainable development and community development.

Mime and movement is a kind of theatre technique in which we used physical actions such as gesture, expression, movement, postures, emotions without using words in the play. This technique can be used to re-enact the environmental issues and natural calamities. For example if you want to show the problem of earthquake in which artist can create the realistic situation on the stage before the audience so it may thrill the audience and make them realise the importance for environment and in second half of the performance mime artist will educate the people by their posture, gesture, expression, movement etc. about do and don'ts to save their life from earthquake without oral communication. Therefore in our study we found that mime is a very effective tool to sensitize people about environment.

Role play is an instructional method which is based on experiential learning theory in which people experience the real character of the theme which gives them understanding about the situation. According to education theorist Dewey, Lindeman and Kolb talks about experiential learning in adult education. This tool is very effective for adult as well as for children. We performed a 10 minutes theatre for children to educate about biodiversity and its conservation. We selected 10 children who have interest to act as animal and plant and we divided the children in three groups. Group 1 consists of elephant, parrot and fish. Group 2 consists of bacteria, virus and parasite. Group 3 consists of grass, mango tree and Cycas and these groups perform together and

represent biodiversity with a child who has performed as a moderator. This role play about what is bio diversity, threats of bio diversity, conservation of bio diversity(6). After the play we have asked question to children about their understating about bio diversity and we found that they were able to narrate the play very effectively and personalized. This indicate roleplay is a very sensitive and robust theatre technique for sustainable development and community development.

In community, there are group of people who are suffering because of environmental degradation they don't have clean drinking water, clean air for breath and lack of safe habitat and their life are in endangered because of industrial pollutant and occupational hazard. These people can be considered as oppressed. Theatre of oppressed is created by famous Brazilian theatre practitioner Augusto Boal. There are several techniques comes under the theatre of oppressed such as invisible theatre, image theatre, rainbow of desire, cops in the head, legislative theatre, forum theatre. Most commonly used theatre of oppressed techniques are invisible theatre, forum theatre and image theatre. Invisible theatre is a very effective theatre technique of theatre of oppressed. Invisible theatre is a theatrical performance that is enacted in a public place like street, ticket counter, shopping mall etc. before the audience and the audience did not recognize that they were the audience. We have performed this TO technique during water crisis and it has been found people realized the water importance and further they said they will conserve the water and judiciously use.

On the basis of above analysis it can be concluded that theatre has played an instrumental role in community development, it also has been noticed that environment is an integral part of community and if there any degradation in the quality of environment the community development will be hindered so there is need to protect and conserve the environment for the survival. Sustainable development is emerged as a concept for use and conserve natural resources. In this study we have found that education of environment is a pivotal. Community is consist of different demographic parameters such as age, gender, education, income, language. Optimized theatre techniques will be more productive and highly specific to achieve the goals so there is a need to understand regional aspiration and capacity of masses. In our studies it has been found that Jatra is more productive in west Bengal and Orissa in comparison any further part of country. Similar theatre techniques mime and roleplay is more productive with children while invisible theatre is more productive with adult who can instantly participate and response in the situation. Therefore, theatre should be use to achieve the goal of sustainable development and community development.

Suggestions:

Theatre study should be included in the curriculum of primary, secondary and higher education which gives strength to the student to express themselves and could play significant role in community development. Environmental education already has been included in the curriculum but it is very bookish in nature so there is need to educate about environment through performing arts. Government should organized theatre related workshop to train performing artist and financially support them to diffuse their learning in rural and urban area. Digital platform should be use to connect masses to educate about the environment through digital theatre broadcast. Television and radio should broadcast environmental theatre to diffuse the knowledge about environment on regular basis.

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The Need of Sustainable, Innovative & Professional Entrepreneurship in Agriculture**Jagdish Bhagwanrao Sable**Ph.D. Scholar, Department of Economics
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MGM University, Aurangabad**Abstract:**

Indian culture is really the **Agri-culture!** But, in the name of free trade and liberalized economy, the agriculture sector as whole is pushed down to its lowest position. The contribution of agricultural sector in national GDP has fallen down to 13.60 per cent. Whereas the dependency of population on the agriculture for its livelihood is still remained as it was previously. This shows that the expansion of Industries and services sector could not absorb the surplus labour force from the agricultural activities. The Neglecting the Agricultural sector now proved to be the **'the sin of a few policymakers and the curse for the masses.'** Indian agriculture is still dependent on monsoon for irrigation and cultivation. In some regions like Marathwada (in Maharashtra), there is situation of drought continuously since many years. The neglecting economic policies and the consecutive situation of droughts made the farmers life very miserable. The agriculture is the life of Indian farmers. The Indian farmers have no alternative source of livelihood except the cultivation of crops and growing cattle. Both crops and cattle are dying because of the droughts. The farmers community is life of severe poverty and unemployment. This critical situation caused to depression among farmers through the country. Consequently, the Indian farmers are following the way of suicides. Who can save the farmers from such a vulnerable life? How can the farmers come out from the dark and deep situation of poverty and unemployment? Who can be the Role Model of the Indian farmers for a successful and prosperous life? This research undertaken to answer such questions regarding farmers' life.

Key words: Agriculture, Farmers, Drought, Suicides, Packages, Subsidies, Credit, Marketing, sustainable, Professional, Innovative, Entrepreneurship

Introduction:

In the 11th Plan (2007 - 2012), overall rate of growth of GDP was 8 % p.a. under- achiever was the agriculture, rate of growth of remained low at 3.3 % over the plan period. In fact, during the 10th Plan period agriculture could grow at 2.1 % annually, whereas the economy overall recorded a high rate of 7.6 % p.a. With other sectors growing much faster, the continued slow rate of growth of agriculture in successive years has resulted in a decline in the share of agriculture and allied sectors in GDP at factor cost from 18.90 % in 2004-05 to only 13.60 % in 2012-13. (Datt-Sundaram, 2013, prefaces). According to Economic Survey of India -2015, the GDP growth rate of agricultural sector is estimated as 1.1 % for the year 2014-15, as against 7.4 % p.a. overall growth of Indian Economy for the same year. (Economic Times and Maharashtra Times, February 28, 2015). Thus, the declining of GDP growth rate in agricultural sector has pushed the Indian farmers in a critical situation for their livelihood and social life. This, Research focus light on the declining growth of Agricultural sector, critical situation of Indian farmers and the remedies to overcome this situation.

Objectives of the Study:

1. To take account of declining GDP growth of Indian Agriculture.
2. To study the situation of drought and ignorance of Indian farmers leading to suicides.
3. To describe the key areas of farmers' life and agricultural business.
4. To define the Role of Sustainable, Innovative and Professional Entrepreneurship in Agriculture.

Methodology:

This Research is based on secondary data collected through previous research papers, textbooks, reports and News papers. In addition to that, personal experience, observations, knowledge, intuitions, interpretations are also applied for analysis and findings.

Declining GDP Growth of Agriculture:

Agriculture is the principal source of livelihood for more than 55 per cent of the population of this country; Agriculture provides the bulk of wage goods required by non-agriculture sectors and most of the raw materials for the industries sector. (India – 2014, p - 71). However, the growth of Indian agriculture is declining continuously. In his book Indian Economy, Ramesh Singh (2012) has stated that the Planning Commission of India had **neglected the agricultural sector** and **Industries** sector was accepted as the **prime moving force** of the economy. Consequently, the neglected Agricultural sector showed a minor growth or sometimes no growth. The deceleration in agricultural sector caused to rise in poverty and unemployment in the country. On the other hand, the GDP contribution of agriculture reduced to a large extent but the

dependency of population is not adjusted in industry or services sector. The real picture of productivity and employment potential of each sector of the economy is presented in the following tables.

Sr.No.	Sector	1980-81	1990-91	2000-01	2010-11	2012-13
1.	Agriculture & Allied	38.10	31.00	27.30	14.50	13.70
2.	Industries	25.90	29.30	24.60	27.80	26.70
3.	Services	36.00	39.70	48.2	57.70	59.60

(Ref : Indian Economy, Datt –Sundaram (2013), P-35)

Table - I : Sector-wise Gross Domestic Product i.e. overall productivity of each sector

Sr.No.	Sector	1983	1993-94	1999-2000	2004-05	2009-10
1.	Agriculture & Allied	66.08	62.08	59.17	52.69	53.80
2.	Industries	11.27	11.10	12.13	12.90	11.00
3.	Services	22.65	23.82	28.70	34.41	35.20

(Source : NSSO 66th round and earlier rounds (2009-10,) Ref : Datt –Sundaram (2013), P-449)

Table - II : Sector-wise share of employment by current daily status

The data in the above tables indicate that the productivity of agriculture is reduced to a great extent but the burden of population for livelihood remained as it was. This situation has created many problems for Indian farmer households agricultural sector as a whole. Consequently, the Indian farmers have become the victim of depression and discouragement. The figure given below describe the critical situation of Indian farmers.

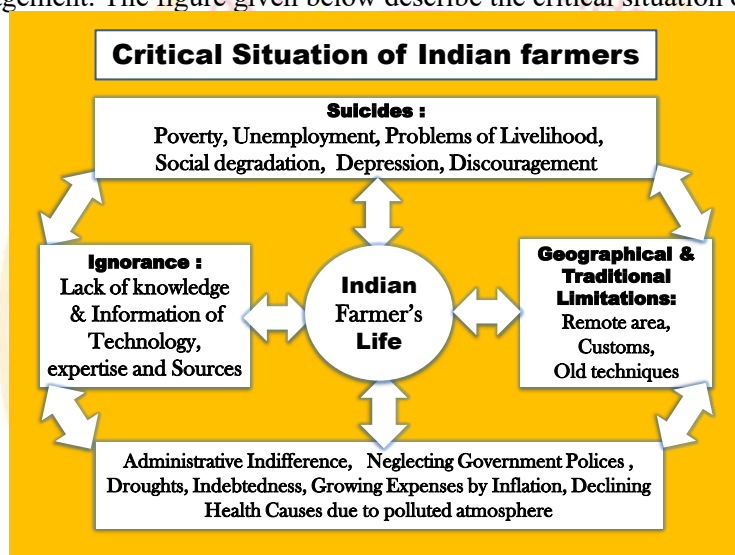


Figure – 1 : Indian Farmers: Situation of Droughts and Suicides

The above figure gives a clear picture of farmers' critical situation surrounded by all sides. The Administrative Indifference, Corruption, Government policies pushed the farmers in a dark and deep miseries. Consequent upon the poverty and unemployment, the farmers have lost their hopes of life. The depression and discouragement among the majority of farmers made them to follow the unfortunate way of suicides.

Critical Situation of Indian Farmers:

According to the National Sample Survey Organization (NSSO) survey (ref- Bhalla, 2008) the average monthly per capita expenditure (MPCE) for farmer households at all India level during the year 2003 was Rs. 503/- i.e. less by 9.3 % compared to Rs. 554/- for all rural households. The farmer households' monthly expenditure of Rs. 503/- is just about Rs. 155/- above the rural poverty line of Rs. 349/- for the year 2003. The corresponding break-ups of MPCE for food and non- food groups were Rs. 279 and Rs. 224 for farmers households i.e. less by 6.6 % and 12.3 % respectively in comparison with Rs. 298 and Rs. 255 for all rural households. Farmers spend Rs. 34.40 per month on medical services and 16.83 per month on education. Their medical expenditure is lower than all rural households, their expenditure on education is slightly higher. Except for cereals, Milk and milk products, farmer households' per capita monthly expenditure is much lower than all rural households.

In 1999 – 2000 the incidence of poverty for all rural households declined from 27.09 % to 23.99 %. On the contrary, the poverty of Farmer households was higher at 30.73 %. Most of the States also showed similar trends. The incidence of poverty of farmer households is significantly higher than in all rural households. For India as a whole, during 2003, the incidence of poverty among farmer households was 30.70 % by head count ratio (HCR) compared with the figure of 24 % for all other rural households.

The data brought out that at all India level, 60.4 % of rural households were farmer households and 48.6 % of those were indebted. The State wise distribution shows that the incidence of indebtedness was the highest for Andhra Pradesh, Tamil Nadu, Maharashtra, Punjab, Kerala and Karnataka. In spite of all the efforts, the institutional finance for farmers accounts for only 57.7 % of total loans and non- institutional sources like money lenders, traders, relatives etc. still account for 42.3 % of the total credit.

The very disturbing findings of the situation assessment survey of NSSO (referred above) are that a very high proportion of farmer households in all the States of India are running their profession in a deficit. (Bhalla, 2008, p- 75). The knowledge base of farmers is quite dismal. Most of them are unaware of the institutions like WTO, MSP etc which are of vital importance for their future. 96 % of the farmers never insured their crops and 57 % did not know that their crops could be insured. Only 19 % had availed themselves of services from a cooperative. The report also point out *the almost complete irrelevance of the NGOs either in increasing the knowledge base of the farmers or becoming agents of change. The farmers' Organizations have also failed extend support to the helpless farmers.* (Bhalla, 2008, p- 76).

Record of Suicides in Maharashtra:

Maharashtra's agrarian distress that showed that there were 1297 suicides in 2013. The figures went up to 1965 in 2014. After 2376 suicides in 2006, the figure dropped to 2076 in the year 2007, 1966 in the year 2008, 1605 in the year 2009, 1741 in the years 2010, 1518 in the year 2011 and 1473 in the year 2012. In 2014, Marathwada reported 565 suicides, the highest in the State, recording an increase of 173 % over the corresponding last year. (The Indian Express, February 28, 2015). This data is sufficient to prove the fact that the farmers are ending their life only because of the discouragement, depression and ignorance.

Key Areas of Farmers' Life:

The life of Indian farmers are solely dependent on the agricultural sector. Farmers are the only entrepreneurs in agricultural sector. Obviously, the problems in agricultural sector all affect the life of farmer households directly. There are some key factors which create *practical limitations* in changes and transformation of farmers' life as under:

- a. **Geographical Limitations:** The geographical location of farmers is at remote area where the infrastructure is not yet developed. The agriculture sector has to be managed from the villages only. The farmers cannot leave villages as they are the indispensable part of the agriculture sector. Due to traditions, customs and ignorance, the transformation and improvements in agriculture have become difficult.
- b. **Limitations of Knowledge & Information:** Illiteracy, ignorance, indifference and reluctance of traditional farmers have caused to the backwardness in agriculture. The changes taking place in the world are not noted by the farmers. The methods of farming are not changed. The means of farming are very old. Due to lack of knowledge and information the farmers are living in misery.
- c. **Nature Dependency:** The agriculture and farmers life is quite dependent on nature. The natural calamities like drought etc, the fluctuations in climate and uncertain monsoon affect the agriculture and farmers' life very badly.
- d. **Rural Vs Urban Divide:** India is said to be divided in two social characters. The veteran leader of Farmers' Organization, Shri. Sharad Joshi has emphasized this aspect throughout his movement. He calls it as the fight between "*India & Bharat*". In his opinion, the India is the forward Urban community and Bharat is the backward Agricultural community. The agricultural community, as he states, is always neglected and suppressed by the Urban community.
- e. **Perishable Nature of Products:** The agricultural products are of perishable nature. The agricultural products need to be consumed within short period, as they can not be preserved for a long time. Because of this inherent limitation, the farmers cannot bargain for justifiable price to the products.

Sustainable, Innovative and Professional Entrepreneurship – the Immediate Remedy:

Entrepreneurship means initiatives; Entrepreneurship means creativity; Entrepreneurship means proper solutions to the problems; Entrepreneurship means profitability in business activity; Entrepreneurship means organizational and managerial skills. The Indian agricultural sector needs such Entrepreneurship to come out of the critical situation. **Sustainable** Entrepreneurship means farming without destroying the natural productive qualities of the soil and other natural resources. **Innovative** Entrepreneurship means new ideas, methods and techniques matching with the modernization of technology, marketing and productivity. **Professional** Entrepreneurship refers to the organization and management of farming as the profitable venture. There are following ways to make the farming sustainable, innovative and professional:

1. Provide Information: The information regarding various development and supportive schemes of Government, the facilities, schemes and process of insurance, the subsidies, packages for agricultural

- and allied activities, the advance information of future climatic change, knowledge of precautionary measures, availability of store houses, etc should be provided to the farmers at their places.
2. **Educate Farmers:** The young generation of farmers should get education of entrepreneurship, management, organization, planning, small, cottage industries etc. The farmers' community should be educated in the matters of changing technology, legal changes, changes in Government policies, changes in market prices, favorable market places, the process of soil testing, water testing, Horticulture, dairy farming, poultry farming, floriculture, legal agencies of seeds supply, etc.
 3. **Complete Literacy:** Farmers community may be made fully literate formally to read and understand the required information of agriculture, health care, climate etc.
 4. **Organization and Management:** The farmers may be provided with the formal and informal training of organizing and management of the agriculture as a profession.
 5. **Planning of Man and Money:** The income of farmers is not regular and constant. The labour availability in season is also a major problem in agriculture. Farmers should learn the process of planning in advance the man power and money supply.
 6. **Skill Development and Confidence Building:** The traditional methods of farming should be changed to enhance the productivity of agriculture. For this change, the farmers should go for skill development regarding mechanization, technology utilization and modern techniques of farming. The farmers are the backbone of Indian economy. They should wake up and stand confident to make India prosperous and happiest country.

Conclusion:

There is constant declination of GDP growth of agricultural sector in India. The continuous droughts and other natural calamities have pushed the farmers towards the depression and discouragement. Consequently, the farmers are following the way of suicides due to frustration in their life. To change this critical situation, the traditional techniques, methods of farming should be changed. There is great need of changing and transforming the mind-set of Indian farmers to prepare them for the global competition. Farmers should create sustainable, innovative and professional entrepreneurship among their young generation through awareness and confidence building. The young generation of farmers should adopt the innovative techniques of profitable farming like contract farming, cooperative farming, horticulture, floriculture, dairy development, export oriented farming, fisheries, medicinal farming, farming suitable to the seasonal changes etc. The young farmers should understand and implement the global practices at local level. In this globalization period, the agriculture also is subject to the global policies and markets. The young generation of farmers should become the true global landmarks with Indian roots.

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Conservation of Natural Resources

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Introduction:

Conservation is the proper management of a natural resource to prevent its exploitation, destruction or degradation. Natural resources are the resources which exist without any actions of mankind.

Conservation is generally held to include the management of human use of natural resources for current public benefit and sustainable social and economic utilization. The protection, preservation, management, or restoration of natural environments and the ecological communities that inhabit them. Conservation is the careful maintenance and upkeep of a natural resource to prevent it from disappearing. A natural resource is the physical supply of something that exists in nature, such as soil, water, air, plants, animals, and energy.

The Natural Resources Conservation Service recognizes that we don't want these things to diminish or disappear altogether, and that we must make an effort to protect and maintain natural resources. The purpose of conservation in agriculture is to maintain or improve the land with a long-term vision for the future, which we call sustainability. The goal of the Natural Resources Conservation Service is to help you care for and manage the soil, water, air, plants, animals, and energy on your farmland and forestland. We can provide technical assistance and financial assistance, as well as a variety of tools to learn more about the opportunities we have to conserve natural resources on our land. We work together to cultivate productive lands and healthy ecosystems. No matter the size of your farm, conservation fits your operation.

Reducing humanity's collective carbon footprint and conserving our natural resources to fight climate change will help leave our planet habitable for future generations. Natural resources are resources that occur in nature without any manmade assistance. Any naturally occurring substance qualifies as a natural resource, including animals, plants, water, oil, coal, minerals, timber, land, light, soil, and energy.

Objectives:

1. To study the concept and importance of Natural Resources
2. To study various types of natural Resources
3. To study the way of conservation of Natural Resources
4. To study of conservation of natural resources and tradition in India.

Research methodology:

The present study based on secondary data, collected through various online resources and report related to this study.

Natural Resources:

Natural resources can be classified as renewable or nonrenewable.

Renewable resources refer to undiminishing substances, such as solar and wind energy, biomass energy, and hydropower.

Nonrenewable resources refer to resources that cannot be naturally replenished at an adequate pace to meet growing demands. Nonrenewable resources include water, fossil fuels, natural gases, minerals, and nuclear energy.

Why important to conservation of natural Resources:

Humans depend on natural resources for survival, but not all natural resources are renewable. The food and water we consume, the air we breathe, and the shelter we make all derive from natural resources, so we must take steps to conserve what we have to encourage the health and longevity of both the planet and humankind. Human activity, mainly the use of nonrenewable resources like fossil fuels, is responsible for the massive spike in climate change. By conserving our natural resources, we can reduce greenhouse gas emissions and have a more positive impact on our natural environment.

Consumption of natural resources is increasing with growing population. With the increasing industrialization and urbanization, we need to conserve natural resources for their destruction will also upset the ecological balance.

Conservation is the sum totals of activities, which can derive benefits from natural resources but at the same time, prevent excessive use leading to destruction or degradation.

Need for Conservation of Natural Resources

We well known that nature provides us with all our basic needs but we tend to over exploit. If we go on exploiting nature, there will be no more resources available in future. Hence there is an urgent need to conserve nature for to maintain ecological balance for supporting life ,preserve different kinds of species (biodiversity), make the resources available for present and future generations and an ensure survival of human race.

Conservation of Natural Resources and Traditions of India

The need for conservation of natural resources was felt by our predecessors and in India; there was a tradition of respecting and preserving nature and natural resources. Natural resources were conserved in the form of sacred groves/forests, sacred pools and lakes, sacred species etc e.g. the river ganges. In our country the conservation of natural forests is known from the time of Lord Ashoka. Sacred forests are forest patches of different dimensions dedicated by the tribal's to their deities and ancestral spirits. Cutting down trees, hunting and other human interferences were strictly prohibited in these forests. This practice is widespread particularly in peninsular, central and eastern India and has resulted in the protection of a large number of plants and animals. Similarly, several water bodies, e.g., Khecheopalrilake in Sikkim was declared sacred by people, thus, protecting aquatic flora and fauna. Worshipping certain plants like banyan, peepal, tulsi etc. has not only preserved them but also encouraged their plantation. History recalls numerous instances where people have laid down their lives for protecting trees. Recent Chipko movement in India is one of the best examples. This movement was started by women in Gopeshwar village in Garhwal in the Himalayas. They stopped the felling of trees by hugging them when the lumbermen arrived to cut them. This saved about 12000 square kilometers of sensitive water catchment area. Similar movements also occurred in some other parts of the country.

Ways to Conserve Natural Resources at Home

Efficient Use water. Taking shorter showers or turning off the faucet while brushing your teeth will help water waste in your home. Only use your dishwasher or washing machine when there is a full load, and switch to energy-saving appliances if possible.

Turn off the lights. Turn off any lights or televisions after you leave a room. Unplug appliances like portable air conditioners, toasters, and coffeemakers when not in use, as they can continue to use small amounts of electricity. Additionally, LED light bulbs require far less wattage than standard bulbs, so switching to this alternative lighting method can also help conserve resources.

Use renewable energy. Although renewable energy consumption has been in practice for centuries, recent years of climate change and global warming have pushed many scientists and researchers to look for ways to incorporate more green practices into our everyday lives. Renewable energy replenishes itself, cutting down on our need to harvest new resources. Using solar panels or wind energy can significantly reduce our reliance on natural gas and cut back on resource depletion over time.

Recycle. Making new products requires the use of resources, but recycling helps reuse the materials we already have. Manufacturing fewer new materials reduce waste, which helping decrease groundwater and air pollution. Find a center that accepts items like plastic bottles, cardboard, or aluminum for recycling. Switch to paperless billing and buy recycled paper to limit the need for logging and deforestation.

Compost. The Composting is a great way to convert your food scraps into useful materials for your home garden. Composting enriches your soil and reduces the need for watering by improving runoff, which reduces soil erosion. Composting also attracts beneficial organisms that cut down on the need for pesticides or harmful chemicals. Composting encourages sustainability and can lessen the amount of waste and pollution produced by food waste.

Use of Reusable Goods. To conserve resources avoiding single-use plastics is another way. Instead of buying water bottles, plastic cups, or paper plates, opt for ceramic, metal, or glassware. Use your own fabric grocery bags rather than plastic bags. Reusing items is a great way to reduce waste and keep excess trash out of landfills.

Thermostat Management. Heating and air conditioning make up approximately half of your energy bill, but lowering the heat by just two degrees in the winter can help conserve energy in your home. Raising the thermostat two degrees in the summer will also have energy-saving effects and help reduce your monthly bill.

Thrift shop. Thrift shopping increases the amount of time between the use and disposal phase of a garment's lifecycle, giving us more out of our used clothing, which can decrease the need for overproduction and manufacturing .It can take over 600 gallons of water to make a single cotton t-shirt.

Buying secondhand clothing can reduce the amount of reusable clothing that ends up in landfills by extending its lifecycle.

Conclusion

The present day global concerns for sustainable development and conservation of natural resources are of recent origin as compared to the long tradition and culture of nature conservation in our country. Principles of conservation and sustainable management were well established in the pre-historic India. Our ancient literature is full of such examples where values and sensitivity of humans towards nature was glorified and the principle of sustainability was established at its best.

Natural resources are a present for the creation. These help in satisfying the human needs to its fullest. Furthermore, the rational use of natural resources maintains the earth's atmosphere. Also, the wise use leads to protection of bio-diversity. Humans cannot imagine their lives without natural resources. Thus, the conservation of the natural resources is essential.

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Natural Resources And Constitutional Provision

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Abstract

This article draws out some unmistakable highlights of Indian law and society in the questions of property rights and qualifications over regular assets. Both the provincial and post-pilgrim expresses that presented the cutting edge law in stages had different intentions. They decided the kinds of rights allotted and the complex political and administrative cycles fundamental for their executions. By utilizing a transformative way to deal with follow these turns of events, this article helps in appreciation of the advanced law and privileges on normal assets in India. The logical technique is that of institutional investigations and law and financial aspects.

Introduction

The historical backdrop of administrative began with Indian Penal Code, 1860. Segment 268 characterized what is public disturbance. Decrease of public irritation is likewise a subject of Section 133 to 144 of I.P.C. These are just restrictive arrangements. Segments 269 to 278 of the Indian Penal Code are reformatory arrangements which implies that an individual liable of abusing any of the arrangements is obligated to indictment and discipline. Authoritative battle against contamination proceeded in autonomous India. Presently there is a large group of enactment in India pointed toward shielding the climate from contamination and keeping up with the environmental equilibrium. The Environment (Protection) Act, 1986 is one significant Act for natural assurance. The Government of India has dispatched different projects and utilized varying media to teach individuals and stir their awareness for the insurance of climate. In February 1971, the University Grants Commission (India), in a joint effort with different associations, dispatched a discussion on the improvement of ecological examinations in the Indian Universities. The agreement that arose at the conference was that nature and ecological issues should frame part of the courses of study at all levels. Further, with the object of producing a consciousness of the need to keep up with natural equilibrium. To keep the climate unadulterated and to hinder the dangers of contamination and natural awkwardness, the Department of Laws, Punjab University, Chandigarh coordinated a three-day National Seminar in 1984 on "Law Towards Environmental Protection" Fifty five representatives from everywhere India took an interest in the class.

The fundamental consideration in the instruction on climate is as underneath:

i) Over-population and the approaches to check its quick development. (ii) Afforestation as a preventive to soil disintegration and water contamination (iii) Methods to forestall air contamination, demanding smokeless cooking (iv) Discipline in playing radio and TVs and a restriction on utilization of amplifier. (v) Elementary information on the logical and philosophical premise of man and the climate (vi) Rules with respect to removal of family waste; and (vii) General standards of sterilization

Climate and Constitution of India:

The secure and further develop the climate is a sacred command. It is a responsibility for a country married to the thoughts of a government assistance State. The Indian Constitution contains explicit arrangements for climate insurance under the parts of Directive Principles of State Policy and Fundamental Duties. The shortfall of a particular arrangement in the Constitution perceiving the essential right to spotless and healthy climate has been set off by legal activism in the new occasions.

Articles 48-A and 51-A. Proviso (g): Initially, the Constitution of India had no immediate arrangement for ecological security. Worldwide cognizance for the security of climate in the seventies, Stockholm Conference and expanding consciousness of the natural emergency provoked the Indian Government to sanction 42nd Amendment to the Constitution in 1976. The Constitution was changed to present direct arrangements for security of climate. This 42nd Amendment added Article 48-A to the Directive Principles of State Policy.

Article 49-A: The Article expresses: "The State will try to secure and work on the climate and to defend the woods and untamed life of the country." The said alteration forced an obligation on each resident as Fundamental Duty. Article 51-A, Clause (g): Article 51-A (g) which manages Fundamental Duties of the residents states: "It will be the obligation of each resident of India to secure and further develop the common habitat including woodlands, lakes, streams and untamed life and to have sympathy for living animals." Thus, insurance and improvement of common habitat is the obligation of the State (Article 48-A) and each resident (Article 51-A (g)).

Article 253: Article 253 states that 'Parliament has ability to make any law for the entire or any piece of the country for carrying out any arrangement, understanding or show with some other country. In straightforward words this Article proposes that in the wake of Stockholm Conference of 1972, Parliament has the ability to enact on all issue connected to the protection of indigenous habitat. Parliament's utilization of Article 253 to authorize Air Act and Environment Act affirms this view. These Acts were ordered to execute the choices came to at Stockholm Conference.

The Constitutional arrangements.

1. Article 48(A) 2. Article 21 3. Article 253 4. Article 51(A) 5. Article 19(1)(g) 6. Article 51 7. Article 14. Article 14 PROTECTION OF THE ENVIRONMENT 14.1 The Government and the Contractor perceive that Petroleum Operations will cause some effect on the climate in the Contract Area. In like manner, in execution of the Contract, the Contractor will direct its Petroleum Operations with due respect to worries regarding insurance of the climate and protection of normal assets and will specifically;

2. Article 48(A) 48A. Insurance and improvement of climate and defending of woods and untamed life The State will attempt to secure and work on the climate and to protect the timberlands and natural life of the country.

3. Article 51 Promotion of worldwide harmony and security The State will attempt to (a) advance global harmony and security; (b) keep up with just and good relations between countries; (c) cultivate regard for worldwide law and deal commitments in the dealings of coordinated people groups with each other; and empower settlement of global questions by assertion PART IVA FUNDAMENTAL DUTIES.

4. Article 51(A) Fundamental obligations It will be the obligation of each resident of India (a) to submit to the Constitution and regard its goals and establishments, the public Flag and the National Anthem; (b) to esteem and follow the respectable beliefs which enlivened our public battle for opportunity; (c) to maintain and ensure the sway, solidarity and respectability of India; (d) to shield the nation and render public assistance when called upon to do as such; (e) to advance amicability and the soul of normal fraternity among every one individuals of India rising above strict, phonetic and local or sectional varieties; to repudiate rehearses censorious to the poise of ladies; (f) to esteem and save the rich legacy of our composite culture; (g) to secure and further develop the regular habitat including timberlands, lakes, waterways and untamed life, and to have sympathy for living animals; (h) to foster the logical temper, humanism and the soul of request and change; (I) to defend public property and to forswear brutality; (j) to endeavor towards greatness in all circles of individual and aggregate movement with the goal that the country continually ascends to more elevated levels of attempt and accomplishment PART V THE UNION CHAPTER I THE EXECUTIVE The President and Vice President.

5. Article 253 Legislation for offering impact to peaceful accords despite anything in the prior arrangements of this Chapter, Parliament has ability to make any law for the entire or any piece of the region of India for executing any settlement, understanding or show with some other nation or nations or any choice made at any global gathering, affiliation or other body.

Some milestone Judgements

Province of Gujarat versus Mirzapur Moti Kureshi Kassab on 26 October, 2005

The settings where article 51(a) shows up in the record By sanctioning statement (g) in Article 51-A and giving it the situation with a principal obligation, one of the items tried to be accomplished by the Parliament is to guarantee that the soul and message of Articles 48 and 48A is regarded as a major obligation of each resident. The Parliament benefited the chance given by the Constitution (Forty-second Amendment) Act, 1976 to work on the sign of items contained in Article 48 and 48-A. While Article 48-A talks about "climate", Article 51-A(g) utilizes the articulation "the regular habitat" and incorporates in that "woods, lakes, waterways and natural life". While Article 48 accommodates "cows and calves and other milch and draft steers", Article 51-A(g) orders it as a major obligation of each resident "to have sympathy for living animals", which in its more extensive overlap accepts the classification of dairy cattle talked about explicitly in Article 48.

Sher Singh versus State Of Hp on 6 February, 2014

The residents of the nation have a key right to a healthy, perfect and nice climate. The Constitution of India, as far as Article 48A, orders that the State is under a Constitutional commitment to secure and work on the climate and to shield the backwoods and untamed life in the country. By 42nd Amendment to the Constitution, the Parliament, with an object of sharpening the residents of their obligation, fused Article 51A in the Constitution, entomb alia, requiring a resident to secure and further develop the common habitat including the woods, lakes, streams and untamed life and to have a sympathy for living animals. The administrative goal

and soul under Articles 48A and 51A(g) of the Constitution discover their spot in the meaning of 'climate' under the Environment (Protection) Act, 1986 (for short the 'Demonstration of 1986'). The council ordered different.

Sum-up and Suggestion

Associating basic freedoms and climate is a significant sourcebook that investigates the strange region that lies among natural and common liberties enactment. Individuals can guarantee crucial uniformity and satisfactory states of life in an climate that allows an existence of nobility and prosperity. There is a critical need to form laws remembering the way that the individuals who contaminate or obliterate the common habitat are carrying out a wrongdoing against nature, however are disregarding common liberties too. In fact, wellbeing has appeared to be the subject that extensions holes between the two fields of natural assurance and basic freedoms. The progression of the connection between common liberties and climate would empower consolidation of common liberties standards inside an ecological degree, like antidiscrimination norms, the requirement for social cooperation and the security of powerless gatherings.

Suggestion

- 1) Need some hard(strict) Laws for protection of Natural Resources.
- 2) Need to separate chapter in penal code for Environment,
- 3) Need to create special task team for observation.
- 4) Creating public awareness regarding natural resources

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Introductory Study of Content Analysis of Desidoc Journal of Library & Information Technology

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Abstract:

Content analysis is a method for summarizing any form of content by counting various aspects of the content. This enables a more objective evaluation than comparing content based on the impressions of a user. The use of Content Analysis (CA) in Library and Information Science (LIS) research is growing. Along with that growth comes a virtual explosion in new data source types available electronically. This paper aim content analysis of DESIDOC journal of library and information technology. DESIDOC Journal of Library & Information Technology is an international, peer-reviewed, open access Journal that endeavors to bring recent developments in information technology, as applicable to library documentation and information professionals.

Keywords: Content Analysis, DESIDOC, Peer-reviewed.

Introduction:

Content analysis is the study of documents and communication artifacts, which might be texts of various formats, pictures, audio or video. Social scientists use content analysis to examine patterns in communication in a replicable and systematic manner.[1] One of the key advantages of using content analysis to analyze social phenomena is its non-invasive nature, in contrast to simulating social experiences or collecting survey answers. Content analysis can be said to be as old as reading listening or seeing. When a person reads a book or other body of communication content and then gives of summery and interpretation of it, this is an instance of content analysis.

Content analysis is best understood as a broad family of techniques. Effective researchers choose techniques that best help them answer their substantive questions. That said, according to Klaus Krippendorff, six questions must be addressed in every content analysis Which data are analyzed?How are the data defined?From what population are data drawn?What is the relevant context?What are the boundaries of the analysis?What is to be measured?Information content, that is, the substance of the information being created, communicated, stored, and/or transformed

Review of Literature

In the beginning of the research study researcher made vast literature search. It was necessary to know the research already done in similar topic. Researcher referred the collection of 'DESIDOC Journal of Library & Information Technology' research found following title related to the topic.

Kent allen:Encyclopaedia of Library and information science found in useful introductory part of subject content analysis.**Bernard Berelson**Content analysis in communication research, stated how to use the term content analysis and communication content.**Parmer, P.P.:**Encyclopaedic Dictionary of Library and Information Science.**Ghosh, B.N. :**A Dictionary of research Methods,

Research Methodology

The bibliographic data pertain to DESIDOC Journals of Library & Information Technology has count and analysed fulfilling the objectives of the study. This research is based on the analysis of research papers published in DESIDOC Journal of Library & Information Technology which is analysed by using various research method Descriptive research method, source of Data collection secondary facts finding study during 2010-2019 Bibliometric techniques.

The steps in methodology include:

1. Data collection
2. Data Analysis & Interpretation.

Importance of the study:

It introduces the subject under the following captions such as statement of the problem, definition of key terms, objectives other dimensions, hypothesis, methodology, scope and limitation and organization of the study. It begins with brief description of the study and the relevance of the topic. After the statement of the problem the keywords in the title are defined for the purpose of the study.

Knowing Concept CA

Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyze the presence, meanings, and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part. Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theater, informal conversation, or really any occurrence of communicative language. To conduct a content analysis on any such text, the text is coded or broken down, into manageable categories on a variety of levels-word, word sense, phrase, sentence, or theme and then examined using content analysis methods.

Historically, content analysis is a time-consuming process. The analysis is done manually, or slow mainframe computers are used to analyze punch cards containing data punched in by human coders. Single studies could employ thousands of these cards. Human error and time constraints made this method impractical for large texts. However, despite its impracticality, content analysis is already an often utilized research method by the 1940s. Although initially limited to studies that examined texts for the frequency of the occurrence of identified terms (word counts), by the mid-1950's researchers are already starting to consider the need for more sophisticated methods of analysis, focusing on concepts rather than simply words, and on semantic relationships rather than just presence. While both traditions still continue today, content analysis now is also utilized to explore mental models and their linguistic, affective, cognitive, social, cultural and historical significance.

Conclusion:

Content analysis, though it often analyses written words, is a quantitative method. The results of the content analysis are numbers and percentages. The content that is analyzed can be in any form, to begin with, but is often converted into written words before it is analyzed. The original source can be printed publications, broadcast programs, other recordings, the internet, or live situations. All this content is something that people have created.

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Natural Resources Reflected in The Heart of Darkness

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Abstract:

Nature is the powerful phenomenon that is ominously present in literature. Nature is the controlling and destroying power. It gives happiness and brought tragic events too. In the world of literature, nature plays a very important role in many aspects. The Dictionary defines nature as- 'everything that exist in the world independently of people, such as plants and animals, earth and rocks, and weather. The writers like Joseph Conrad used this natural world very effectively through their work. Nature to Conrad is not only external but dynamic. This dynamic impact of nature and natural resources has been presented by writers like Joseph Conrad. The aim of the present paper is to understand and study the natural resources presented in the novella The Heart of Darkness.

Keywords: Nature, features, natural resources, river, impact etc.

Introduction:

Eco-criticism is the study of literature and the environment from a multiple point of view. The scholars of literature analyses the texts that provide environmental concerns and examine the various ways literature treats the subject of nature. Eco-criticism is the study of relationship between literature and the physical environment. It seeks that man and nature are not opposite but human as a part of nature or eco-system.

Joseph Conrad was a Polish-British writer. He is regarded as the most influential writer in English language. His novella *The Heart of Darkness* was originally published in 1899 in *Balkwood Edinburgh Magazine*. It later published in *Conrad's Youth: and Two Other Stories* (1902). It tells a story within a story. It begins with a group of passengers aboard a boat floating among the river Thames. One of them is Marlow, who narrates the voyage up the Congo river into Congo Free State in the heart of Africa. This setting provides the framework for Marlow's story of his obsession with the ivory trader Kurtz. It also enables Conrad to create a parallel between so-called civilized people and those described as savages. Thematically, *The Heart of Darkness* is concerned with racism, imperialism, corruption and exploitation.

Nature that is presented in *The Heart of Darkness* is 'not mild or romanticized. It's not like romantic writers or poets. It does not provide inspiration. It is also not entitled to provide satisfactory inspiration. The nature here is dark, frightening and terrible. It allows people to come under its influence and obtains change. It changes the basic nature of human. Marlow discusses the natural world and its impact on him as well as the Europeans with whom he encountered in his journey. This nature is dynamic and not static. It is the manifestation of wildness in surroundings and human nature too. Here, nature has the capacity to impress and brought change in human personality. This presentation of nature is universal and all pervaded. In the beginning, Marlow is interested in surfaces, things, external elements than in any deep. But here, the priority placed on the observation demonstrates that the idea of pertaining to the external is not possible. As Marlow confronted with a series of exteriors and surfaces the river's banks, the forest walls around the station etc. And these exteriors provide him a more profound source of knowledge than and falsely constructed interiors.

The Congo in *The Heart of Darkness* is one of the greatest obstacles that Marlow must face when he decides to journey to Kurtz's station. Here, nature provides a constant and arduous threat that Conrad embodies in the forest in Congo. Symbolically, Congo represents European's separation or outside world from Africa. It symbolizes movement and helps the characters to move the plot. The Congo river was only way to move ivory or people. Figuratively, the river's flow of water makes European's move away from civilization. Marlow's struggles to understand the situation in which he has found to himself.

Darkness and fog are equally part of the novella *The Heart of Darkness* to conceptualize the natural element. Africa is described as gloomy and somehow dark. Even if, the sun is shining brightly, darkness pervaded to the ground. Darkness seems to be related to existentiality. It is the suggestion of African people that fails to be recognized by civilized Europeans. Darkness enables not to see others. Thus, failing to see other human being means failing to understand another's individuality and existence. It also has rejected and sympathetic connection with others. Fog in the novella symbolizes an unknown terror. It's the manifestation of fears. It is the force of nature suggesting that man is powerless. It is not darkness but it obscures both sights from within and out. Conrad uses this natural element with highest magnitude. Marlow describes that being trapped in that fog, nature itself was conspiring against their journey. It seems that Marlow has to wait until it is done with accepting the fact that human being is the subject to nature's whim. As Marlow says (nature)- '....is waiting patiently for the passing away of this fantastic invasion.'

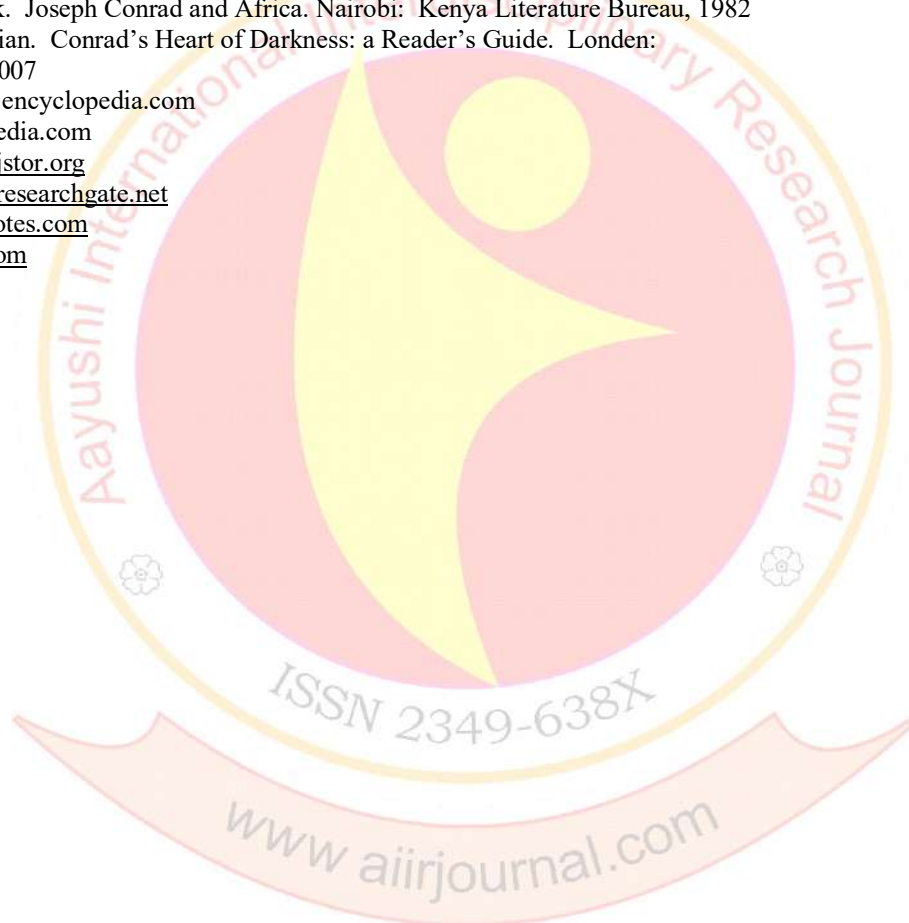
Nature has also wild impact on characters. The personality of Kurtz has a wild nature- "He could be terrible, you can't judge Mr Kurtz as you would an ordinary man".- Kurtz dies on the boat with the last words- 'The horror! The horror!'. Kurtz was ultimately changed by the jungle. It is very ironical that a person that a person who wants to bring civilization but by the end of the novel wants to exterminate all its evils. This is the influence of the environment in which he has been for a long time. To stay in such wild places means to be a mean to wild person. Wildness is not seen externally but it reaches to the deep of psyche and change oneself internally.

Conclusion:

Heart of Darkness reflects natural world with its mystery. Mystery is the characteristic feature of nature. It is this nature and its elements that are deeply exposed in the Heart of Darkness.

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Natural Resources Reflected in Amitav Ghosh's 'The Hungry Tide'**Dr. C.R. Chougule,**Assit. Professor & Head, Dept. of English,
Gopal krishnaGokhale College, Kolhapur. (M.S.)**Abstract:**

We see that literature and nature have been inseparable since time immemorial. Many writers and poets have combined nature and literature in their writings. Nature is a very beautiful gift from God. Nature consists of air, water, trees etc. Natural, Physical or material world or universe has a broader meaning. From the creative inventions of the writer's, he has very lovingly presented the love of nature, the attraction of nature. The different fraternal states in nature are neatly written by writers & poets along with the study of individual life. This research paper explores how nature reflected in Amitav Ghosh's 'The Hungry Tide'

Keywords : beautiful of nature, concern for ecology, fraternal states, writer's attention, approach to nature.

Introduction:

Amitav Ghosh was born in Calcutta and grew up in India, Bangladesh and Sri Lanka. He studied in Delhi, Oxford and Alexandria and is the author of 'The Circle of Reason, The Shadow Lines, In An Antique Land, Dancing in Cambodia. The Calcutta Chromosome, The Glass Palace, The Hungry Tide, and The Ibis Trilogy, consisting of Sea of Poppies, River of Smoke and Flood of Fire. His most recent book, 'The Great Derangement; Climate Change and the Unthinkable, a work of non-fiction, appeared in 2016. The novel, 'The Hungry Tide' is an adventure and love for nature. Here the main perspective of the study is, how the people behave and react in relation to nature and aspects of nature? Indian villages notably at the fringes of the jungles were highly dependent on the resources provided by the forest for their livelihood. It is rightly quoted by Amitav Ghosh, "Bon Bibi granted me enough honey to fill the two bottles." (P.24) This novel cleared up the eyes of two educated men who go for the journey to the tide country. A businessman, Kanai Dutt visited his aunt Nilima for the package of uncle's last days that turn round Kusum, her son Fokir, who became victims by removing from the island of Morichjhapi. The protagonist, Piya visited for the purpose of finding a rare species of Dolphin, as she works as a Marine Biologist. Piya decides to seek help from Kanai, who has already invited her to Lucibari. Nilima also offers to help Piya by allotting the guesthouse for Piya's stay during her time of research. In the meeting of Nirmal, Kusum and Nilima, they got whole information about refuges of Morichjhapi & various causes of great distress. Nilima says, "Making us build it was probably the most important thing (Nirmal) did in his whole life. You can see the proof of that today. But if you'd told him that, he'd have laughed. He'd have said, 'It's just social service – not revolution.'" (P.320) Human have both a symbiotic relationship with nature. Piya experiences the man's relationship with the nature as well as inescapable dangers. She is able to observe the freshwater dolphins. Piya and Kanai make deliberate division to conserve people to and environment in Sunderbans with commitment by relocating themselves to the place. Fokir, a forest guide always have a contact with hunters and woodcutters. He also guides Piya and Kanai through the waterways. Fokir and Moyna know the dangers of the forest. As Ghosh quotes: "Mosquitoes were the least of the creatures this net was intended to exclude; its absence; would have been an invitation for snakes and scorpions. (P.73) Kanai comes to an understanding of how unsure the tide is in Sunderbans after he interacts with Fokir's wife Moyna. Meeting held in the hospital gave him a perspective, as thorough out the meeting. Moyna was keen about sending their son Tutul to school. She has deep objection towards her son to attend school in the near future. But for these women the imagining of early widowhood was not a wasted effort : the hazards of life in the tide country were so great; so many perished in their youth, men especially, that almost without exception the fate that they had prepared themselves for did indeed befall them. The Hungry Tide always talks about the dispute among man and nature with regards to the Sunderbans in India and Bangladesh. Kanai decides to leave along with Piya because the place where they visit is very dangerous. Every week tiger kills the people. They move towards the Garjontola pool in order to begin the research. Nature acts as a driving force in between the characters to hinder their communication. Though Fokir kills animals for living, he plays important role in conserving them. Nature's exhaustion is instructed through the character of Kanai. Nilima being the strongest character proves to reinforce that human beings are part of nature and she resources to insist on saving animals and explains the danger of it. When the action of the novel begins, Nirmal has passed away and passed on a notebook of his final reflections to his nephew, Kanai. He search for identity consists in his crossing the social, cultural borders. The massive storm brings Fokir's death and Piya takes the moral responsibility to look after his wife and child. In this novel, We came across the conflict in between man and nature primarily when people

with power take it upon themselves to preserve as well as protect the natural world from over fishing or woodcutting etc. Although the novel acknowledges that wildlife conservation is an admirable goal, the novel is ultimately cautions of how those conservation efforts play out. The novel asserts that the human toll of wildlife conservation effort must be taken into consideration first. So that this effort must help both the natural environment and the people. When Piya and Kanai discuss their experience of encountering a village mob torturing and burning a captured tiger that killed two people, Kanai encourages Piya to consider both the reasons why the villagers would want to do so, as well as the ways in which even Seattle-based Piya is complicit in creating the environment where torturing a tiger can ever happen. Piya says, "Kanai.... This is not a joke. I know that in this day and age, in the twenty-first century, it's difficult for you to imagine yourself being attacked by a tiger. The trouble is that over here it's not in the ordinary. It happens several times each week." (P.198) Ghosh comments on the Sunderbans which touch as well on the resilience of languages that criss-cross contemporary boundaries: "the mudbanks of the tide country are shaped not only by rivers of silt, but also by rivers of language; Bengali, English, Arabic, Hindi, Arakanese and who knows what else? Flowing into each other they create a proliferation of small worlds that hang suspended in the flow... a meeting not just of many rivers, but a circular round about people can use to pass in many directions – from country to country and even between faiths and religions. (P.247) Police also announced that the island is a nature reserve funded by the people all over the world. Piya's plan suggests that environmental conservation can only be truly positive and useful when it seeks to conserve not just the natural world and the animals that live there but also protect that people who share all the environment.

Conclusion:

The 'Hungry Tide' deals with mostly the changing in place and environmental changing. People must consider the world of non-living as well as their surroundings. There is a need to preserve the natural world. It is rightly given in the novel as the close relationship between man and nature. There is no life without nature because nature provides everything to the human beings. So this novel is about mankind's relationship with nature and the struggle between human and animal who are the part of nature.

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Management Of Natural Resources In India: A Study**Dr. Mukund Namdev Haladkar,**

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Abstract

Natural resources and environmental concerns have been widespread not only in India, but also in other countries of the world, but in most cases, India has been the major country that has experienced the reduction of natural resources and environmental degradation. Natural resources such as fossil fuels (oil, coal and natural gas), forests, water etc. are degrading at a significantly high rate as a result of misuse. In order to conserve the natural resources, there is a need to manage them in a systematic order. If you want our future generations to gain access to these resources, then taking care of our biodiversity should be the foremost priority.

Keywords: Widespread, Environmental, Generations, Biodiversity etc.

Introduction

They are actually stock of nature like soil, minerals, water, coal, forests and more. But because of the increasing population and technological development, our natural resources are awfully getting polluted and depleted.

Natural Resources Management (NRM) deals with managing the way where people and natural landscape interact. It brings together water management, land use planning, biodiversity conservation and the future sustainability of industries such as mining, tourism, agriculture, forestry and fisheries. It also recognizes that people and their livelihoods rely on our productivity and health of our landscape and the stewards actions of the land play a major role in maintaining this productivity and health.

Concept Of Management Of Natural Resources

Natural resource management ties in with applied concepts such as maximum sustainable yield and optimum utilization. Every natural resource has its optimum utilization, or acceptable levels of use, which are established scientifically and according to which management authorities regulate its exploitation. Such a concept presupposes scientific knowledge as a basis for management and also a regulatory authority (whether national or international) capable of enforcing the exploitation of the resources in accord with such scientific knowledge. The maximum sustainable yield is a regulatory concept that translates precepts of population dynamics into a management tool.

Management Of Natural Resources

The resources of the earth are limited. Because of the rapid increase in human population, the demand for resources is increasing day-by-day. The proper management can ensure that the natural resources are used judiciously, so that they fulfill the needs of present generation and also last for the generations to come. The proper management of natural resources takes into consideration long-term perspective and prevents their exploitation for short-term gains. And also ensure equitable distribution of natural resources so that all the people can benefit from the development of these resources, the damage caused to the environment during the 'extraction' or 'use' of the natural resources and find ways and means to minimize this damage. Everything that we use today – food, clothes, house, vehicles, fuel, notebooks, furniture, cooking gas, utensils, toys, roads, etc. are obtained from resources on the earth. A significant portion of the energy which we use today is obtained from the non-renewable sources. This implies that once they are used up, they cannot be replenished. The most important source of non-renewable energy used extensively is the fossil fuels which have taken millions of years to be formed. Managing the resources would not only ensure its rational use but also put a limit to the degradation it is causing to the environment.

Natural Resource Management (NRM) refers to the sustainable utilization of major natural resources, such as land, water, air, minerals, forests, fisheries, and wild flora and fauna. Together, these resources provide the ecosystem services that provide better quality to human life. Natural resources provide fundamental life support, in the form of both consumptive and public-good services. Ecological processes maintain soil productivity, nutrient recycling, the cleansing of air and water, and climatic cycles.

Biological diversity (biodiversity) is the occurrence of different types of ecosystems, different species of organisms with the whole range of their variants and genes adapted to different climates, and environments along with their interactions and processes. Biodiversity encompasses the variety of all life on earth. India is one of the 17 mega-biodiversity countries of the world. Although India has only 2.5% of land area, it has a large pool and diverse pool of plants and microbes which accounts for 7.8% of recorded species in the world. Genetic diversity describes the variation in the number and type of genes as well as chromosomes present in

different species. The magnitude of variation in genes of a species increases with increase in size and environmental parameters of the habitat. Species diversity describes the variety in the number and richness of the species within a region. Ecosystem diversity describes the assemblage and interaction of species living together and the physical environment in a given area. It is referred to as landscape diversity because it includes placement and size of various ecosystems.

Depletion Of Natural Resources In India

There has been a tremendous increase in India's population and it has now crossed 103 crores (1.03 billion). An increase in population will decrease all types of natural resources and result in environmental pollution. Ultimately, there will be short supply, as well as deterioration in quality of natural resources. This is because increase in population will increase the demand of natural resources and environment. At present, the world population is increasing by two per cent every year. The industrialized countries have annual growth rate of 0.5 to 1 per cent and on the other hand the developing countries have the growth rate of 2 to 3 per cent. The per capita use of energy and mineral resources shows a difference between the developing and developed countries of the world. The developed countries consume less but their resources are enough. The population and per capita consumption have a considerable impact on the environment. The world cannot meet the continuously increasing demand for natural resources.

We are deteriorating our environment due to increasing population and industrial revolution. We are polluting atmosphere, lakes, streams, rivers by sewage, industrial wastes, heat, radioactive materials, detergents, fertilizers and pesticides. Besides these, we are releasing a number of toxic materials into our surroundings. The uncontrolled and indiscriminate use of pesticides has disturbed the entire food chains by which animals including man are affected. It has been estimated that average individual has about 7 parts per million (ppm) DDT in his body which affects in long-term. Recent researches have revealed that this proportion of DDT in our body has deleterious effects on heart and liver and higher concentration may cause several other diseases including cancer. Many gases, e.g., carbon monoxide, sulphur dioxide, carbon dioxide and nitrous oxide are known to cause respiratory troubles. The unplanned and uncontrolled industrial growth may adversely affect or destroy the health of the society. Due to tremendous increase of population, most of the natural resources are being rapidly consumed. This high rate of consumption has disturbed our ecosystems. But, on the other hand, many of the natural resources are essential basic human needs. Many industries require raw materials which are essential for the advancement of the country. However, their rapid consumption will affect adversely the quality of our environment either by unwise use of natural resources or by increasing pollution. Due to excessive consumption of minerals of the soil by cropping or soil erosion or other natural events, fertility of soil is lost and the land deteriorates gradually. Sometimes drought also results in deterioration of land and many nutrients of the top soil are destroyed and soil fertility is lost. As a result of cropping, the cycling of soil mineral nutrients is greatly reduced. Erosion has also depleted soil fertility because most of the minerals remain in the upper part of the soil and they are easily removed by wind or washed away by water. Sometimes water erosion takes its toll of fertile soils. Man has also deteriorated agricultural land and ultimately caused the loss of national economy. It is commonly seen that man cannot degrade one part of his environment without simultaneously affecting other parts. For proper economic development lands for cropping, forest, recreation, transportation and wildlife are needed but their availability is reducing day by day. Therefore, integrated policy of resource management should be practiced; otherwise unexpected future shortage might upset the national economy.

Suggestions For Management Of Resources

Water is one of the abundant natural resources which cover around 70.9 percent of our planet. But, only 3 percent of water is tagged as fresh water, and less than 1 percent is suitable for direct human use. Proper water management is achieved through water treatment on all levels, be it large or small. The treatment of water gathered from domestic and industrial regions is necessary in order to fulfill the daily demands of the population. Water wasting is one major concern, which needs to be corrected by making people aware of a wider level.

The implementation of proper laws and regulations for stopping the wasting of resources is a crucial part of resource management. With the presence of these laws, people can grow enlightened on the requirement to conserve the resources so that our future generations can enjoy their use. Imposing heavy penalties on candidates who do not abide these laws and regulations can surely be a good solution.

Reusing and recycling are seen as sensible alternatives to disposing of several items. With an aim for better management and proficient utilization of resources, less use of goods is needed. Careless dumping of substances like plastics, glassware, oil, ceramic, porcelain as well as metals has harmful effects on both soil and water. These items are inorganic, which means that bacteria cannot decompose them. Hence, apart from disposing, reusing and recycling can be counted as better options.

Conclusion

Natural resource is often esteemed and understood most excellent at the local level, and local knowledge is essential for useful solutions. Communities and societies need to be active supporters of the conversion to sustainable development, alleging their rights and also fulfilling their responsibilities in terms of sustainable management of natural resources. Rural development schemes provide a strong opportunity to cumulative small inventiveness in several locations to improve natural capital on a comprehensive scale. These self-governing institutions and their capacities will be answers to greater effectiveness of regulatory and market instruments in ecosystem rejuvenation and perfection of natural capital

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Educational Planning In India: To Develop Young Generation in Planned Way

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Abstract:

The present paper attempts to know about Educational Planning in India, entitled "Educational Planning in India: To Develop Young Generation in Planned Way". Educational planning defined as a systematic design of action for realization of educational aims and objectives for individual and social as whole, through maximum utilization of available resources. In practical view, educational planning may be defined as a process utilized by an administrator while performing the role of a leader, decision-maker and so on.

Keyword: Educational planning, Maximum Utilization, Human Resource, Educational system, Etc.,

Introduction:

Planning is most essential for every field of development, like as in the field of education entitled as "Educational Planning" which is a most essential factor in the present society. To solve the complexities of the present society, scientifically advanced and technologically developed society have given special preference to the planning in education. Planned Education System leads to the maximum realization of the educational aims and objectives, both individual and social. The present paper attempts to know about Educational Planning in India, entitled "Educational Planning in India: To Develop Young Generation in Planned Way".

India is a democratic, dynamic and developing country with large number of Human Resource, to convert, Human Population in to Human Resource for the nation, Education is Essential and at the end, without systematic process of anything, difficult to achieve maximum outcome, So, Indian Government prefer planning in very field like this Education System also have its own planning to make Learners in to Resource person is known as Educational Planning.

Meaning:

Education plays important role in Development of every filed and Planning is essential for development of every nation, according to this changes would have been brought in social, political, economic, cultural and educational sphere in a systematic and orderly. In Common parlance is planning means to think before acting and to act according to facts, not, conjectures or speculation.

Objectives of the Study

Following are the major objectives of the present research work

1. To analysis the performance of Educational Planning in India.
2. To evaluate the role of Educational Planning in Indian Education System.

Methodology of the Study:

This study is based on secondary data. Secondary data has been collected from various research papers, magazines, articles, various journals, and is also based on the published, unpublished and electronic referred sources.

Definitions of Educational Planning:

"Planning is to design some action to be done before hand."

—Oxford English Dictionary

"Planning selects among alternatives explores routes before travel begins and identifies possible or probable outcomes or action before the executive and his organisation committed to any."

—Hugman and Schwartz

"Planning is regarded as the process of setting out in advance a pattern of action to bring about overall national policies by the closest possible articulation of means and ends."

—Philips

According to above defined, planning is the process of preparing a set of decisions for action in the future and directed towards realizing some goals by the best possible means. Hence the essence of planning is the assessment of as many operational alternatives as possible and then selecting the best for launching action.

In another context planning is considered as a process of thinking which refers to many possible alternatives of action which are likely to achieve the goals of a programme, institution or organization. It has to choose or decide the best alternative of future action in relation to both the goals and available resources.

The Importance Educational Planning:

The importance of providing healthy recreation cannot be too strongly stressed. In organizing recreational programmes special attention should be given to the revival and proper utilization of our cultural agencies.

Occasions provided by fairs and festivals should be utilized for purposes of education, recreation and community organization. Literature should be prepared explaining the significance of the various fairs and festivals and their relevance today as well as how their full educational potentialities can be developed and made use of.

The State should encourage writers to produce plays containing constructive ideas for such occasions. Film shows by mobile vans may also be provided to the extent that resources permit. It should be remembered, however, that unless integrated with the programme of development going on in an area their use is strictly limited.

Certain films which will be relevant to conditions all over India, such as those dealing with common diseases and those calculated to inculcate right individual and collective habits, should be prepared by the Central Government and lent out to the various States. Well-regulated radio broadcasts should also be increasingly used for recreation and instruction.

Significance of Educational Planning:

1. To Reach Grand Success of an Educational Institution or Organisation.
2. Planning in every field is a time-saving, an effort-saving and a money-saving activity as educational planning saves time, effort and money and etc.,
3. Educational planning is a Effective way to solve educational problems by avoiding the trial and error method of doing things.
4. Educational planning is essential for the best utilization of available resources.
5. Educational planning checks wastage and failure and contributes to the smoothness, ease and efficiency of the administrative process in the field of education in India.
6. Through proper planning in education, can be the best means by which society will preserve and develop its future value system, way of life of an individual, knowledge, skills and applications, and culture of the country.
7. Through proper educational planning, the means and ends of the society can be properly interacted through educational system. It implies that the educational system utilizes a large proportion of the country's educated talents and a major part of public expenditure.
8. Educational planning is highly essential for preparing a blueprint or plan of action for every programme of an educational institution or organization.
9. Planning in education is necessary for making one's educational journey goal-oriented and purposeful.
10. It is essential to maintain, sustain and enhance the thinking process of an individual, institution or organization.
11. Planning in education is necessary to highlight the universal aims of education required for every nation for its development in every respect.
12. To bring total development of a nation in time, in which educational development is one among its various aspects.

The Scope of Work of the Educational Plan Division Covers:

- Different stages of education such as Pre-primary, formal and non-formal Education, Secondary, Senior Secondary, University and Technical Education;
- Special areas such as that of girls' education, Education for the children of scheduled castes, scheduled tribes and other backward classes;
- Adult Education and Education in the backward areas.
- The Education Division performs the following functions, within the areas of its concern:
- Formation of long-term, medium-term and annual plans for the Central and the State/Union Territories levels, defining the phases in which they should be implemented, assigning their inter-Se priorities and resource allocation;

- Coordination of the education plans of the States/Union Territories and the central agencies including the University Grants Commission and the National Council of Education Research and Training as well as of the national-educational plan with the development plans in other sectors, assessing and indicating adjustments needed in the plan policies, programmes and priorities so as to achieve national goals and objectives;
- In support of the above functions, maintain educational statistics and undertake/promote/support research studies and surveys covering.
- Collaborate with and/or advise/assist the concerned Government Departments, international organizations and other agencies like NUEPA, NCERT, UGC in matters such as; (a) Foreign technical assistance for education development; (b) Training of educational planning functionaries; (c) Administrative reforms, innovations and experiments bearing upon economy efficiency and effectiveness of educational services;
- Examine resource mobilization and low cost strategies/alternatives and make recommendations in this regard;
- Review of Committees and Commissions, Central Advisory Boards and Annual/Five Year Plan;
- The technical staff of the Division is also working on the Educational Statistics received from the MHRD, and the Department of Statistics and other agencies.

Types of Educational Planning:

1. Administrative Planning:

Administrative planning refers to planning in administrative perspective. In the field of education, administrative planning relates to distribution of responsibilities and powers for different levels of education. In administrative educational planning, the administrative responsibilities and powers are phase-wise planned in relation to the level of different educational administrators.

2. Academic or Curricular Planning:

This type of educational planning refers to planning for smooth academic transaction of the syllabus for any course at any level of education. It encompasses planning on education in relation to needs and demands of the individual and society.

Formulation of educational goals and formation of curriculum committee for development of curriculum and selection of appropriate strategies and methods of teaching, planning of content units, planning for evaluation, planning for review of the curriculum, planning for use of library, planning for special provision for the gifted and remedial instruction for slow learners etc.

3. Co-curricular Planning:

This planning of education is necessary for bringing total development of a student in one point and total development of an educational institution or organization in another point. This planning includes planning for student welfare services, planning for sports and games, planning for social activities and programmes, planning for cultural activities and programmes, planning for hobbies etc.

4. Instructional Planning:

This sort of planning in education is macro-level in nature as it deals with planning in classroom situation in relation to a particular topic of a concerned subject. This planning refers to emotional and organisational climate of the classroom.

It includes planning for specification of instructional objectives, selection and organization of learning activities, selection of appropriate means for presentation of learning experiences, monitoring of the learning or instructional progress, selection of suitable evaluation techniques for learning outcomes etc.

5. Institutional Planning:

This type of educational planning gives a practical shape to the meaning of educational planning. In this context educational planning refers to the needs and requirements of every institution to be achieved through creation and maintenance of a planning atmosphere in the institution.

Although institutional planning includes all types of planning cited above by focusing on curricular and co-curricular planning, but there is the need of having a discussion on institutional planning. This situation occurs because of two basic purposes. Such as-to give a practical meaning, shape and form to educational planning and to start educational planning at the grass-root level.

By "Institutional Planning" we mean the plans initiated, formulated and implemented by individual educational institutions. Certifying it as a planning at grass-root levels it includes all types of planning in its jurisdiction.

Conclusion:

Therefore, Educational planning defined as activity that allows the public authorities to orient educational development and identify priority interventions and a systematic design of action for realization of educational aims and objectives for individual and social as whole, through maximum utilization of available resources by developing infrastructures and applying strategic and addressing a variety of key issues of the educational system, such as quality, inequality, and factors influencing demand for schooling.

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Conservancy of Natural Resources for Sustainable Development in Ancient Era: a Literary Lore

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Abstract

Sustainable living i.e. living in harmony with Nature has always been an integral part of India's long-lasting tradition and culture which is reflected in the edification of the Mahaupanishad "Vasudhaiva Kutumbakam" i.e. "The entire earth is one family." We have rich literature inherited by our ancestors. The ancient Indian texts are very rich in explaining the aspects of natural resource management. Our ancestors knew that causing destruction to it is our own destruction. The Vedas, the Ramayana, the Mahabharata and the Puranas reveal the importance of Nature and remind man about his duties and responsibilities to preserve natural resources for sustainable and ecological living on the earth. In the post-Vedic age in Manusmriti we can get the reflection of ecological awareness. The environmental issues described in the Arthashastra are very much relevant in our global world today. We can follow the simple policies of our forefathers who probably had much better understanding of the environment than we currently have. Let us get rid of the greed, ignorance and disregard in exploiting the natural resources and preserve the natural or ecological balance for our future generations.

Keywords: Ancient texts, conservancy, nature, resources, development, global.

With the development of civilization, environment has become affected to a considerable extent. Development as expected has increased consumerism in a small section of the society, but it has degraded and depleted natural resources simultaneously. This is the need of the hour to secure the right to save food, water, air and all other natural ingredients in particular and environment in general. To get rid of the emerging environmental and ecological problems of modern civilized societies, there is an increasing trend of consciousness growing among us. There are many policies developing in many countries for environmental protection, but they are all directly or indirectly dependent on the traditional knowledge developed in the ancient era which teaches us the concept of the value of a simple life. We can follow the simple policies of our forefathers who probably had much better understanding of the environment than we currently have. Since time immemorial various Indian scriptures proclaim that God sleeps in the rocks, dreams in the plants and stirs toward wakefulness in the animals. The *Vedic Hymn to the Earth*, the *Prithvisukta* in the *Atharvaveda*, where the beauty and profusion of mother Earth, personified as the Goddess *Bhumi* or *Prithivi*, were vividly portrayed is unquestionably the oldest and the most evocative environmental invocation. The *Vedic* seer solemnly declares the enduring filial allegiance of humankind to Mother Earth: '*Mata Bhumiḥ putroham prithivyā*' (*Atharva Veda*, 12-1-12); i.e. 'Earth is my mother, I am her son.' Sustainable living i.e. living in harmony with Nature has always been an integral part of India's long-lasting tradition and culture which is reflected in the famous edification of the *Mahaupanishad* '*Vasudhaiva Kutumbakam*'^(6,72) i.e. 'The entire earth is one family.'

A sustainable society is the one that functions and lives in harmony with the environment. In such a society deterioration will not happen in the quality of life. Religious scriptures that give much emphasis on right and not on obligations can make change in the attitude of the modern world. We have rich literature inherited by our ancestors. The ancient Indian texts are very rich in explaining the aspects of environment and environmental ethics, natural resource management including management of forests and even pollution. The traditional conservation ethos are also reflected in a variety of practices that support biodiversity conservation in natural ecosystems and help reduce the harvest pressure. Sustainability was ingrained in the thought processes of early Indians as evident from the teachings of the *Vedas*, the most precious Indian heritage. According to these *Books of Knowledge* the ultimate goal of man is his complete evolution so that he would resemble the divinity in him. This gives greater scope to understand environment from the *Vedic* perspective. The *Vedas* are the primary sources of not only moral enhancement for the economic man but also paths for misguided ecology to achieve a true sustainability. It is interesting to note that what western

environmentalists and philosophers proclaim today, was well understood and expounded by the *Vedic* rishis several centuries before. The *Vedas* described the diversified range of flora and fauna and urge the human beings to protect, preserve, nurture and nourish the environment and natural world for the benefit of the humans and other living organisms. For the protection and development of forests, concept of afforestation was developed. Plants were compared with mother, friends and deities. The voice of the trees was compared with the sounds of drums, lutes and flutes.

All four major *Vedas* recognise the importance of maintenance of the seasons' cycles that are likely to get altered due to the climate change owing to inappropriate human actions. The *Vedic* prayer invokes divine intervention to bless and protect the environment. *Vedic* literature has viable suggestions to preserve water resources. The value-oriented lessons for environment management from the *Vedic* perspective enjoin to enjoy the affection of Nature, but not demand it as a right. The *Rigveda* makes a clear reference to the presence of a protective layer which we know now to be the ozone layer that filters the harmful rays of the sun and protects the earth and praises the radiation that enters the atmosphere that is responsible for the health of the environment. In a hymn of the *Rigveda* the seer prays to the Ashvins for their indulgence for protection against any excessive solar flares that also affect earth's temperature. We find the reference of the negative ions which carry oxygen atoms that are good for environment and human health. (*Rigveda* 8.6.28 & *Yajurveda* 26.15) For meditation and prayers natural surroundings in vicinity of mountains, near confluence of rivers and waterfalls were recognized as more desirable by the *Vedas* to promote mental wellbeing. Now modern scientific researchers are not only validating this *Vedic* wisdom, but have also found developed technologies to create such environments to enhance cheerful temperaments in homes, earlier healing in hospitals and less mental fatigue at workplaces.

In the *Rigveda*, one *Aranyanisukta* is addressed to the deity of forest and *Oshadhisukta* cautioned that they should not be destroyed. Animals and birds accepted as part of Nature and environment should be safe, protected and healthy. The *Vedas* also declare that the internal body is also made of the *panchamahabhutas*, the cosmic elements which create, nurture and sustain all forms of life, and after death or decay they absorb what was created earlier and play an important role in preserving and sustaining the environment. This bond between our senses and the elements is the foundation of our human relationship with the natural world. The oldest reference of hydrological cycle is found in the *Chandogyaupanishad*. In *Ishopanishad* the concepts of sustainable development and conservation of natural world – moving and nonmoving and advises to use its resources with restraint. The later *Vedas*, especially the *Ayurveda* section, demonstrate profound knowledge of biodiversity. *Surapala's Vrikshayurveda* executed knowledge of soil, seed, manure, irrigation and care for health and proper growth of plants. There are many stories in the *Vedic* literature which showed the interactions between worldly persons and sages in their *ashramas*. From this profoundly natural setting emerged the *Vedic* teachings of the *Upanishads* such as the *Brihadaranyaka* which means the teaching which began in the forests.

Valmiki's poetic and ideal description of Nature, seasons, and natural phenomena in the *Ramayana* are par excellence. From the very first shloka the *Ramayana* gives message to preserve and protect Nature for the wellbeing of all beings.:

*maa nishada pratistham tvamagamahsasvati samaa
yat kraunchamithunaadekam avadhi kaamamohitam ||*

Valmiki sees divinity in Nature. Reading the *Ramayana* from socio-ecological perspective can satisfy the purpose of reminding man about his duties and responsibilities to preserve natural resources for sustainable and ecological living on the earth. The role-play of various animals in the *Ramayana* shows the compassion of *Maryada-purushottama* Rama who has made them a part of his ideal life.

The *Mahabharata* hints that the basic elements of Nature constitute the cosmic being -- the mountains his bones, the earth his flesh, the sea his blood, the sky his abdomen, the air his breath and agni (fire) his energy. Poetry of the whole world has given maximum place to Nature as nothing is beyond that. Our ancestors knew that causing destruction to it is our own destruction. This is quite evident in the *Mahabharata* that reveals the importance of trees which has been explicitly become the theme of several *Puranas*. The *Puranic* literature contains messages related to the conservation of natural resources. According to the *Agnipurana* the plantation

of trees and creations of gardens leadsto eradication of sin. The *Varahpurana* stresses the need of planting trees. From the *Matsyapurana* we come to know about *Vanmahotsava* (Tree Plantation Ceremony) which is over 1500 years old in India. The *Vishnupurana* asserts that God Keshava is pleased with a person who does not harm or destroy other creatures or animals. In *Narasimhapurana* killing of birds for eating was prohibited. The *Mahabharata* has given birth to *Ayurveda* the local heritage with the global importance. Apart from documenting the medical perspectives, the *Charaka-Samhita* and *Susruta-Samhita*, the significant ancient Indian documents in medical science dealt with the ecological and environmental perspectives as well. In the *Mahabharata* it is seen that in spite of being born to a royal family Lord Krishna and Lord Balarama chose themselves to be raised in a low-caste cow-herder family to prevent the then practice of slaughtering of cows and cow sacrifice. In the *Srimadbhagavadgita*, Lord Krishna compares the world to a single banyan tree with unlimited branches in which all the species of animals, humans and demigods wander, which reflects the concept of community ecology. In the *Srimadbhagavadgita* Lord Krishna proclaims that the self-seated in the heart of all creatures as He is the beginning, the middle and the very end of all beings^(20.10) and opines that all beings should be treated alike as he accepts a leaf, flower, fruit or water or whatever is offered with love and devotion.:

*Patram Pushpam phalam toyam, yo mey bhaktya prayachchatiTadaham bhakt yupahrutam asnaami
prayataatmanaha* |^(9.26)

In the dicta for prevention of pollution in *Manusmriti*, the world's first ethical compendium on human jurisprudence, presented by *Maharshi Manu* and written in the *post-Vedic* age we can get the reflection of ecological awareness. Importance was given for conserving all living forms, *Chara* (movable living world) and *Achara* (immovable plant kingdom) and domesticating animals, biodiversity protection, and vegetarian food habit. For saving the flora and fauna from injury, *Manusmriti* describes various punishments for the offenders. Again the environmental issues described in the *Arthashastra* are very much relevant in our global world today. It demonstrates Kautilya's perception and concern about the living creatures- domestic and wild animals, plants and vegetations. Kautilya recommended practices for the conservation of natural resources, especially living resources and maintenance of public sanitation and preservation of environment, forest and wildlife. He suggested the need to develop *abhayaranya* or *abhayavana*, forest and animal sanctuaries, where trees and animals would both reside free from the fear of slaughter as he was aware that the future productivity of natural resources is linked to their appropriate conservation. He considered water as extremely precious - collective commodity not a private one and fines were prescribed for a number of acts that adversely affected water bodies for obstructing or diverting a water course, for damaging embankments *etc.*

Heavy penalties, including capital punishment for tree fellers and animal poachers were prescribed to ensure the environmental balance. Even the administration and the rulers were directed to preserve and promote environmental welfare. Kautilya also prescribed several posts of officials who used to protect wildlife, ensured proper rations for pet animals and proper care of domestic animals, regulated grazing, prevented poaching of wild animals *etc.* Individuals were supposed to follow norms about their dealing with the domestic animals. Strikingly the conference on human environment in Stockholm in 1972 mentioned about some principles which were very much similar to the edicts of the *Arthashastra*. Even in India the forms and contents of the *Arthashastra* seem similar with some of the environmental laws like 'The Wildlife (Protection) Act (No. 53) 1972', 'The Water (Prevention and Control of Pollution) Act (No. 06) 1974' and 'The Forest (Conservation) Act (No. 69) 1980'. Many other ancient Indian texts highlighted the importance of conservancy of natural resources for the sustainable development of the society through the ages. *Kalidasa* romanticized the forest life to make it more familiar in the *Abhigyanashakuntalam* where he demonstrated the closeness of human being like Shakuntala to the forest through ashrama life.

Thus, there is no iota of doubt that our ancestors have long been among the most outspoken defenders of Nature's balance and they were very much aware about the ecology and sustainability. The golden principles of sustainability adopted at that time can be helpful to a greater extent in solving specific environmental problems in maintaining a balanced environmental harmony nowadays. Dr. Abdul Kalam rightly suggests, "Ancient India was a knowledge society that contributed a great deal to civilization. We need to recover the

status and become a knowledge power.” This is the high time to implement the ancient Indian policies on the conservancy of the natural resources in modern societies, so that in near future we can get a more stable, clean, rich and healthy environment. There is a paramount need to incorporate ancient ethics and values available in traditional cultures in the teaching of environmental studies. Let us get rid of the greed, ignorance and disregard in exploiting the natural resources and preserve the ecological or rather natural balance for our future generations.

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Endemic Species Of Flowering Plants Of Peninsular India Occur In Satpuda Mountain Ranges Of Nandurbar And Dhule Districts, Maharashtra, India With Special Reference To Family Poaceae

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Abstract

Present paper deals with list of 21 endemic species of flowering plants of Poaceae of Peninsular India occur in Satpuda mountain ranges of Nandurbar and Dhule districts

Keywords: Endemic Species, Satpuda Mountain ranges, Poaceae

Introduction

The family Poaceae is most important family of flowering plants for survival of mankind. This family having major economic and ecological importance. The diversity of grasses playing important role in lives of people and animals. It is difficult to calculate exact number of species of grasses, fair estimate is about 10000 to 11000 species belonging to about 700 genera for the world (Clayton & Renvoize, 1989., Watson & Dallwitz, 1992). In India, It is estimated that there are more than 1200 species belonging to 268 genera (Karthikeyan et. al.1989., Moulik, 1997). The fifth most species-rich family of flowering plants coming after the Asteraceae (23 000 spp.), Orchidaceae (28 000 spp.), Fabaceae (33 000 spp.), and Rubiaceae (13500 spp.) (Hodkinson and Parnell, 2007a,b; The Plant List, 2013).

Grasses are uniformly distributed in all continents and in all climatic zones. Mountainous region having high percentage of grasses and it may be annuals, perennial and range from herbs of few centimetres to arborescent bamboos measuring a height of 25 meter or more. Grasses play a major role in soil binders, moisture conserves, paper making, ornamental purposes, matting, making ropes and stuffing for pillows etc. Recently, they have become important sources of raw material for the biomass and bio energy industry (Hodkinson et al.,2015., Jones et al.,2015).

Satpuda mountain ranges in nandurbar and Dhule districts have number of natural sites with great biological diversity and productivity (Thomas et.al.2004). The therophytes are most dominant group and phanerophytes are the next dominant life form (Garud, et.al.1999, Garud and Dinu, 2019, 2020). The forest of this region belongs to tropical dry deciduous type (Champion and Set, 1968) and climate is sufficiently humid to support the luxurious growth of the plants. The family Poaceae comprising 165 species belongs to 64 genera in the study area and it occupies 2nd position in Toranmal (Garud, 1999), Gujarat state (Shah1987) and 1st position in Dhule district (Varghese, 1988) and Maharashtra (Mahabale, 1987). Most of the Satpura range was heavily forested and show vast diversity in flora and fauna with high degree of endemism, which had attracted many botanists in the past and it is considerably explored by many workers, such as (Graham, 1839), (Dalzell, 1850-52) (Gibson,1863), (Brandis,1874), (Lisboa,1886), (Woodrow,1897,1898a,1898b,1899,1901.), ((Talbot,1906), (Blatter and McCann,1935) and (Cook, 1901-1908,1958 reprinted). Based on the published literature (Yadav et al., 1997; Singh and Karthikeyan, 2000; IUCN, 2008) the following taxa are endemic, in the study area.

Table-1: Endemic Species in the study area

1	<i>Aristida</i>	<i>redacta</i>	Poaceae
2	<i>Aristida</i>	<i>stocksii</i>	Poaceae
3	<i>Arthraxon</i>	<i>lanceolatus</i>	Poaceae
4	<i>Arundinella</i>	<i>ciliata</i>	Poaceae
5	<i>Arundinella</i>	<i>metzii</i>	Poaceae
6	<i>Arundinella</i>	<i>nervosa</i>	Poaceae
7	<i>Arundinella</i>	<i>purpurea</i>	Poaceae
8	<i>Chloris</i>	<i>quinesetia</i>	Poaceae
9	<i>Chrysopogon</i>	<i>hackelii</i>	Poaceae
10	<i>Chrysopogon</i>	<i>orientalis</i>	Poaceae
11	<i>Dichanthium</i>	<i>armatum</i>	Poaceae

12	<i>Dichanthium</i>	<i>compressum</i>	Poaceae
13	<i>Dichanthium</i>	<i>concanensis</i>	Poaceae
14	<i>Dichanthium</i>	<i>filiculme</i>	Poaceae
15	<i>Dichanthium</i>	<i>huegelii</i>	Poaceae
16	<i>Dichanthium</i>	<i>tuberculatum</i>	Poaceae
17	<i>Eragrostiella</i>	<i>brachyphylla</i>	Poaceae
18	<i>Glyphochloa</i>	<i>forficulata</i>	Poaceae
19	<i>Heteropogon</i>	<i>polystachyos</i>	Poaceae
20	<i>Heteropogon</i>	<i>ritchiei</i>	Poaceae
21	<i>Isachne</i>	<i>borii</i>	Poaceae

Description of Taxa:

Each taxon with latest valid name is followed by vernacular name/s, habit, few morphological characters, flowering and fruiting period, distribution and world distribution status

***Aristida redacta* Stapf**

Annuals herbs, tufted culms, usually simple.

Fl. & Frts. : July-March.

Distri. : Common throughout the grasslands. Bekund, Devali,

World Distri. : Indian.

Ecological notes: Common everywhere

***Aristida stocksii* (Hook, f.) Domin**

Tufted herbs. Panicles lax. Spikelets yellowish or straw-coloured.

Fl. & Frts. : September-November.

Distri. : Common throughout the grasslands. Balghat, Wakaner,

World Distri. : Exotic.

Ecological notes: Common in grasses.

***Arthraxon lanceolatus* (Roxb.) Hochstvar. *meeboldii* (Stapf.) Welzen**

Annuals; culms 2-3 from the base, erect, often rooting at lower nodes.

Fl. & Frts. : September-October.

Distri. : Common throughout the grasslands. Jugadi, Amlibari,

World Distri. : Indian

Ecological notes: Common in grasses.

***Arundinella ciliata* (Roxb.) Nees ex Miq**

Erect herbs, culms, tufted

Fl. & Frts. : September-December.

Distri. : Common throughout the grasslands. Kumbhi, Kakadmal,

World Distri. : Indian.

Ecological notes: Frequent in grasses.

***Arundinella metzii* Hochst. ex. Miq. Tufted erect herbs, terete, striate.**

Fl. & Frts. : October-December.

Distri. : Common throughout the grasslands. Pimpri, Kathi,

World Distri. : Indian.

Ecological notes: Common in grasslands

***Arundinella nervosa* (Roxb.) Nees ex Hook. & Arn Annual herbs; culms.**

Fl. & Frts. : October.

Distri. : Very rare on moist places and water streams. Astambha,

World Distri. : Paleotropic.

Ecological notes: Very rare on moist places and water streams.

***Arundinella purpurea* Hochst. ex. Steud.**

Tufted herbs.

Fl. & Frts. : October.

Distri. : Occasional in grasses. Padli, Debramal,

World Distri. : Indian.

Chloris quinquesetica

Tufted perennials herbs, nodes swollen, rooting; stems zig-zag. Leaves, flat, apex acuminate, base truncate.

Spikes few to many, fascicled. Spikelets 4-5 -flowered.

Fl. & Frts. : August-January.
Distri. : Occasional in grasses. Jugadi, Pimplibari,
World Distri. : Indian.

Chrysopogon hackelii (Hook, f.) C. E. C

Herbs, perennial; culms, leafy, smooth, branching upward.

Fl. & Frts. : August-November.
Distri. : Rare species in clayey soil. Makadkund,.
World Distri. : Pantropic.
Ecological notes: Rare species in clayey soil.

Chrysopogon orientalis (Desv.) A. Camus

Perennials, slender, conspicuous; culms, internodes glabrous

Fl. & Frts. : September-October.
Distri. : Rare in open grasses. Toranmal,
World Distri. : Indian.
Ecological notes: First time reported by Kulkarni & Sharma (1984) from Maharashtra.

Dichanthium armatum (Hook, f.) Blatt. & McC

Herbs, culms erect, tufted, nodes bearded.

Fl. & Frts. : September-October.
Distri. : Occasional in grasses. Bardi, Hunda,
World Distri. : Indian.

Dichanthium compressum (Hook, f.) Jain & Deshpande

Perennials, stout; culms 90-120 cm tall, erect, branched.

Fl. & Frts. : October-November.
Distri. : Occasional in grasses. Bhusa, Khirvel,
World Distri. : Indian

Dichanthium concanensis (Hook, f.) Jain & Deshpande

Perennials; culms 50-60 cm high.

Fl. & Frts. : October.
Distri. : Occasional in grasses and open fields. Chinchkhedi, Khadki,
World Distri. : Indian

Dichanthium filiculme (Hook.f.) Jain & Deshpande Annuals; culms 30-60 cm tall, copiously geniculate, branched, nodes bearded..

Fl. & Frts. : July-March.
Distri. : Occasional in grasses. Chinchpani, Nimbari,
World Distri. : Indian.

Dichanthium huegelii (Hack.) Jain & Deshpande Kullus. Herbs, perennial, 1m high; culms slender, simple or branched, nodes densely bearded.

Fl. & Frts. : July-December.
Distri. : Common in grasses and open fields. Junglekhet, Bamani
World Distri. : Indian.

Dichanthium tuberculatum (Hack.) T. A. Cope Culms 1.2-1.5 m tall, stout, pale-yellow, paniculately branched.

Fl. & Frts. : October.
Distri. : Rare, in grassland. Nimbari,
World Distri. : Indian.

Eragrostiella brachyphylla (Stapf) Bor Tufted perennial herbs

Fl. & Frts. : August-March.
Distri. : Common in grasses and open areas. Bamani, Bokrul, Kumbhi,
World Distri. : Pantropic.

Glyphochloa forficulata (C. E. C. Fischer) W. D. Clayton Marel. Small herbs.

Fl. & Frts. : September-November.
Distri. : Common in open places, river and stream beds. Pimplibari, Amlibari,
World Distri. : India

Heteropogon polystachyos (Roxb.) Schull Small herbs.

Fl. & Frts. : July-November.
Distri. : Rare. Roshmal,

World Distri. : Pantropic.

Heteropogon ritchiei (Hook, f.) Blatt. & McC Small herbs.

Fl. & Frts. : September-December.

Distri. : Occasional in grasses and open areas. Bhusa, Dab,

World Distri. : Indian.

Isachne borii Hemadri Small erect herbs; roots fibrous.

Fl. & Frts. : August-December.

Distri. : Rare, in wet areas and in grasses. Kolsapani,

World Distri. : Indian.

Notes : Rare in moist places.

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Democracy and Sustainable Development: An Inevitable Marriage**Faiz Ayat Ansari**

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Sonalika Nigam2nd year B.A.LL.B. student, Parul Institute of Law, Faculty of Law, Parul University, Vadodara**Abstract**

“Democratic Environmentalism” seems to be a new destination for the people who are enthusiast enough to have a glimpse of a nation which is developed on the strong pillars of democracy and sound environment. Democracy is a hard-core concept, but it is easy to attain. In contrast, environmentalism is slightly difficult to attain; the former basically revolves around the political reforms, while the latter whirls around social, mental and of course, political reforms.

All human activities – ranging from taking bath in rivers and the junking of ritualistic holy entities into the water bodies to the tearing down of lakhs of trees every year, just in the name of ‘development’, have contributed diversely in degrading the environment. India is one of those idiosyncratic nations across the globe, who worships the environment and gives paramount importance to plants, trees, wildlife and other natural entities, resulting in the development of a long tradition of protecting and worshipping the nature¹. The ancient time was a boon for the environment, because the-then civilization was aware about the repercussions that will take place with the exploitation of the ecosystem. They knew how to efficiently utilize existing resources, but today’s so-called “modern” civilization believes itself to be the sovereign authority, who is ruling over the green planet. For this generation, technologies and innovations are the aids of the God Almighty, but how far are they used constructively? Why doesn’t a person get to know about a number of technical inventions related to the field of environmental upgradation? The researchers, through this research paper shall try to break the dichotomy between the concepts of law, constitution, environment and sustainable development by relating all these concepts to the fundamentals of a smooth and efficient democracy.

The Constitutional Roots of Environment Protection

No doubt about the certainty that India is a Welfare State and it strives hard to maintain its *status quo*. It must be noted here that democracy and environment are two out of many principles which assess the existence of a Welfare State. The framers of the Indian Constitution did not take expressly into account the need for formulating legal and regulating provisions in the Supreme Law of the Land itself, and unfortunately, it has led to widespread victimization of the environment. Actually, at the juncture of establishment of the Constituent Assembly in 1946, gaining of Independence in 1947, and the final adoption of the lengthiest Constitution in the world on November 26, 1949, the intellectuals considered the political, social, economic, cultural and educational aspects to be of great significance, and hence in the Constitution of India, one can easily find a number of articles dealing with this said state of affairs. The Constitution openly talks about the Right to Equality under Article 14, Right to Freedom of Speech and Expression under Article 19 and Right to Life and Personal Liberty under Article 21, but there exists no explicit mention of Right to clean Environment. Dr. B. R. Ambedkar emphasized on Indian environmentalism with “nature for all” and “all for nature” as the crux. For him, deprivation of forest dependent people had taken place due to colonial forest policies at one level and the attitude of other caste Hindus at another. This phenomenon can be captured from the fact that as soon as the agriculture season is over, there is widespread unemployment in the untouchables and their modes of earning a livelihood are significantly curtailed.²

International and Indian Environmental Jurisprudence

The essence of human development lies in the fact that both the natural and man-made aspects are taken care of, with respect to the enjoyment of the basic human rights.³ The Stockholm Conference of 1972 played a pivotal role in paving the way for enviro-legal awareness and allied legislations in India, as it is credited to be the first United Nations Conference on Human Rights, focussing on the issue of International Environmental politics. The need to include Right to clean Environment was cohesively felt by both – the Legislature and the Judiciary.

The environmental jurisprudence in India has essentially developed through the legislative awakening after the infamous Bhopal Gas Tragedy (1984), the adoption of Stockholm Conference and Rio Conventions by India.⁴ The year of 1976 becomes a landmark year as it witnessed the incorporation of Article 48A and Article 51A(g) via the Constitution (Forty-second) Amendment Act. Article 48A falls under Part IV of the Indian Constitution, which enumerates the Directive Principles of State Policy and obligates the State to achieve the goal of environmental sustainability and availability. It lays down that the state shall, through all possible means,

try to protect as well as improve the environment, along with safeguarding the forests and wildlife of the country. It expands the horizons for the Indian Welfare State to formulate the necessary legislations so to ensure the survival of the citizens.

Fundamental Duty to protect environment

Article 51A was a totally new provision which was inserted by the same Amendment Act. It added PartIVA (Fundamental Duties) to the Constitution. At present, there are 11 Fundamental Duties, out of which Article 51A(g) talks to protect and improve the natural environment, including forest, lakes, rivers and wildlife, and to have compassion for living creatures. It makes every citizen duty-bound to sincerely abide by it and to propel the environmental enhancements. These articles imply that the State and its citizens shall not only protect the environment, but will also improve it.⁵

The right to live in a healthy environment is an important attribute of right to live with human dignity and was first recognized as part of Article 21 in the case of *Rural Litigation and Entitlement Kendra vs. State*⁶ (popularly known as the Dehradun Quarrying Case). It was a very unique case in India, as it touched upon the issues of environment and ecological balance, in which the Apex Court directed to stop the illegal mining under the Environment Protection Act, 1986⁷. This was followed by the *M. C. Mehta Case*⁸ wherein the Supreme Court ruled that the right to live in a pollution free environment is a part of the Fundamental Right under Article 21.

Core Indian Legislations for Environmental Protection

(i) Wild Birds and Animals Protection Act, 1912

The act provided for punishments to kill, capture, sell or buy any wildbird and animal mentioned in schedule.

(ii) The Factories Act, 1948

It emphasized upon the treatment of harmful gases, solid waste and liquid effluents released during the manufacturing process, in order to decrease its adverse effects on the environment.

(iii) The Water (Prevention and Control of Pollution) Act, 1974

It opined to maintain the totality of the water of the nation, and also to promote cleanliness of rivers. It prohibited the discharge of effluents into the water bodies beyond a certain level.

(iv) The Air (Prevention and Control of Pollution) Act, 1981

It provided for the prevention and control of air pollution, whereby, establishing or operating any industrial plant in the pollution control area needs to take the consent of the competent authority.

(v) The Environment (Protection) Act, 1986

It was born due to the Bhopal Gas Tragedy. The Act empowered the Centre to pursue all the necessary measures as it thinks fit by setting standards for emissions and discharges of pollution in the atmosphere and to regulate the location of industries.

(vi) The National Green Tribunal Act, 2010

It led to the establishment of National Green Tribunal for the speedy disposal of cases related to the environmental protection and preservation. It will deal with all kinds of environmental laws across the country.

Conclusion and Suggestions

The environment is by the people, for the people and of the people. The principles like the Polluter Pays Principle and the Precautionary Principle must be taken into consideration efficaciously. The former was introduced in 1972 by the Organization for Economic Cooperation and Development. It was used by the judiciary in cases like the *Vellore Fellow Citizens' Welfare Forum v. Union of India*⁹ and *Enviro-legal action v. Union of India*.¹⁰ The latter was laid down in the Rio Declaration 1992 as Principle 15 and enunciated that it is the social responsibility of the State to protect the public from any plausible risk. It was utilized in cases like *A.P. Control Pollution Board v. Professor MV Naydu*.¹¹ Therefore, there needs to be a global intention, motivation and conduction to protect the environment with the help of the State so as to make it more effective. The zeal to be environmentalist should be equal to the zeal to be democratic, since a healthy environment depends on a healthy democracy. This is not difficult to be realized in practicality, if the actual visualization of a welfare state, as evident from the Constituent Assembly Debates, is followed in its true sense. The best *modus operandi* for this would be to follow the three tier system of governance and utilize its efficiency for protection of environment and sustainable development as well.

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Importance Of Livestock Product In India

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Abstrac:-

Indian livestock enterprises are important sector of food production and improve the human nutritional status and also livestock in an important capital asset in Indian economy many farmers depends on animal husbandry. So Animal husbandry is important role rural economy. The livestock can be divided two parts on is Fishers and another in Animal Husbandry. Animal Husbandry is vital role in economy so we discuss the Animal Husbandry in the article.

At present position more than 50 percent of our total agriculture income in derived from cattle, mostly in the form the cattle labour. And also India is first in the total buffalo population in the world 109. 85 million buffalos.

Keywords: Livestock, nutritional status, farmers, Animal Husbandry, Economy

Introduction:-

Livestock enterprises are play important role in rural economy. Many farmers depend an animal husbandry for their livelihood. India has the world's largest livestock population. And also, India is the first in total buffalo population in world. In economy it is not easy to examine the monetary value as cattle's contribution to the national income. At present position more than 50 percent of our total agricultural income is derived from cattle labour¹.

Indian economy is rural economy. Approximately 70 percent population is direct and indirect depends in agricultural. And also animal husbandry is important in agricultural sector. The Livestock production sector is globally increasing in India .

Objectives of the study:-

1. To know the growth in the livestock population in India.
2. To analysis the trends in livestock population.
3. To present the concluding remarks.

Data Base and methodology: -

This study depends on secondary data. This article is descriptive study based on the secondary data .And secondary data collected in various research papers, journals Books, websites and various reports which is related to Animal Husbandry.

Animal Husbandry in India: -

Ancient times when the man started faming in organized form the demand for draft animals for cultivation was increasingly felt and the domestication of animals started fodder [cattle for other livestock] and crop by – products got increasingly used for animals, milk and draft purposes¹.

In India many farmers depend on animal husbandry for their livelihood, milk, meat, eggs, wool, their castings and hides, animals mainly bullock, are the major source of power for famers. The animal husbandry plays on important role in the rural economy. The gross value of output from this sector was Rs. 358 billion in 1989 and amount that constituted about 25 percent of the total agricultural output of Rs.1.4 billion.² (source : en. m. Wikipedia org>wiki>Animal husbandry India – Wikipedia)

In Indian economy historical changes in demand for livestock products. The main reason is rapidly growing human population in India.

The livestock can be divided into two parts as

- a) fisheries and b) Animals Husbandry.

we discuss the importance of Animal Husbandry in this article.

Animal husbandry is important role in the overall economy than so for envisaged as an main part a expanding diversified agriculture. Animal husbandry currently accounts for over 25 percent of gross value of agriculture output¹.

Types of livestock¹ :-

In India, livestock population can be classified has given below:-

- a) Working livestock.

- b) Milch livestock.
c) Unserviceable livestock.
a) **working livestock** –

In India the total number of working cattle and buffaloes (Males and females) used for worked is 1226.5 lakh in 1991. There were 29 Lakh bovines which were used for both breeding and work. Their largest number is found in Uttar Pradesh.

b) Milch livestock :-

It includes cattle and buffaloes And their number comes is 6641 lakhs.

C) Unserviceable livestock :-

In this category only those adult bovines have been included which are permanently not in use for work. And their number comes to about 164 lakhs.

Animal Husbandry Regions¹ :-

Indian Research Council (IRC) has divided the country into the following five animal husbandry regions.

- Temperate Himalayan Region.
- Dry Northern Region
- West Eastern Region
- Southern Region
- Coastal Region.

Contribution to National Income :-

In Indian economy it is not easy to examine the monetary value of cattle's Contribution to the Countries national income because large proportion of produce is consumed by producers themselves and then to sell in market ¹.

Dr. N.C. Wright in 1937 noted that the India is largest number of Cattle of any country in the world out of world's cattle population of about 690 million animals, 215 million are located in India¹.

At present position more than 50 percent of our total agriculture income is derived from cattle, mostly in the form the cattle labour. The value of farmyard manure has been estimated at the Rs. 200 crore per year. ¹

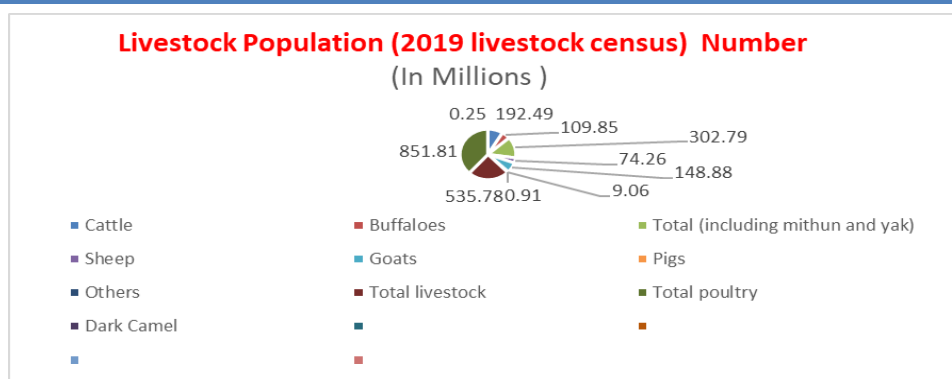
Trends in livestock Population :-

According to livestock population latest census (2019 livestock census) there were 535.78 million and 851.81 million total poultry in India as against 2291 lakhs 1951 (Lakhi and 20th livestock census).¹.

livestock products plays on important role in economy about 20.5 million peoples depend upon livestock for their livelihood – (Vikaspedia)

Table No.01
Livestock Population (2019 livestock census) ^{1,3,4,5}

Sr.No.	Species	Number (In Millions)	Ranking in the world population
01	Cattle	192.49	Second
02	Buffaloes	109.85	First
	Total (including Mithun and yak)	302.79	First
03	Sheep	74.26	Third
04	Goats	148.88	Second
05	Pigs	09.06	-
06	Others	0.91	-
	Total livestock	535.78	-
	Total poultry	851.81	Seventh
07	Dark Camel	0.25	Tenth

**Figure No. 01**

In table No.01 and Figure no.01 Shows that the important role in Indian economy (livestock population 2019 livestock census) is that given below.

- India first in the total buffalo population in the worlds 109.85 million buffalos.
- India is highest livestock owner at about 535.78 million livestock.
- Total cattle population is 192.49 million in India and it is second in world.
- India is third in world in 74.26 million sheep livestock.
- Total goats in 148.88 million and this is second in world.
- In India total poultry 851.81 million and this is seventh in the world.
- Camel is 0.25 million and India tenth in the world.

Production of Major livestock:-

The major livestock Production in India 2017-18 is given below .

Table No.2**Production of livestock in India (2017-18)^{3,4,5}**

Sr. No.	Product	Quantity	Ranking
01	Milk in million tonnes	176.30	First
02	Eggs in million tones	95.217	Third
03	Meat in Million tones	7.70	-
04	Wool in million metric tones	41.50	-
05	Fish in million metric tones	12.60	Second

(Source – Annual Report 2018-19 department of Animal Husbandry, Dairying and fisheries ministry of Agriculture and farmers welfare, Govt. of India.)

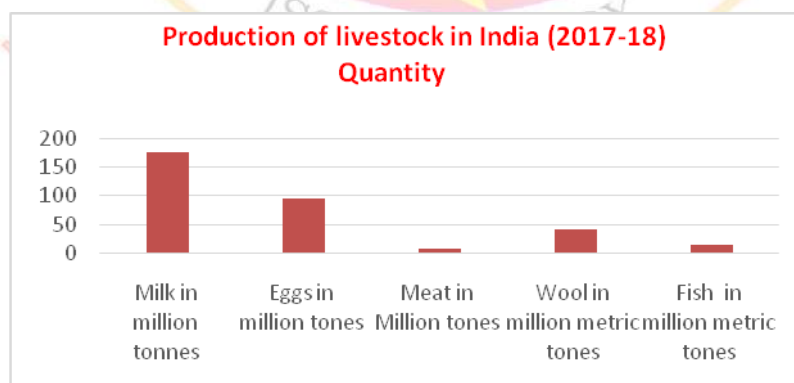
**Figure No. 02**

Table No. 02 and figure no. 02 Exhibits the production trends of milk, eggs, meat, wool and fish since year 2017-18. The production of milk was 176.30 million tones and this is first in world production. Similar the production of eggs is 95.217 million tones and eggs production is third in world production India in second largest country in fish production in year 2017-18 and fish production is 12.61 million metric tones

Present position of livestock in India¹ :-

Cattle's livestock play an role in our economy. But their present position is for form satisfaction. Thus the prevailing condition of the livestock is studied under the following points.

1. uneconomic cattle.
2. Cattle being Herbivorous
3. Poor Nourishment
4. Wrong Breeding

Livestock Development Programme :-^{1, 3, 6}

1. National livestock Mission (NLM)³
2. NLM is launched in year 2014-15 seeks to ensure quantitative and qualitative improvement in livestock production. The scheme is being implemented as a sub scheme of white Revaluation- Rashtriya Pashudhan Vikas Yojana Since April 2019.
3. Diary Entrepreneurship Development Scheme.
4. Intensive Diary Development Programme.
5. Fodder & and feed Development Scheme.
6. Pig Development Scheme.
7. Poultry Venture Capital fund.
8. Establishment and modernization of Rural Slaughter House.
9. Salvaging and Rearing at male Buffalo calves.
10. Utilization of Fallen Animals.
11. Integrated Development of Small Ruminatess (Sheep, Goat, and Rabbits)
12. Conservation of threatened Breeds of small Ruminants Rabbits, pigs, pack – Animals and Equines.
13. livestock insurance scheme.

Conclusion: -

In overall economic development the agriculture sector is play important role. And livestock production are important sector of food production and improve the human nutritional status. And also livestock is in important capital asset. Many farmers depends an animal husbandry in rural economy. The livestock can be divided two parts one is fisheries and another's is Animal Husbandry. And also animal husbandry is important role in Indian economy so we discuss the Animal husbandry

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A Study of Solar Energy : Role In Indian Economy**Mr. Vinod Dhondiram Late**

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Abstract:-

Solar energy is a major source of renewable energy. The energy obtained from the sun is called solar energy. Solar energy systems have low maintenance cost and it is an inexhaustible, Non-polluting, sustainable and non-conventional energy source. The sources of electricity production such as oil, coal and natural gas have contributed to one-third of total global greenhouse gas emissions. Solar energy sources contribute a lot in the reduction of greenhouse gases emission along with having several socio-economic advantages when compared to carbon based fossil fuels. India has limited sources of fossil fuels. India's energy demands are rising fast. Solar energy source is the answer to India's energy demands which are growing and are expected to grow exponentially in future. This paper highlights the role of solar energy in the economic development of India. This study also focuses on understanding renewable energy and its impact on Indian economy and studies the interaction between economic growth and the natural system with the goal of developing a sustainable and efficient economy.

Keywords:- Renewable energy, solar energy, Economic development, sustainable development, Indian economy, solar alliance, Atmanirbhar Bharat, Greenhouse gas, solar projects.

Introduction:-

Natural resources are the sources that are available naturally without any effort or interference of man. There are two types of natural resources that are Renewable resources and Non-Renewable resources. Renewable resources are available in a large amount and can have recovered over a while like sun, air, water etc. Non-renewable resources cannot recover once consumed like fossil fuels. Natural resource economics is focused on better understanding the role of natural resources in the economy in order to develop more sustainable methods of managing those resources to ensure their availability to future generations.

Solar Energy, a clean renewable resource with zero emission, has got tremendous potential of energy which can be harnessed using a variety of devices. With recent developments, solar energy systems are easily available for industrial and domestic use with the added advantage of low maintenance cost. Solar power could be made financially viable with government tax incentives and rebates. Solar energy is a major source of renewable energy. Most of the developed countries are shifting over to solar energy as one of the major renewable energy sources. The current architectural designs make provision for photovoltaic cells and compulsory circuitry while making building plans. Because of its location between the Tropic of Cancer and the Equator, India has an average annual temperature that ranges from 24.5°C – 27°C. This means that India has huge solar potential. The sunniest parts are situated in the south/east coast, from Calcutta to Madras. The national solar mission is an initiative of the Modi government with an objective to establish India as a global leader in solar power plants by creating the policy regulations for its development across the country. Indian government's new target is to produce 100 GW of solar energy by 2022.

Objectives:-

1. To Understand the Renewable and Non-Renewable Resources of Energy.
2. To Understand the Current Status of Solar Energy in India.
3. To Study the Role of Solar Energy in Indian Economy
4. To Study the Potential Problems of Solar projects.

Research Methodology:-

The data for the study were gathered from secondary sources such as books, Newspapers, respective journals, bulletins and articles published. The data for the study were also collected from various websites related to solar energy.

Benefits of Solar Energy:-

- Supply of sunlight is unlimited as the sun is available worldwide for everyone to use.

- Solar energy is also considered to be renewable energy because the sun will not deplete as a result of our energy production.
- Individuals and communities can generate their own electricity without dependence on utility companies.
- Huge large scale solar farms are now powering whole communities.
- Solar energy production is clean that's why process of converting sunlight into energy does not contribute to pollution.
- Renewable energy can contribute to reducing global warming.

India's Current Status in Solar Energy:-

The Mission targets installing 100 GW grid-connected solar power plants (40 GW from rooftop solar projects, and the remaining 60 GW from utility scale ones) and a total 175 GW through various renewable resources by the year 2022. This is in line with India's Intended Nationally Determined Contributions (INDCs) target to achieve about 35 to 40 percent cumulative electric power produced capacity from non-fossil fuel based energy resources and to reduce the emission intensity of its GDP by 34 to 35 percent from 2005 level by 2030. The ambition of the programme has been scaled up significantly, with India now targeting 100 GW of solar capacity by 2022. (40 GW from rooftop solar projects, and the remaining 60 GW from utility scale ones) The next phase of the National Solar Mission targets significantly to increase yearly installed capacity to achieve the goal of 100 GW by 2022. Its annual aim has increased from 2 GW in 2015 to 12 GW in 2016. By 2017 annual installations should amount to 15 GW, reaching 17.5 GW by 2021. Solar power sector in India is heavily dependent on China. Despite the ambitious target of solar power generation, India has an annual solar cell manufacturing capacity of about 3 GW, while the average annual demand is 20 GW. Seven of India's top ten module suppliers are Chinese firms. In the last five years India has already imported \$16 billion worth of solar equipment. Unless indigenous capacity is ramped up, India may import an additional \$42 billion of solar equipment by 2030.

Recently, India achieved 5th global position in solar power deployment by surpassing Italy. Solar power capacity has increased by more than 13 to 14 times in the last five years from 2.6 GW in March, 2014 to 35 GW in July, 2020. Currently, solar tariff in India is very competitive and has achieved grid parity.

Solar Sector and Atmanirbhar Bharat:-

While countries around the world are preparing plans for recovery of economic growth post Covid-19 Pandemic, debate has started to choose the correct economic growth model. The old quantitative economic growth model depends on fossil fuels for energy and new model depends on renewable energy. Major countries of the world have shown a clear shift from the old economic growth model to the new economic growth model.

India has a real commitment to use clean green renewable energy for economic development. India has set itself a target of 175 GW renewable energy capacities by 2022 including 100 GW Solar Energy and 60 GW Wind Power Capacity. But the solar energy generation and solar equipment manufacturing sector have not received due importance in Atmanirbhar Bharat Abhiyan. India has a large potential for generation of solar power. It is a tropical country with three hundred clear sunny days in a year. Development of the solar power sector can help India in achieving self-reliance in employment generation, rural development, and reduction in fuel import bills, reduction in dependency on oil producing countries, faster installation of power generation units, clean environment and enhanced quality of life.

Employment Generation:-

Solar power sector can provide employment to all kinds of laborers (skilled, semi skilled and unskilled) in various activities like manufacturing of solar equipment, development of solar power plants and installation and maintenance of rooftop solar plants.

Rural Development:-

Demand for installation of roof-top panels will create entrepreneurship and jobs in rural areas of India in the solar power sector. Availability of power will promote cottage and small industries in rural India. It will also bridge the income disparity between rural India and urban India.

Reduction in Fuel Import Bills:-

India is among fastest growing economies but depends highly on import of energy. This places Indian strategic interests at risk and dampens Sustained growth rate. Non-Conventional energy sources are keys. India's oil import bill in the financial year 2019 could be highest under Narendra Modi.

Faster Installation of Power Generation Units:-

A 500 MW capacity solar plant can be constructed within 18 months while a similar thermal and hydel plant might take 2-3 times more. Cost of construction and financing for a new solar plant is 14% less than of thermal and hydel plants.

Potential Problems of Solar Projects:-**The Skewed Progress:-**

Ground mounted solar projects have increased to more than 32.3 GW, the capacity of rooftop has increased to just 2.8 GW but the actual target is 60:40. The demand of rooftop solar from both the residential sector and the commercial and industrial sector has not been fully topped.

Land Shortage:-

Solar plants have heavy impact on pastoral community as it requires an average of five acres per megawatt, so they are a very land intensive source of energy.

Neglect of Other Renewable Energy Sources:-

A report by Franklin School UNEP collaborating centre for climate and sustainable energy finance suggests that investment in large solar power plants in the country went up by 8% in 2019, while Investment in renewable energy overall dropped by 14% compared to 2018. Wind energy took the biggest hit, with investment down nearly 50%.

Water for Cleaning:-

Large solar power plants require between 7000 and 20000 litres of water per megawatt per wash and a wash is needed at least twice in a year.

Conclusion:-

Solar power capacity has increased by more than 13 times in the last five years from 2.6 GW in March, 2014 to 35 GW in July, 2020. But the India solar power plants are heavily dependent on China. In the last five years India has already imported \$16 billion worth of solar equipment. Indian companies had no learning background in semiconductors, when the solar industry in India began to grow from 2011. Another important factor is that the cost of capital in India (11%) is highest in the Asia Pacific region, while in China it is about 5%. Solar power plants can have serious effects on local economic and the environment, from elevating temperatures locally to increasing water stress and alienating crop or grazing lands.

Suggestions:-

- To achieve self-sufficiency in manufacturing solar equipment. India needs a new solar sector development policy. Core competency in semiconductor manufacturing.
- State government needs to support semiconductor productions as a part of a determined industrial policy to develop this capacity for the future.
- Rumping up solar energy generation and equipment manufacturing can make India's economy sustainable and Atmanirbhar.
- In a dedicated policy for development of the solar sector, the government should provide subsidiaries in land acquisition, raw material procurement, labor law, tax and exports.
- Solar power plants will remain false solutions that cause more problems than they solve unless they are subject to stringent environmental due diligence and public critique.
- As a start, solar power plants need to be allocated go or no-go zones, based on ecological and livelihood Sensitivity of the regions.

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Natural Resources And Human Resources Development**Dr Vidya N Jadhav**

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Abstract

Natural resources are materials from the Earth that are used to support life and meet people's needs. Natural resources are naturally occurring materials that are useful to man or could be useful under conceivable technological, economic or social circumstances or supplies drawn from the earth.

To ensure the healthy growth and development of man and other forms of life and to conserve natural resources .There is an urgent need to avoid any conflict between development and environment .These resources are very essential for sustaining our life on earth.

Introduction –

Natural resources whether which to be available in abundance have depleted most alarmingly in some causes .Everyone having concern for environment wonders whether development can be sustained if consumption of water and energy is not regulated and if consumption of water and energy is not regulated and if pollution of air ,soil, and water is not controlled. To ensure the healthy growth and development of man and other forms of life and to conserve natural resources .There is an urgent need to avoid any conflict between development and environment.

Natural resources are those components of environment which are inherently created by environment for supporting life. These resources are very essential for sustaining life on earth. These resources are available in the form of air, water, mineral, soil, forest, plant, energy etc.

Natural and environmental resources generally describe all the elements available in nature that are used or can be used in the economic system. These can be used in the economic system. These can be such as soil, water, forests, fisheries and animals, minerals, gases.

Function of natural resources

Natural resources provide fundamental life support, in the form of both consumptive and public – good services .Ecological processes maintain soil productivity, nutrient recycling , the cleansing of air and water, and climatic cycles.

Importance of Natural resources

Resources are important for the development of any country .For example to generate energy, one need fossil fuels; and for industrial development.

Mineral resources and irrational consumption and over utilization of natural resources have socio-economic and environmental problems. Nature helps to maintain the environmental balance and satisfy the needs to the fullest. Natural resources are getting scarce with the increasing population, so it is essential to conserve them .This empower us as well as our future generation to utilize the natural resources to the full extent .They play a important role in the economic development of the country by enriching agriculture ,trade, imports, and exports etc. Resources are important for us .we utilize them to satisfy our wants .Many minerals like iron, copper etc. Minerals like coal and petroleum are used for the generation of electricity. Natural resources like water and air are indispensable for human life.

What is environment?

All the physical surrounding on earth is called the environment. The environment includes everything living and everything nonliving People, animals, plants, and all other living things rely on the nonliving parts of the environment to survive. The part of the environment where life happens is called environment.

What are Natural Resources?

According to Ramade [1984] a resource may be defined was a form of energy and /or matter which is essential for the functioning of the organisms ,populations and ecosystems The ecological variables like energy ,matter, space ,time and diversity combined are referred as natural resources.

How do we get natural resources?

Natural resources are derived from the environment ...Biotic natural resources also include fossil fuels such as coal and petroleum which are formed from organic matter that has decayed Abiotic: These resources come from non-living and non- organic material.

How do humans use the resources?

Humans use natural resources for everything they do: for example, they use soil and water to grow food, wood to burn to provide heat or to build shelters, and materials such as iron or copper extracted from earth to make cooking pan

How human do depends on natural resources?

Human depend on natural resources for sources of energy and raw materials to make products. Food is another natural resource that can be consumed in its natural state or processed into some other product.

Natural Resources are used to make food, fuel and raw materials for the productivity of goods all of the food that people eat comes from plants or animals

Valuable role of natural resources for human development.

Natural resources are earth materials used to support life and meet the needs of people. Any organic material used by humans can be considered as a natural resource. Natural resources include oil, coal, natural gas, metals, stone and sand .Air, sunlight, soil and water are other natural resources.

Environmental resources combine what is naturally found in the world and human ingenuity. Natural resources are not made or caused by humankind but environmental resources can be caused by humankind.

NATURAL RESOURCES

1] Solar energy is a truly renewable energy source.

- Reduces Electricity Bills
- Diverse Applications
- Low Maintenance Costs
- Technology Development

2] Wind energy

Wind power is the kinetic energy of wind is to create mechanical power. Wind doesn't affect currents or wind cycles in any fuels for harvesting wind power is a clean, non-pollutant source of energy. It is an inexhaustible source of energy.

Wind energy is far more ecofriendly than the burning of fossil fuels for electricity. Wind is an unlimited, free, renewable resource. Wind power is a clean, non-polluting way to generate electricity. Wind is a domestic source of energy. Wind enables US industry growth and US competitiveness. Wind energy is very useful in isolated hilly, coastal and other regions which are away from transmission work. In rural areas, wind energy is used for pumping water for irrigation and for drinking .wind energy is used by farmers for winnowing to remove husk from grains, since a long time .

3] Coal

Coal energy is an affordable energy source because of the coal's stable price compared to other fuel sources. Coal is easy to burn. Coal energy is inexpensive. It's a reliable fuel .It's easy to store and effective .Compared to solar power or wind energy, coal is a reliable, predictable and dependable fuel. It can provide invaluable backup service and highly reliable fuel or house stoves. Coal burns steadily ,keeping a room heated for longer than firewood .Coal is multi- utility fuel .It is used for heating and cooking purposes in iron and steel industries ,in railway engines and for the generation of thermal energy .The thermal electricity produced from coal is one of the major sources of electrical energy.

4] Natural gas

Natural gas is a major source of fuel nowadays .It is a combustible gas which forms naturally in the interior of the earth. It is one of the cleanest and the most environments – friendly source of energy .It can be conveniently used in remote inaccessible areas where other sources of energy are not available. It's safer and easier to store when compared to other fossil fuels.

Natural gas is less expensive than other fossil fuels. It's sure is safer and easier to store than other fossil fuels s

5] Water

Water helps to human development in following ways

- 1] Carrying nutrients and oxygen to your cells.
- 2] Flushing bacteria from your bladder
- 3] Aiding digestion
- 4] Preventing constipation4] normalizing blood pressure
- 5] Stabilizing the heartbeat
- 6] Cushioning joints
- 7] Protecting organs and tissues
- 8] Drinking water helps maintain the Balance of Body Fluids
- 9] Water can Help Control Calories

- 10] Water Helps Energize Muscles.
- 11] Water Helps your kidneys
- 12] Water Helps keep skin looking good.

Air –

- Fresh air is good for human's digestive system
- Fresh air helps improve blood pressure and heart rate
- Fresh air cleans lungs
- Fresh air gives more energy and a sharper mind.
- Fresh air strengthens and improves immune system.
- Control of use of fuel wood Coal Electric powered, engine dung gas use as fuel. Fuel industrial area plant trees.

Soil-

Soil is one of the earth's most important natural resources.

Humans use soil as a holding facility for solid waste, filter for wastewater, and foundation for our cities and town's .soil is the basis of our nation's agro ecosystems which provide us with feed, fiber, and food and fuel .soils modify the atmosphere by emitting and absorbing gases and dust.

Conclusion

In short Natural resources are so important in human life that they help maintain ecological balance and increase industrialization, urbanization and population are curbed. Deforestation is stopped and conservation is done. Human life is also informed about the temperature and effects of the earth as it goes and accumulates. The environment should be vigilant for cleanliness. Increasing pollution should be curbed. Only then can your health remain good. It also requires the management of environmental resources that will conserve the environment, protect and preserve it.

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Water Resources And Sustainable Development

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Introduction

Water resources and sustainable development approaches around the world are changing dramatically. This “changing water paradigm” has many components, including a shift away from sole, or even primary, reliance on finding new sources of supply to address perceived new demands, a growing emphasis on incorporating ecological values into water policy, a re-emphasis on meeting basic human needs for water services, and a conscious breaking of the ties between economic growth and water use. A reliance on physical solutions continues to dominate traditional planning approaches, but these solutions are facing increasing opposition. At the same time, new methods are being developed to meet the demands of growing populations without requiring major new construction or new large-scale water transfers from one region to another. More and more water suppliers and planning agencies are beginning to explore efficiency improvements, implement options for managing demand, and reallocating water among users to reduce projected gaps and meet future needs. The connections between water and food are receiving increasing attention as the concerns of food experts begin to encompass the realities of water availability. These shifts have not come easily; they have met strong internal opposition. They are still not universally accepted, and they may not be permanent. Nevertheless, these changes represent a real shift in the way humans think about water use.

WATER RESOURCES

Sources of water that are potentially useful. Uses of water include agricultural, industrial, household, recreational and environmental activities. The majority of human uses require fresh water.

97% of the water on the Earth is salt water and only three percent is fresh water; slightly over two thirds of this is frozen in glaciers and polar ice caps.[1] The remaining unfrozen freshwater is found mainly as groundwater, with only a small fraction present above ground or in the air.[2]

Surface water

Surface water is water in a river, lake or fresh water wetland. Surface water is naturally replenished by precipitation and naturally lost through discharge to the oceans, evaporation, evapotranspiration and groundwater recharge

Groundwater

Groundwater is fresh water located in the subsurface pore space of soil and rocks. It is also water that is flowing within aquifers below the water table. Sometimes it is useful to make a distinction between groundwater that is closely associated with surface water and deep groundwater in an aquifer sometimes called “fossil water”

SUSTAINABLE DEVELOPMENT

It is estimated that 22% of worldwide water is used in industry.[6] Major industrial users include hydroelectric dams, thermoelectric power plants, which use water for cooling, ore and oil refineries, which use water in chemical processes, and manufacturing plants, which use water as a solvent. Water withdrawal can be very high for certain industries, but consumption is generally much lower than that of agriculture.

Water is used in renewable power generation. Hydroelectric power derives energy from the force of water flowing downhill, driving a turbine connected to a generator. This hydroelectricity is a low-cost, non-polluting, renewable energy source. Significantly, hydroelectric power can also be used for load following unlike most renewable energy sources which are intermittent. Ultimately, the energy in a hydroelectric powerplant is supplied by the sun. Heat from the sun evaporates water, which condenses as rain in higher altitudes and flows downhill. Pumped-storage hydroelectric plants also exist, which use grid electricity to pump water uphill when demand is low, and use the stored water to produce electricity when demand is high.

Hydroelectric power plants generally require the creation of a large artificial lake. Evaporation from this lake is higher than evaporation from a river due to the larger surface area exposed to the elements, resulting in much higher water consumption. The process of driving water through the turbine and tunnels or pipes also briefly removes this water from the natural environment, creating water withdrawal. The impact of this withdrawal on wildlife varies greatly depending on the design of the powerplant.

Pressurized water is used in water blasting and water jet cutters. Also, very high pressure water guns are used for precise cutting. It works very well, is relatively safe, and is not harmful to the environment. It is also used in the cooling of machinery to prevent overheating, or prevent saw blades from overheating. This is generally a very small source of water consumption relative to other uses.

Water is also used in many large scale industrial processes, such as thermoelectric power production, oil refining, fertilizer production and other chemical plant use, and natural gas extraction from shale rock. Discharge of untreated water from industrial uses is pollution. Pollution includes discharged solutes (chemical pollution) and increased water temperature (thermal pollution). Industry requires pure water for many applications and utilizes a variety of purification techniques both in water supply and discharge. Most of this pure water is generated on site, either from natural freshwater or from municipal grey water. Industrial consumption of water is generally much lower than withdrawal, due to laws requiring industrial grey water to be treated and returned to the environment. Thermoelectric powerplants using cooling towers have high consumption, nearly equal to their withdrawal, as most of the withdrawn water is evaporated as part of the cooling process. The withdrawal, however, is lower than in once-through cooling systems.

Water Use by Industry

Agriculture is the largest user of water in India. 90% of India's water is used by agriculture and livestock. Municipalities use 7%, and industry uses 3%. (Food and Agriculture Organization) The worldwide average of water use by industry is 19%. (Nexus Learning) The United States only uses 5% of its water for industry. (National Atlas)

Agricultural

It is estimated that 70% of worldwide water is used for irrigation, with 15-35% of irrigation withdrawals being unsustainable.[6] It takes around 2,000 – 3,000 litres of water to produce enough food to satisfy one person's daily dietary need.[7] This is a considerable amount, when compared to that required for drinking, which is between two and five litres.

Energy and Mining

Coal is the largest energy source used in India and accounts for 68%. Gas and hydro power both account 12% each. (World Nuclear Association) Hydro power is discussed later in this post. Coal mining has created toxic environments for its residents and has polluted groundwater. (News Security Beat) Extensive coal mining in China has placed serious stress on its water conservation, and it is expected that the same issues will surface in India. (Gigaom)

India has used nuclear power since the 1960s. (India's Atomic Energy Program) 3.7% of India's electricity use comes from nuclear power. Political ramifications of nuclear energy have hampered India's nuclear program. (World Nuclear Association) Nuclear power plants use a large amount of water and have to be situated near a reliable water source. The fact that the majority of their rainfall comes during the monsoon season makes reliable water sources scarce in India.

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Ambedkar Awaas Yojana In India And Karnataka- (A Special Reference To Valmiki And Ambedkar Awas Yojana)

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Abstract:

This article entitle "Ambedkar Awaas Yojana in India And Karnataka-(A Special Reference To Valmiki and Ambedkar Awas Yojana)", This article summaries the discussion the study had with a number of officials, beneficiaries of government programmes and members of households in the selected villages spread over the country. The quantitative assessment of the requirements of housing and constraints to systematic development of housing would be presented in a separate article.

Keywords: rural and urban housing, IAY, NGO, Housing Development and Finance Corporation etc.,

Introduction:

The Valmiki and Ambedkar Awaas Yojana is a centrally sponsored scheme, was launched in 2001, which aims to improve the living conditions of slum dwellers across Shivamogga, hoping to transform the way of life in these slums. The scheme is primarily aimed at ameliorating the housing problems for the slum dwellers living Below Poverty Line in different towns and cities of the state.

The Government of India had released funds for construction of a total of 4,60,244 houses and 65,652 toilets under Valmiki and Ambedkar Awaas Yojana (VAMBAY) throughout the country. The scheme has been subsumed in the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which was launched on 03-12-2005.

Need to Improve Conditions of Slum Dwellers

The Valmiki and Ambedkar Awaas Yojana is a centrally sponsored scheme that was launched in 2001 which aims to improve the living conditions of slum dwellers across India hoping to transform the way of life in these slums. Given the fact that the growth of our nation depends on the growth of individuals. This scheme hopes to help slum dwellers utilize their potential helping them achieve a decent standard of living.

Statement of the Problem

India, with its predominantly rural populace, both scattered and concentrated in villages with marginal to low levels of economic development holds forth a unique challenge in the task of addressing the rural housing needs.

The incidence of poverty was high in rural areas as compared to the urban areas of the country. High incidence of rural poverty has been a major problem faced by the Indian economy since independence.

Review of Literature

The past literature helps to adopt, modify and improve the conceptual framework of this paper.

Bhattacharya K.P. (1998), in his edited volume "*Affordable Housing and Infrastructure in India*", throws light on the problem of providing affordable housing and infrastructure to the economically weaker sections (EWS) of the population in developing countries.

Vashist P.D. (1988), in his study "*Tackling the Housing Problem in Urban and Rural Sector*", tries to see how to tackle the housing problem in urban and rural areas. He says that home or shelter is one of the three basic requirements after food and clothing.

Objectives

Present study was undertaken with the following objectives:

1. To study the benefits from Valmiki and Ambedkar Awaas Yojana for the respondents in the study area.
2. To evaluate the implementation of Valmiki and Ambedkar Awaas Yojana in the study area.

Hypotheses

Based on the above objectives, following hypotheses are set for the study:

1. Valmiki and Ambedkar Awaas Yojana were not successfully implemented in the study area.

Methodology

This study is based on secondary data. Secondary data has been collected from various research papers, magazines, articles, various journals, and is also based on the published, unpublished and electronic referred sources.

Objectives of Valmiki and Ambedkar Awaas Yojana

The primary objective of Valmiki and Ambedkar Awaas Yojana is to provide shelter for people living in urban slums. This scheme is targeted to those who are under the poverty line and aims to either build new shelter or upgrade existing shelter for thousands of slum dwellers. Through for everyone, while eliminating slums from cities at the same time. Apart from shelter, the scheme aims at providing a healthy environment which can be used to help people crawl out of the poverty line, helping them to improve their standard of living..

Valmiki and Ambedkar Awaas Yojana Eligibility

This scheme can be availed by individuals who are residing in urban slums, while it is primarily intended for people who are below the poverty line. Certain members mass migration and un-planned growth have resulted in the formation of huge slums in almost every city of India, slums which are home to millions of people. The condition of most of these slums are pathetic, with poor sanitation and hygiene, forming a dark blot on the image of a developing India. The Valmiki and Ambedkar Awaas Yojana is a scheme which aims to improve the conditions of slum dwellers in the country.

Financial Aid Available

Financial assistance to the tune of Rs. 40,000 can be availed under the scheme, which includes provision for a sanitary toilet as well. This scheme is a partnership between the central and state governments, with both parties contributing 50 per cent towards implementing Vambay.

India has witnessed tremendous growth over the last 2.3 decades, which has resulted in a large population migrating from villages to cities, in a bid to be a part of the booming economy.

3. The Central Government provides a subsidy of 50 per cent, the balance 50 per cent being arranged by the State Government.

4. There are prescribed ceilings on costs both for dwelling units and community toilets. During 2003-04, central subsidy to the extent of Rs. 239 crore has been released since inception upto May 2004, Rs. 522 crore have been released as Government of India subsidy for the construction/ upgradation of 2,46,035 dwelling units and 29,263 toilet seats under the scheme.

Financial Assistance for Housing on Individual Basis (on Ambedkar Awaas Scheme)**Eligibility criteria****1. For rural areas**

- In the case of beneficiaries under Indira Awaas Yojana and they are fulfilling other conditions of Dr. Ambedkar housing scheme. There is a provision to pay the financial assistance under this scheme.

- Income limit of Rs. 47,000/-.

2. For urban areas

- Beneficiary should be either widow, handicapped, deserted woman, labourer if there is any BPL, he should be given priority.

- Beneficiary should be of scheduled caste.

- Annual income of the beneficiary should not exceed Rs. 68,000/-.

- The beneficiary should own and possess a plot or temporary dwelling erected with mud and soil.

- The plot area should be minimum of 25 sq. mtrs.

- The beneficiary who does not include the beneficiary of the India Awaas Yojana but fulfills the other conditions of the beneficiary or Ambedkar Awaas Yojana, the beneficiary can be given benefit.

- The beneficiary who is not covered under the Indira Awaas Yojana but beneficiaries who fulfills other conditions of the beneficiary Dr. Ambedkar housing scheme those who are widowed, working, handicapped or extremely backward can be given benefit.

Pattern of Assistance

1. Help Rs. 45,000/- for the urban area, Rs. 5,000/- for the beneficiaries work Rs. 50,000/- for following.

2. The standard of assistance for rural area is Rs. 70,000/-.

Valmiki and Ambedkar Awaas Yojana (VAMBAY) aimed at:

a. Construction (upgradation) of dwelling units for slum dwellers.

b. Creation of healthy and enabling urban environment through community toilers these campaign is launched by the central government of India. It aims to uplift the standard of living of the slum dwellers and it also helps to promote a healthy environment by construction of toilets.

Housing Conditions in Rural India

India, a vast country with more than 600 million population has very inadequate housing facilities. The conditions in rural areas, where 50 per cent of its population live in over half a million villages of various size. The housing stock is extremely inadequate. One estimate has put the requirement of houses in rural areas at 80

to 90 million new units (including those that require to be completely re-built or substantially improved). Although, no exact estimates of the age of the existing housing stock are available, the fact that the majority of these are too old and unfit for human habitation remains undisputed.

Only a small number of houses in rural India are Pucca (built with durable materials having long life expectancy) while a large majority of these are either completely kachha (built with non-durable materials) or the partly pucca and partly kachha. The kachha houses need constant repairs and their roofs specially are highly prone to fire hazards entailing considerable amount of strain on the villages both financially and otherwise. The size of the rooms per house is generally small. The number of rooms per house is low and the rooms are small in size.

Housing Problems of the Rural Poor

The houses of the rural poor in India are found to be deficient in various ways. The major housing problems of the poor relate to the following.

- The houses in the rural areas lack protection to the residents against wind, rain and cold.
- They lack proper arrangement for light and fresh air.
- Rural houses do not have separate arrangement for keeping animals.
- There is no proper arrangement for basic sanitation and drinking water.
- The surroundings of rural houses lack requirements for hygiene.
- Rural houses are infested with insects, rodents, etc. which cause health problems.
- Rural houses involve high recurring costs (maintenance) which the poor residents cannot afford.
- Rural houses are incapable of providing protection against natural calamities like floods, cyclones, etc.

National Housing Policy in India

Government of India with a National Agenda for governance stated "Shelter is a basic human requirement that needs to be met on a priority basis, we are therefore committed to evolving NHP in construction with the State Governments aimed at providing housing for all. Towards this end we shall facilitate construction of 20 lakh additional housing units annually. As in other programmes the emphasis will be on the benefits to the poor and the deprived". In pursuance of this commitment the Government announces National Housing Policy on 30th July 1998.

Major Housing Schemes in India

Government of India has organized a few major housing schemes for the rural poor. They include

1. Indira Awaas Yojana
2. Pradhan Mantri Gramodaya Yojana
3. Pradhan Mantri Gram Sabha Yojana
4. Credit-cum-Subsidy for Rural Housing
5. Dr. Ambedkar Housing Scheme
6. Rural Ashraya for Rural Housing and Habitat Development
7. Setting up of Rural Building Centre
8. Samagra Awaas Yojana
9. National Mission for Rural Housing and Habitat and
10. Two Million Housing Programme.

Rural Ambedkar Housing Scheme

This scheme is for providing housing to SCs and STs, whose annual income is Rs. 11,800 or below. The beneficiaries are selected by the Gram Panchayats through gram sabhas. The unit assistance per house has been enhanced from Rs.40000 to Rs.63500 from 2010-11 (Rs.50000 as subsidy, Rs.10000 as bank loan and Rs.3500 being beneficiary contribution). 1.50 lakh houses have been constructed between 2000-01 and 2011-12. During 2012-13, it has been targeted to complete 10000 houses of which 2642 houses have been constructed upto the end of October 2012. During 2012-13 there were 5938. And in the year 2013-14 and 2014-15 there were 4101 and 3313 houses have been constructed respectively.

Conclusion

A comprehensive national policy on housing was considered necessary in view of the various problems faced in relation to housing in India. The main objective of such a policy was to spell out priorities for promoting sustained development of housing.

Both central and state governments have been implemented various housing programmes for the development of poor people in rural areas. Valmiki and Ambedkar Awaas Yojana are flagship rural housing scheme meant for providing dwelling units free of cost to the rural poor..

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An Inseparable Relationship: Democracy and Sustainable Development

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Abstract:

Sustainable development is one of the most burned issues related to the environment. If the policy of sustainable development is followed in the development process of a country, it is possible to solve various internal problems of that country permanently. In general, it can be said that poverty causes various kinds of crime in the society. As a result, the security of the citizens of the state is disrupted, which is extremely detrimental to the structure of a democratic system of governance. Therefore, in the interest of protecting future generations and raising the standard of democracy, every state in the world must give due importance to the principle of sustainable development in their decision making process. However, it can be said that democracy in a country can only succeed when its citizens live a healthy and secure life, which is possible only through the implementation of the concept of sustainable development.

Keywords: democracy, poverty, sustainable development, income inequality, crime, environment.

Introduction

The concept of growth oriented development creates various inequalities in the society. Therefore, the initiative of the United Nations stipulates that the industrialized rich countries will contribute 0.7 percent of their gross national income to the development of the poorest countries. In a democracy, individual freedom is considered a dominant ethic. In the case of sustainable development, the interests of not only the present generation but also the future generations are taken into consideration. The three issues of peace development and environmental protection are inextricably linked and inseparable. The state must take special care of these issues.

Rationale of the study

Sustainable development has always favored the use of natural resources in such a way that the gap between rich and poor in society is not widened and the people living below the poverty line are improved. Various studies have shown that the incidence of homicide in society has increased due to the extreme income inequality. The Agenda 21 adopted at the 1992 Rio Summit was based on the concept of sustainable development. It is worth mentioning here that this project was designed by looking at third world countries. It was thought that it was impossible for Third World countries to tackle poverty, illiteracy and illiteracy alone, ensure minimum health care, build livable housing, build roads and create rapid industrialization and employment with the help of advanced pollution prevention technologies.

It is worth mentioning here that this study will try to understand the importance of the concept of sustainable development in the field of democracy, which is really essential for the success of democracy. In addition, it is necessary to analyze why crime increases in society as a result of increasing income inequality in developing countries and third world countries.

Objective of the study

- The main objective of this study is to find the internal relationship between crime and income inequality.
- One of the objective of this study is to discuss how democratic systems can be successful as a result of sustainable development.
- The objective of this study is to discuss the appropriate environment for a democratic system.
- This study seeks to discuss various violent crimes in society as a result of income inequality.

Hypothesis

H0: The research intends to find out the links between democracy and sustainable development.

H1: The intention of this research is to shed light on the crimes caused by poverty and income inequality and to find out the importance of sustainable development in reducing such crimes.

Methodology

In this study, a qualitative approach has been taken to understand the relationship between sustainable development and democracy. The study collected data from various research journals. It is worth mentioning

here that this study seeks to understand the importance of democracy in sustainable development through research journals prepared by various researchers.

The importance of people in the concept of democracy and sustainable development

The word Democracy is derived from the words 'Demos' and 'Kratos'. It is worth mentioning here that the word Demos means people and the word Kratos means ability or ability to rule. However, democracy refers to a power and capacity through which people can perform certain social and political activities. Following Abraham Linkon's famous Gettysburg speech, it can be said that democracy is a kind of government where people are most important. However, there is considerable debate here as to who is meant by Linkon People. Even in recent times, it has been observed that in many Muslim countries, people of other religions are considered second class citizens. Therefore, it would never be appropriate to say that every class of society is developed through democracy. In classical democracy, a huge number of people in the society were deprived of democratic activity. It needs to be mentioned here that the democracy of the 21st century is basically based on the concept of political equality. In general, it can be said that a political community has equal rights through which they can influence decisions. The success of a democratic system requires that the various social groups be given the dignity, respect and autonomy necessary for their development (Westall, 2015). However, there are a number of aspects that need to be kept in mind in order for any regime to gain democratic status. In this case, the issue of inclusiveness can be mentioned first, where all the members of that political community have the right to present their voice (Scoones, 2016). Second, popular control, where the political community decides on the basis of totality. The third important issue is considered judgment, in which case the individual is informed of every decision. The fourth important thing is transparency where the decision making process will always be open and accountable. It is important to note that the definition of democracy should not always be limited to representative government and elections. Democracy should be seen as a system of governance that will play a positive role in society (Westall, 2015). On the other hand, the concept of sustainable development came to the academic world in 1987 through a report called Our common future. It should be noted that this report is published by the World Commission on Environment and Development, also known as the Brundtland. However, it can be said that the concept of sustainable development and democracy may overlap in some cases. For example, both democracy and sustainable development emphasize participation. The matter can be explained in detail in the interest of getting a clearer idea about it. Democracy and the concept of sustainable development are both intended to give people the ability to come together. Besides, both ideas want to involve people in some aspects of society, which directly affects people's lives (Westall, 2015).

In this discussion is the tendency for short-termism to be observed in most liberal democracies that exist in the 21st century, but sustainable development wants to adopt some development process where the positive impact of development is more important. Democracy has always confined itself to political geographies and the notion of legally defined (Westall, 2015). On the other hand, the idea of sustainable development wants to benefit the whole world (Munslow & Ekoko, 1995).

Sustainable development in the interest of the success of democracy

In a democracy, the environment is paramount in the concept of human life and sustainable development. But democracy requires a conducive social, economic and political environment. Democracy can never succeed without the right environment. Many researchers consider income inequality to be the mother of violent crime. In China, on June 22, 2017, a mother and her three children were killed by the family's migrant worker Nanny in a tragic fire set. Subsequent studies have suggested that the victim's wealth and nanny's impoverished and migrant background were responsible for the crime (Dong, Egger, & Guo, 2020). It should be noted that this incident clarified China's poor-rich divide. Various researchers have shown that economic inequality is responsible for unnecessary consumption in society (Neumayer, 2005). As a result, a class sinks into luxury to prove their status in society. Robert Frank, a professor of economics at Cornell University, believes that inequality in income and wealth creates 'expenditure cascades' at the top of society. It should be noted that 20% of the world's population enjoys 70% of global income. On the other hand, the bottom 20% of the population enjoys only 2% of global income. This economic inequality poses social, economic, political and environmental and political challenges to society, which is extremely detrimental to democracy. According to the Chinese Labor Bulletin, the number of rural migrant workers in China in 2017 was 287 million, it one third of China's total working population (Natarajan, 2016). It should be noted that according to a media analysis, these migrants make up 80% of the total violent crime, but this information is not included in any official statistics (Fajnzylber, Lederman & Loayza, 2002). According to the study group of Xiamen Public

safety Department, the crime rate of immigrants is much higher than that of local hukou residents. They commit violent crimes like homicide. If, however, it is assumed that the increase in income inequality has resulted in an increase in the number of crimes, then it must be true that a decrease in income inequality will reduce the number of crimes in society (Neumayer, 2005). In fact, people living in the lower strata of society become jealous of the extra wealth of the rich and many of them commit violent crimes (Merton, 1938). It needs to be mentioned here that the income inequality between rich and poor is very wide in developing countries (Levitt, 1999). The first of the 17 sustainable development goals set in the 2030 Agenda for Sustainable Development was ending poverty. One of the goals of SDGs was to create sound policy framework at national and regional level based on pro-poor and gender sensitive development strategies. The aim was to ensure ownership of basic services, land and other types of property, natural resources for all men and women by 2030. In addition, to provide them with appropriate new technology and financial services such as microfinance.

Conclusion

The hope is that poverty is slowly declining around the world, but at a much slower pace. The only way to reduce poverty is to close the gap between income and economic opportunity. In this case, in addition to eliminating income inequality between rural and urban income inequality between men and women must also be eliminated. Various studies have shown that while poverty has been reduced in some Asian countries (primarily China), extreme poverty is prevailing in African countries (Peters, 2017). It needs to be mentioned here that the poor are forced to live in places where productivity is very low and under employment rate is very high. However, with the gradual increase in the rate of education in Third World countries, corruption in these countries has decreased compared to the past (Olken & Pande, 2012). Naturally, a conducive environment for democracy is slowly being created in these countries. It is worth mentioning here that due to Covid 19, every country in the world, especially the third world countries, has faced various challenges, among which poverty is particularly significant. The global economic prospect for 2020 shows that Covid 19 has pushed 71 million people into the abyss of extreme poverty. Naturally, the global extreme poverty rate in 2019 has increased from 8.82% to 9.18%. As a result of Covid 19 scenario, the poverty rate has increased by 2.3 percent.

Recommendation

There are some things that can be noticed that if they can be implemented, it is possible to establish a healthy environment and a just democracy for future generations. These are –

Strict implementation of environmental laws

First of all, it needs to be mentioned that the concept of sustainable development is very effective for democracy in the 21st century. On the other hand, environmental protection is essential in the interest of sustainable development. Therefore, every state must strictly enforce the laws enacted for the protection of the environment.

State initiative

Every state and the people of every country must take special initiative to eradicate poverty. It is essential for the sustainable development and success of democracy.

Welfare of women by the state

Women have a vital role to play in the sustainability of the environment and democracy. The participation of women is very important in the interest of the success and sustainable development of the democratic system. Interest of ensuring the success of the democratic system.

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Sustainable Development and Environmental Issues in India**Dr. Binay Kumar Singh**

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Abstract:

The 'Environment' is where we all live and 'Development' involves a progressive transformation of economy and society. The satisfaction of human needs and aspiration are the major objectives of development. In fact the environment and development are inseparable. The issue of environment and development is an enduring topic of human civilization. As human civilization entered the industrialization period, achieving sustainable use of the environment and its resources in the light of increasing shortages of natural resources became a key issue of common concern.

Development without environmental consideration can cause serious environmental damage, in turn impairing the quality of life and future generations. Sustainable development attempts to strike a balance between the demands of economic development and the need for protection of the environment. It seeks to combine the element economic efficiency, intergenerational equity, social concerns and environmental protection. Although the term 'sustainable development' has many interpretations, it generally refers to non-declining human wellbeing over time. Sustainable development means to maintain the balance between environment and development. We need to have sustainable development which can meet the needs of the present without compromising the ability of future generations to meet their own needs.

Our country is facing the impact of population pressure on its environment, the degradation of natural resources like land, water and biodiversity. The population explosion and continuous economic development i.e. urbanization, industrialization, roadway, power, tourism, infrastructure, healthcare, mining. International trade and several related factors have caused serious environmental damage including biodiversity in India.

Key words : Development, Environment, Pollution, Population & Resources.

1.1 Objective :

The main objective to present the paper is to discuss the overall scenario of developmental conditions and its effect on the environment .

1.2 Research Method :

The present research paper is of analytical nature. The basis of study in this research paper has been made mainly from published books , essays and articles published in magazines etc.

1.3 Hypothesis :

The development done by harming the environment will definitely be harmful for the present and future generations.

Only by changing the policy of unilateral development and being aware of the environment can we maintain the balance of development and environment.

1.4 Rationale of the study:

In India there are many environmental issues. Air pollution, water pollution and pollution of the natural environment are all challenges for India. Nature is also causing some drastic effects on India. Environmental issues are the of the primary causes of disease, health issues and long term livelihood impact for India. The poor management of waste, growing water scarcity, falling groundwater tables, preservation and quality of forests, biodiversity loss, and soil degradation are also some major environmental issues India faces today. However, Sustainable Development stands for development with justice, justice with nature as well as mankind. Such development should also be available to our coming generation.

I. Population growth and environmental quality :

Population growth of the country puts pressure on environmental issues and its resources. There is a long history of study and debate about the interactions between population growth and the environment. According to British thinker Malthus, increasing population puts pressure on agricultural land, causing environmental degradation and forcing farming on poor quality land. This environmental degradation ultimately reduces agricultural yields and food availability and increases disease and death.

In fact, population growth puts pressure on the environment's ability to assimilate, it is also seen as a major cause of air, water and solid waste pollution.

So there is no doubt that population growth contributes to environmental degradation. Its effects can be reduced by modern technology of economic development.

II. Water Pollution:

Water pollution is also a major issue in India. Discharge of untreated sewage is the single most important cause for pollution of surface and ground water in India. There is a large gap between generation and treatment of domestic wastewater in India. The problem is not only that India lacks sufficient treatment capacity but also that the sewage treatment plants that exist do not operate and are not maintained. The majority of the government owned sewage treatment plants remain closed most of the time due to improper design or poor maintenance or lack of reliable electricity supply to operate the plants, together with absentee employee's and poor management.

A World Health Organization study says that out of India's 3119 towns and cities, just 209 have partial sewage treatment facilities and only 8 have full wastewater treatment facilities. Over 100 Indian cities dump untreated sewage directly into the Ganges river. Investment is needed to bridge the gap between 29000 million litre per day of sewage India generates and a treatment capacity of more 6000 million litre per day. Other sources of water pollution include agriculture runoff and small scale factories along the rivers and lakes of India. Fertilizers and pesticides used in agriculture in the north west have been found in rivers, lakes and groundwater.

III. Air Pollution:

In our county Air pollution is a serious issue with the major sources being fuel wood and biomass burning, fuel adulteration, vehicle emission and traffic congestion.

According to a study 100 million homes in India use wood and trash chullahs everyday, 2-3 times a day to cook as a fuel. It is a major source of air pollution in India and produces smoke and numerous indoor air pollutants at concentrations five times higher than coal.

After monsoon from October to December, the annual crop burning practice in northwest India, north India, after monsoon from October to December, are a major seasonal source of air pollution. Approximately 500 millions of tons of crop residue is burnt in the open, releasing smoke, soot and particulate matter into the air. Another source of air pollution is vehicle emissions. The air (prevention and control of pollution) Act was passed in 1981 to regulate air pollution and there have been some measurable improvements.

IV. Solid Waste Pollution :

In India urban and rural areas trash and garbage is a common sight. It is a major source of pollution. India's cities alone generate more than 100 million tons of solid waste a year. Street corners are piled with trash. Public places and sidewalks are despoiled with filth and litter, rivers and canals act as garbage dumps. Indian supreme court in 2000 directed all Indian cities to implement a comprehensive waste management programme that would include household collection of segregated waste, recycling and composting. These directions have simply been ignored. No major city runs a comprehensive programme of the kind envisioned by the supreme court.

It is estimated that up to 40 percent of municipal waste in India remains simply uncollected, Even medical waste, theoretically controlled by stringent rules that require hospitals to operate incinerators, is routinely dumped with regular municipal garbage. A recent study found that about half of India's medical waste is improperly disposed of.

V. Noise Pollution:

Pollution of noise or noise disturbance is the disturbing or excessive noise that may harm the activity or balance of human life. Noise wise India can be termed as the most polluted country in the world. The source of most outdoor noise worldwide is mainly caused by machines and transportation systems, motor vehicles, aircraft and trains. In India outdoor noise is also caused by loud music during festival season.

In 2005 the supreme court of India gave a significant verdict on noise pollution. Unnecessary honking of vehicles makes for a high decibel level of noise in cities. The use of loudspeakers for political purposes and for sermons by temples and mosques make noise pollution in residential areas worse. The Government of India published norms of permissible noise levels in urban and rural areas in 2010.

VI. Land or Soil Pollution :

The issue of uranium poisoning in Punjab in march 2009 attracted media coverage. It was alleged to be caused by fly ash ponds of thermal power stations, which reportedly lead to severe birth defects in children in the Faridkot and Bathinda District of Punjab. The news reports claimed uranium levels were more than 60 times the maximum safe limit. In 2012 the Government of India confirmed that the groundwater in Malwa belt of Punjab has uranium metal that is 50% above the trace limit set by the United Nations world health organization.

VII. Greenhouse Gas Emissions :

In 2009 India was the third largest emitter of carbon dioxide, a major greenhouse gas at 1.65 gt per year, after China and the United States. With 17 percent of world population, India contributed some 5 percent of human sourced carbon dioxide emission; compared to China's 24 percent share on per capita basis: India emitted about 1.4 tons of carbon dioxide per person, in comparison to the United States 17 tons per person and a world average of 5.3 tons per person.

1.5 Conclusion:

In the end, as a conclusion, we can say that 'Environment' is directly related to 'Development', especially Sustainable Development. Sustainable development can be defined as a strategy that meets the needs of the present without compromising the ability of the future to achieve their own requirements. In other words sustainable development means improvement in the quality of human capacity with supporting eco- systems. Due to this reason sustainable development has become the chief issue of the environment.

In this globalized economy sustainable development has a key role to meet all the needs of wants without adverse effects on the environment and for the next generation. All recent summits focus on this current issue. But only with acts and policies it is impossible to go through the path of development without proper implementation and good governance.

1.6 Important Suggestions :

From my point of view, there are some important measures to balance between development and environment which is as follows :

The role of government in sustainable development is vital and necessary to achieve for making a better world. Issue of climate change, over exploitation of natural resources are the main problems facing a democratic country for development in a very sustainable way. In a federal state like India it is important to unite all the political parties and ministries over this issue. They should make an effort to resolve the crucial issue because with continuous and progressive effort we can get our goal for a better world to hand over to the next generation.

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Study of Buccal Cavity *Pangasius pangasius*.**Gaikwad D.M.**Rajshri Shau Mahavidyala, Pathri,
Aurangabad.**Phulwade Durgesh N.**Department of Zoology, Dr. B. A. M. University,
Aurangabad.**Abstract:**

The Study of Buccal Cavity of Pangasius pangasius shows interesting modifications of feeding habit with several morphological characters such as, head is dorso-ventrally depressed and mouth is broad. The upper lip is larger than lower lip, mouth is surrounded by strong upper and lower jaw.

Keywords: *Pangasius pangasius, Buccal cavity, Tongue, Teeth.*

Introduction:

Pangasius pangasius (Hamilton, 1822) is a catfish species of the family Pangasiidae under the order Siluriformes. Body is elongated and laterally compressed, without any scale. Head and abdomen are flat; tail is constricted behind the adipose fin but a bit extended before the caudal peduncle. Head is slightly granulated above occipital process is used to reach to basal bone of dorsal fin snout is fairly prominent. Adipose dorsal fin is short, posteriorly free, and originates almost opposite to the middle of the anal fin. Pectoral fin spine is serrated, strong and as long as dorsal spine. Anal fin is large and well developed. Caudal fin is deeply forked upper lobe is slightly the longer. Body colour is silvery, darkest along the back and glossed with purple on sides; cheeks and the under surface of head is golden; caudal fin is bright yellow (1). *Pangasius pangasius* is widely distributed in India, Bangladesh, Pakistan, Myanmar, Malaya-peninsula, Indonesia, Vietnam, Java and Thailand (1). *Pangasius pangasius* used to attain maturity at about 54 cm size at the end of the third-year age or it would out following providing protection to the existing populations where in nature till they are present in numbers (1).

Material and Method:

To study of jaws & teeth in fresh water fishes. This fresh water fish *Pangasius pangasius* were study for this fishes were collected from local fish market Aurangabad (M.S) India. The Collected Fishes Washed & preserved in 10% formalin. The fish cut by every angle. The food & buccopharynx were washed & preserved in 70% alcohol & glycerin for stretching. The jaws, gills and teeth were examined properly for detailed studies (3).

Results and Discussion:***Pangasius pangasius*:**

Mouth: During the present study was observed that the mouth of *Pangasius pangasius* is Head is slightly granulated above occipital process is used to reach to basal bone of dorsal fin snout is fairly prominent. Eyes are in the anterior half of the head, partly on the lower surface of head. Mouth is sub-terminal upper jaw is longer than the lower jaw mouth gape is of moderate size. Cleft of mouth is used to reach opposite the center of front edge of the eye (1).

Buccal Cavity: The buccal cavity of *Pangasius pangasius* is wide. The roof is formed by the base of cranium and the floor of buccal cavity is formed by branchial arches.

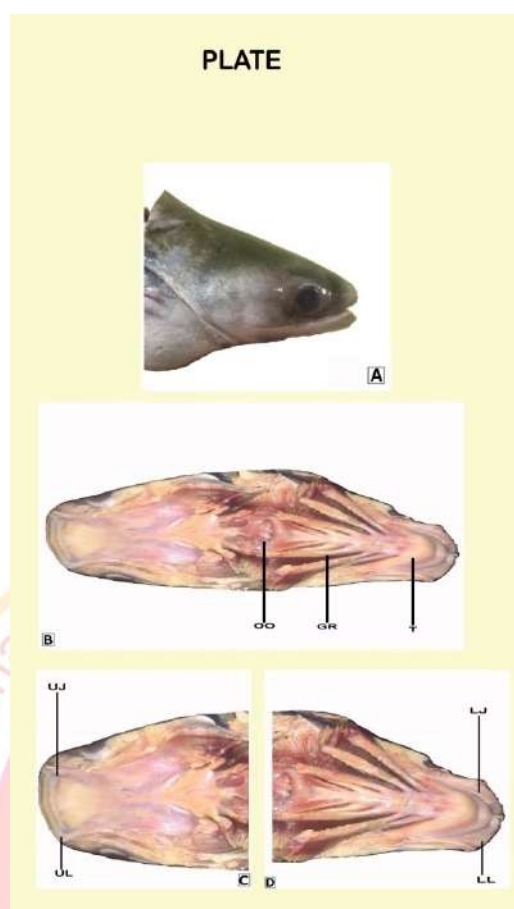
Pharynx: The pharynx is wide. Pharynx is observed to be wide and spacious. It is observed that, a pair of ovoid upper pharyngeal pads is present on the roof of the pharynx (3).

Tongue: Tongue of *Pangasius pangasius* observed to be well developed and mobile which is fixed dorsal line of the floor of buccal cavity (2).

Discussion:

The mouth of *Oreochromis mossambicus* is large, surrounded by upper and lower lips which are thick. The lower jaw extends the upper jaw (3). The Mouth of *Channa punctatus* is horizontal and terminal in position and the gap of the mouth is wide, surrounded by strong papillated jaws, the upper jaws and lower jaw. The upper jaw is shorter than the lower jaw. The lower jaw is protruding, large and is not protractile (2). In carnivorous fish *Mystus seenghala* where the tongue is well developed and mobile and help in pushing the prey

into the buccal cavity (3). During the study of jaws and teeth of *Clarias batrachus*, it was observed that the head is dorso-ventrally depressed mouth is broad, surrounded by fleshy upper and lower lips (8).



(A) Mouth of, *Pangasius pangasius* (B) GR. gill rakers, OO Opening of esophagus (C) UL. Upper lip, UJ. Upper jaw. (D) LL. Lower lip, LJ. Lower jaw.

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The Hungry Tide: Reflection on man's intelligence with regard to man's adjustment to nature.**Raghunath .D.Dhamakale**

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Abstract:

The intelligent man has failed to understand that nature and man are two sides of the same coin. In the process of so called development and conservation of certain species the man and all the agencies ignore the reality which results into the destruction of nature and ugly survival of the affected society.

Rationale of the Study: With growing greed for money and development and whims of conservation it has become indispensable for us to think about the process of the development and in the light of the rationale the study of the *The Hungry Tide* is quite essential.

Objective of the Study: The objective of the present paper is to study the reflection of man's intelligence with regard to man's adjustment to nature in *The Hungry Tide*

Hypothesis: *The Hungry Tide* reflects different issues of man and nature relationship in the process of development and conservation of species.

Methodology: The present paper is mainly outcome of interpretation, analysis and argument.

Conclusions:

Amitav Ghosh brings before us the serious problems of man and nature relationship which is basically result of man's misunderstanding of nature, local culture and history. The greed for the development and stupidity of conservation needs to be thought out in most rational and meaningful manner taking into consideration the local history, culture and scientific means and ways for the adjustment of man with his environment.

Recommendations: There are numerous works of creation produced in the past and present reflecting on the issues of man and nature relationship and how does it affect nature and man can be studied.

Conflict between man and nature:

Conflict between a man and nature is continued from the times unknown to us. But it should be understood that the conflict is one sided .It is always the man who is in confrontation against the nature. The development has become a second nature to man. Every age is a marked with development and this development is to make a man more comfortable animal at any cost. In fact a story of the man's development is nothing but the story of man's moving away from nature. The man has higher intelligence but it is used more for maladaptive rather than adaptive. Survival of the fittest is law and only successful creatures have rigid character and they adapt themselves to certain climatic and environmental condition. But the man with his higher intelligence has failed to adapt himself with the nature smartly. With a passage of time human population has grown tremendously and it has resulted into severe damage to the environment. We are heading towards self-destruction in addition to destruction other species. The higher intelligence of man is always engaged in creating comforts and luxury for the man.

Nature and man relationship is always reflected in literature and nature is a permanent theme of it. But now there is a serious need to focus on man's role, attitude and responsibility towards nature throughout the world. The nature is reflected in most beautiful words and esthetically in literature.. Amitav Ghosh's *The Hungry Tide* can be studied as an eco-critical novel. Amitav Ghosh , Indian-Bengali writer, has created his place as important writer in English with his outstanding literature. Amitav Ghosh believes in research before he starts writing his novel. So the novel is based on his research. His findings have influenced his writing of the novel. The novel deals with various issues but for the present purpose focus is on the issue of how individuals react and behave with the nature. *The Hungry Tide* takes place in the aftermath of the devastating 2004 Tsunami in the Indian Ocean that devastated the entire area. *The Hungry Tide* takes place primarily in the Sundarbans, a massive mangrove forest that is split between West Bengal in India and Bangladesh. Containing tigers, crocodiles, and various other predators, it serves as a dramatic backdrop for Ghosh's story of the environment, faith, class structure, and the complex history of India in terms of colonialism and sectarian conflict. *The Hungry Tide* contains a wide array of characters and settings that intersect throughout the novel.

The issue of language and translation:

The Hungry Tide was published in 2005. The novel received Crossword Book Prize. The story begins with accidental meeting between Piya, American-Indian cetologist and the translator –businessman Kanai when both of them were heading for Sundarbans. Kanai is going to Sundarbans after a very long time to meet his aunt Nilima who runs a charitable hospital there and he also wants to read a journal written by his uncle, Nirmal. Piya is going there for her research work about Irrawaddy dolphin. She takes services of Fokir because she does not know the local language. Piya, Kanai and Fokir discussed about various issues pertaining to histories, religion, class, language and gender and how they are formed in course of journey of the civilization. The issues of translation and interpretation are raised by Ghosh to highlight fundamental alienation of natural and scientific worlds which can be understood in translation. In other words it is language that is at the centre of the issue as a constructor, a game that hides more than it reveals. "Speech was only a bag of tricks that fooled you into believing that you could see through the eyes of another being". The ways and uses of language to express and to mould realities are expressed through Kanai who is translator and interpreter by profession. The writing of Ghosh is also translation because he tries to see his own meaning at a site already given a meaning by earlier intellectual thinkers and its expression in the process of colonization. Enlightenment tradition has thought nature as an adversary and should be dominated and exploited. The colonial encounter thought that colonized countries as wild and uninhabitable. The politics of translation is discussed at some length where Fokir and Kanai are tracking dolphin near the island of Garjontola. Ghosh expresses his concern about how this politics of translation is used to depict nature as an adversary:

He understood all too well how the dynamics of their situation might induce Fokir to exaggerate the menace of their surroundings. He himself had often stood in Fokir's place, serving as some hapless traveler's window on an unfamiliar world. He remembered how, in those circumstances, he too had been tempted to heighten the inscrutability of the surroundings through subtly slanted glosses. (321)

Man's construction of nature and civilization is exposed by Ghosh in the encounter between Fokir and Kanai. Kanai talks about city and civilization and in Fokir's response Kanai sees an unformed elemental man. Fokir takes Kanai to the island and then he loses his language and also his affinity to the civilized life. Kanai expresses his impotent rage:

His anger came welling up with an atavistic explosiveness rising from resources whose very existence he would have denied: the master's suspicion of menial; the pride of caste; the townsman's mistrust of the rustic; the city's antagonism to the village. (326)

In fact Ghosh has presented Fokir as nature's man against the constructs of language and culture which is represented by Kanai. Kanai as the translator serves to expose the cultural bias that is seen when he translates Fokir for Piya and also as a conduit to the history of the Sundarbans as the reader and interpreter of Nirmal's diary. Nirmal's diary asks for reassessment of history. The politics of representation of nature is rooted in the colonial presentation of history and nature. It is very important to see Ghosh's selection of the setting for the novel. He wants to suggest a possibility for man's integration with nature in the midst of the most difficult natural circumstances. However he does not celebrate or glorify nature because he is aware about nature's devastating power. He says, "At no moment can human beings have any doubt of the terrain's utter hostility to their presence, of its cunning and resourcefulness, of its determination to destroy or expel them." (8)

Ignorance of local culture and history in the process of settlement:

Survival is basic instinct. The people who have been dispossessed have fought against the danger to keep on living but they do not fight as part of their big dream or to create their empire. They mainly face dangers of wild animals, tide, and cyclone. D.M. Hamilton, a Scotsman, did not look much at Sundarbans but he thought that it is something like gold. He did not bother to understand the land and guided by his plan he thought of planning civilization. He thought it is not good idea to keep this land as it is. He wanted to set up his idea of nature and man relation and to form utopian human settlement where all people are equal. But he failed to understand that the land is totally unsuitable for settlement. The knowledge of D.M. Hamilton with regard to the land and its people was quite inadequate. According to Barry Lopez:

The more superficial a society's knowledge of the real dimensions of the land it occupies, the more vulnerable the land is to exploitation, to manipulation for short term gain.

Hamilton failed to understand history and nature and it is seen in case of Nirmal. Nirmal fails because he carries with the ideologies that ignore local history, nature and society. He ignored the big reality of the partition which resulted in refugees at Morjhapi. Nirmal dreamed of society where "men and women could be farmers in the morning and poets in the afternoon and carpenters in the evening." He tried to achieve all through a revolution. In spite of Nirmal's failure, he introduces two central issues in the novel:

For him it meant everything which existed was interconnected: the trees, the sky, the weather, people .poetry, science, and nature. He hunted down facts in the way a magpie collects things. Yet when he string them all together, somehow they become stories- of a kind.(283)

The first issue is from Nirmal's account of Henry Paddington, Lord Canning and the port town on the Matla river explaining with focus on the shortsighted development carried by the government, scientists and surveyors with almost no attention to the natural demands of the terrain. Henry Paddington's prediction about Port Canning proves that any attempt of development divorced from understanding results into destruction of both human life and nature. The second issue is of animal life verses human life. Kusum as one of the dispossessed at Moichjhapi struggles against the government's attempts to remove from their settlement. Kusum complains to Nirmal :

....the worst part was not the hunger or the thirst. It was to sit there, helpless, and listen to the policemen...hearing them say that our lives, our existence, was worthless than dirt or dust.(262)

This easily explains the casual way in which the lives of the refugees are dealt with by the government in the name of development. When Piya sees that a tiger is killed she strongly condemns the killing of tiger and she says "Everywhere in the world dozens of people are killed everyday – on roads, in cars, in traffic. Why is this any worse?" But Kanai reply :

It was people like you..who made a push to protect the wildlife here, without regard for human costs. And I am complicit because people like me- Indians of my class, that is –have chosen to hide these costs, basically I order to curry favour with their western patrons .(310)

Piya forgets that there are more number of tigers in captivity in America but still maintains that she does not mind dying for Irrawady dolphin to protect species and their habitat. We see Piya as an immature and unformed person coming from the forest world who loves romanticizing things. She was fooled in her relationship with Rath and also she had a similar immature idea about her ability to communicate with Fokir in spite of linguistic and cultural barriers. Piya symbolizes dominant cultural mode and how it dominates its views of things and ideas upon the world.

We see Fokir as a silent character throughout the novel and he stands out as the most powerful and well-adjusted character vis-a-vis nature. Fokir's wisdom is brought to us in translation because Nirmal's journal is in Bengali .Fokir is in rhythmic harmony with himself and also with humans and nature. He is one with nature. Illiterate Fokir speaks about holistic idea of life, man and nature relationship which is in complete contrast with Piya's faulty and fractured ideas about nature. The novel shows that in nature it is maladjusted who is rejected and the adjusted is accepted. Kusum chooses Horen and Piya and Moyna recognize Fokir's worth and Moyna chooses to live him .Nilima is only person who conducts her life and work successfully. She lives in precarious balance and she is well aware that all her work can be destroyed in minute by nature. She knows the difference between building and dreaming something.

Question of human attempt to conserve nature:

Ghosh has put big question about human attempts to conserve nature. Gosh strongly criticizes the government's forced evacuation of the refugees to protect and preserve tiger reserve and also Piya's concern for nature because he thinks that both government and Piya lack fundamental understanding of nature. Human endeavour of civilization and development are carried without any understanding of nature. Man cannot forget his link with nature. Man's integration with nature can be achieved with clear understanding of bounties and dangers of its forces. The people in Sunderban live their life with the knowledge that they cannot subjugate the forces of nature. Nature is not adversary to win over but circumstances they are placed in. Transcultural fusion of Hindu and Muslim strands in the cult of Bon Bibi is symbolic of the holistic approach to reality in idea and practice and this is the basis for the coexistence of a man and nature. The storm shifts Kanai from Delhi and Piya settles at Lusbari and calls it as her home. It is symbolic relocation of the earlier positions of Kanai and Piya and their return to native traditions away from borrowed constructs of knowledge.

The novel presents a permanent engagement between man and nature in the form of human activity in the Sundarbans. The novels depict human activity and these activities fail to translate vision into reality. Daniel Hamilton, Lord Canning, Nirmal, Nilima, Kanai, Moyna and Piya all of them work to create an ideal with idea of contributing towards constructive civilization but all of them have failed. But Fokir is uniquely rhythmic with nature though he is considered as an unsuccessful by the society. He shows an intuitive understanding of nature. There is unique blending between human and ecosystem and this blending is not translated and understood by Kanai and Piya. Kanai admits that he cannot translate Fokir's song to Piya. But Nirmal has understood the relationship of Fokir with the song:

... for this boy (Fokir) those words were much more than a part of a legend: This was the story that gave this Island its life.(354)

Fokir extends his help to others to reach their respective goals. The comparison between the other characters and Fokir establishes that an engagement with nature is beyond structures of power that encompass human life. In this global world there are different marginal groups that are shouting for their places and also attracting attention of the world to their grievances. In situation like this Amitav Ghosh makes it clear that an indigenous Indian Ecocritical tradition which looks deeper into local aspects should be paid attention rather than generalities. Ghosh shows his concern for relationship between nature and human civilization but he does not follow the western path like most others in case of nature and human relationship.

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Role of Indian Judiciary in Environment protection: An Assessment**Rakib Ali Molla**

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Abstract:

The intense quandary in the modern world is the ever-increasing pollution of the environment. Ecological hazards are more serious problem than others, which are now receiving immediate attention in most parts of the world. The work of environmental protection is an important task for humanity. There is a need for all states to formulate policies and laws to deal with this task. The development of policies and laws towards an effective environmental management and protection in most countries were accelerated by international foras. India has implemented most of the international instruments either in the form of policies or in the form of law. However, India has always had its limitations in the implementation of all policies and laws due to its socioeconomic structure. This paper has explored the role of the Indian judiciary in the development of environmental protection.

Keywords: policies, sustainable development, constitution

Introdution:

Environment is the source of living and non-living life on earth like water, air, soil etc. Human growth and development is dependent on the environment. According to Webster's Dictionary, Environment described as "the sum of all external conditions and influences affecting the life and advancement of an organism"¹. Today we are living in technological era. Due to the day-to-day creativity and development of technology, it has become a part of development but moreover it has spread risk to human life. Therefore, there was a need for law to protect the environment and human beings too. The Environmental Laws are enacted by the Indian Parliament under Articles 252 and 253 of the Constitution of India. The Water (Prevention and Control of Pollution) Act, 1974 was set forth as a Central Legislation under Article 252 of the Constitution. The Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 were set forth under Article 253 of the Constitution of India, which empowered the Parliament to enact legislations on such matters as necessary for compliance of International Agreements in which India has been a party². Some of the major Environment Acts passed by the Parliament are as follows:

- The Water (Prevention and Control of Pollution) Act, 1974
- The Water (Prevention and Control of Pollution) Cess Act, 1977
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986
- The Public Liability Insurance Act, 1991
- The National Environment Tribunal Act, 1995
- The National Environment Appellate Authority Act, 1997
- The Biological Diversity Act, 2002
- The National Green Tribunal Act, 2010

Judicial Initiative:

The Supreme Court (SC) of India has played a very important role in the field of environmental law through public interest litigation (PIL). There are many cases where the Supreme Court and the High Court have used PILs to protect the environment. SC of India Broadened the scope of Article 21 of the Constitution in various matters relating to the protection of life and personal liberty—No person shall be deprived of his life or personal liberty, except as provided by law. In this regard the right to the word of life was given by SC. Its scope expanded from time to time, including the right to a clean and safe climate within its framework. In 42nd constitutional Amendment Act, 1976 introduced certain environmental duties both on the part of the citizens [Article 51A(g)] and on the state (Article 48A). The legal status of Articles 51A (g) and 48A under the constitutional scheme is competent in nature and not legally obligatory, however, such provisions have often been interpreted as legally obligatory by Indian courts. Further, these provisions have been used by courts to justify and develop a legally obligatory fundamental right to the environment as part of the right to life under Article 21. Article 48A explained that, "the State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country". The amendment also included Part VI-A (Fundamental Duties) in the Constitution³. Article 51A (g) explained "It shall be the duty of every citizen of India to protect

and improve the natural environment including forests, lakes and wildlife and to have compassion for living creature"⁴. In the case of Sachidananda Pandey vs. State of West Bengal & Ors, the Supreme Court observed, "Whenever the issue of ecology is brought before the court, the court is bound to take into account Article 48A and Article 51A (g). In the Asbestos Industries case, the Supreme Court widely cited several international laws, such as the ILO Asbestos Convention, 1986, the Universal Declaration of Human Rights, 1948, and the International Convention on Economic, Social and Cultural Rights, 1966. In this case the court dealt with issues relating to occupational health hazards of workers working in asbestos industries⁵. The court observed that the right to health of such workers is a fundamental right under Article 21 and issued detailed directions to the authorities. In the Calcutta Wetlands case, the Calcutta High Court explains that India, being a party to the Ramsar Convention on Wetlands, 1971, is bound to promote the conservation of wetlands.⁶

Several Doctrine adopted by Indian Judiciary-

1. **Doctrine of Absolute Liability:** In the historic case of the Oleum gas leakage from the factory Shriram in Delhi in 1986, the SC Ordered to pay the individual money⁷. Many people were suffering from the leakage of Oleum gas. In this case the doctrine of "absolute liability" lay down. It means that the person shall be liable if he owns, deals or operates a dangerous substance and the person shall be under the responsibility of taking care of that hazardous substance and not in such a manner as to cause injury to others or otherwise shall be liable under absolute liability. In this case for the first time, compensation has been given to the victims.

2. **Doctrine of Sustainable Development:** The concept of 'Sustainable Development' is not a new concept. The doctrine of "Sustainable Development" was discussed for the first time, in the Stockholm Declaration of 1972. In 1987, the World Commission on Environment and Development submitted its report, also known as the Brundtland Commission report, which attempted to link economic development and environmental protection. In 1992, the Rio Declaration on Environment and Development codified the principle of sustainable development. Simply, the doctrine of sustainable development seeks to maintain a balance between development and the environment. In the petition of Vellore Citizen Welfare Forum Vs. Union of India⁸, the doctrine of Sustainable Development was implemented by the Supreme Court. The Petitioners had filed a petition in public interest under Article 32 of the Constitution of India against the pollution caused by discharge of untreated effluent by the tanneries and other industries into the Palar river in the State of Tamil Nadu. In the instant case, the Supreme Court held that the precautionary principle and polluter pays principle are a part of the environmental law of India. The court also held that: "The treatment of the damaged environment is part of the process of 'Sustainable Development' and as such polluter is liable to pay the cost to the individual victims as well as the cost of reversing the damaged ecology".⁹

3. **Polluter Pays Principle:** The polluter pays principle was first introduced in 1972 by the Organisation for Economic Co-operation and Development (OECD) Guiding Principles Concerning the International Economic Aspects of Environmental Policies where under polluter was held responsible for the environmental damage and pollution. Subsequently, in furtherance of the aim of sustainable development, Principle 16 of the Rio Declaration enshrined the Polluter Pays principle stating the polluter should bear the cost of pollution. In M.C. Mehta vs. Union of India¹⁰, a petition was filed under Article 32 of the Constitution of India, seeking closure of a factory engaged in manufacturing of hazardous products. While the case was pending, oleum gas leaking out from the factory injured several people. The significance of the case lies in its formulation of the general principle of liability of industries engaged in hazardous and inherently dangerous activity.

4. **Precautionary Principle:** The precautionary principle states that if a work or project has some potential risk that may cause harm to the public and the environment and the person who performing that action is aware of those risks, that in the absence of scientific measures if the project or work is harmful, then the burden of proof is on those peoples who are taking that action. The precautionary principle states that it is a social responsibility to protect the public from any harm when scientific investigations in the direction of a risk. These protections can be relaxed if the person taking the action can prove with solid evidence that no harm will be caused. In the petition of Vijayanagar Education Trust vs. Karnataka State Pollution Control Board, the Karnataka High Court accepted that the precautionary doctrine is now part and parcel of the Constitutional mandate for the protection and improvement of the environment¹¹. The court referred to Nayudu's cases which held that the burden to prove the benign nature of the project is on the developer if it is found that there are uncertain and non-negligible risks.¹²

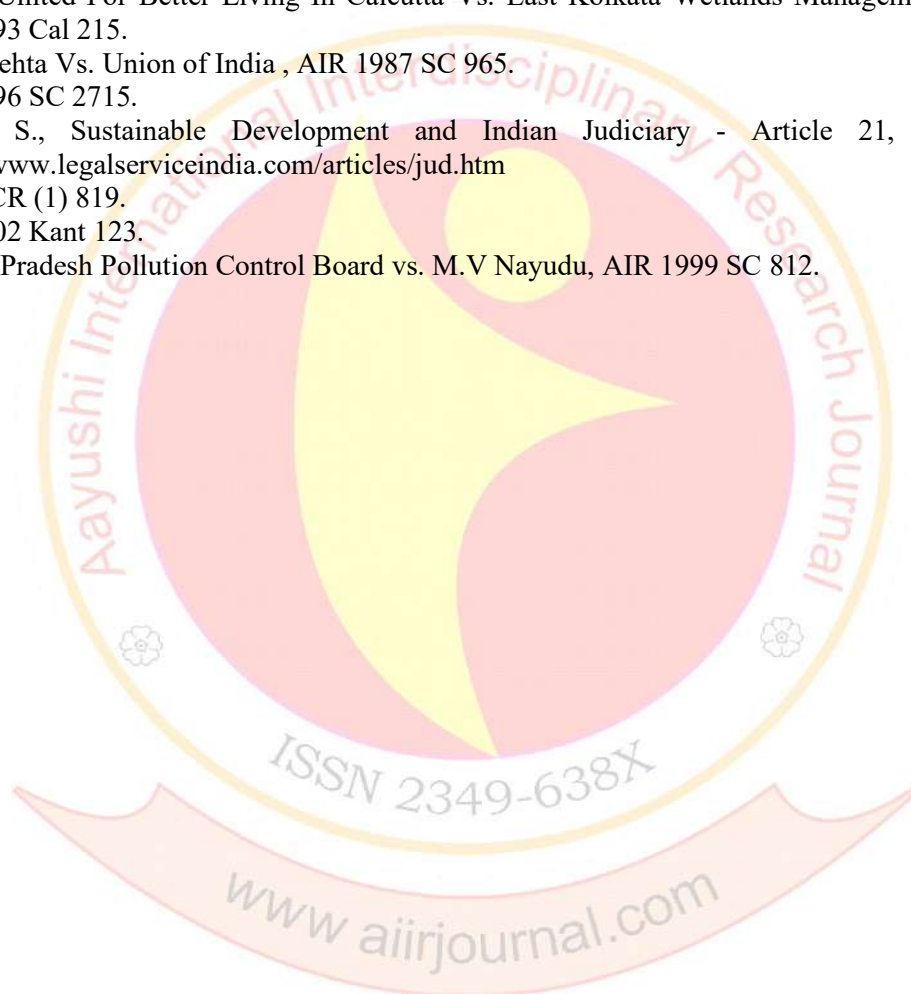
Conclusion:

Thus, our judiciary has used the tool of public interest litigation quite effectively for environmental protection. After a thorough analysis of the cases mentioned above, we found at present that Supreme Court has effected many legal provisions about the environment protection. This new innovation and development in

India through judicial activism help to widespread many perspective. The court in India is severely conscious and careful about the monopolist nature of environmental right because the damage of natural wealth cannot be rejuvenated. But there are also many such cases which are still pending in the court, most recently in March-2020, in Chakdaha, West Bengal, more than 200 trees were cut to widening the Chakdah-Bongaon road. Further that in October-2019, in Mumbai's Aarey forest more than 3 thousand trees were cut in the name of development. So still the court has to take preventive measures to check the balance between development and environment.

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Environmental literacy for sustainable Development**Dr. Anita Madhusudan Shelke**

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Abstract-

Huge competition for development is going on all over the world. For this, human beings are making excessive use of various natural resources. As a result, we are facing many kinds of problems. The concept of development as a whole is destructive and temporary. Therefore, it is necessary to understand and strive for sustainable development that is sustainable and secures the future. It requires environmental literacy to motivate and act on human life and needs, environment, environmental factors, interrelationships and effects of various environmental factors, effects on human life, problems, causes and solutions. Environmental literacy is essential for inspiration, awareness and actual conduct.

Key Points: Sustainable development, Dimensions of sustainable development, Environmental literacy.

“Responsibility is accepting that you are the cause and the solution of the matter”

In the present age of science, the development process seems to have gained tremendous momentum. The core of the development process seems to revolve around physical and economic development. Many problems have arisen due to lack of awareness of the responsibilities that come with making material progress. Massive industrialization, urbanization has taken place. The growing population has also increased human needs. The use of natural resources for needs, factories, industries, transportation, etc. has increased. As a result, natural resources are declining rapidly. We get raw materials from nature by deforestation, mountain leveling, various kinds of industries. So, the infinite damage of nature is happening.

If natural resources continue to deplete at this rate, living things will come to an end. And the reason for this will be human beings. Therefore, in order to prevent this catastrophe, it is necessary to protect and nurture the environment. We have misinterpreted development since these problems have arisen. Development needs to be reconsidered in a way that is mutually beneficial. The consequences of the depletion of natural resources have come to us. Many problems have arisen. So, the earth's temperature has risen. The glaciers are melting. Water, air pollution is done. Overuse creates water scarcity. The forest has been degraded. All this has an effect on the seasons and agriculture and it has occurred on the respective product. Due to side effects of all these health has been threatened. From this thinking the concept Sustainable development emerged.

Sustainable Development

The term was first coined in 1972 at the United Nations Conference on Human Environment at Stockholm. The most important piece of writing on Sustainable development is in the publication by the World Commission on Environment and Development (WCED) in 1987 titled “Our Common Future”. In 1992 at the Earth summit at Rio-de-Janeiro, 170 countries signed many important documents on sustainable development pledging preservation of environment.

The concept of sustainable development was described by the 1987 Brundtland Commission Report as - “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainable development includes social progress and equality, environmental protection, conservation of natural resources and stable economic growth. Everybody has the right to a healthy, clean and safe environment.

For development, more and more resources get used up. Increase in cultivation is an indicator of development. The resources used for development may be renewable resources or non-renewable resources. We have limited stocks of non-renewable resources that are lost forever once used. Renewable resources get stored by nature in a period of time like groundwater which gets replenished by nature. Use of renewable resources faster than what nature can restore can lead to their scarcity. If development continues at its present pace, there may be a time in future when we may run out of resources and no further development would be possible.

Sustainability of development involves finding ways for continuous development without the risk of running out of resources or causing irreparable damage to environment.

Sustainability of development would involve:

- More efficient use of our existing resources
- Finding fresh reserves of resources
- Coming up with innovative ideas and technology to use new resources in place of conventional ones

Dimensions of Sustainable Development

There are four dimensions to sustainable development – society, environment, culture and economy. Culture and economy are inter-twined, not separate. Sustainability is paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life. For example, a prosperous society depends on a healthy environment to provide food and resources, safe drinking water and clean air for its citizens.

Way to achieve Sustainable development -

Sustainable development is a multifaceted development. It includes environmental, social, economic, cultural factors. Therefore, it is necessary to consider the various factors included in it.

The natural environment is being used indiscriminately for economic development. The natural environment is used by human beings and is a part of human society. Human behavior and mentality are included in the social component. It is necessary to try to change. For this, the society needs to be aware of the adverse effects of its actions.

Environmental literacy-

Environmental literacy is an individual set of abilities and commitments necessary to find, understand, assess and act on information about the health of our environment. Environmental literacy includes beliefs, values and attitudes toward sustaining a healthy environment.

The word literacy traditionally means to be educated as well as getting acquainted with literature. Literacy is the ability to use a script for a specific purpose or for learning. Two types of literacy. Awareness of duty also means literacy.

The conception of Environmental literacy has been and continuous to be promoted through creative and intensive discourse from a diversity of perspectives. The most widely accepted meaning of environmental literacy is that it comprises an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills and motivations to work toward solutions of current problems and the prevention of new ones

In this sense, to know about the environment, to understand it, to act accordingly, to know one's own responsibilities, to act responsibly is environmental literacy.

The usefulness of environmental literacy for sustainable development-

Environmental literacy is a basic functional education for all people, which provides them knowledge, skill and motives to cope with environmental needs and contribute to sustainable development

The concept of development must be comprehensive and sustainable without taking it in a narrow sense. Sustainable development must be achieved to meet the needs of the present as well as the future of next generations. The development depends on the way how society thinks and works. The environment is essential for the development of all forms of life along with providing human beings with necessities of life. Environmental literacy is the key to understanding the relationship of resources to the climate, information on the use and conservation of various natural resources, problems and causes. Awareness of the mistakes we are making will lead us to think and act to improve behavior and conserve the environment. Environmental literacy is essential as it happens.

Attitudes and behaviour in order for sustainable resource use is one of the requirements of environmental



Various information, processes, ideas have been introduced for the knowledge related to environment. These attempts have created environmental awareness. Awareness leads to information which helps develop an understanding of environment. Understanding leads action and series of action develops ethics. Ethics leads to culture. In this way we can bring about cultural and social change through environmental literacy and successfully move towards sustainable development.

Attempts like above to control population growth, conservation and conservation of natural resources, recycling of waste, measures

to reduce pollution, environmental laws, research work, education can lead to sustainable development.

Conclusion

The whole world today is aware of the consequences of overuse of environmental resources. It is very important to create awareness. Environmental literacy creates awareness about environmental factors, usefulness, various natural phenomena, their effects, various human behaviors affect society and the environment. Knowledge creates direction and guidance to act responsibly. Proper action taken will guarantee sustainable development.

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A Comprehensive Study Of Water Contaminants And Techniques For Treat Effluents

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ABSTRACT

Water sustains life for plants, animals, and humans. Urbanization putting tremendous pressure on natural resources particularly land, water, and air. In the world, 98% of human settlements are located near water bodies. The quality of water depends on the harmful elements present in the entire region. The water returning after use becomes the waste water. Watershed management aims to conserve the soil and recharge water supplies. Demonstrate the need to improve the quality and quantity of clean water to the local community and thus ensure their participation. Water pollution is caused by several sources, which are not independent in nature but interact with one another. Now, it becomes a worldwide problem. The present study carried out Water Pollution Contaminants and their impact, sources of water pollution and treat effluents waste discharge.

Keywords: Water, urbanization, Natural Resources, Waste water, Water Pollution, Waste discharge.

INTRODUCTION

Many ancient civilizations have developed in river valleys of the Nile, Indus, Tigris, and Euphrates, etc., even now also water resources provide a base for social, cultural, and economic development. Apart from the scarcity of water, we are facing a problem of water pollution not only in rivers and lakes but also in underground water. The intolerable burdens of chemical and human waste products have become a threat to aquatic life as well as to human health. Water has always played a very important role in human life. It is a supreme economic wealth and biological importance. From a chemical point of view, water is the monoxide of hydrogen (H₂O) in which two parts of hydrogen and one part of oxygen are present. But this form of pure water is not available in nature. In climatic conditions the water vapor enters into the atmosphere after condensation, impurities like dust particles, gases, etc. are mixed in it and when it reaches the surface several minerals and chemicals are also mixed in it.

This energy is termed latent heat. Water pollution is water that has been contaminated by harmful wastes. Generally, water pollution occurs through natural processes, but it is mainly the result of human activity. Every human being uses water on a daily basis in their homes and industries. Usable water is taken from lakes, rivers, and underground known as underground water, and after we have used and contaminated the water it is returned to the lakes, rivers, and underground that results from water pollution. Dumping of garbage in rivers, lakes, oceans, and seas by humans, Insecticides being washed away into water bodies, sewage generated from homes, or runoff from septic tanks into nearby rivers are considerable causes of water pollution. It may affect oil spills wiping away aquatic animals, toxic chemicals may killing fauna and flora, and increases water born diseases.

The planet earth along with the atmosphere (Air, Land, and Water) that sustain life is known as the biosphere. It extends vertically into the atmosphere to about 10 km, downward into the ocean to depths of about 10.67 km, and into about 7 km of the earth's surface itself where life has been found to exist. The biotic and abiotic components of the biosphere interact in a delicately controlled and orderly manner to sustain life upon the earth. Man has been considered as a generalized physical animal, remarkably adaptable to changing conditions. Pollution means the direct or indirect changes in one or more components of the biosphere that are harmful to the living elements and in particular, undesirable for man. With rapid industrialization, the intensity of man-made pollution is greatly increased. The present study is divided into two parts. The first part highlight the sources of water that contaminate pollution, pollutants, and their characteristics, dissolved salts. In the part second the different treatment techniques for waste discharge and Sources of Water Pollution Contaminants and their impacts.

HYPOTHESIS

1. An environmental study seeks to create public awareness about environmental concerns among public at large.
2. A degraded environment directly affects society.

3. Water Resources are considering antiquities as a symbol by which to express devotion and purity.
4. Water pollution causes immediate damage to any ecosystem and the effects can be for reaching.

OBJECTIVES

This research paper avails to concentrate on following objectives:-

- To know the meaning of water contaminants
- To know the sources of water pollution contaminants
- To know the sources of water Pollution Contaminants and their impacts.
- To know the various principal pollution
- To now different Techniques of treat effluents before waste discharge

METHODOLOGY

Every research work provides some conclusion on the basis of some standard methodological approaches. Data are gathering by the Primary sources and the Secondary sources. Present work is based on empirical investigation. Most of the information has been collected from digests, reports, journals and newspapers.

LITERATURE REVIEW

Therault, et al (1932), he described that, the analysis of dissolved oxygen is important in water pollution.

Ellis (1937), he highlighted the breathing distress in fish resulted from logging of the gills due to per capital mucus in addition to direct damage caused by organic matter.

Ruchheft, et al (1942), described that, the dissolved oxygen is necessary for all biological waste water treatment processes.

Fry (1947), he concentrates on his water pollution study as favorable and unfavorable concentration of environmental factors, such as pH, Temperature, Turbidity for aquatic life.

Mohlman, et al (1950), studied that the biochemical oxygen demands test is widely used to determine the pollution load of waste waters.

Adoni, et Al (1985), reported that the, quality of water also affected by the energetic values of the animals.

□ Description of Study

Part –A

Meaning of Pollution and Pollutants

a) Pollution :-

Pollution means, the direct or indirect changes in one or more components of the biosphere those are harmful to the living elements and in particular, underirable for man, industrial progress, cultural assets, or environment, in general. With a rapid industrialization the intensity of man-made pollution is greatly increased.

b) Pollutants: - The substances which cause pollution are known as pollutants. A pollutants thus may be defined as any chemical (radionuclide, organo-phosphorus compounds or trace gases) or geo-chemical (dust, sediment, grit, etc.) substance, biotic component or product, or physical property (heat) that released intentionally or inadvertently by man into the environment in such concentration that may have adverse, harmful or unpleasant and inconvenient effects.

A. Sources for Water Pollution

- Inorganic Pollutants (Non-Carbon based) : Heavy metals i.e. Lead, Mercury, Nickel
- Organic Chemical waste: (Carbon based): Petroleum products – Oil and gas.
- Non-biodegradable : Plastics, Synthetic, Chemical
- Organic waste (Carbon based): Human or animal waste or other organic material produced by living things.

1. Permissible Limits of Impurities in water

In natural water impurities are in three forms:

- a) Suspended impurities: Suspended impurities float on the water surface as dust particles, particles of minerals, paper, cloth, foam, leaves and floating vegetation.
- b) Colloidal impurities: In the Colloidal impurities are those mixed with water and difficult to separate, such as silica glass, oxides of various minerals, micro- bacteria. Etc.
- c) Dissolved impurities: Water during flow includes carbon dioxide (CO₂), sulphur dioxide (SO₂), methane (CH₄), Sodium (Na⁺), potassium (K⁺), Calcium (Ca⁺⁺), magnesium (Mg⁺⁺), iron (Fe⁺⁺),

ammonium (NH₄⁺) etc. Apart from these, man has induced several impurities in the water, which are responsible for water pollution.

2. **Water in the world with emphasis on India**

The Earth holds 1.46 X 10⁹ billion cubic meters of water, which is 1,36,000 cubic kilometers of water is drinking water. Only 14,000 cubic kilometers of this drinking water is mainly used. Water on the surface of earth is a mere drop; the rest of it is distributed underground. These data reveal the fact that water is available in abundance but only 0.3% of this water is pure and fit for drinking and availability of this drinking water is gradually declining. According to United Nations reports, 40% of world population is facing drinking water scarcity. As the study by the World Bank revealed that 97% of water found in earth is the salty sea water. Part of the 2% is in form of polar ice and glaciers, only a meager 1% is available for drinking, irrigational and industrial purposes. 70% of this, 1% water available for drinking and industrial use.

3. **Ways of water gets polluted**

- Dissolved salts: The dissolved salts, act as pollutants are chlorides, carbonates, bicarbonates, sulphates of sodium, potassium, magnesium, etc.
- Industrial waste: Different kinds of industries are situated on the banks of rivers. They discharge their wastes in the water.
- Thermal pollution

4. **Water quality :**

- Water should be transparent and colorless and odourless.
- It contains sufficient oxygen dissolved in it.
- Water may be free from organic materials.
- Water should be free from biological germs.

5. **Pollutants and its characteristics**

- The detergents in the flowing water, pesticides in the agricultural fields, use of plastics and plasticizers, different chemical solvents, fuels, paints, dyes, medicines, food additives, etc. are examples of the multiplicity of chemical products made and disseminated for the benefit of man which have the inherent capacity for injury.
- An expanding use of fuels, fertilizers, agrochemicals, disposal of domestic, industrial and agricultural wastes threatens further the deterioration of man's surroundings. Mining activities constitutes one of the largest producers of solid waste.

6. **The Various principal pollutants are as follows :-**

- Gaseous Pollutants : Such as Oxides of nitrogen (particularly nitric oxide (NO), nitrogen dioxide (NO₂), SO₂, H₂S, CO, halogens (Chlorine, bromine, iodine) etc.
- Metals: Mercury, leads, iron, zinc, nickel, tin, cadmium etc.
- Agricultural Pollutants: Pesticides, herbicides, fungicides and fertilizers.
- Complex Organic Pollutants : Benzene, benzopyrene, acetic acid, etc
- Photochemical Oxidants: Ozone, Peroxyacyl nitrate (PAN), Peroxybenzoyl nitrate (PBzN), NO_x, aldehyde, ethylene etc.
- Deposited matter: Soot, Smoke, tar, dust, grit etc.

7. **Dissolved Salts :-**

In the water sources contains different kinds of salts dissolved salts, which act as pollutants, they are namely chlorides, carbonates, bicarbonates, and sulphates of sodium, potassium, magnesium, etc. An excessive salt in water may cause change in its taste and even cause health disorders.

Part –B

1. **Problems caused due to polluted water:-**

- It carries many vectors, germs which thrive in dirty water besides carrying many chemical pollutants in it.
- Micro-organisms causes cholera, typhoid, hepatitis.
- A number of micro-organisms in some area of pure water go inside the body and cause diseases.
- Besides these micro-organisms, many chemical such as arsenic, lead, mercury also contaminate water and create serious health problems.

2. **Four basic principles for water treatment:-**

- Coagulation : For Pollutants settle down in the floor
- Flocculation : It involves a slow and gentle stirring for treated water
- Sedimentation: For flocculent precipitate together with impurities and bacteria.

3. **Sources of water Pollution Contaminants and their impacts :-**

- a) Degradable Waste: Depletion of dissolved oxygen in water is harmful for fish and other aquatic life.
- b) Plant Nutrients : Stimulate growth of algae
- c) Infectious Agents : Cause water- borne diseases
- d) Synthetic Organic Compounds : neurological impairment
- e) Inorganic Minerals and other: Catastrophic impacts on fish and aquatic life.
- f) Radioactive Elements: Induce radiation-related illness.
- g) Sediments : Cause clogging of filter plants
- h) Thermal Pollution: Lake Water temperature by 70-100°C.

4. Techniques of treat effluents before waste discharge :-

- a) The solid waste can be recycled as in case of plastic/polythene etc.
- b) Bacterial decomposition in a specialized chamber for chemosynthetic bacteria decomposing as big waste particles into smaller fragments.
- c) Removal of finer particles and absorption of toxic chemical through quartz tubes and also Ultra Violet Radiation is used to treat the liquid just before discharging it.
- d) Carbon (Charcoal) may used in purification of water and wastewater treatment.
- e) Waste water can be treated/recycled and used for further in washing/cleaning etc.
- f) Watershed management helps in controlling salinity and checks erosion activities to a large extent.
- g) Crop rotation is helpful as it improves fertility of the soil, controls pests which may thrive on one particular crop, reduces weed problems.
- h) The bio-fertilizer do not cause any harm to the soil because they do not create salinity/pollution as it happens in case of inorganic fertilizers.
- i) Solid waste converted in fertilizer and produces bio-gas or electricity.
- j) Copper sulphate (CuSO_4) added in the ponds to destroy algae.
- k) Keeping polluted domestic or industrial water in a shallow pond for a few days allowing microbes to degrade organic pollutants.
- l) Chlorination process for water purification kills pathogenic bacteria from germicidal effect. This process may oxidize iron, manganese hydrogen sulphide for destroying odour-production constituents and controlling algae and slime organisms.
- m) Reclamation of sewage and waste water
- n) Transfer of sulphur water
- o) Desalination of sea water etc.
- p) The most important aspect would be to educate people not to pollute water. This awareness will help in solving this problem to a great extent.

CONCLUSION

In developed countries, human's daily lives are caused by environmental problems. Water contaminates pollution may growing day by day in developing countries. Wastes and toxic substances are accumulating by pupils at a rapid rate in our surroundings. These substances enter the biogeochemical cycles. In a man-made ecosystem, various types of wastes upset the growth of microorganisms. Different types of synthetic matter such as plastic, rubber, glass, etc. are not degradable, thus causing environmental problems. The regional wastes are affected as domestic waste, industrial and mining wastes, and agricultural wastes. Wastes whenever we if properly managed can be used and steps have already been taken in this direction. Through gene-engineering, new strains of bacteria and other microorganisms are being bred, which can help to decompose various harmful industrial effluents into non-toxic agents. Sometimes due to the lack of proper facilities for managing sewage is allowed to enter nearby water bodies without any treatment. Untreated sewage causes serious water pollution and also damages the local ecological balance. There is a need to develop an efficient waste management system. The present research paper is the furthestmost steps to avails the water pollution.

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Automated Ration Distribution System Using RFID Card**Anjali Namdev Sutar**Department of Management
PAHSUS, Solapur**Abstract:**

At Present, Ration shops are manually operated, which makes them time-consuming and gives rise to immoral activities occurring in the ration shops. The government of India provides various facilities for ration distribution towards the people below the poverty line. The end-user cannot take advantage of all these facilities because of forgery and corruption occurring in the system. In many cases, shopkeepers sell materials to end-users at higher prices than recommended by the government of India. Even they sell rations in the open market to gain more profit. Users are only permitted to collect rations at their registered place. This study proposes a system that uses RFID technology for ration distribution to conquer such challenges. Having an automated system at each ration shop will minimize the manual effort of distributing rations. Consequently, ration material will be properly supervised at every level of distribution. This system will be beneficial to prevent ration forgery. It will expand transparency between users and the government. Under the 'Make in India' initiative, this system can be successfully implemented.

Technical Keywords: RFID Reader, RFID Tags, Linear Solenoid Actuators, Device Driver, Cloud, Client/Server, Distributed System, Controller, PDS, Sensor.

Introduction:

The Government of India provides one of the largest economic policies called “The Ration Distribution System”. This system is mostly beneficial to the people below poverty line as they can’t afford food, grains at high cost. Currently, the ration is distributed manually, which leads to corruption. Also, it is a time-consuming process to distribute rations. Time and Distance are two main barriers which stops the users from consuming this policy. Users are restricted to collect grains from a particular village where they are registered. In Spite of this, there are a number of limitations in this system, mainly Ration Forgery. Many times, shopkeepers use False ID and put false data in their records to get more grains from the government. People are not aware about the quantity of ration allocated to them and the corresponding prices decided by the government. Sometimes, shopkeepers may sell the material to the end user with higher prices than recommended by the government of India. Even there are cases in which shopkeepers used to sell the ration in the open market in order to gain profit. Ultimately the end-users are not capable of fully utilizing the facilities of the ration distribution system. In order to overcome all these issues, we are proposing this study of designing an “Automated Ration Distribution System”.

This system is using Radio Frequency Identification technique. The main aim of this system is to develop an automated ration distributed system for allotment of ration on the basis of RFID smart card using Load sensor for weighing of grain. Here we are introducing the RFID smart cards to the end-users as a replacement of the current ration card. In this system, the application is installed at a ration distribution shop and it will be operated by admin only at each level of the distribution system. This system can reduce manual interference so that the utilization of time will be optimal. The modified data of each entry will be updated in the database so that higher authorities can verify it by any time. We will keep a summary of grains utilized by consumers and carry forward the remaining grains from their quota so that they can retrieve it in upcoming months. Corresponding entries will be reflected in the database automatically. thus, it will help in minimizing the forgery by shopkeepers at the basic level of distribution. Also end users are capable of analyzing their ration related transactions and the higher-level authority can analyze the modified data frequently. Thus this system could be useful in increasing the transparency between people and the government of India. It will be helpful to increase transparency at each level of the ration distribution system. Mainly this system can be useful in reduction of corruption and forgery of ration. This system proposes a new method of implementing a scheme of the Rationing System which has been managed by the government for the last many years.

Literature Review:

1) Multi-Modality Biometric Assisted Smart Card Based Ration Distribution System. (2014)

Authors: Yogesh Kumar Sharma, K B Shiva Kumar.

It uses the technique of fingerprint scanning as well as face detection. Users' purchase histories are stored in the database. Users have access to their records from any fair price shop in a centralized cloud system, so that transparency is kept.

2) Atomization of Rationing System (2015)

Authors: Shivabhakt Hanamant, Suraj V. S, Moresh Mukhedkar.

It proposes atomization of the distribution system at the ration shop as well as maintaining the database at one main control station and updating the database so that the shopkeeper cannot cheat the people. The tags are used for authentication of valid users. For updating, GSM is used.

3) Biometric Device using Smart Card in Public Distributed System. (March 2015)

Authors: S. Kanagasubbaraja, K. Arul Ganesh, Mohesh Viswan, R. Prabha

It proposes a system having smartcards that holds the details of the citizen. Citizens can view the total quantity & available stock. After each and every transaction the stock gets reduced on board and the citizen receives the sms and email from the government with the purchased time and number of products bought with the product id and also uploaded in the main database then and there. Citizens' cards are verified through their fingerprints.

4) Smart Ration Distribution and Controlling (April 2015)

Authors: Kashinath Wakade, Dinesh Aitwade, Pankaj Chidrawar

Rather than using the current booklet of ration cards, this paper uses PDAs and tags. The device that is provided by the government in this case is used as an authentication card, and the e cards are used as bank credit cards to swipe and fetch the details.

Research Design:

Problem Statement:

Designing of an Automated Ration Distributed System for the allotment of rations on the basis of *RFID smart card* using *Load sensor* for weighing of grain.

Future Scope:

The aim of this project is to develop a better, efficient ration card system using RFID and Embedded System Technology. We participate actively in Step towards Digital India through our project. Atomization of the distribution system at the ration shops and maintaining the database at one main control station. So that we can store the data consistently and process it from anywhere by matching it with the database authenticated by the Government. In time for various types of applications. So the users have 24x7 availability. This can prove to be a profit to some organizations and an ease to consumers.

Research Methodology:

Resources Required for Research:

(I) Software Requirements

- 1) Operating System: Windows
- 2) Editor: Java NetBeans 7.1
- 3) JDK 1.6
- 4) Database: MySQL
- 5) GUI: AWT & Swing
- 6) Languages: Java

(II) Hardware Requirements

- 1) Microcontroller: AVR
- 2) Device Driver: ULN2803
- 3) RFID
- 4) Load Cell Sensors
- 5) Serial Communication: MAX 232

(III) Safety Requirements

- 1) Reliability: Protection of data from malicious attack and unauthorized access. Improves through the use of multiple redundant sites, which makes mobile agents suitable for business continuity and disaster recovery.
- 2) Security: The system will provide authentication by username and password for logging into the system. The management of data is centralized and resources are more focused on security. Other security features include assigning access rights, protecting documents.

(IV) Algorithm

- 1) Data Mining [Clustering]

Objectives:

1. To avoid a huge amount of Govt. money getting wasted due to corruption in the conventional Ration Distribution System.
2. To reduce a gap in a contentious issue that involves corruption and illegal smuggling of commodities.
3. A transparent and highly scalable Ration Distribution system with authentication for Ration Card Holder.
4. To propose an approach to automate all the above said manual jobs and the whole thing from data entry for weighing to hammering is prepared by machines and the people have
5. no hand in that. This provides high reliability and there brings a sense of truthfulness to the people.
6. A transparent and highly scalable Ration Distribution system with authentication for Ration Card Holder.

Block Diagram:

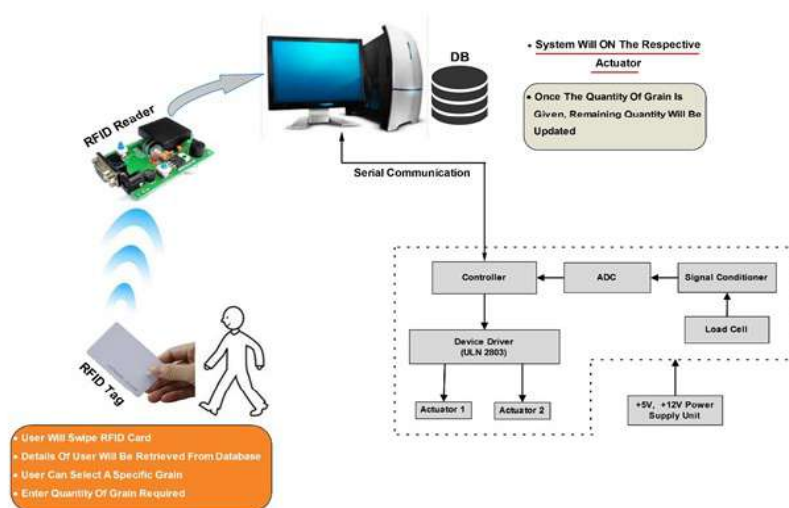


Figure 1

System Architecture:

In this system, we are providing RFID cards to each user individually. Initially, users need to register to the system for advantage of the ration distribution facilities. Now, users are able to swipe the RFID smart card at ration shops of course in the presence of an admin. RFID reader is used to read the card. Here, We are using an Authentication Model to authenticate the valid RFID smart card. System will automatically generate the OTP after validation of the card and will send it to the user via Gmail or Mobile number. Corresponding data will be fetched from the database and the details of the particular user can be seen on PC. Users can go through all his historical transactions, allocated ration quantities along with prices recommended by the government. Then, users will be able to enter the quantity of ration they want to withdraw as an input to the system. Data is sent to the ATMEGA32L Microcontroller by serial communication. We are using MAX232 for serial communication. Following that, the data is sent to the DEVICE DRIVER. Pull-up registers are used with the ULN2803 Device Driver.

The ration is stored in a container. The Valve of the container will be open and the ration will fall off. Here Load Cell Sensors are attached for weighing of grain. The Sensors will give a signal to ADC, thus ADC will start counting. The Valve of the container will be turned off as it reaches the input value given by the user. Users are ready to peak rations of available quantity. simultaneously, the data is updated on the server. As the weighing of grain is also done automatically. There is much accuracy in distribution of ration. Refer *Figure 1*, the working process will get more clear by Block Diagram of the system.

Working Module:

1. Login Module:

In this module, the system registers beneficiaries' details such as their name, address, date of birth, age, contact number, number of family members and category in which ration card belongs. All this information is being uploaded in the database.

2. Purchase Module:

Users have to enter the amount of grains they want to withdraw. System checks his account. If the user is having sufficient balance to withdraw the current amount. Once authenticated, the beneficiary should select the list of commodities they wish to purchase. The system displays the total quantity of the commodities and the amount of quantity a beneficiary is permitted to buy. Once after he/she confirms the commodities, payment is

done and beneficiaries are given a receipt in the form of a SMS. A beneficiary is permitted to take only those subsidies on products apportioned to him/her by the government according to the available database inventory.

3. Alert Module:

This module plays a role for intimating the beneficiary about the recent transactions by sending them the message on the user's registered number.

4. Stock Module:

Here, the grains are stored in the tank. Quantity of grains is updated in the web server when the ration is imported into the shop. The food department would be able to send the stock to respective distribution centers and automatically update the stocks of the respective distribution center in the database. In this module the system maintains the details of imported stock, distributed grains and remaining stock.

System Design: (UML-Diagrams)

2.1 Use Case Diagram:

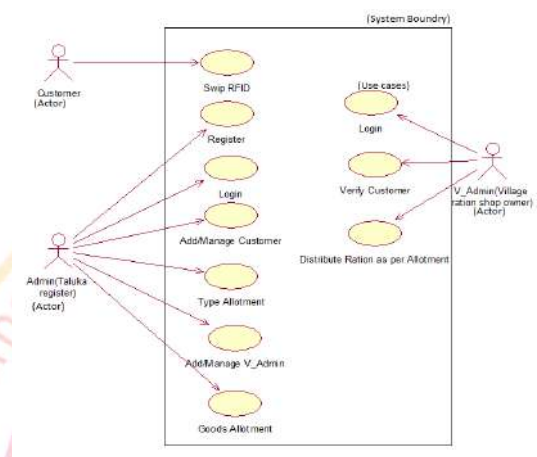


Figure 2.1

2.1 State Diagram:

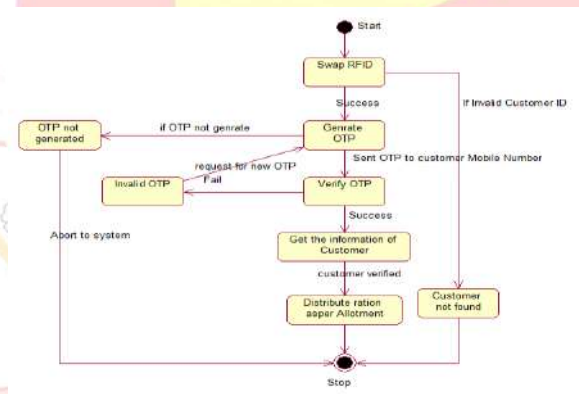


Figure 2.2

Expected Outcome:

In ration shops, several drawbacks are there like material robbery, corruption, malpractices, long waiting time to collect materials, and low processing speed. A mechanized rationing scheme would help solve such problems. This smart ration card refers to the smart card and the controller used to distribute the materials. At this time, the ration card is changed by smart card and sends the stock details to the government head office using the internet and the data is stored in the cloud. Hence this proposed system is used to avoid the corruption, goods theft, forgery and also they reduce the users waiting time. This system is also beneficial in maintaining the stock details properly and updating the details easily. Fair Price Shops offer a secure, and efficient method of shopping.

Limitations of Study:

- The major constraint is, it demands continuous Electricity & active Internet Connection.
- Processing power and time required might be high depending on the input.
- There could be Voltage fluctuation.
- Smart cards can be used by third parties.

Data Analysis:

As all the data is stored and processed in the database consistently, I will analyze the data by using Various Data Mining Algorithms. Here, I have proposed Clustering Techniques for mining the data in the cloud.

Conclusion:

Existing ration distribution system causes corruption. The second important issue for the corruption in ration distribution is inappropriate or incorrect data of quantity availability at distribution center and required quantity of material to the distribution center. Another issue is the upgradation of ration cards. As the upgradation process is quite complicated people continue using the same card even if the number of people on the card changes. Hence from the above study we conclude to have automatic ration distribution systems which overcomes all the issues stated earlier. System must be easy to install and should be economical information of GOV of India. The system will be easy to install and should be economically beneficial for the Indian people as well as the Government of India.



Impact of Tourism on Natural Resources of Kashmir– An Overview**Mohmad Abass Bhat**

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Abstract

Tourism is the fastest growing industry all around the world. Tourism in Kashmir is one of the most important sectors that significantly generates revenues, provides employment to locals, yields tax revenue etc. The study aims to assess the environmental impacts of tourism on natural resources in Kashmir. The study revealed that the unchecked tourism in Kashmir is causing a negative impact on its natural resource and causes their degradation and depletion. The study also suggests some remedial measures that need to be incorporated to attain sustainability in the tourism sector and promote natural resource conservation.

Key words: Tourism, Kashmir, Natural Resources, Sustainability

1. Introduction

Tourism is one of the fastest growing sectors and an important factor for the socio-economic growth of any region. Tourism has increased globally from 25 million in 1950 to 1,235 million in 2016 [1]. Over the years, the tourism sector shows tremendous growth and adds considerably to the economic development of the regions. However, the over-burdened and unsustainable approach of it causes major environmental destruction and resource overexploitation. The unchecked visitors over the threshold level cause serious adverse impacts on the natural resources and affect cultural, social and economic components of the region [2].

Kashmir region has been a center of attraction as it offers various categories of tourism like adventure tourism, water rafting, religious tourism, skiing, water sport etc. The region is a major tourist destination as it is blessed with rich flora and fauna, rich cultural heritage, snow clad mountains, huge water resources and world famous pilgrimage destination. Tourism is one of the State's major industries that have played an important role in its economy, providing different jobs and revenue to the local people and state exchequer. It is the most vibrant tertiary activity and a multi-billion dollar industry in Jammu and Kashmir that attracts tourists from all over the world [3]. This paper is an attempt to study the impacts of unplanned tourism on the natural resources and environment of Kashmir. It also offers some valuable recommendations/suggestions to reduce the negative impact of tourism on natural resources that will help researchers, planners and stakeholders in future to attain sustainability.

2. Objectives of the Study

The study focuses on the following objectives:

- To assess the adverse impacts of tourism on the natural resources of Kashmir.
- To find some mitigating measures to lessen the impact on the natural resources and attain sustainability in tourism.

3. Material and Methods

The present study is analytical in nature and based on secondary sources. The data was collected from books, journals, newspapers, organizations like United Nations World Tourism Organization, United National World Trade Organization, Jammu and Kashmir Tourism Development Corporation, Economic survey of Jammu and Kashmir etc.

4. Findings and Discussion**4.1 Tourist flow to Jammu & Kashmir**

Tourism is an important sector in Jammu and Kashmir due to the presence of world famous tourist places such as Gulmarg, Sonamarg, Pahalgam, Dal Lake, Wular Lake, Achbal, Gurez valley, Bangus valley, Mughal Garden, cultural and religious places etc. It attracts a huge number of people from around the world that generates huge revenue and employment opportunities for the local population directly or through allied sectors. Tourism contributes about 15% to State Gross Domestic Product through revenues from workers and businessmen, agro-based sectors, handicrafts, handlooms etc. linked directly or indirectly with it [4].

Over the years the tourists visiting the region has shown an increase which means the industry is growing rapidly in the state. However, this increase has led to excessive use of the resources that may cause decimation of the ecosystems and resources. The ascending trend of tourists that forces construction of more tourism facilities is generating heavy pressure on the natural resources leading to negative ecological and social consequences [5].

4.2 Environmental Impacts of Tourism

Tourism and environment are interrelated with both positive as well as negative effects on one another. The abundance of natural resources in the region attracts tourists, generates revenues, and increases employment that boosts economic growth and development. According to [6] almost 50-60% of J&K total population is directly or indirectly engaged in tourism related activities. The tourist arrivals and the facilities at these places have increased manifolds that led to over-utilization of resources mounting pressure on the fragile ecology and environment [7]. Besides it led to increased construction of hotels, roads, shops and other facilities that additionally cause drastic impact on flora and fauna and mountain environment [8]. Tourism also raised other issues such as solid waste generation, deforestation, pollution of lakes, rivers and streams, soil erosion, loss of natural habitat, increased air, water and noise pollution levels, over-consumption of resources and other environmental and ecological problems. This according to [9] is a serious threat to natural resource abundance and eco-sensitive destinations of the study area.

Considering the high tourism and subsequent vulnerability to various environmental and socio-economic problems, there is an immediate need to adopt various remedial measures to attain sustainability and balanced tourism[10]. This requires protection and management of natural resources urgently and efficiently for both tourism and natural resources [11]. From the study, it was revealed that generally the majority of concerned organizations and departments are in a preliminary phase of adapting mitigation measures for the tourism sector and promoting eco-tourism. Adopting rationality in exploiting natural resources, formulating sustainable approach and implementation of them needs to be taken at an earliest. Besides, the tourism sector in the area requires special attention along with management of natural resources to help promote eco-tourism and attain sustainability.

5. Conclusions

The Kashmir region is a highly eco-sensitive region that attracts a large number of tourists every year. Tourism in the region is increasing continuously and thereby increasing pressure on the natural resources and environment. From the present study, it is evident that un-sustained and unregulated tourism has increased impacts on environment and resource resources causing ecological disturbances and other environmental and socio-economic problems. The study stressed on the need to take efforts for sustainable utilization of resources and regulate tourism. The sustainable and eco-centric approach of tourism is recommended in the study area for the benefit of present and future generations.

6. Recommendations/ Suggestions

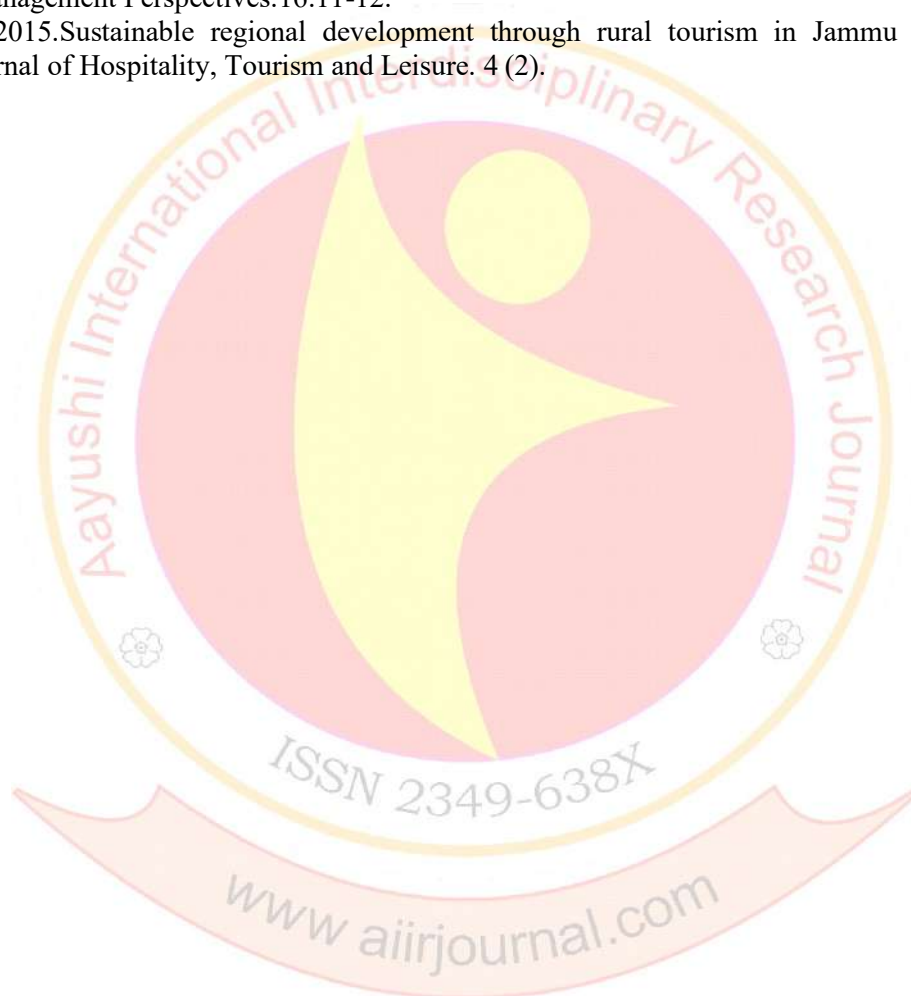
From the study, it proves that the un-sustained tourism in the area is very harmful for the natural resources. To reduce and avoid negative impacts of tourism on natural resources, some recommendations are given:

- Promotion and adoption of eco-tourism that is environmentally viable and socio-economically beneficial.
- Formulation of a sound Environmental Management Plan for development, maintenance and protection of tourist destinations.
- Regulation of tourist flow well below the carrying capacity of the region.
- Involve local people, allied sectors, NGOs and Volunteers in the decision making process.
- Formulation of special investment schemes and services to attract and engage people in promoting eco-tourism.
- Monitoring and regulating unauthorized constructions and strict implementation of rules and regulations at tourist destinations.
- Increase environmental awareness among people and tourists through programs.

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Environment And Development Two Sides Of A Coin: A Conspicuous Efforts By Tagore**Ashis Naskar**

Student of The University of Burdwan

Abstract :

The integration of environment and economic development. Has been prioritized in the writing of western intellectuals for the last four – five decades. This concept was further aggravated in 1972 when the study called. “Limits to growth” or its updates version “beyond the limit” published in 1992 depicted. And altruistic version about the future of the earth and also for told the cession of growth after a particular period. Thus people are constrained to ponder over the kind of growth process because of the environmental consequences of economic activities. The article published under the title “The Ultimate Resource” revealed the continuous process of growth that comes out as amicable outcomes of the present word. The idea of sustainable development marked its remarkable in agenda 21 of the RIO Conference in 1992. To have a significant reconciliation of environmental development. But in this field of environmental activities where western efforts are much distinctive RabindraNath Tagore is identified as a precursor. This noble individual who was one of the greatest poets, writers, novelists, thinkers and environmentalists of the 19th century was analytical in his study of environmental effects on overall development and provided a fruitful solution according to Indian atmosphere. This paper focuses on Tagore’s conscious discerns about nature through his literary writings.

Introduction :

The term “economic development has become the buzzword for the past few years. This development not only indicates economical lifestyle of common people but also ensure liberty and self respect of the people in the diagram of the development discussion. It is imperative the development can never be imagined without environmental health. There are efforts that so economist and environmentalist have always attempted to give equal importance to nature and economy parallel. In RIO Conference in 1992 they have been able to convey their voice on development activities and environment. But to understand these issues on the said topics one should devote himself to the works of RabindraNath Tagore to have a better understanding on environment.

A brief outlook on the concept of sustainable development :

There was a time western countries gave more importance to become economically independent they tried to compete with another in respect of economic upliftment must without giving any importance to environment. In a nutshell nature was totally ignored. As a result the environment deteriorates at a rapid force. At last the development countries show keen interest to self nature show that the world becomes a safe haven for the people. In 1972 United Nation starts thinking about the environmental degradation and in 1987 they established BRUNDTLAND Commission. This commission first introduced the concept of sustainable development as development that meets the needs to the present without compromising the ability of the future generation to meet their own needs and also suggested how it could be achieved.

Development in field of environment:

A focus on inclusive approaches each central to the 23 agenda for development in accordance with environmental point of view. The report released by world watch instituted 2015 shows that world coal extraction increased from 10 million tons in 1800 to 762 million tons by 1900. Use of synthetic fertilizer increased from 137 million tons. 2000 to 179 tons in 2013. In case of global resource extraction – of Biomass, Metals, Minerals and Fossils, Fuels grew 50% in the 25 years between 1980 and 2005. Again Global Coal consumption rose from 226 million tons of oil. Equivalent to 3826.7 tons of oil equivalent in 2013.

The above statistics show that the utmost importance was laid upon enormous economic growth. It was distinct that the national leaders didn’t pay any heed to the environmental actions. The world has witnessed the disastrous consequences related to environment some 52% of the commercial fish stocks are now fully exploited when 20% are over exploited. The forests growth the world shrank by 1.3% or 520,000 Sq.Km from 2002-2010. In 2012 there were 905 natural catastrophes worldwide and 93% of this event were related to weather. Overall, the show average sea level has risen 1.6 mm/year since 1880. According to the most recent estimates, a millions in 2014 are likely to be 2.5% over 2013 levels. It is estimated that by 2025 fully 1.8 billion people will live in countries or nations with absolute water scarcity. An estimated 92.56 million people were displaced under commission in 2012 and global deaths from air pollution were about 7 million in 2012.

All these studies put forward whole gloomy picture about the future of the growth process and forecast the compute ending of these process within 100 years. Some initiative such as limits on both population and pollution can help avoid these dangerous situations.

The study “limits to growth that present the above planning is not accepted by many well – known economist. For example Julian Simon published a similar version ‘The ultimate resource that rejected the prediction of collapse. His study says that income rises with the passage of time and people move world lower cost and increased availability of resources including cleaner environment and greater access to natural recreation areas.

Thoughts of Tagore on Environmental Development:

Tagore in his writing primarily was seen to have been concerned about development in the lap of environment. Environmental wellbeing’s context economic progress was found in his works long before western thinkers. The incident that shook him to fill deep concern over environment was in 1916 when he was travelling in Japan and saw oil spilling at sea. He wanted to bridge a peaceful relationship between man and nature where both are true amalgamation for fair causes. In Tapoban he wrote, the amazing fact is that, in India one can observe there is a mutual co-existence among river, pond, plants and human being. Tagore strongly opposed the disruption of their harmonious relationship in the name progress.

Modern thinkers comments that the core tunnel of development directly includes that the improvement of the quality of life the extension of freedom acceleration of economic growth. Rural people find their place in a high stature in the writings of Tagore because they formed the majority of Indian population. Tagore also evokes for the establishment of self-dependent village units that will be regulated by scientific and co-operative understanding because in his words “people and society would be mutually responsible in the overall development activities. He inclined to link the cities with mutual respect and trust. Ideal society, Tagore says would be free from dominants, dependents and exploitations. He suggested the creative talent and helping attitude of the village people would give birth to a society face from poverty, hunger deprivation. Thus Tagore gives us the concept of a society which can ensure sustainable living for everybody.

Tagore love for nature nature is shown in his story, poems, place, songs after all in every piece of literature he has composed. In “PrakritiParjaay” Tagore describes a pictures where Prakriti stands nature and Prajaay stands from. In this song he also raises his voice for the need to maintain a balance between activities and environment and urged for protecting the mothers earth. Tagore’s play ‘Muktadhara’ revolves a mountain stream and a damn which is built by Bibhuti, the royal engineer of Uttarakut with the help of a scientific machine. The stream is known as Mukatadhara and the damn stands out as the chief matters of interest in the play. This play depicts Tagore’s strong objection against the efforts met by human to sub-ordinate nature. Tagore’s opposed self defeating nature of progressive activity that pay no heed to nature and the balance between man and his environment. This concerns for man and nature is an urgent requirement for the development a sustainable living condition. This is reflected behind the idea of his building Shantiniketan, Sriniketan and in Visva-Bharati. The festivals of Shantiniketan and Sriniketan such as Barshamangal, Brikharapana bears the testimony of his love for nature. All these conveys that message progression through development of a agriculture by combined efforts and improvement of living standard of the people the unfinished business of the advancement of the nation.

Conclusion:

Tagore’s opinions on environment and development gives a translucent picture that RabindraNath Tagore toiled much before the western thinkers to maintain the balance of the nature. Tagore wanted to express through his writings that development activities are very requisite but not at the irreparable. It is no doubt therefore that RabindraNath Tagore was a lover of nature who have ignited the flame that deals with the overall development of environment.

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“Impact of Female Literacy on Sex Ratio: A case study of Nashik District, Maharashtra State, India”**Dr.Sanjay Dagu Pagar**

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Abstract:

Decreasing sex ratio has become a serious problem in our country. Female literacy and sex ratio play an important role in the socio-cultural development process of the country. The main aim of the present paper is to examine the impact of female literacy on sex ratio in Nashik District of Maharashtra. Literacy brings about fundamental changes in socio-economic development of the society. Present study is based on the secondary data which is obtained from census of India, 2011. Karl Pearson's method of correlation of coefficient is applied to determine the relationship between female literacy rate and sex ratio. For this study literacy rate has been considered as an independent variable, whereas the sex ratio is dependent variable.

The calculated value of coefficient of correlation between female literacy rate and sex ratio indicates that there is positive but weak correlation. It means other factors also affect sex ratio of the study region. Therefore while making planning for improvement the sex ratio of study area there is need to consider other factors, which affects sex ratio. There is also an urgent need to focus on female literacy in all areas, particularly in tribal and rural areas. Governments must formulate and adopt a long term vision and national policy framework for women's literacy and empowerment keeping in mind for improving the sex ratio in study area.

Keywords: Literacy, literacy rate, Sex Ratio, Gender inequality, Correlation and health facility

1. Introduction:

Literacy rate and sex ratio have always been considered to be an important key for socio-economic growth of the study area (*Shahid Imam, 2020*). Literacy plays a vital role in the improvement of the sex ratio of a population. Literacy rate and sex ratio are two most important aspect of any society or country as they determine the development stage of society or country (*Kumar Vipin & Yadav Anamika (2018)*). Literacy is considered as one of the most important social aspects of any society's development, especially of rural areas and it denotes essential criterion of human development (*R.S.Jadhav, 2014*).

The knowledge of sex ratio is essential for the understanding the condition of women in society. A decline or low number of female population in the total population is strongly suggestive of the neglect of girl children, sex selective abortions and traditional attitudes of the society (*Nasim Aktar, 2013*).

Women education plays a very important role in the overall growth of the country. It does not only help in the development of half of the human capital but also improves the standard of living (*Manjunatha & Hurakadli, 2017*). The social benefit of literacy attainment is much more than its economic return.

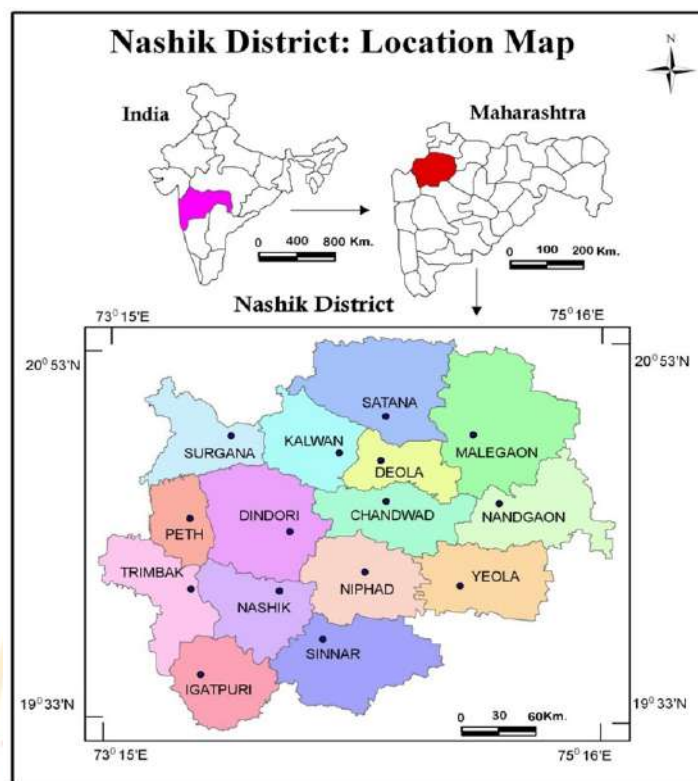
Literacy is very important for overall development of the region. It improves the quality of human resources. Literacy brings about fundamental changes in socio-economic development of the society. It is good indicator to measurement of the human resource development of region. Literacy is a human right, a tool of personal empowerment and a means for social and human development (*Shakil, 2012*). Raising literacy rate accelerate the rate of human capital formation.

2. Study Area:

Nashik District is situated in the Tapi basin and partly upper Godavari basin. It lies between 19° 33' to 20° 53' North latitude and 73° 15' to 75° 16' East Longitude (*Nashik Gazetteer, 1983*). Nashik District has an area of 15,530 Sq.k.m. In 2011, Nashik District had population 61, 07,187 as per the 2011 census. The Nashik district tentatively constitutes 5.04 percent area and 5.43 percent population of the Maharashtra state. The density of population recorded as 393 per.sq.k.m, which ranks seventh in the Maharashtra State. As per census 2011, the urban and rural population was 42.52 percent and 57.47 percent. The sex ratio was recorded 934 females per 1000 males in the study region in 2011. According to 2011 census the total working population in the Nashik district was 27.63 Lakh, which is 45.25 percent of the total population of the district. Location of the study area is showed in Map. No.1.

There are 15 tahsils included in the Nashik District. The main system of hills is the sahyadries, which run north-south in the western portion of the district. In the extreme north is selbari range, which approximately forms and boundary between Nashik and Dhule district. The district has two main rivers the Girna and the Godavari.

Other than Girna and Godavari, important rivers like Vaitarana, Kadwa, Girana, Kashyapi and Darana flow across Nashik district. Nashik district is also known as Mini Maharashtra, because the climate and soil conditions of Surgana, Peth, Igatpuri resembles with Konkan. Niphad, Sinnar, Dindori, Baglan tahsils are like Western Maharashtra and Yeola, Nandgaon, Chandwad tahsils are like Vidarbha Region. Wheat, Rice, Sugarcane, Onions, Grapes, Pomegranate, Jowar, Bajra and Vegetables are the dominant crops of the study region.



Map No.1

3. Data and Methodology:

The present study is based on the secondary data. The secondary data for the present analysis have been obtained mainly from District Census C.D. 2011, Socio-economic abstract of Nashik District and previous census handbooks of Nashik District. The collected data are tabulated and calculated to analyze the spatial pattern of literacy and sex ratio for the study area. The processed data has been represented by means suitable maps and tables. The correlation technique has been used to determine the relationship between female literacy rate and sex ratio. Therefore, to find out the correlation, Karl Pearson's method of coefficient of correlation has been applied. Karl Pearson's method of correlation evaluates the linear relationship between two variables. As per Karl methods, when two variables are so related that the increase or decrease in one affects the increase and decrease in other. For this study literacy rate has been considered as an independent variable, whereas the sex ratio is dependent variable. The formula applied to calculate the correlation between female literacy rate and sex ratio has been given below:

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2} \sqrt{\sum(Y - \bar{Y})^2}}$$

4. Review of Previous Work:

Different scholars, Academician and researchers have worked on gender literacy. Some of the studies are given here:

South, S. J., & Trent, K. (1988) have carried out research work on 'Sex ratios and women's roles: A cross-national analysis'. They used the data of 117 countries for the study. They also analyzed and test several hypotheses derived from the Guttentag-Secord theory relating societal-level sex ratios to women's status and roles. This analyses indicate that the effect of the sex ratio on women's role is more pronounced in developed than in developing countries.

Shetty, A., & Shetty, S. (2014) have published a very important research paper on 'The influence of female literacy on the sex ratio in Indian states'. In this study they concluded that female literacy has a positive

bearing on the sex ratio and states which have a higher literacy rate show faster movement towards gender parity. Therefore higher the female literacy rate in a state more is the improvement in sex ratio for every percent further rise in female literacy.

S. R. Chaudhari and R. C. Ahire (2015) have carried out research work on “Correlation between Literacy Rate and Sex Ratio in Maharashtra: A Spatial Analysis”. In this work they concluded that the Literacy and Sex Ratio have positive but insignificant correlation in Maharashtra.

Shinde, S. D., & Lingade, V. B. (2017) have studied the correlation between Literacy and Sex Ratio in Khataw Tahsil from Satara district of Maharashtra. The study indicates that there is the correlation between literacy and sex ratio found in low degree and negative (- 0.32). Jasim, H. R., & Kumaraswamy, K. (2018) have analyzed the correlation between literacy rate and sex ratio in Kongu Uplands of Tamil Nadu. Lastly their result shows that there is a weak and positive correlation ($r = 0.33$) between literacy rate and sex ratio in Kongu Uplands.

Malhan Dipika & Singh Naseeb (2019) have published a very important research paper on ‘Irony of Female Literacy: A District-wise Study of Haryana’. In this study they evaluate the influence of female literacy on child sex ratios in districts of Haryana. He also stated that Son preference has resulted in a lopsided child sex ratio in Haryana and there is also an interregional variation in the child sex ratios among districts of Haryana.

Malik, I. C., Sarkar, S., & Koner, S. (2019) have carried out an important research work on ‘A comparative and correlative study on literacy and sex ratio of Hooghly District in West Bengal’. The main objective of this study was to find out the correlation and comparison between Sex-ratio and Literacy rate in Hooghly district of West Bengal. During this research process it is found that the impact of the traditional superstitions, female infanticides, female negligence and discrimination, which are the biggest obstacles in the field of literacy rate and sex-ratio improvement.

5. Results and Discussion:

Spatial Pattern of Female Literacy (2011):

On the basis of percentage of female literacy of each tahsils of study region, all tahsils are classified into following three region. These regions are shown in the Table No.2 and Map No.2.

Table No.1: Nashik District: Female Literacy and Sex Ratio-2011

Sr. No.	Tahsil	Female Literacy in % (X)	Sex Ratio (Y)
1	Surgana	61.01	945
2	Kalwan	61.41	941
3	Deola	72.25	935
4	Baglan	71.07	921
5	Malegaon	78.48	962
6	Nandgaon	73.34	938
7	Chandwad	81.95	981
8	Dindori	69.68	938
9	Peth	62.94	919
10	Trimbak	60.37	909
11	Nashik	84.59	918
12	Igatpuri	63.98	965
13	Sinnar	73.15	955
14	Niphad	77.08	963
15	Yeola	75.44	988
District Average		71.12	945

Source: Based on Nashik District Census Data-2011

1. Low rate of female literacy region: The tahsils, which have literacy rate below 70 per cent are considered as low female literacy region. This region includes Igatpuri, Peth, Kalwan, Surgana & Trimbak tahsils of the study region. Here the most part of these tahsils is tribal and remote, due to lack of educational facilities literacy rate is less.

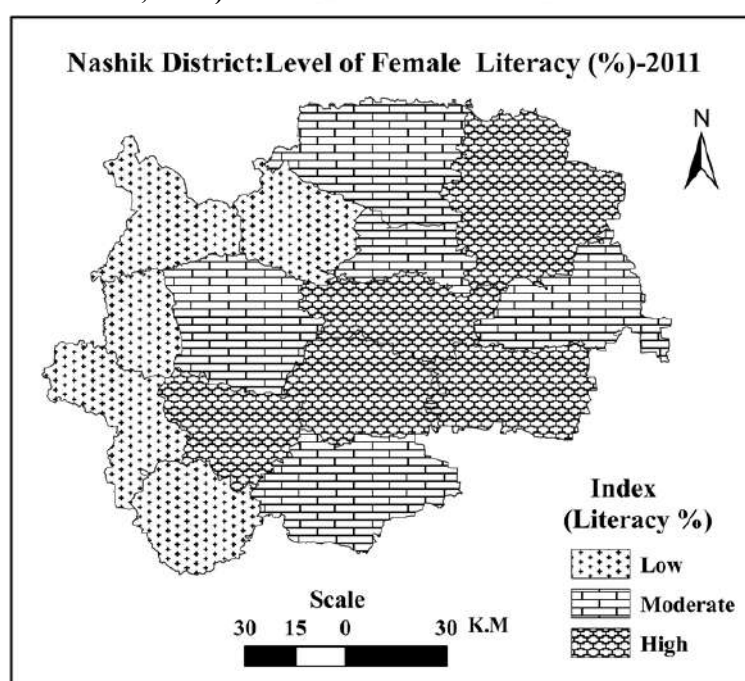
2. **Moderate rate of female literacy region:** Thetehsils, which have literacy rate lies between 70 and 75 percent are included in this category. Moderate rate of female literacy is found at Nandgaon, Sinnar, Deola, Baglan and Dindori. It is due to availability of moderate educational facilities and awareness about education is also good at some extent sin this region.

3. **High rate of female literacy region:** The tehsils, which have literacy rate above 75 percent are included in the tehsils namely Nashik, Chandwad, Malegaon, Niphad and Yeola due to availability of good educational facilities, development of transport and communication.

Table No.2.Nashik District: Level of FemaleLiteracy-2011

Sr. No.	Female Literacy (%)	Level of Literacy	Names of Tahsils
1	Less than 70	Low	Igatpuri, Peth, Kalwan, Surgana&Trimbak
2	70 to 75	Moderate	Nandgaon, Sinnar, Deola, Baglan&Dindori
3	More than 75	High	Nashik ,Chandwad,Malegaon,Niphad&Yeola

(Source: Compiled by researcher, 2021)



Map No.2

Spatial Pattern of Sex Ratio-2011:

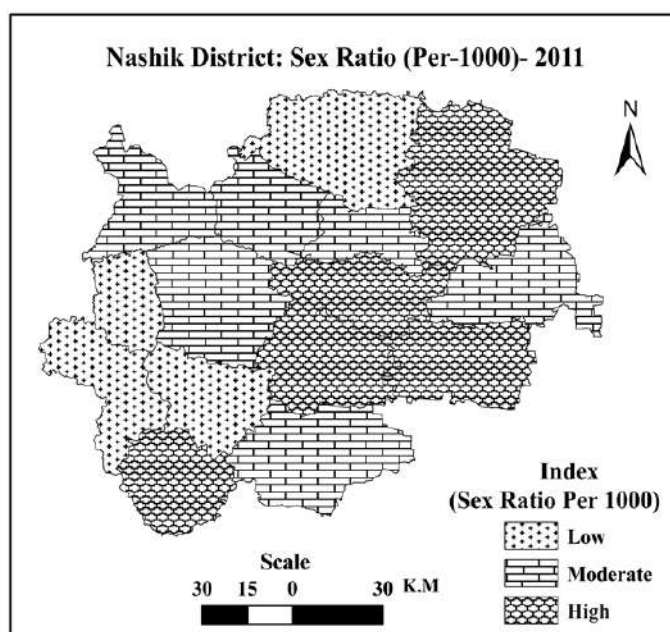
Table No.3 indicates the spatial pattern of sex ratio of the study region for the year 2011. On the basis of sex ratio, tahsils of the study region is divided in to three categories. They are shown in the Table No.3 and Map No.3. Details about these region is also given here:

1. **Low sex ratio region** (sex ratio below 920): It include tahsils such as Baglan, Peth, Nashik and Trimbak. The major reasons of low sex ratio in these regions are misuse of sex selective technology, strong urges to have son, neglect child girl, prevalence of dowry system, social insecurity for women, abortions of female's foetus etc.

Table No.3.Nashik District: Level of Sex Ratio-2011

Sr. No.	Sex Ratio (Per 1000)	Level of Sex Ratio	Names of Tahsils
1	Less than 920	Low	Baglan ,Peth, Nashik&Trimbak
2	920 to 960	Moderate	Sinnar ,Surgana, Kalwan, Nandgaon, Dindori&Deola
3	More than 960	High	Yeola, Chandwad, Igatpuri, Niphad &Malegaon

(Source: Compiled by researcher, 2021)



Map No.3

2. Moderate sex ratio region (Sex ratio between 920 and 960): Sinnar, Surgana, Kalwan, Nandgaon, Dindori and Deola talukas are included in this region, where agriculture activity is dominated and misuse of sex selective technology is not too much used. Most part of these region is rural therefore use of technology for abortions of female's foetus is not too much.

3. High sex ratio region: Talukas having sex ratio above 960 are included in this category. Yeola, Chandwad, Igatpuri, Niphad and Malegaon talukas are included in this region. Here due to awareness and health facilities are good that support to good sex ratio in this region.

Correlation:

In simple words correlation means the relationship between two variables. Correlation is a statistical tool to study the relation between two variables. For this study, Karl Pearson's method of correlation is applied for determine the relationship between female literacy rate and sex ratio. As per as the calculated value of coefficient of correlation between female literacy rate and sex ratio indicates that there is positive correlation observed in these two variables. But it is weak positive correlation. It means other factors also affects on sex ratio of the study region. It includes such as health facilities, socio-cultural condition of region, development of transport and communication facilities and government policy etc. Therefore while making future planning for improvement the sex ratio of study area there is need to consider others factors which are affects on sex ratio.

6. Conclusion and Recommendations:

On the basis of data analyzed and detail study, it is concluded that there is weak positive correlation (+0.38) between the female literacy and sex ratio in Nashik district of Maharashtra State. There is also a wide variation in the spatial pattern of literacy and sex ratio in the Nashik district. There is an urgent need to focus on female literacy in all areas, particularly in tribal and rural areas. Girls need access to quality education. The government has to take special measures like opening of schools in each habitations in remote and tribal areas. There is also need to take incentives for providing free textbooks, free uniforms, scholarship and compulsory education for increase the enrolment of girl's school upto high school education. The implementation of various schemes related to the maximum utilization of female education attainment at local level. Lastly to make aware to people about female education is badly required therefore literacy campaigns have to conduct to make social awareness among women regarding the importance of education. Government must carry out serious and continuous efforts to change the mind-set of people towards female education and improvement of sex ratio. In this process electronic media and newspapers can support to government to create public awareness. The rules related to a girl's marriage age should be strictly followed. Without the improvement of the standard of women the study region can't get success for improving sex ratio in the study region, where it is very low.

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A Study Of Rural Sustainable Development : Indian Overview

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Introduction

India lives in villages. This adage which emphasizes the agrarian character of the Indian economy continues to be true to this day in spite of industrial development that has taken place in the last six and half decades since independence. The 2011 census estimates about 69% of the country's total population continues to live in rural India that neither have adequate land holdings nor alternate service opportunities to produce or procure essential commodities. In the absence of adequate employment opportunities, the rural people are unable to generate enough wages to sustain their livelihood. As a result, 40% families, who earn less than Rs.11, 000 per annum are classified as poor even though government estimates is only 22%. Apart from lower income, rural people also suffer from shortage of clean drinking water, poor health care and illiteracy which adversely affect the quality of life. Presently, about 25% of the villages do not have assured source of drinking water for about 4-5 months during the year and about 70-75% of the water does not meet the standard prescribed by WHO. Poor quality drinking water is adversely affecting the health and diarrhea is an important cause of infant mortality.

Objective Of The Study

- To analyse the challenges of rural economy.
- Suggest possible ways to mitigate these problems.

Research Methodology

The study is theoretical in nature and the required material for the study is collected through secondary sources like books, journals, reports.

Rural Scenario

At present there are six major flagship programmes implemented to develop rural areas by the Ministry of Rural Development like the Mahatma Gandhi Rural Employment Guarantee Schemes (MGNREGS) with a budgetary allocation of 33,000 billion INR in 2012-13, National Rural Livelihood Mission (NRLM) with a budgetary allocation of 3563 billion INR in 2012-13, Integrated Water Development Programme (IWDP) with a budgetary allocation of 2744 billion INR in 2012-13, with a budgetary allocation of 3563 billion INR in 2012-13, Indira Awaas Yojana (IAY) with a budgetary allocation of 9966 billion INR in 2012-13, National Rural Drinking Water Programme (NRDWP) with a budgetary allocation of 10,500 billion INR in 2012-13 and Nirmal Bharat Abhiyan (NBA) with a budgetary allocation of 3500 billion INR in 2012-13.

The important issue here is has there programmes brought about a marked improvement of lives of rural people? The real scenario is that rural India is faced with multiple developmental challenges. The critical ones include:

Population: Increasing population which causes severe pressure on natural resources and the environment.

Natural Resources: Depleting natural resources, resulting in insecurity of food and employment, compelling about 40% of the rural population to live in poverty.

Pollution: Pollution of the environment and climate change, are causing shortage of clean drinking water and creating adverse impact on agricultural production.

Education: Poor access to education, resulting in low literacy and unemployment of the youth. While the average literacy rate in rural areas is around 50-65%, it is as low as 20-25% among women in backward areas. Education of girls was felt to be unnecessary in the past and this has seriously affected their quality of life. Illiteracy has also hindered their development due to lack of communication with the outside world. They are slow in adopting new practices, which are essential with the changing times. Low literacy rate, particularly among women having adverse effect on their skills development, employment productivity, family welfare and education of their children.

Health: Poor health status due to lack of clean drinking water, hygiene, sanitation and drainage facilities; inadequate health care facilities, leading to high child mortality and morbidity; loss of labour productivity, economic loss, indebtedness and poor quality of life; The rate of infant mortality in rural India is

marginally higher than in the cities on account of poorer access to safe drinking water, sanitation and health care support. Urban India has 15 times the number of beds and four times the number of doctors per capita compared to rural India. Not only is there an acute shortage of medical personnel, but doctors and medical workers are absent 40 per cent of the time in rural public health facilities.

Infrastructure: Poor infrastructure for receiving timely information on development opportunities, market demand and prices for agricultural commodities, new technologies, forward and backward linkages, credit facilities and development policies of the government.

Globalization: Liberalized trade regimes as well as more integrated and consumer driven agricultural and foodmarkets are globalising rapidly and driving innovations, forcing farmers to adapt or lose out. Poor farmers do not have the capacity face the cut throat competition and hence they are bound to perish.

Problems of Livelihood: In India, although the contribution of agriculture to the Gross Domestic Product (GDP) is around 19%, in the absence of employment opportunities in industrial and service sectors, over 85% of the rural income is generated from agriculture, who spend about 75% - 80% of their earnings on food. Agriculture is the major source of livelihood but most of the illiterate farmers have not been successful in cultivating their land economically. They have been treating agriculture as a family tradition. Over 12-15% of the rural families are landless and among the land holders, 69% are marginal farmers with less than 1 ha holding (17% of the total land) and about 21% are small farmers with 1-2 ha holdings (34% of the land). Thus about 90% families own less than 51% lands, with a per capita holding of 0.19 ha. Out of the 147 million ha agricultural lands, about 60 million ha are located in arid zones, which are mostly owned by the poor families. As the chances of crop failure on these lands is very high, the farmers generally do not invest in external inputs like improved seeds, fertilisers and plant protection measures and end up with poor crop yields, even during normal years.

Rainfall is the main source of water for agricultural production in India. However, in the absence of adequate soil and water conservation practices, it is estimated that over 65% rainwater runs off, flooding the rivers. About 30% of the total cropping area in the country is under irrigation, where farmers have a tendency to use excessive water. In the absence of adequate training and demonstration, they believe that excess water can enhance their crop yields. Moreover, as the water charges are fixed on the basis of the area covered under irrigation instead of on the quantity of water supplied, farmers do not want to restrict the use of water. As a result of poor soil and water conservation measures, the average yield of food crops in India is only 1.9 tons/ha as compared to 4.0 tons/ha in China. Due to excessive use of water for irrigation, over 9.00 million ha fertile lands have turned into sodic and saline wastelands, thereby posing a serious threat not only to food security and employment generation but also to community health, biodiversity and the environment.

Small farmers have work only for 100-120 days for growing one crop in a year, which is not adequate to sustain their livelihood. Hence, they have to struggle to earn additional wages by working in irrigated areas or migrate to urban areas. The migration pattern varies with the region, opportunities and socio-economic status of the families. The poorest families, particularly the landless and marginal holders owning poor quality land tend to migrate with the entire family.

Many tribal families migrate to cities as construction workers and return at the onset of the rains. Such migrations severely affect the quality of life, due to poor health, lack of education and social pressures leading to erosion of moral values.

Thus, the poor continued to live in the clutches of the powerful, accepting it as their destiny. They avoid confrontation and prefer to live a voiceless and suppressed life.

Way Out

There are no universally accepted approaches to rural development. It is a choice influenced by time, space and culture. The term rural development connotes overall development of rural areas to improve the quality of life of rural people. In this sense, it is a comprehensive and multidimensional concept, and encompasses the development of agriculture and allied activities, village and cottage industries and crafts, socio-economic infrastructure, community services and facilities and, above all, human resources in rural areas. As a phenomenon rural development is the end-result of interactions between various physical, technological, economic, social, cultural and institutional factors. As a strategy, it is designed to improve the economic and social well-being of a specific group of people – the rural poor. As a discipline, it is multi-disciplinary in nature, representing an intersection of agriculture, social, behavioural, engineering and management sciences. Some of the strategies that are suggested are as follows:

Assured Livelihood:

While promoting various development programmes, the main objectives should be to help the target family to come out of poverty, within a shortest period. The dairy development programme has a gestation

period of 3-4 years, till the newly born calf comes into milk production. In land based development programmes the gestation period may vary from 2 to 6 years, depending on the type of farming systems practiced by the farmers. In case of arable crop production, the gestation period is short due to short rotation crops while the fruit and tree crops take 5-6 years to generate income. While promoting this income generation activities there are two critical factors which affect the success of the programmes. Firstly the programme should be well planned to generate substantial income to enable the participating families to come out of poverty. Generally small farmers having poor quality land and livestock may not be able to earn substantial income with only one intervention. Hence multi-disciplinary programmes have the advantage. Similarly, small interventions such as kitchen garden, vermi-composting, homestead horticulture in isolation will not help the poor. These interventions can be helpful as a part of an integrated programme.

The other important aspect is to provide support during the gestation period. Many of the poor who do not have any resources even to procure their daily ration, are likely to neglect their development work, if no support is available in the form of assistance or wages to ensure their food security. Hence different short term income generation activities need to be designed till the income starts generating from the major interventions.

Women Empowerment: Involvement of women in all the development programmes right from the stage of project planning is essential. Although women represent 50% of the population, they also have the major responsibility of grooming children and procuring the basic needs required for food, fuel and fodder securities. Active participation of women in development programmes will help to identify their problems and reduce their drudgery.

Environmental Protection: In all the development programmes conservation of the natural resources and protection of the environment are essential, as these are critical for sustainable development. This is particularly important, while dealing with the poor as their primary objective is to earn their livelihood and the development organisations have the obligation to carefully design the programme to ensure environmental protection with income generation activities.

Blending Development with Research and Training: For effective implementation of various development programmes, the development programmes should be supported by applied research and training activities. The development programme without research back up is outdated and any research programme without development and extension outlets is academic. Training of the field functionaries and farmers is essential for effective transferring of technologies from laboratories to the field.

Water Resource Development: Development of water resources and wastelands are other important activities, having good potential for supporting the livelihood. However, with watershed development alone particularly the small farmers owning poor quality land cannot take advantage as they do not have the capacity to invest in land development and critical agricultural inputs. Hence they do not take active part in such programmes. Therefore the strategy should be to combine watershed management with development of low productive agricultural lands and wastelands owned by the weaker sections of the society.

In all the watershed development programmes, involvement of the community right from the stage of planning will be a critical factor, for the success. Mobilising the community through entry point activities and establishing effective communication through SHGs and village level planning committees, participation of the community in resource identification and development should be the important elements of the programme. With watershed development, introduction of the improved agricultural practices such as use of certified seeds, promotion of timely tillage operations, integrated pest management, supply of micro- credit to procure inputs, setting up of grain bank to meet the emergency needs of the poor etc. can play a very significant role in building the confidence of the community and sustain their interest.

Level of Infrastructure Development: Development of physical as well as social infrastructure plays an important in the overall advance of the rural economy by directly contributing to employment generation and asset creation. Improved network of physical infrastructure facilities such as well-built roads, irrigation, rail links, power and telecommunications, information technology, food storage, cold chains, market-growth centres, processing of produce and social infrastructure support, viz., health and education, water and sanitation, and veterinary services and co-operatives are essential for the development of the rural economy, especially in the era of liberalization, privatization and globalization (LPG).

Indigenization of Social Research: Most of our learning in the higher institutes is based upon hypotheses, concepts and theories evolved by western scholars including rural sociologists, which has limited application to our rural development. In the context of rural development, indigenization of concepts and theories are essential for understanding and resolving the issues that confront state governments, Panchayati Raj Institutions and stakeholders. This calls for Indigenization of social science research, particularly relating to

rural areas. Such an approach, if adopted in social science research, is likely to provide solutions to problems of bringing about rural transformation at a faster pace.

Corporatization of the Rural Economy: Corporatization of the rural economy becomes more relevant in the changed globalized system, where market requirements of quality produce have to be met. The entry of the corporate sector will also help the farmers to diversify crops from wheat and rice to other crops. This can be done by providing awareness about quality inputs and their judicious use, ensuring their crop procurement, refrigeration, carrier, grading, cleaning, packing, branding and also helping in research and extension. The recent field experience of CRRID (Centre of Research and Rural Industrial Development) with Mahindra Subh Labh Services Limited (MSSL), Mumbai, showed that the farmers of the state are showing a keen interest to grow crops according to the requirements of the corporate sector, provided it protects the existing minimum returns and assures marketing of the produce.

Formation of a Globalized or Model Village: A model village is perceived as a village having all modern physical and social infrastructure facilities. A model village will facilitate human resource development through better education, health and training and generate employment avenues both in secondary and tertiary sectors. Initially funds for infrastructure building will have to be mobilized from government as well as non-government sources, such as non-government organizations, international funding agencies, non-resident Indians (NRIs), religious Institutions and other sources besides the village's income from its own sources.

Consequently, for the maintenance and sustainability of public services, user's charges could be levied according to the social and economic position of the households. According to the concept of a globalized village, each village will be connected with modern information technology for better dissemination of information. This type of a village will have the potential of producing human resources catering to national as well as international requirements.

ROLE OF NGOS AND SHGs

Voluntary social services have been an integral part of the socio-cultural and religious ethos of our society from ancient times. The objective has been to increase human capacities by promoting non-economic factors such as education, health and nutrition, which in turn would speed up the process of economic development. The role of NGOs is both co-operative and complementary to the state. The existence of NGOs assumes importance in the context of rural settings, as living conditions have deteriorated. State-NGO partnership alone cannot resolve all the socio-economic problems, hence it has to be in co-ordination with all agents of social change, i.e., the state, local self governments, the corporate sector, academics and civil society groups.

NGOs can play a significant role in strengthening local self-government by facilitating interaction and co-operation with state departments and also acting as catalysts to effectively implement various departmental schemes. The role of voluntary agencies in the development of rural areas can be to supplement efforts of government for the upliftment of the poor and needy disseminate information about development schemes and programmes of the government to rural people; make people aware of the consequences of female foeticides and imbalance in sex ratio; mobilize financial resources from the community; help in upgradation of skills of rural youths for self-employment opportunities; facilitate the formation of self-help groups and micro-finance; ensure protection of women and children's rights and abolish ills of child labour; and, make available technologies in a simpler form to the rural poor.

SHGs: When individuals, on their own initiative, act in a conglomeration to meet their individual and common needs with the primary focus on self-reliance, it can be called a Self Help Group (SHG). The benefits of self-help groups are based on cooperation rather than competition. They provide benefits of economies of scale, cost effective alternatives for different financial services, collective learning, democratic and participatory culture and a firm base and platform for dialogue and co-operation. SHGs develop from a common binding force, common need, interest and concern, especially for the rural poor. It is this common binding force, which makes SHGs function more efficiently. The effectiveness of SHGs would be considerably enhanced if a symbiosis could be worked out between them and Panchayati Raj Institutions (PRIs). The key to this is the integration of SHGs with the democratically elected and empowered panchayats.

There is urgent need to work out a mechanism that will allow the SHGs and the PRIs to work in coordination and establish a system of supporting each other's work.

Conclusions

The spirit of India lives in villages and only by changing the face of rural areas, we can hope for a better future for the state and nation as a whole. If we have to meet the target 9% annual growth of GDP then it is essential to sustain an annual growth of 4% in the agricultural sector. This is important for ensuring that

growth is more inclusive. Although agriculture contributes only 19% of India's GDP, it is the main source of income for 58% of the rural population. Agriculture has significance on food security and prices of goods and therefore on money wages. Further, agriculture has a strong multiplier effect because of its impact on rural income, demand and its supply of raw materials to several industrial sectors. The inter link between agriculture and industrial sector is so strong that if there is a 1% fall in agricultural growth, it will pull back industrial growth and GDP by 0.52%. If sustainable economic development has to be achieved it is essential that rural development must be a priority. For rural development modernization of agriculture is the most important requisite. This will lead to improvement in the economic conditions of the rural masses. The increased purchasing power of the rural masses will provide larger market for the products of the manufacturing sectors. It is essential to Greening rural development which refers to a variety of activities that regenerate and conserve the natural resource base, innovate and use clean materials, technologies and processes to create environment-friendly products, livelihoods, enterprises and jobs. India will grow only when rural India marches in tandem with the urban India.

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A Study On The Contribution Of Social Entrepreneurs Towards Sustainable Development In India**Mrs. Naveena Suresh**

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Abstract

Social entrepreneurs are individuals who strive to bring a solution to the society's problems by pursuing innovative ideas. They come forward to take the risk of entrepreneurship to bring positive changes in the society through their inputs. They are interested in starting a business to serve the society rather than to make profits out of that. Social entrepreneurs tap the underutilized or unused resources and mobilize them to create development in the society. Social entrepreneurs contribute towards sustainable development as well. They introduce many programs which addresses many sustainable development goals and challenges like poverty, inequality, environmental degradation, peace, justice etc. This paper attempts to study the contribution of social entrepreneurs in India towards sustainable development.

KEY WORDS-Social entrepreneurs, Sustainable development

Introduction

Social entrepreneurship is an approach by individuals, groups, start-up companies or entrepreneurs, in which they develop, fund and implement solutions to social, cultural, or environmental issues. The concept of social entrepreneurship emerged in the 1980s and since then, has been gaining more momentum. Social entrepreneurs can include a range of career types and professional backgrounds, ranging from social work and community development to entrepreneurship and environmental science. There are individuals working in several fields and areas who get involved in social entrepreneurship with a motive of bringing something new onto the society which could be beneficial for the people residing there. They create value in the society. Social entrepreneurship, as a movement and as a term, is moving aggressively into the mainstream.

The term sustainable development was coined in the paper *Our Common Future*, released by the Brundtland Commission. Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability or responsibility can be applied in various spheres of the economy like environment, education, fleets, tourism etc. Sustainable development is a topic which always calls for urgent discussion and immediate actions. In 2015, world leaders agreed to 17 Global Goals (officially known as the Sustainable Development Goals or SDGs). These goals have the power to create a better world by 2030, by ending poverty, fighting inequality and addressing the urgency of climate change.

There is a positive relationship between social entrepreneurs and sustainable development because many of the programs or ideas initiated by these entrepreneurs contribute to sustainable development in one way or the other.

Literature Review

Social entrepreneurs play an important role in the economic and social developments of the communities in which they operate (Mair & Noboa, 2006).

They are a special type of entrepreneurs who are driven by a variety of motives including the alleviation of poverty, hunger or illiteracy; the improvement of human health; the reparation of social, legal or economic injustice; and the preservation of the environment for future generations (Austin, Stevenson, & Weiskillern, 2006; Seelos & Mair, 2005; Vidal, 2005).

Stoddart (2011) defines sustainability as the efficient and equitable distribution of resources intra-generationally and inter-generationally with the operation of socio-economic activities within the confines of a finite ecosystem.

DESA-UN (2018) posits that the ultimate objective of the concept of sustainability, in essence, is to ensure appropriate alignment and equilibrium among society, economy and the environment in terms of the regenerative capacity of the planet's life-supporting ecosystems.

Research Methodology**Objectives of the study**

1. To study about the contribution of social entrepreneurs towards sustainable development in India.
2. To understand the initiatives of social entrepreneurs towards sustainable development in India.

Data collection

The study is confined to understanding the sustainable practices in tourism followed in India with few examples. Secondary research methodology has been adopted. Secondary Sources means the published sets of literature's or data available for getting important information regarding any kind of research. Data with respect to sustainable practices are available in the form of journals, online literature, government reports, statistics by different institutions etc. Majority of the data have been collected through websites. The study is descriptive in nature.

Discussion

The social entrepreneurs do not only dream to achieve something big in life, but they also nurture their passion and commitment to resolve the social inequities gripping our country. Our country needs such new breed of Sociopreneurs to come out with unconventional business models to address the environmental and social issues. Some of the social entrepreneurs who have carved a niche for themselves in the society are discussed below:-

1. Urvashi Sahni -She is the CEO and founder of Study Hall Education Foundation (SHEF). The primary calling of this organization is to give the most disadvantaged girls in India access to education. She has worked with over 900 schools and changes the lives of more than 150,000 girls directly and over 270,000 girls indirectly through her program. In 2017, Urvashi Sahni was felicitated with the great "Social Entrepreneur of the Year" award due to her selfless actions of passion and dedication. She is a perfect example of social entrepreneurship in India.
2. Harish Hande -A pioneering social entrepreneur of India and a remarkable committed one. He is the **CEO & Founder of Selco**, a company rendering sustainable energy source to rural regions of the country. This project was the first rural solar financing program in India. Till date, Selco has contributed over 120,000 installations and has more than 25 operating retail and service centres in Karnataka alone.
3. Ajaita Shah -She works with a mission to empower rural India. She started at the grass level and aims to provide the best of technological solutions to the remote villages in India at the cheapest price possible. Ajaita Shah is the Founder & CEO of Frontier Markets that supplies solar energy powered products to rural India at an extremely affordable cost. The company has sold over 10,000 solar solutions until now and there is no stopping them until they light the remotest corners of the country.
4. Aarushi Batra -She wanted to feed as many mouths as she could and for that sole purpose, along with her 3 friends she founded Robin Hood Army. As the name suggests, this volunteer-based organization aims at providing surplus food to the less fortunate.
5. Nivesh Raj -Nivesh is a former Delegate to the youth assembly to the United Nations who has always believed that the problem of poverty can never be solved unless the problem of sanitation is first taken care of, and with this believe, he started Step Up For Healthy India, an organization which aims to provide basics of health and sanitation to the underprivileged. Nivesh has also started a program called the leadership 30, which aims at nurturing students who can become leaders of tomorrow and shape this country around the 17 Sustainable Development Goals set by the United Nations. This program is first of its kind in India and only Second in the world.
6. Range De: Smita Ram and Ramakrishna established it in 2008. It is an online platform that gives the poor urban and rural people in India access to low-interest micro-credit that are as low as 2 percent per annum. Financial institutions within the country can lend out money to borrowers directly on this platform, receive regular online payments, and track investments.

Significance And Scope Of The Study

The subject under study is pertaining to the ways on how world is moving towards becoming sustainable with the contribution of individuals in various ways. They are setting an example for many others who can also consider taking up social entrepreneurship as a way to contribute towards the betterment of the society. These entrepreneurs can enter into the grass root level of our country and bring massive changes.

Limitations Of The Study

The topic of study is a novel concept. The concept covered under the study emerged recently in the world. Apart from that, data was collected mainly from websites and newspaper articles and not through any renowned publishers or through primary data.

This made it a bit tough to write this paper. Time constraint was another major issue.

Findings Of The Study

The study has tried to bring into light the importance of social entrepreneurship and sustainable development and various ways on how we can achieve sustainability. It can be used as guidelines for other areas too to focus on saving our environment and spreading the message towards future generations.

Suggestions

- Workshops or seminars can be conducted to advocate sustainability among students and youngsters by various NGOs or government agencies and motivate them to be part of the same.
- Involvement and development of the local community and thereby improve their lifestyle.
- Steps can be taken to promote social entrepreneurship by awarding the rising entrepreneurs and recognizing their contribution.

Conclusion

The above study explains how individuals can become the flag bearers to bring a positive change in the society by many of their innovative ideas and their empathetic nature. The role of communities is very much important in bringing sustainability in each and every sector. All the stakeholders will have to play a give and take role in incorporating and cooperating with these successful people who are in this field just because of their commitment and devotion to support the society as well. The primary goal of social entrepreneurship is promoting the course of environmental or social goals. These have impacts on either current or future times. Their contribution can definitely act as motivation for others to do their bit to the society.

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Solar Energy and Sustainable Development

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Abstract

Energy is an important and crucial issue to reach sustainable development. Nowadays economies are still mainly based on fossil fuels, which imply the depletion of non renewable resources and environmental problems such as air pollution and climate change. In addition markets and prices present some instability and there is a need to increase security of supply. Renewable energy sources are one of the pillars that can support new and more sustainable energy systems, which includes undoubtedly solar energy: a cleaner, available and renewable energy.

Introduction

Sustainable development is the important gift that we can leave for our future generations. It is of vital importance to develop different types of renewable energy sources including solar, wind, hydro, biomass, geothermal and hydrogen gas to supply the energy needed for sustainable development in a country.

Among these, Solar Energy has been identified as one of the promising renewable energy sources which have the potential to meet the future energy demand in developing countries like India [1]. To achieve this, solar energy can be harnessed either by generating electricity using solar panels (solar photovoltaic or PV) or directly by using solar thermal effect to generate heat. Government and private sector organizations can largely contribute to sustainable development efforts in a country by increasing and facilitating its solar photovoltaic (PV) research and installations. Funding for PV installation projects can be sought through direct government investments, through bank loans and subsidy schemes, private sector investments and donations by non-governmental organizations [2].

A large part of the cost of a solar PV installation is for the initial investment and as more and more such schemes are implemented and people volunteer their professional and technical services at community level, the solar energy can become cheaper. The investment will pay for itself for the rest of the life time of the PV installation, which is typically around 20-25 years [3]. When more and more new solar PV systems are installed in a country, the solar electricity is expected to become more affordable to the ordinary consumer.

George Washington University predicts that Silicon solar panels can last may be up to a 100 years as there is only a small degradation of performance - about ½ % per year. A solar panel after 50 years will therefore produce electricity at 75 % of its original performance [4]. Harnessing the solar energy is well within our scientific and technological capabilities and for developing countries, this provides a golden opportunity.

Solar energy is also an environmentally friendly energy source and it will gradually replace the traditional but environmentally harmful methods of energy generation using fossil fuel burning for electrical power generation [5]. Due to the extensive research being conducted in developing cost efficient solar cells, solar panels are becoming cheaper and more and more popular among the consumers. The higher competition among manufacturers also contributes to cheaper solar panels, down to less than 1.0 and 0.5 dollar per watt for Silicon and Thin film solar panels, respectively [6]. Applications of solar power in a country can be from individual houses to large solar farms with few hundred solar PV units and from electrical vehicles to national grids, reflecting the diverse needs of a developing country.

Solar energy received by the earth (100 000 TW) is more than 66,000 times greater than the annual worldwide electricity consumption (1.5 TW). A simple calculation shows that 10 % efficient solar panels covering 0.3 % of the total land area of Sahara desert is sufficient to supply the electricity needed for the entire world! [7] It is advantages that many developing countries are situated near the equator where there is a sample amount of sunshine almost year-round. Therefore, it has become a natural choice to harness solar energy by setting up solar Photovoltaic (PV) systems in these countries.

For many countries, the development of solar photovoltaic systems for power generation is expected to (a) save money, especially foreign exchange spent on imported fossil fuels, (b) create more jobs per unit of electricity produced compared to petroleum, coal and nuclear power plants, (c) reduce considerably the oil and coal imports, (d) protect the environment by reducing pollution and (e) increase the energy independence and energy security.

Governments in many developing countries offer substantial incentives to strengthen the solar PV installations due to long term environmental and economic advantages. These include lower carbon dioxide emissions and the creation of high technology jobs within the solar PV industry. In order to develop and sustain the solar PV as a major renewable energy source, the country should have a well-trained workforce who would be competent in handling solar PV related technological issues ranging from manufacturing, installation and repair and maintenance [8].

Innovative Application of Solar Energy in Sustainable Development of India

With the existing application of solar energy some innovative application is needed for sustainable development of India. Some innovative applications of solar Energy are listed consequently.

Solar in Transportation: Transportation is a broad field where solar energy has great scope of application. Solar vehicle is the budding area of research now a day. An electric vehicle powered by solar energy completely or partially is known as solar vehicle [9].

Solar Lighting: Use of solar energy for lighting purpose is a very common and flourished application area. But still it can be used more efficiently like, solar LED street lighting, Solar LED garden lighting, Solar palm tree lighting in Institutes and Industries [10].

Solar Mobile/ I-Pad Charger: Solar cell phone or i-Pad charger is a small application of solar energy. But considering the total number of cell-phone users in India, it will save a huge energy used in cell-phone charging.

Solar Car parking: A parking area covered with solar panels, elevated above the ground so that cars park in the shade under a shelter of photovoltaics. Depending on the size of the array covering the parking area a lot of power can be generated. Solar carport installed at Rutgers University is 28 acres in size and produces 8 megawatts of power at an instant [11].

Solar Kitchen Restaurant: Solar kitchen restaurant is an idea to promote solar energy. This idea is already successfully implemented in Europe. The Solar Kitchen Restaurant is based on a solar kitchen concept where cooking is by pure solar energy. The Solar Kitchen Restaurant will be built around a solar kitchen to relax and enjoy in a new and exciting way.

Solar Canal: The Canal Solar Power Project is a project launched in Gujarat, to use 19,000 Kilometre long network of Narmada canals across the state for setting up solar panels to generate 1MW electricity. It was the first ever such project in India. The project is situated on the Narmada branch canal near Chandrasan village of Kadi taluka in Mehsana district. In India huge number of canals and rivers are present so canal solar panel can generate a massive portion of energy and also it will prevent the evaporation of water [12].

Solar Space Power Station: The concept of collecting solar power in space for use on Earth is known as solar space power station. It has been in research since the early 1970s. 55-60% solar energy is lost on its way through the atmosphere by the effects of reflection and absorption. Solar Space Power Station converts sunlight to microwaves outside the atmosphere, avoiding these losses, and the downtime due to the Earth's rotation [13].

Objective

The way energy is produced, distributed and used causes environmental damage – most visibly air pollution - that in turn harms people's health. It is also one of the major drivers of climate change. Recognising this, countries are urgently looking to shift to more sustainable energy, but the transition has so far been slow. Put simply, our future depends on our ability to decarbonise our economies by the end of the century.

A core purpose of sustainable development is to ensure we leave future generations a world which affords them the same opportunities. This is within our grasp if we work across borders to promote solar energy throughout Asia. India has a major role to play. Its experience gives us a historical opportunity to shape best practices in solar energy for our region and reduce carbon emissions.

Hypothesis

Solar energy on the Southern reservation has the potential to provide affordable energy and heat to those below the poverty line, and to provide green jobs for those who are unemployed, while providing energy autonomy and economic development that aligns with the tribe's culture. It is possible for the Southern community to become an entirely "off the grid," solar community, and that in doing so, steps toward the restoration of their quality of life will occur, with huge benefits for those in the most significant state of poverty on the reservation.

Conclusion

Solar power is an immense source of directly useable energy and ultimately creates other energy resources: biomass, wind, hydropower and wave energy.

Most of the Earth's surface receives sufficient solar energy to permit low-grade heating of water and buildings, although there are large variations with latitude and season. At low latitudes, simple mirror devices can concentrate solar energy sufficiently for cooking and even for driving steam turbines.

The energy of light shifts electrons in some semiconducting materials. This photovoltaic effect is capable of large-scale electricity generation. However, the present low efficiency of solar PV cells demands very large areas to supply electricity demands.

Suggestions

Through continued research and funding, the Southern part of India has the potential to become solar dependent; functioning completely off of the grid. My research has set a base understanding for all that solar can do to help the community, as well as some complexities that need examination, e.g., need to educate families receiving solar energy and insulation.

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Statistical Views of Citizens for Water Deficiencies and Its Management in Semi Urban Areas.**Professor Arvind Chaudhari**Principal, Arts, Commerce and Science College
Bodwad**Kanchan Damade**Assistant Professor, Department of Chemistry,
Arts Commerce and Science college Bodwad Dist-
Jalgaon**Abstract:**

Indias water requirements are expected to increase up to 1.5 trillion cubic metres. Lack of proper infrastructure, resources and awareness regarding to waste-waterrecycling in India has leads over utilization of India's water resources.so there is a need to be go toward water conservation and waste water recycling techniques either by naturally or artificially. This could be achieved when citizen and government work hand in hand and implement proper strategies for water supply and its recycling. The present study shows us public views for improper water management and less awareness about self-responsibilities against water conservation.

Introduction:

Water is stored in various parts of the world but not evenlydistributed all over the earth. It is said to be a universal solvent. India is the biggest consumer of freshwater in the world today,as per the record of world bank we Indian requires about 750billion cubic metres per annum. The World Bank has investigatedthat the requirements of water in India is rising extensively. But for a country which has only 4 per cent of the world's water resources, hosting 17 per cent of the world's population, the water crisis is going to be daggered and it will be difficult for the countryto be overcome from. The Central Pollution Control Board (CPCB) calculated that by 2030.

In India, the awareness related to over uses of water resources has been very low. As per the data available the percapita availability of water in India has dwindled from 1,800 cubicmeters per year in 2001 to an estimated 1,100 in 2050 .

Government plays very important role in use and developments of water resources. The government interest and concern with water resources has developed proportionally with the technological and socio-economic developments. The government has functioning regarding proper water management, including Resource planning and recycling for providing maximum availability of water, forming Guidelines for the safety of storage dams and other water-related structures, setting water allocation priorities, rationalize rates of water for small and marginal farmers. At present, states are generally formulating master plan, design and operate or execute different water supply schemes through their various State water resources Departments (of Public Health Engineering or Rural Development Engineering) or State Water Boards

Our study highlights the improper water management, important role of government in water supply and also suggest some ideas for implementing proper water management.

Significance of the Study –

The study is designed to focus on issues of water managements and availability of water resources, taking view of public awareness , it also focuses on spreading awareness for conservation of domestic use of water.

Methodology-

The water supply management is studied from one of the small taluka called Bodwad and analysis is done on the views of localized Citizens.

Results:**Table: 1- Showing public views regarding water management and self-awareness**

Sr.no.	Questionnaires	% frequency of agreement	% frequency of disagreement
Question no. 1	Water Distribution Policy byNagar panchayat Administration	29.51	65.57
Question no. 2	Local leadership is Effective for Water Planning of the city?	39.68	55.41
Question no. 3	Public water Distribution system is well Planned?	41.31	57.04

Question no. 4	Water Distributionperson behaviour is fair?	30.49	64.59
Question no. 5	Satisfied with Solving Complaints regarding Water Management within Time?	31.47	66.55
Question no. 6	Public Water Supply Management is fool proof?	30.16	62.30
Question no. 7	Your Public Representative is aware about Water supply management and Water Distribution System?	25.25	62.30
Question no. 8	Are you Serious about Water use and Water saving?	60.98	32.79
Question no. 9	Water Shortage Problem can Solve through the Proper Water Resource Management	83.27	13.11
Question no. 10	Water Problem is notNaturally but Created by Us?	51.14	42.62

Statistical analysis:

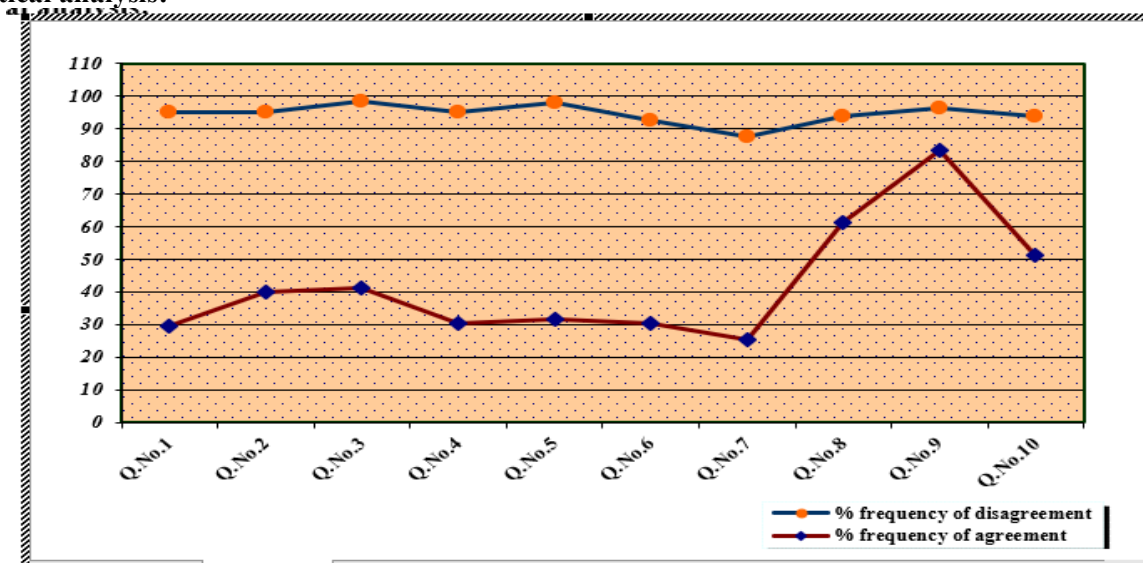


Figure-1: Graphical view for Public views in agreement and disagreement percentage

Discussion:

From the above analysis (Table-1) it is found that, as far as water Distribution policy is concerned, the major group is of Disagree (65.57%) whereas the minor group is agreed (29.51%). It means the citizens are not satisfied with water distribution policy of Nagar Panchayat administration. While for concerning effectiveness of Local leadership for Water Planning of the city we found that major respondents are Disagree (55.41%) whereas the minor group is agreed (39.68%). It confirms that Local leadership is not Effective for Water Planning of the city. If we ask for whether the Public water Distribution system is well Planned or not, we found disagreement rate is 57.04% while agreement rate is 41.31% this concludes that quite disappointment of citizens is there regarding public water distribution.

If we go for question on Water Distribution employee behavior is fair or not, we found disagreement rate of 64.59% and 30.49% agreement rate. We conclude that public remarks unsatisfactory with the person behaviour. Now when we ask about, Satisfied with Solving Complaints regarding Water Management within Time we found 66.55% and 31.47% disagreement and agreement rate respectively. It shows there was irregularity in fulfilling complaints about water problems. Confirming about Public Water Supply Management is fool proof or not we again found disagreement and agreement rate as 62.30 And 30.16 respectively. It shows public is unsatisfied with water supply management. Then we go for the question on whether Your Public Representative is aware about Water supply management and Water Distribution System or not we found that 62.30% citizens are disagreed while 25.25% citizens are agreed. There is again disagreement about public representatives of local areas. On next question that was Are you Serious about Water use and Water saving? We got result of 32.79% of disagreement and 60.98% of agreement. Here peoples are quite agreed with the view of water saving issues. On knowing views on, Water Shortage Problem can Solve through the Proper Water Resource Management? We again got results of 13.11% for disagreement and 83.27% for agreement.

Here also public are more positive with proper water management system. At last question on Water Problem is not Naturally but Created by Us? public replies with 42.62% of disagreement and 51.14% of agreement. This concludes that peoples are aware that their water shortage problem is created by people misconduct of water use.

Critical Discussion-

Water availability position of India in all-around world is very much lag behind as compared to other highly populated countries. So, if we think with the growing population in India and with the improper utilization of water per capital availability of water which is decreasing over a period of time. As per the data available, India will head towards a water scarcity position by around 2050. India's water situation is characterized by scarcity and lack of coordinated planning. India is facing the floods and draught too. As per the observed analysis (Figure-1) from our present study, we assured that sufficient water supplies are lacking in urban centres and in rural villages. To overcome from the issues, we need strong implementation of water use governance along with perfect strategies designed for conserving water and its reuse. Sustainable water management in a drought-prone area requires knowledge of the water availability and water requirements in the present and future for various purposes. There is a need for good scientific planning in the development of water management, to evolve effective management practices. Water management is the foremost challenge being faced by the organizations dealing with groundwater in the country. Management of groundwater resources in the Indian context requires a combination of area-specific and problem-specific strategies depending on the climatic, geomorphologic, hydrological and hydrogeological settings.

Rather for sufficient supply of water we should encourage peoples to harvest rain water which is some time low-cost planning of water conservation. Rainwater harvesting technologies are flexible and can be built to meet almost any requirements.

Some suggestive points:

If we think on suggestive outcomes, we find that precautions must be followed while the uncertain problems whenever arise which can avoid the citizen harassments for fulfilling daily needs of water,

- We should avoid over exploitation of groundwater. Artificial recharge measures need to be urgently implemented in the urban areas.
- Population growth should be control for better fulfilling of water demand at peak level.
- Need to achieve a balance between development of region and protection of the environment.
- Understand and use the wisdom of our ancestors who valued water, and harnessed every drop of rainwater by using rain water harvesting techniques that are relevant even today.
- Encourage policies that aim at community participation in management of water resources.
- We should have planning for less dependable yield, Better irrigation practice, good Cropping pattern, Watershed development, Transfer of water from water excess basins to water-deficit basins etc. This could definitely help in achieving the good outcomes for water use.

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Agricultural Land Suitability Analysis Using Remote Sensing And GIS in Dindigul Panchayat Union, Tamil Nadu

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Abstract

Land suitability classification is the appraisal and grouping of specific areas of land in terms of their suitability for defined uses. Geographical information system (GIS) is a useful technique to investigate the multiple geospatial data with precision and higher flexibility in land suitability analysis. Hence in the present study an attempt is made to analyse the Agricultural Land Suitability using remote sensing and GIS in Dindigul Panchayat Union, Tamil Nadu, for 2021. In this study, varied thematic maps- NDVI, LST, NDWI, Drainage, Lithology, Slope, Soil pH, Soil Suitability, and Landuse / Landcover are prepared. The weighted overlay technique is used to identify the agricultural land suitability classes and recommendations are suggested for sustainable use of agricultural land in the study area.

Key words: *Agricultural Land Suitability, Normalized Difference Vegetation Index, Land Surface Temperature, Normalized Difference Water Index, Soil Suitability.*

Introduction

The population of the planet is growing dramatically and under present situation where land is scarce, it is impossible to bring more area under cultivation to satisfy the growing demand (1). In order to increase food production and to provide food security, crops need to be grown in areas where they are best suited and foremost requirement is carrying out land suitability analysis (2). Land suitability classification is the appraisal and grouping of specific areas of land in terms of their suitability for defined uses (3). The analysis allows identification of the main limiting factors of crop production and enables decision makers to develop crop management system (4). Geographical information system (GIS) is a useful technique to investigate the multiple geospatial data with precision and higher flexibility in land suitability analysis (5) (6).

Hence in the present study an attempt is made to analyse the Agricultural Land Suitability using remote sensing and GIS in Dindigul Panchayat Union, Tamil Nadu, for 2021. This analysis of Agricultural Land Suitability would help in planning and preparedness in the study area. In addition, recommendations for the sustainable use of agricultural lands are also put forward for consideration.

Study Area

Dindigul Panchayat Union is located in Dindigul district, Tamil Nadu (Figure 1). The study area lies between 10°14'45" and 10°31'00" North latitudes and 77°45' and 78°4'30" East longitudes covering the Survey of India (SOI) topographic maps 58 F/14, F/15, F/16 and 58 J/3, extending over an area of 378.71 Sq. Km. The study area consists of 18 administrative units i.e., village panchayats namely Adiyannuthu, Agaram, Alakkuvarpatti, Ammakulathupatti, Anaipatti, Balakrishnapuram, Chettinaikkanpatti, Kovilur, Kurumbapatti, Mullipadi, Pallapatti, Periyakottai, Silapadi, Sirumalai, Thadikombu, Thamarapadi, Thottanuthu and Vellodu. Among these, Sirumalai village panchayat is a hilly area located in the southern part of the study area. Dindigul Corporation (C) is the headquarters of the study area (Figure 2).

Fig.1 Study Area - Location

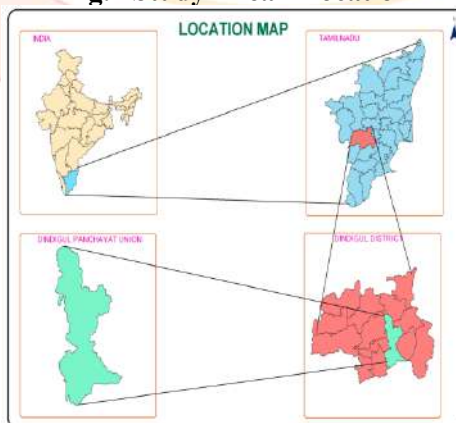
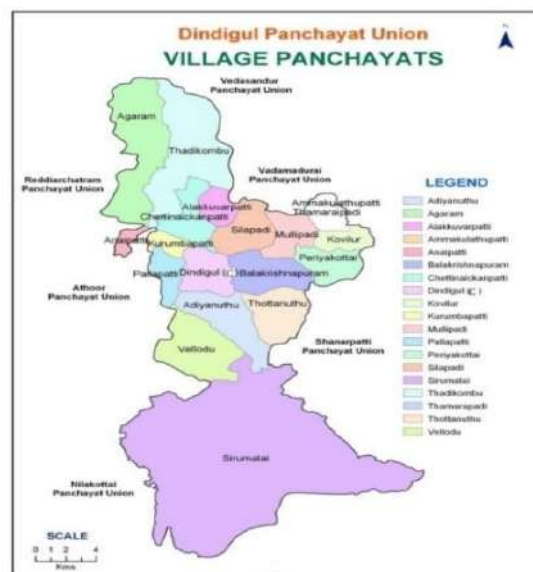


Fig.2 Dindigul Panchayat Union – Village Panchayats



Objectives

- To analyse the Agricultural Land Suitability in Dindigul Panchayat Union during 2021, using themes-
 - Normalized Difference Vegetation Index (NDVI)
 - Land Surface Temperature (LST)
 - Normalized Difference Water Index (NDWI)
 - Drainage
 - Lithology
 - Slope
 - Soil pH and Soil Suitability and
 - Landuse/Landcover
- To apply weighted overlay technique for all themes.
- To identify the agricultural land suitability classes.
- To suggest recommendations for sustainable use of agricultural land.

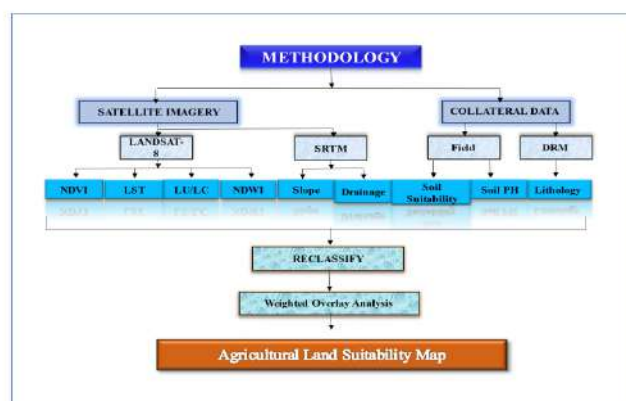
Hypothesis

The hypothesis framed for the present study is – “The identification of agricultural land suitability classes would increase the sustainable use of agricultural land in the study area, in future”.

Data, Methodology and Technique

The remote sensing data pertaining to the study area has been freely downloaded from official Earth Explorer USGS distribution website (earthexplorer.usgs.gov). And the data was referenced to the Universal Transverse Mercator (UTM) Projection System. For the present study, Landsat 8, OLI/TIRS sensors, Row 143, Path 53, Resolution 30 m with the bands -3,4,5,6,10 and 11 are used. Thermal data have been used for LST estimation. The thematic maps are created in ArcGIS software. The thematic maps are reclassified and weightages are assigned, according to their importance from 1 to 10. Further, the weighted overlay analysis is adopted. The following methodology (Figure 3) is applied in the present study.

Fig.3 Methodology



Results and Discussion

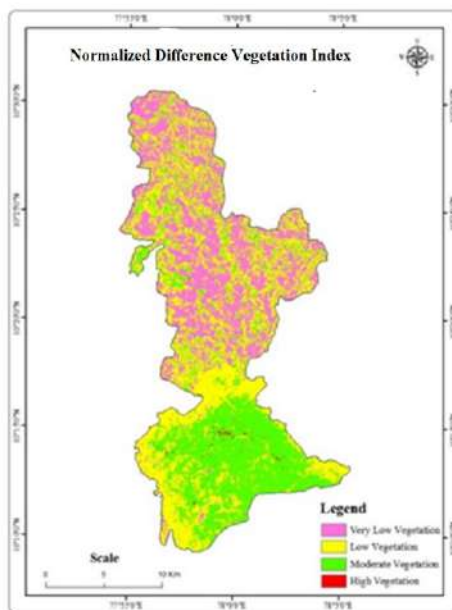
Normalized Difference Vegetation Index (NDVI)

The NDVI has become the primary tool for description of vegetation changes and interpretation of the impact of environmental phenomena (7). The NDVI is a common and widely applied in research on global environmental and climatic change and has become the primary tool for description of vegetation changes and interpretation of the impact of environmental phenomena. NDVI is calculated as a ratio difference between measured canopy reflectance in the red and near infrared bands respectively (8). NDVI was calculated based on Landsat band (Red and Near-Infrared) using the following equation:

$NDVI = (NIR - RED) / (NIR + RED)$ Where,

Near-Infrared band (NIR) (0.85 - 0.88 μm) and Red band (0.64 - 0.67 μm), are used for Landsat 8 OLI. The values are ranged from -1 to 1. The analysis of NDVI (2021) for the study area is shown in the figure 4.

Fig.4 Dindigul Panchayat Union – NDVI2021



On the basis of results, it is observed that the NDVI values of the study area ranges between -0.14 to 0.52 during 2021. The NDVI values are classified as very low, low, moderate and high vegetation region. The very lowest value refers to area with bare soil and nil vegetation cover, while the low value covers grasslands and shrubs, the moderate value represents forest region and the highest value refers to the areas, where agriculture is practised. The area covered under each NDVI classes are also calculated as-105.03Sq.Km (very low vegetation class), 187.35Sq.Km (Low vegetation class), 77.81Sq.Km (Moderate vegetation class) and 8.52Sq.Km (High vegetation class).

Land Surface Temperature (LST)

Land surface temperature (LST) is the main factor used to determine the energy exchange and surface radiation. The exchange of energy budget between the outgoing long wave terrestrial radiation emitted from the Earth surface and the sensible heat flux of the atmosphere is controlled by the LST (9). One of the most widely used methods to retrieve LST is to employ thermal band to convert the raw value in to the black body temperature in Degree Celsius.

Land Surface Temperature Retrieval from Landsat 8:

From Landsat-8 TIRS, Split Window (SW) algorithm studies were carried out for acquiring LST from band 10 and 11 and the following equation were applied to both the bands individually and finally LST was derived by integrating them for the year 2021.

Step-1 Conversion of digital number (DN) to spectral radiance (L_λ):

In the case of Landsat 8, the value of Top of Atmospheric (TOA) spectral radiance (L_λ) was determined by multiplying rescaling factor of TIR bands with its corresponding TIR band and adding additive rescaling factor with it. All rescaling factor for the bands obtained from the metadata and it is mentioned in the table 1. By the following equation, spectral radiance was derived:

$$L_\lambda = M_L \times Q_{cal} + A_L \text{ Where,}$$

L_λ – Top of Atmospheric spectral radiance,

M_L = Band specific multiplicative rescaling factor,

Q_{cal} =The pixel value in DN,

A_L = Band specific additive rescaling factor.

Landsat-8 TIRS			
Rescaling factor	Band 10	Band 11	Units
M_L	0.000342	0.000342	$[(W/(m^2 sr\mu m))]/DN]$
A_L	0.1	0.1	$[W/(m^2 sr\mu m)]$

Table 1 Rescaling factors of Landsat 8(TIRS)

Step-2 Conversion of spatial radiance into brightness temperature:

Thermal Infrared bands of Landsat 8 OLI are converted from spectral radiance to effective at-sensor brightness temperature by converting the radiance using the inverse Landsat Plank's law(10):

$$BT = \frac{K_2}{\ln\left(\frac{K_1}{L_\lambda} + 1\right)} - 273.15 \text{ Where,}$$

BT=Brightness temperature in Celsius,

K_1 and K_2 = band-specific thermal conversion constant,

L_λ – Top of Atmospheric spectral radiance.

The thermal constant value of Landsat 8 is mentioned in the table 2.

Table 2 Thermal constants

Sensor	Band number	Thermal constants	
		K_1	K_2
Landsat 8(TIRS)	10	774.8853	1321.0789
	11	480.8883	1201.1442

Step-3 Derivation of LST by using land surface emissivity:

Final LST is estimated by the following equation:

$$LST = BT / \left\{ 1 + \left(\lambda * \frac{BT}{\rho} * \ln(\epsilon) \right) \right\} \text{ Where,}$$

BT = Brightness Temperature

λ = Wavelength of emitted radiance (11.5 μm)

$\rho = h * c / s$ (1.438 x 10⁻² m q K,

h = Planck's constant (6.626 x 10⁻³⁴ Js),

c =velocity of light (2.998 x 10⁸ m/s),

s =Boltzmann Constant (1.38 x 10⁻²³J/K),

ϵ = Land surface emissivity

By using NDVI threshold method, Land Surface Emissivity (LSE) was calculated. It is required to calculate the LSE to derive LST of the region. The LSE was equated as follows:

$$LSE = \epsilon_s (1 - P_v) + \epsilon_v \times P_v$$

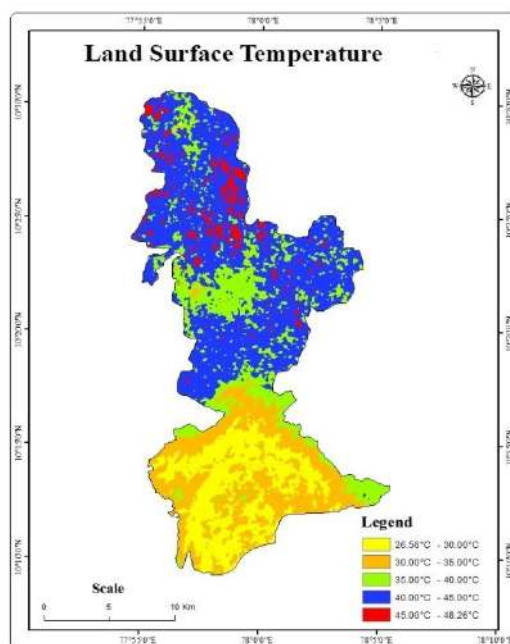
$$P_v = \frac{NDVI - NDVI_s}{NDVI_v - NDVI_s} \text{ where,}$$

ϵ_s = Soil emissivity

ϵ_v =Vegetative emissivity

P_v = Fractional Vegetation Cover.

Finally, the LST in kelvin is determined using SW algorithm.The analysis of LST (2021) for the study area is shown in the figure 5.

Fig.5 Dindigul Panchayat Union – LST2021

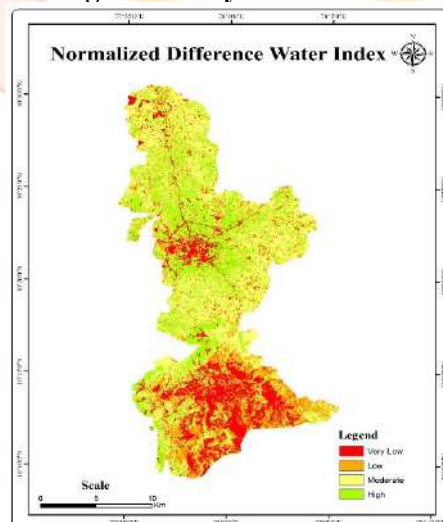
On the basis of results, it is observed that the LST values of the study area ranges between 25°C to 48°C in 2021. The results depicts that the highest temperature exists at urban areas with bare soil, while moderate and lowest temperature exist at vegetative areas such as forest and agricultural lands. The area covered under each LST classes are also calculated as- 59.76 Sq.Km (25-30°C), 69.11Sq.Km (30-35°C), 65.99Sq.Km (35-40°C), 174.88Sq.Km (40-45°C) and 8.97Sq.Km (45-50°C).

Normalized Difference Water Index (NDWI)

The Normalized Difference Water Index (NDWI) is a widely used remote sensing indices which involve spectral bands of multi-spectral and multi-temporal satellite datasets for vegetation, water resources and wetland studies (11).NDWI uses both the bands in near-infrared region and demonstrates its potential applicability for canopy-level water content estimation based on the liquid water absorption band centred at 1240 nm enhanced by canopy scattering(12). The NDWI uses two near IR channels and is calculated using the following equation:

$NDWI = \frac{NIR(5) - SWIR(7)}{NIR(5) + SWIR(7)}$ where,

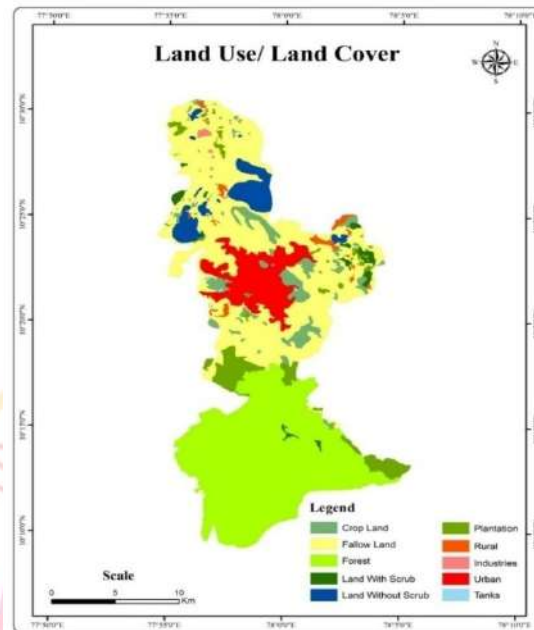
NIR range with wavelengths 0.841–0.876 nm and SWIR is a part of range with wavelengths 1.628–1.652 nm and the values ranges from –1 to 1, the higher values correspond to high plant water content and cover with low vegetation (12). During the period of water stress, the NDWI rate will decrease. The analysis of NDWI in the study area for 2021 is shown in the figure 6. On the basis of results, as per the availability of the water resources, the study area is classified as very low, low, moderate and high NDWI classes.

Fig.6 Dindigul Panchayat Union – NDWI2021

Landuse/ Landcover

The term 'landuse' usually relates to the human activity associated with a specific area of land while 'landcover' generally denotes the types of features covering some area of the surface of earth. Knowledge of landuse /landcover is important for planning and management activities (13). To maintain sustainability of land resources, analysis of land use pattern on real time basis is essential. And hence in the present study, an attempt is made to analyse the land use pattern, using Landsat 8 data, in Dindigul Panchayat Union during 2021 and is shown in the figure 7.

Fig.7 Dindigul Panchayat Union – Landuse/Landcover2021

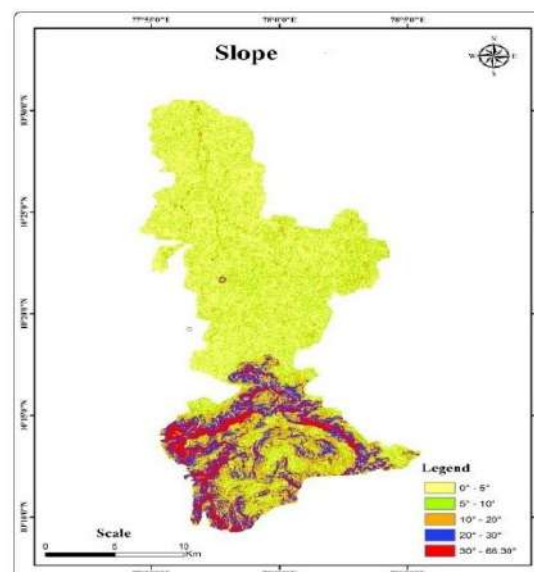


The area under various land use categories during 2021 is also calculated as- crop land area (19.94 Sq.Km)(5.27 percent), fallow land (133.28 Sq.Km)(35.19 percent), Forest (137.81 Sq.Km)(36.39 percent), industries (0.86 Sq.Km (0.23 percent), plantation (20.37 Sq.Km)(5.38 percent), settlements-urban&rural (44.85 Sq.Km)(11.84 percent), tanks (0.39 Sq.Km)(0.10 percent) and wasteland-land with scrub and land without scrub (21.21 Sq.Km)(5.60 percent),

Slope

The slope map of the study area is prepared and is shown in the figure 8. The analysis of slope in the study area reveals that most part of the study area is confined to near level class ($0-5^{\circ}$) in the northern part and very steep slope class ($>30^{\circ}$) in the southern part. The general slope of the study area is from south to north.

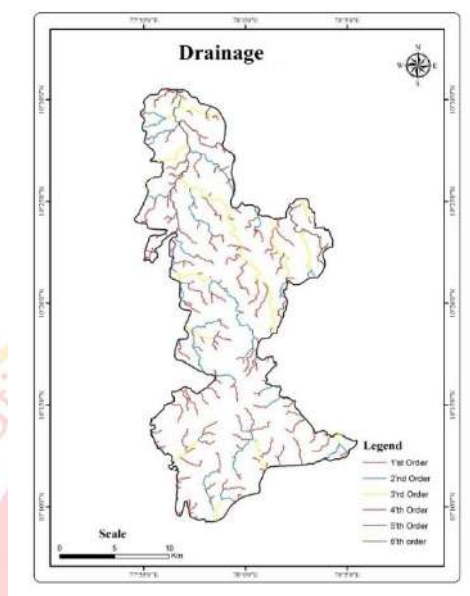
Fig.8Dindigul Panchayat Union – Slope



Drainage

The slope map of the study area is prepared and is shown in the figure 9. The analysis of drainage in the study area reveals that the study area is drained by a number of medium and small rivers and small streams and almost all the streams are seasonal in nature. The important river that flows in the study area is Kodaganar originating from Sirumalai hills, in the southern part, that forms an important source of water supply throughout the study area. Minor tanks and streams that are distributed throughout the study area, receive water through rainfall.

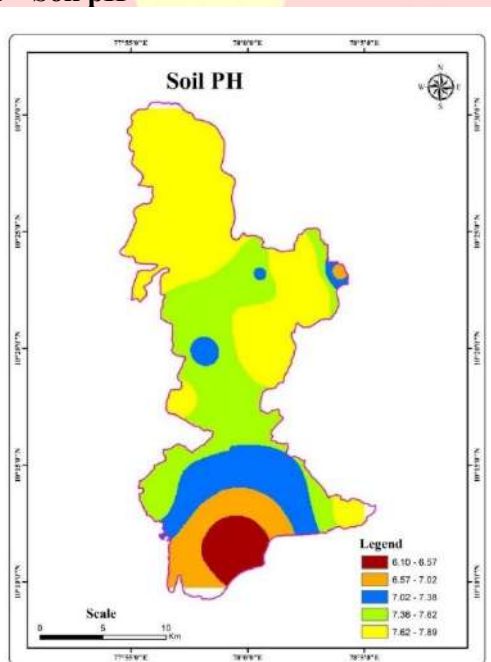
Fig.9 Dindigul Panchayat Union – Drainage



Soil pH

The soil pH of the study area is analyzed and is shown in the figure 10. The analysis of soil pH in the study area reveals that the values are noticed to be between 6.1-8.0, indicating that the soil reaction was neutral in all the village panchayats.

Fig.10 Dindigul Panchayat Union – Soil pH

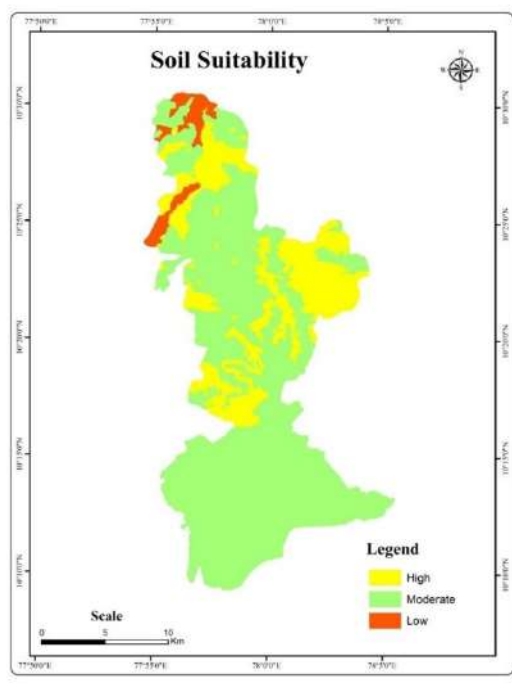


Source: Report of the Soil Testing Laboratory, Dindigul.

Soil Suitability

The soil families of the study area, their suitability for agriculture and their relative ratings for agriculture in 0-100 linear scale is analysed. This aggregation is based on the soil classification and their suitability for agricultural activities. (*Report of the Soil Testing Laboratory, Dindigul*). As per the suitability rating, the soil families of the study area are grouped as Group I, II and III (14). The soil suitability map is prepared and is shown in figure 11.

Fig.11 Dindigul Panchayat Union – Soil Suitability



From the figure 11, the following inferences are drawn.

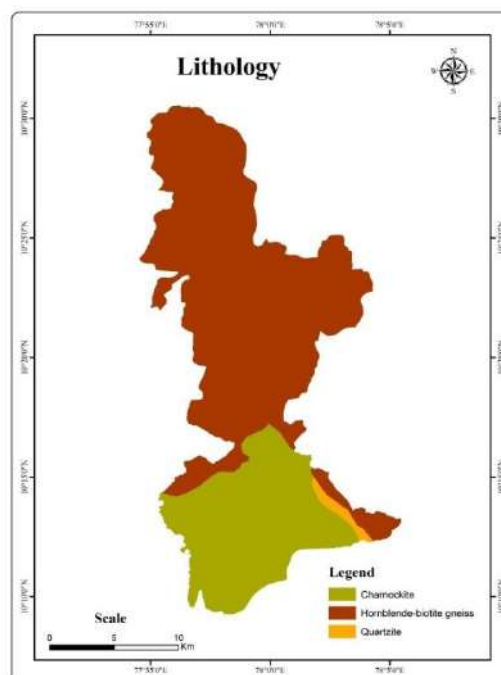
1. Soil Suitability Group I (High) with a rating of +100 includes soils that have few limitations that restrict their use. Otherwise, it is good for agricultural activities.
2. Soil Suitability Group II (Moderate) with a rating of +95 includes soils that have some limitations that reduce the choice of plants or require moderate conservation practices. Therefore, one has to give due importance in choosing plants, even though other factors are found to be suitable for agricultural purposes.
3. Soil Suitability Group III (Low) with a rating of +75 includes soils that have severe limitations that reduce the choice of plants or require special conservation practices or both.

From the Figure 11, it could be observed that the soil suitability for agriculture is high (Group I) (87.14 Sq.Km) (23.01 percent of the total geographical area), low (Group III) (17.43 Sq.Kms) (4.60 percent of the total geographical area) and moderate (Group II) (274.14 Sq.Km) (72.39 percent of the total geographical area).

Lithology

The lithology of the study area is analyzed and is shown in the figure 12. From the analysis of lithology of the study area, it could be observed that it is covered by rocks of archaean age. This includes hornblende-biotite gneiss, charnockite and quartzite. Of these rock types, hornblende-biotite gneiss occupies almost the entire study area. The charnockites are restricted to the southern part of the study area where the Sirumalai hills are located. Quartzite is found in small pocket in southeastern part of the study area.

Fig.12 Dindigul Panchayat Union – Lithology



Agricultural Land Suitability

The term land suitability can be defined as the ability of a particular type of land to support for a specific use, and the land suitability classification process involves the evaluation and grouping of a particular land area in terms of their suitability for a defined use (15). Land could be categorized into spatially distributed agricultural land suitability classes based on the soil properties, terrain characteristics and land use (16). Land Suitability Analysis (LSA) is a GIS-based process applied to determine the suitability of a specific area for considered use, i. e. it reveals the suitability of an area regarding its intrinsic characteristics (suitable or unsuitable) (17). Land suitability analysis is an evaluation/decision problem involving several factors, where the relative importance of the criteria is required (18). This is usually obtained by assigning a weight to each criterion. The derivation of weights is a central step in defining the decision maker's preferences. A weight can be defined as a value assigned to an evaluation criterion indicative of its importance relative to other criteria under consideration. The larger the weight, the more important is the criterion in the overall utility (19).

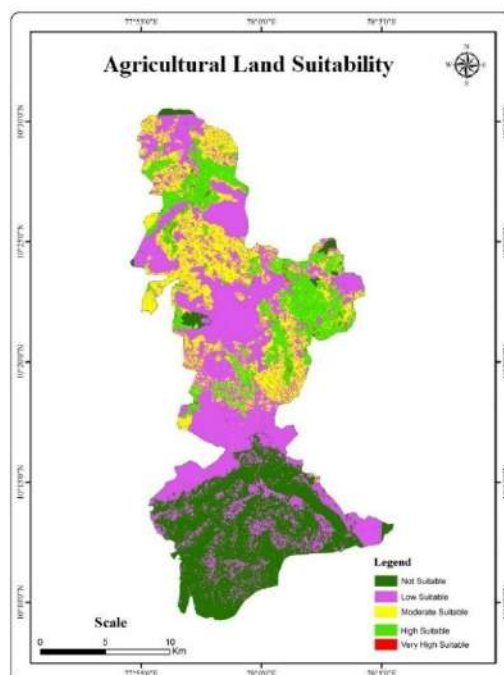
Land suitability assessment for agriculture is very important for agriculture development and future planning and for the same thematic maps are weighted (20). Hence in the present study, all the thematic maps are reclassified and firstly various thematic maps are generated, analysed and weighted using overlay analysis and is shown in the table 3.

Table 3 Weighted Overlay Analysis

Factor	Sub-Factor	Weightage	Theme Weightage	Factor	Sub-Factor	Weightage	Theme Weightage			
Soil Suitability	High	10	20	Drainage Density	Very low	6	8			
	Moderate	6			Low	5				
	Low	3			Moderate	4				
LU/LC	Crop land	10	16		Soil PH	High		3	8	
	Fallow land	10				Very high		2		
	Forest	4		6-6.5		2				
	Land with scrub	7		6.5-7		3				
	Land without scrub	6		7-7.3		4				
	Plantation	4		7.3-7.6	5	Slope	7.6-7.8	6		14
	Rural	5		0-5	10					
	Industries	3		5-10	9					
	Urban	3		10-20	6					
	Tanks	9		20-30	5					
LST	26-30	5	7	Lithology	30-66.30	4	10			
	30-35	4			Charnokite	5				
	35-40	3			hornblende biotite gneiss	7				
	40-45	2			Quartzite	3				
	45-48	1			Very low	3		NDWI	Low	4
NDVI	Very low	2	7	Moderate	6					
	Low	3		High	7					
	Moderate	4								

After weighting the criteria, as regards the relative importance of each criterion as well as suitability index, all the criterion maps were overlaid and final agricultural land suitability map was prepared. The agricultural land suitability map of Dindigul panchayat Union, for 2021, is generated and shown in the figure 13.

Fig.13 Dindigul Panchayat Union – Agricultural Land Suitability



From the figure 13, it could be observed the area under agricultural land suitability class are as- very highly suitable (1.55Sq.Km), highly suitable (48.13Sq.km), moderately suitable (68.56Sq.Km), Low suitable (161.07Sq.Km),and not suitable (99.4Sq.Km).

Recommendations

Agricultural land suitability evaluation provides information on the constraints and opportunities for the use of the land and therefore guides decisions on optimal utilizations of resources, whose knowledge is an essential prerequisite for land use planning and development (21). The following recommendations are suggested for improving the land available for agricultural activity in the study area.

- Proper land improvement and reclamation methods.
- Promote equal farm size distribution and avoid land fragmentation.
- Use of coconut coir and piths, neem seed kernel, neem seed oil cake and groundnut oil cake increase the soil potential considerably.
- Regulation of land rents may help the poor farmers to produce more agricultural products.
- Green manure consumption will bring fallow land for cultivation.
- -Bio fertilizer and compost may stabilize the fertility of the land.
- Natural farming using herbal pesticides will protect the microorganisms in land.
- Using plant protection chemicals to the crops may help the farmers engaged in agricultural activities.
- -Pest attack recommendations suggested by the agricultural department should be followed.
- Use of hybrid yield varieties is suggested for the cultivators.
- Cost of seeds should be minimized, so that the poor farmers will be benefited.
- Seed processing and grading should be practiced.
- Periodical soil and water testing has to be done. Based on this the crops suitable for cultivation can be selected. Soil and water testing also help in further plant protection measures.
- Latest farm practices like ridge and burrow method, picture picker irrigation, sprinkler and drip irrigation methods can be followed.
- Using machineries like tractors, tube wells and agricultural implements are recommended for the increasing agricultural produce.
- Soil enrichment and management can be made by following effective irrigation systems that includes drip and sprinkler irrigation.

- Improved farming practices and best-suited technologies like, agro-horticulture, silvi-pasture and agro-forestry can be followed to improve the agricultural productivity.
- Dry farming technologies such as soil and water conservation measures are also suggested.
- Water irrigation management and water harvesting techniques to be followed.
- Policies should be framed in adopting suitable restriction on the use of vulnerable lands. This can be better achieved through national spirit and co-operation with technical experts, planners, administrators and active participation of farmers.
- Inter cropping, crop rotation and crop planning should be done before commencing the cultivation. Based upon the soil and water tests, market requirement and season, the crops should be selected for cultivation.
- Boundary plantation can also be followed and would in turn reduces the wind velocity, give shelter, can also be used as a green manure and it gives additional income too.
- Native trees, which need less water, may also be planted on all fallow and waste lands. Neem is the best native tree that can be grown in any type of soil.
- Jatropha plant, that supplements the farmers income, is recommended in waste lands.

Conclusion

The analysis of agricultural land suitability in Dindigul panchayat union, Tamil Nadu, clearly states that there is a dire need to bring more land under agriculture. This research allows identifying the main limiting factors in agricultural land suitability and enables decision makers such as land users, land use planners, and agricultural development planners to develop a crop management system to overcome constraints. This will ensure food security and increase in food production to support the growing population in future.

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Physical Problems and Prospects of Rice Cultivation in Kolhapur District of Maharashtra**Mr. D. A. Sardesai**Assistance Professor, Dept. Of Geography,
SadashivraoMandlikMahavidyalay, Murgud.**Dr. R. V. Hajare**Assistance Professor, Head Dept. Of Geography,
Elphinstane, College, Mumbai. Dr. H.B.S.U.**Abstract**

Rice is the major kharif crop grown in the Kolhapur district. The rice crop is being cultivated on 1.06 lakh hectare during 2017 in kharif season.. Average productivity of the rice crop is 3029 kg/ha. Rank 3rd in the state and in Maharashtra 2.73 million metric tonnes production of rice in 2018. A study on Physical problems and prospects of rice cultivation in Kolhapur district of Maharashtra was conducting during 2018. The study covered three agro-climatic zones that is western zone, middle zone and eastern zone. Data on physical problems were collected from 712 farmers in different agro-climatic zones. In this regard rice cultivators have to face various physical problems that is topography, climatic problems (temperature fluctuation, rainfall fluctuation, humidity), soil, occurrence of floods and crop diseases were the major physical problems in rice cultivation. Present research paper to analysis and study important physical problems and give some suitable prospects on them for promoting rice cultivation for more production.

Key words: Rice, physical, cultivation, problems.

Introduction

Rice is major and staple food in India and rice cultivation is the good agricultural practices of income for millions of household around the India. Rice is most important cereal food crop, which occupies about 24 percent of gross cropped area of the country and Maharashtra is one of the leading rice producer states in the country. Thane, Raigad, Ratnagiri, Sindhudurg, Sangali, Satara, Bhandra, Gadchiroli, Chandrapur and Kolhapur districts of the state have emerged as a significant area for rice cultivation. This crop, due to its lucrative gains in the region has replaced the cultivation of sugarcane on irrigated lands considerably. In the Maharashtra production of rice is 2.73 million metric tonnes in 2018. However here observed that highest productivity of rice found in Kolhapur district. Farmers have selected rice crop as an alternative and profitable crop in the arid and semi-arid region of Maharashtra.

Kolhapur district is the southern district of Maharashtra and is one of the agriculturally developed district. Rice is the major kharif crop grown in the district. In western part of hilly area of Kolhapur district has mostly important to rice production. Chandgad, Radhanagari, Ajara, Shahuwadi, Gaganbavada and Bhudargad these tahsils are important to rice cultivation. Ajara is also famous for heavy rain and famous for production of Ghansal rice. In Kolhapur district paddy is being cultivated on 1.06 lakh hectare during 2017. However topographical Kolhapur is divided in to three zones viz. 1) Western zone 2) Middle zone and 3) Eastern zone. In this way in Kolhapur district found climatic diversification related to rainfall, temperature and soil. In this regard in the study region create some physical issue in rice cultivation this issues understanding the real situations in rice cultivation of Kolhapur district, so this paper aims at understanding physical problems faced by farmers in rice cultivation which are useful to find out the suitable prospects for overcoming the constraints and promoting rice cultivation for more production useful to sustainable agricultural development.

Rationale Of The Study:

The present study focus on the problems and prospects of the rice cultivation in the study region. There are number of problems associated with the region coming under the diverse climatic conditions. In the study region farmers facing various physical problems e.g. topography in study region, rainfall fluctuation, temperature fluctuation, humidity and soil condition ect. These physical problems create economic problems in the district, therefore it needs to assess thoroughly to find out some solutions to overcome from these problems.

Objective:

1. To study the physical problems of rice cultivation in study region and give some suitable prospects on them.

Methodology:

The study was conducted in Kolhapur district of Maharashtra. Three agro-climatic zone namely the western zone (high rainfall low temperature), the middle zone (medium rainfall medium temperature), the eastern zone (low rainfall and high temperature) were selected, further 533, 467 and 239 villages from selected above agro-climatic zones respectably. Thus in all, 712 farmers were selected purposively from the geo-climatic zone and tehsils. The data regarding physical problems of rice cultivation were collected through pre-structured questionnaires. The data collected on kharif 2018 was subjected to statically analysis.

Result And Discition:**Physical Issues of Sample Rice Cultivators in Kolhapur District.**

Sr. No.	Issues of Cultivators	Geo-climatic zone (No. 712)		
		Western Zone in percent	Middle Zone in percent	Eastern zone in percent
1.	Topography	77.80	10.53	2.65
2.	Temperature Fluctuation	65.47	20.12	5.34
3.	Rainfall Fluctuation	7.75	23.93	67.43
4.	Humidity	2.30	12.32	25.76
5.	Soil	65.89	15.23	20.45
6.	Occurrences of floods	4.32	10.23	15.32
7.	Crop diseases	40.58	50.00	9.41

Source: Researcher field work 2018.

Result and Discussion:**1) PROBLEMS RELATED TO TOPOGRAPHY:**

Topography is a one of the important physical factor is largely effects on land utilization of any region. Thus, it has the most potent impact on land-use and on the growth and distribution of crops.

Table shows the Geo-climatic zone wise topographically issue served by the rice growers. In the study region, western part of the district that is hilly area in the region including Gaganbavada, Radhanagari, Bhudargad, Ajara and Chandgadtahsils. In this region 77.80 percent of rice cultivators serve this problem. In the middle zone there is 10.53 percent serve this problem in moderate level including Shahuwadi, Panhala, Gandhinglaj, Partly Karveer and PartelyKagaltahsils. However, in the eastern part of the study region there is very low level serve this problem i.e. 2.65 percent which including Shirol, Hatkangale, PartelyKarveer and PartelyKagaltahsils.

This hilly areas impact the growth and distribution of crops. Here due to soil erosion farmers take limited rice production. Undulating topography largely effects on agricultural practices in particular region. In the study region undulating slop observed in western areas there was adversely effect on rice cultivation practices. In the study region, western part of the district in the hilly areas due to slop, there is small size of farm and terraced type rice cultivation is observed. So, in this area very high soil erosion has been found.

In the Kolhapur district, mostly hilly area cultivated of rice crop. As a result, mechanical implement cannot be easily used in rice fields and another problem is rice production cannot be transported easily in this hilly region. The soil for in hilly areas generally not of good quality. In this way most of the problem may be found in hilly area of this region.

2) PROBLEMS RELATED TO CLIMATE:

Climate plays important role in agricultural development. Basically rice is an agro varied crop and it can be cultivate in more diverse conditions than any other crop. However, rainfall, temperature, humidity, frost and hails greatly impact on rice cultivation and reduces the quality and quantity of rice. In Kolhapur district the climate is tropical monsoon. The problems related to climate are as follows.

A) Temperature Fluctuation:

Generally 15' to 40' temperature needs for proper development of any crop. But required temperature range of every crop is different. The temperature range of Kolhapur district is between 10°C to 35°C. The optimum temperature range from 20°C to 27°C is quite suitable for rice cultivation. In study region rice cultivation period is June to October and most of rainfall i.e. 90 percent is concentrated in this period. The maximum temperature of July to October months are 26°C observed. Rice plant needs certain number of effective heat unit for germination, growth, flowering, maturing and harvesting. In study region western part of the district has low temperature (18°C in Ajara) and this condition is creating a problem for rice growing. At the eastern part temperature is high but rainfall and humidity is low it also create a problem for rice growing. So the variation of the temperature in the study region also creates a problems for rice cultivation. In short fluctuation in temperature negatively impact on rice quality and quantity. In this way fluctuation in temperature is an important problem in rice cultivation.

In this regard table shows that the fluctuation of temperature in the study region. Here, in the western zone serve this problem for 65.47 percent rice growers due to climate change. Gaganbavada, Radhanagri, Bhudargad,

Ajara and Chandgad tahsils are serve same problem. In the middle zone serve this problem about 20.12 percent rice growers including Shahuwadi, Panhala, Partly Karveer, Partly Kagal and Gadhinglaj tahsils and very low level in eastern part of Kolhapur district i.e. 5.34 percent serve this problem.

B) Rainfall Fluctuation:

Rainfall is a natural source of water supply for rice crop. Rice requires more water than any other crop. The optimum average rainfall from 175 cm. to 300 cm. is quite suitable for rice cultivation. In the study region rice cultivation practices doing in Kharif season means the summer monsoon. Irregular and erratic nature of rainfall adversely impact on rice production.

The district receives major rainfall from south western monsoon winds. Summer season is started in June to October in the year. In the Kolhapur district distribution of rainfall is unequal. The annual average rainfall is 1899 mm. The highest annual rainfall is 6990 mm. in Bavadatahsil and 2868 mm. in Radhanagaritahsil. Lower annual rainfall is 486 mm. in Shirol tahsil during 2010-11. In this way rainfall decreases west to east in the study region. The western area receives annually 2000 mm. to 6000 mm. rainfall. However, the rice cultivation practices concentrated in this area. But eastern part of the study area has dry and moderate climate. It receive 500 mm. to 1000 mm. rainfall annually such as area has been observed very low rice cultivation practices.

In this regard table shows that the rainfall fluctuation in the study region. Here, in the western zone serve this problem only 7.75 percent rice growers. Because in Gaganbawada, Radhanagri, Bhudargad, Ajara and Chandgad tahsils are high rainfall received zone. So here this problem is very low level. In the middle zone serve this problem about 23.93 percent rice growers including Shahuwadi, Panhala, Partly Karveer, Partly Kagal and Gadhinglaj tahsils and very high level in eastern part of Kolhapur district i.e. 67.43 percent serve this problem in particularly Shirol and Hatkanagale tahsils.

C) Humidity Fluctuation :

Rice crop needs a hot and humid climate. It is good suited to region which has high humidity. In study region the maximum temperature of July and August months so there are 26°C and the relative humidity is 87 per cent from June to September. However, this humidity suitable for rice cultivation practices during same period in the study region. After that December and January are coldest in the year and the climate is less humid with 63 per cent humidity found in Kolhapur district. The temperature rises rapidly in March, April and May. It is hottest months of year in the study region. So, the relative humidity is 65 per cent found in the hot weather period. In this regard table shows that the western part of the region serve this problem only 2.30 per cent farmers and in the middle zone of rice growers serve this problem 12.32 per cent. However, the eastern part of the study region serves this problem in moderate level i.e. 25.76 per cent.

3. SOIL EROSION:

Soil is another important physical factor they are impact on agriculture sector. Farming is a business and good soil is a part of the farmer's stock-in-trade. Western part of study area, due to high rainfall, soil erosion is high and upper layer of best soil is washing out. So soil erosion is major problem found here.

In western part of the Kolhapur district e.g. Chandgad, Gadhinglaj, Ajara, Bhudargad, Radhanagari, Gaganbawada, Shahuwadi and Panhala are predominant with high rainfall there impact on soil condition i.e. soil becoming more acidic day by day. Were as eastern part of the Kolhapur district such as Hatkanagale, Shirol and Kagaltahsils are in low rainfall zone but heavy irrigation causes more saline condition of land, there is about 3500 hectares has been already become uncultivable.

* Causes of Soil Health Problems in Kolhapur District:

1. Lack of awareness in farmers about optimum use of fertilization.
2. Limited soil testing laboratories in the Kolhapur district.
3. Limited and unavailability of compost and organic manures in study region.
4. Improper disposal and wastage of crop.
5. Use of heavy irrigation with flood irrigation system
6. Improper crop rotation e.g. Rice – Sugarcane, Rice – Rice etc.

4. OCCURRENCE OF FLOODS:

The rivers flood and erode the soil and carry away crops from the river basin. In this way the floods have washed away many crops along the river and caused extensive damage to these crops. In some part of Kolhapur district floods occur in paddy crops. Generally in low lying areas, paddy is submerged due to water logging.

In western part of the Kolhapur district e.g. Chandgad, Gadhinglaj, Ajara, Bhudargad, Radhanagari, Gaganbawada, Shahuwadi and Panhala are hilly areas found, so here such problem of level is very low i.e. 4.32 percent and middle zone creat such problem is 10.23 percent because of low land area. Were as eastern part of

the Kolhapur district such as Hatkanangale, Shirol and Kagaltahsils are 15.23 per cent such problem are observed.

5. CROP DISEASES:

Insect infestation on paddy crop is also a major problem in paddy cultivation. Because of such problem crop production decreases. Due to hybrid seeds the incidence of pests and diseases on crop has increased. The following types of diseases are found on rice crop in the study area i.e. Rice blast, Brown spot of rice, Bacterial blight of rice, Sheath rot of rice etc.

In this regard table shows that the crop diseases in the study region. Here, in the western zone serve this problem 40.58 per cent rice growers. Because in this region climatic changes are very much and varieties of rice grown. The tahsiks including the part is Gaganbavada, Radhanagri, Bhudargad, Ajara and Chandgad tahsils. So here this problem is very low level. In the middle zone serve this problem about 50.00 percent rice growers including Shahuwadi, Panhala, Partly Karveer, Partly Kagal and Gadhinglaj tahsils and very low level in eastern part of Kolhapur district i.e. 9.41 percent serve this problem in particularly Shirol and Hatkanagale tahsils.

PROSPECTS:

Undulating topography is found in western part of study region. In this regard it is essential to avoid inaccessible region. So to choose the foothill zone and river basin areas for doing good rice cultivation practices for taken better rice production in the study areas.

In hilly areas erosion soil management is also important. So farmers have to use of modern technology to stop soil erosion. In this regard farmers have must go soil examination and take suitable guidance before rice sowing. To stop soil erosion may be constructing terraced fields and scientific plugging i.e. against the slope and by plant trees on the lower ridge of the slopping land.

Temperature fluctuation in this regard the decreasing temperature are negative impact on rice crop. It is essential to done earthing up and mulching operation at a time. Whereas farmers should use intercropping system in rice cultivation for decreasing the negative impact of temperature fluctuation.

Rainfall Fluctuation to overcome this problem it is essential to adopt proper drainage system. There, provide artificial irrigation management where rainfall fluctuations in middle part of study region and low rainfall zone of eastern part of study region. Monsoon rainfall has been unevenly and uncertain distributed in the study region. In this regard irrigation facilities may also available in rice fields.

The application of over doses and over use of water another reason of soil degradation, therefore chemical fertilizers should be used according to the need of crop and also proper use of water to need by rice crops. Biotic fertilizers are also used in rice cultivation for sustainable agricultural development. Soil analysis laboratory in each tehsil centre is essential. Due to provide this facility farmers check their soil and they are alert for the irrigation problem.

To overcome Soil Health Problems following suggestion be use:

1. Barren land can be used for biomass production and used as green manure in cultivable land.
2. Crop waste materials such as Rice, Sugarcane, Soybean is much more and can be successfully and effectively utilized as supplementary source of compost.
3. Wide spread network of co-operative societies and private network through 'Krushiseva Kendra' can be proper involved for continuous and quality supply of fertilizers, micro-nutrients, bio-fertilizers and soil amendments at farmers door to door.
4. Over irrigation can be brought to optimum level through use of modern irrigation system e.g. drip, sprinkler method etc.

Sometimes failures of rain and crop disease become very harmful to rice crop and farmers become a great loss. As a result farmers avoid taking risk in growing rice crop. Flood situations are also damage standing rice crops. These problems can be solved by insuring the rice crops of the farmers. They should feel that their investment in rice cultivation is insured. The Maharashtra Government has urged the Karnataka government to increase the water discharge in western part of the state. Also use proper dose of pesticides to control the diseases and pests of the rice crop.

In this way the natural problems in paddy cultivation can be overcome by considering the above suggestions.

Conclusions:

In the present investigation an attempt has been to examine the physical problems of rice cultivation in Kolhapur district. It may be concluded that physical structure are major issue created in rice cultivation in Kolhapur district. In this regard undulating topography, rainfall fluctuation, temperature fluctuation, humidity and soil are the major problems in Kolhapur district. Mostly farmers in the study region found that lack of proper knowledge about selection of soil and planning to rice cultivation with the changing climatic conditions.

However farmers have to plan for rice cultivation practices to adopt the climatic conditions. All these suggestions can certainly help to the farmer to overcome from their physical problems in rice cultivation and take a more rice production in Kolhapur district.

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To Study the Sources of Water Pollution its Effects and Preventive Measures

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Abstract:

Water is of essential significance for lifestyles on earth. The infection found in water disturb the spontaneity of the mechanism and effects in long/brief time period diseases. The pressure on our water surroundings due to accelerated industrialization, which aids urbanization, is turning into very excessive as a result decreasing the provision of smooth water. Polluted water is of incredible issue to the aquatic organism, plants, people and certainly alters the surroundings. The upkeep of our water surroundings, that is embedded in sustainable improvement, have to be nicely pushed with the aid of using all sectors. While powerful waste water remedy has the tendency of salvaging the water surroundings, integration of environmental rules into the actor companies' middle goals coupled with non-stop periodical enlightenment on the existing and destiny effects of environmental water pollutants will substantially help in protecting the water surroundings.

Keywords: Pollutants chemical, pollution microbial, pollution sustainable, water pollution etc.

Introduction:

Water pollutants may be described in lots of ways. Usually, its method one or extra materials have constructed up in water to such a quantity that they reason troubles for animals or people. Oceans, lakes, rivers, and different inland waters can certainly smooth up a sure quantity of pollutants with the aid of using dispersing it harmlessly. The fundamental reasserts of water infection were domestic, commercial and agricultural west in addition to strong waste thermal Pollution, transport water Pollution and radioactive waste. Industrialization, in any society, is a prime initiator of improvement and urbanization. Although the deserves of industrialization are innumerable, it's been recognized as a prime risk to the surroundings because it releases numerous poisonous chemical compounds, gases, strong wastes in addition to microbes of numerous types into our on-the-spot surroundings land, air, and water. Of precise hobby is water pollutants, which has come to be an international challenge, growing countries being exceptionally affected because of their force for improvement Pollution of our water our bodies posean incredible risk to people and the aquatic surroundings whilst marked populace boom catalyzes climatic changes. For instance, numerous human sports in addition to the discharge of greenhouse gases with the aid of using industries substantially contributes to international warming, planet temperature enhancement, and reducing of atmospheric air first-class. The force for sustainable improvement has to carry alongside water pollutants prevention techniques. Effective wastewater remedy earlier than their eventual discharge is one manner to riding water pollutants prevention. Some remediate weather alternate mitigation measures towards water pollutants also can be exploredatmt and defend the water surroundings from pollutants.

Effects of Pollutants:

Water is a critical and widespread want of lifestyles with a simple impact without delay or indirectly. All commercial, environmental, and metabolic approaches are water dependent. In residing organisms, water performs some of roles consisting of solvent, temperature buffer, metabolite, residing surroundings, and lubricants [6]. Water, however, is stated to be polluted while a number of the water first-class parameters were hampered with the aid of using unguided and irregularities from numerous anthropogenic sports, as a result rendering water not worthy for meant use. Water pollutants may also pose extreme risk to the surroundings in addition to lives. Pollutant results may also range relying on their sorts and source. For instance, whilst heavy metals, dyes, and a few different natural pollutions were recognized as carcinogens, hormones, prescribed drugs, and cosmetics and private care product wastes are called endocrine disruptive chemical compounds. This pollution, which input into the water frame via numerous channels however predominantly anthropogenic, have come to be an incredible issue to environmentalists because of.

Organic pollution:

Organic pollution is very extensive in range with a big variety of toxicity. Among the listing of natural pollution that has been of incredible risk to aquatic organisms, plants, and people are dyes, plant and animal prescribed drugs, private care merchandise wastes in addition to petroleum natural pollution. An institution of chemical compounds called endocrine disruptive chemical compounds (EDCs) additionally belongs to the natural pollution institution, that are classed as rising contaminants. EDCs are defined as outside retailers that

intervene with hormonal sports, as a result affecting the regular homeostatic reproduction, improvement or behavior. Dyes are water soluble large chemical this is substantially used in lots of industries viz; textile, leather-based and tanning, meals, paper, etc. to effect satiation on merchandise. Aquatic organisms, plants, and people are substantially tormented by dyes' presence in water. They hinder daylight penetration into water our bodies and decrease dissolved oxygen, as a result main to demise of photosynthetic organism and different lives in the aquatic surroundings. Humans can be uncovered to dye toxicity thru intake of veggies and fish which bioaccumulate dyes. The use of colored paper towels utilized in drying arms and in meals education is some other direction of publicity to human. Dyes are taken into consideration as carcinogenic and mutagenic, as a result their elimination from wastewater earlier than disposal is in the long run important. Human and veterinary prescribed drugs, that are participants of EDCs, are chemical compounds used as healing or preventive of numerous diseases. Veterinary pharmaceutical can also serve the reason of growing performance of meals manufacturing. Pharmaceuticals are used extensively and unavoidably, as a result they input into the surroundings via this type of routes indiscriminate disposal of health center and family waste, landfill leaching, drainage water and sewage. Although prescribed drugs were determined to exist in numerous environmental samples, its miles taken into consideration a incredible risk to each aquatic lives and people. The presence of prescribed drugs in water is understood to pose each acute and continual toxicity on aquatic organisms EDCs as their call implies reasons strange endocrine sports and boom most cancers hazard in human. Their results on aquatic lives may also variety from endocrine device disruption via the discount in eggs and sperm cells manufacturing to feminization of lady aquatics.

Heavy metal pollutants:

Heavy metals pinnacle the listing of inorganic pollutant with extensive variety of bad outcomes on aquatic organisms, vegetation, and human. Heavy metals are launched into the surroundings through exceptional routes including industries, mining sports, agricultural sports etc. Bioavailable metals gift with inside the soil can be absorbed via way of means of vegetation, ensuing in severe plant metabolism malfunctioning. High heavy metallic ion concentrations also are recognized to harm the molecular membrane, have an effect on enzyme concerned in chlorophyll production, accordingly decreasing photosynthetic charge in addition to have an effect on plant duplicate through lower in pollen and seed viability. Humans and animals may be uncovered to heavy metallic toxicity through the meal's web, direct intake of water containing metallic or through inhalation. Heavy metals easily bioaccumulates in veggies and enters into guy and animal through meals chain. Effects of heavy metallic toxicity on human stages from slight eye, nostril and pores and skin irritations through intense headache, belly ache, diarrhea, hematemesis, vomiting, dizziness to organ malfunctioning including cirrhosis, necrosis, low blood pressure, hypertension, and gastrointestinal distress. While a few heavy metals additionally referred to as important elements (cobalt, copper, iron, manganese, vanadium, and zinc) are required in minute quantity with inside the frame of diverse biochemical techniques; others including lead, cadmium, arsenic, and mercury are of great chance and taken into consideration overseas within side the frame. Looking at specifics, human ingestion of water polluted with arsenic can purpose most cancers of the lungs, liver, and bladder. Kidney and lungs harm in addition to bone fragility might also additionally end result while cadmium containing water is ingested. Exposure to guide can significantly harm the mind and kidneys. In kids, lead publicity even at very low awareness might also additionally bog down learning, purpose reminiscence loss, have an effect on interest and reaction functions, and commonly make kids aggressive. In pregnant women, excessive degrees of publicity to guide might also additionally purpose miscarriage, while in men, it could harm the organs answerable for sperm production. Mercury is precise amidst different heavy metals; it has the ability to journey an extensive variety of distance, accordingly were categorized as an international pollutant. The chemical shape of mercury with inside the surroundings is likewise crucial in studying their toxicity. The natural shape of mercury, that is, methyl mercury (MeHg) and dimethyl mercury (DMeHg), is thought to be greater poisonous than inorganic mercury. While inhaled mercury is going into the blood stream, their removal from the frame is both through the urine or feces. Mercury has the cap potential to exist with inside the urine for approximately 2 months, as a result their renal malfunctioning characteristic. Many physiological problems might also additionally accompany crustaceans' publicity to metals, and on the spontaneous metabolic sports' alterations. Exposure of crustaceans to heavy metals might also bring about lack of urge for food for meals and eventually frame weight loss. Continuous publicity might also additionally lessen duplicate in adults in addition to bog down the increase larvae.

Prevention:

Drinking water furnished to our groups is generally sourced from rivers, springs, and underground reasserts. Usually, a few shapes of remedy are achieved to make certain the water is match for ingesting even though a few reasserts are extremely loose from contaminating microorganism and may be clean, as an example

deep well. In many growing countries, one supply of water can serve many makes use of including ingesting, washing, swimming, bathing, etc. In the equal vein, sewage may be channeled into water bodies. Sewage may be described as used water draining out of houses and industries that include an extensive variety of debris, chemicals, and microorganisms. Such water is appeared as cap potential fitness chance to clients or the customers of different sort. A most important form of change is the presence of pathogenic organisms in such water. This is why water is generally dealt with in 3 phases. The first is to split massive be counted with inside the water supply, and the second one degree makes a specialty of putting off greater poisonous materials and different be counted. The tertiary segment entails overall purification of water, normally via way of means of chemical disinfection. More recently, membrane bioreactors are getting used and were observed to be very green in putting off contaminants. These are combos of groups and excessive-performance membranes which might be lots greater powerful at putting off contaminants. The function of microbes is apparent with inside the 2nd degree, in which microorganisms actively perform biodegradation of natural be counted with inside the aqueous element produced after the primary degree. Biodegradation of materials, including paper and petroleum, are via way of means of microorganism, algae, and protozoa. When water is uncovered to air, soil in addition to effluents, it profits saprobic microorganisms; it could additionally select out up pathogens including *Cryptosporidium*, *Campylobacter*, *Salmonella*, *Shigella*, etc. To reveal water for every of those pathogens might not be viable however detection of fecal infection is a less difficult manner of recognizing infection. In such case, while the fecal infection is excessive, pathogens are believed to be gift and the water is dangerous for ingesting. Hence, indicator organisms are used as gear to locate fecal infection of water. They generally inhabit the gut of mammals and birds and may be effortlessly recognized the usage of not unusual place laboratory procedures. To attain water protection, it will likely be nearly not possible to look for the pathogens themselves. Hence, positive organisms with distinctive standards are used as 'signs' of the presence of enteric pathogens in a water sample. An indicator bacterium has to be relevant for evaluation of all kinds of water; it has to be observed whenever enteric pathogens are gift and it have to thrive within side the wastewater longer than the hardest enteric pathogen. In addition, such organism has to know no longer reproduce within side the infected water due to the fact this could provide exaggerated values and it have to know no longer be dangerous to human begins. Other standards are that the extent of infection have to be immediately proportional to the extent of fecal infection; assay manner for the indicator organism have to be notably particular and the take a look at manner have to be effortlessly performed. The following are normally used as signs of fecal infection in water: overall coliforms, *Escherichia coli*, fecal coliforms, fecal streptococci coliphage, and *Clostridium perfringens*. Coliforms are contributors of the own circle of relatives Enterobacteriaceae (they encompass *E. coli*). They are facultative anaerobic, Gram-bad, nonsporting, rod-fashioned microorganism that ferment lactose with fueloline formation inside forty-eight hours at 35°C. Microbial infection of water may be detected via way of means of checking for positive organisms together with heterotrophic microorganism, coliforms, and *Escherichia coli* in such samples. The work confirmed that heterotrophic microorganism has been in abundance within side the lake water sampled. They additionally suggested that infection via way of means of *E. coli* and coliforms have been past the allowable limit; indiscriminate disposal of sewage into water in addition to launch of human excreta changed into implicated within side the excessive stage of indicator organisms. Control of pathogens in water is crucial to save you waterborne diseases; this will be successfully accomplished the usage of a couple of barrier approach. Microbial remedy techniques are going in addition than conventional municipal wastewater remedy, as it takes into attention the elimination of nutrients (e.g., nitrate and phosphate) and effortlessly degradable natural compounds in addition to the viable presence of poisonous compounds and versions in pH of the wastewater. A greater superior layout is needed withinside the bioreactor to be used. Some parameters to be taken into consideration in designing a remedy gadget are biomass yield, nutrient addition, the delivery of oxygen or different electron donor, pH manipulate in addition to kinetics, that is, organic response rates (biotransformation). It is crucial to word at excessive awareness many compounds of hobby are poisonous to microorganism getting used for remedy. Also a few dissolved natural and inorganic compounds might also additionally represent inhibitors to biodegradation via way of means of the organism. Biological remedy techniques might not encompass the following—lagoon remedy, activated sludge in addition to constant movie bioreactors. The lagoon remedy is long-detention time basins; however, in contrast to activated sludge techniques, they do now no longer use strong recycle. Such remedy scheme can be in 3 categories: anaerobic lagoon remedy, which uses notably loaded lakes developing anaerobic conditions. It has been used efficiently for the pretreatment of meat and chicken processing wastewater decreasing the biochemical oxygen call for considerably. In the case of facultative ponds, there's a cardio floor and an anaerobic bottom. The pinnacle cardio layer helps remedy of dissolved natural compounds in addition to odorous compounds. This has observed utility in pulp and paper industries. With regards to aerated lagoons, oxygen is supplied via way of

means of mechanical method or subtle aeration and the solids are constantly blended and in suspension. Biological oxygen demand (BOD5) removal may range up to 95%.

Conclusions:

The international is going through turbulent water destiny with the developing economic system and growing population, the topic of all country is "keep water". Since water bureaucracy a center of the lifestyles of human and different residing things, its renovation and sustainable availability cannot be overemphasized. The availability of easy water is significantly threatened through diverse human sports and of hobby is pollutants, which in flip impacts the ecosystem. While diverse waste water remedy strategies are being explored through industries and diverse remedy plants, untreated wastewater continues to be being discharged into the water of our bodies through a few industries. Thus, powerful environmental safety guidelines' compliance power may be of substantial advantage to the surroundings and through extension to human. Factoring those environmental safety guidelines into the dreams and targets of diverse actors concerned in environmental deterioration will assist guidelines performance. This will function a leap forward with inside the path of ameliorating water pollutants

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A New Gall Midge(Cecidomyiidae : Diptera : Burseraceae) From Sitakhandi Nanded Marathwada

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ABSTRACT

A new species lasioptera garugai infesting garuga pinnata roxb. (Family : Burseraceae), a forest tree from Sitakhandi, Bhokar, Himaytnagar, Kinwat forest, dist. Nanded is described here.

Key words: Dipteral, Cecidomyiidae, Lasioptera Garugai, Sant Janabai.

INTRODUCTION

Study survey of gall midge flies from forests of Nanded district (Bhokar, Sitakhandi Forests). A new leaf gall on Garuga pinnata Roxb. is recorded. Two gall midges, lasiopetra garugai and Garugodiplosis bravipalpi were bred from this leaf gall. The first one is believed to be a gall former and second one an inquiline. Presently, species of lasioptera are known from the Oriental region. Lasiopteran midge flies heavily gall members of cucurbitaceae and different grasses.

DESCRIPTION

Female : Body : 1.30 mm long, dark brown in preserved condition. Head : Eyes confluent above, ocelli absent. Trophy : normal. Palpus : (Fig. 1), quadrarticulate, sparsely setose, first segment (4:2) nearly roundish, shortest of all, 1.22 x as long as thick; second segment (11:3), cylindrical, 2.36 x as long as the first and 2.38X as long as its maximum thickness; third segment (11:2), as long as but slightly thinner than the second, cylindrical, narrow at base, 3.00 X as long as thick; fourth segment (12:1), 4.31 x as long as thick. Antenna : 0.41 mm long, 0.3 mm the length of the body, with 2+29 sessile, squarish segment, segments with a whorl of long setae medially and low horse-shoe shaped circumfil; scape (fig. 8a) (8:1), cup-shaped, 0.68 x as long as its maximum thickness; pedicel (fig. 8b) (10#11), subglobose, 0.81 x as long as its maximum thickness ; third segment (fig. 6a), 10, confluent with but longer than the third, with short basal prolongation (1:2), enlargement (8:8) 0.88 the length of the segment and 0.88 as long as thick; fourth segment (fig. 6b) (8:8), slightly shorter than the

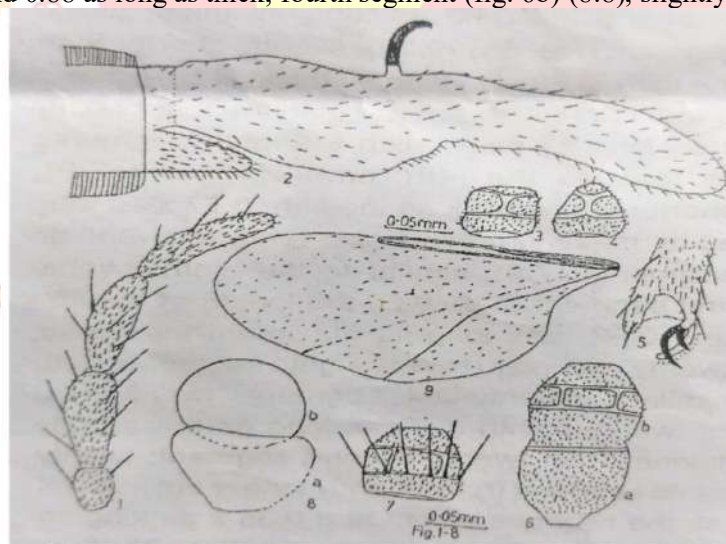


Figure 1-9, Structural Parts of lasioptera garugai : 1-Palpus, 2-Ovipositor, 3-Penultimate antennal segment, 4- Terminal antennal segment, 5-Claw, 6a-Third antennalsegment, 6b-Fourth antennal segment, 7-Fifth antennal segment, 8a-Scape, 8b-Pedicel and 9-Wing.

third, 0.86 x as long as thick; fifth segment (fig. 7)(8:8), little shorter than the fourth, 0.86 x as long as thick ; sixth to eighth segments as long as the fifth; ninth segment (6:7), shorter but as thick as the fifth, 0.75 x as long as its maximum thickness; tenth to twentieth segments (6:7), similar to the ninth; twenty first segment (4:6), 0.60 the length of the fifth and 0.60 x as long as its maximum thickness; twenty second to twenty eighth segment (4:6) similar to twenty- first, segments twenty-third to twenty eight (5:5) as long as but slightly thinner

than twenty second segment; twenty ninth segment (5:1), slightly longer but as thick as the twenty seventh and 0.80 x as long as thick; penultimate segment (fig. 3) (5:5) similar to the twenty ninth; terminal segment (fig. 4)(6:5), as long as the penultimate and as long as its maximum thickness, narrowed apically into a broadly rounded tip. Wing : (fig. 9)(40:16), hyaline, covered with microtrichae, 2.26 x as long as broad; costa hairy, vein R5 meeting costa beyond the middle of the wing and latter interrupted by costa at its union, vein M1+2 absent, vein M3+4 very faint, Cu simple and curved. Legs : thickly hairy, metatarsus (5) short, second tarsal segment (45) little longer than the third and fourth segments combined together (43), fifth tarsal segment (12) 2.38 x as long as the first; Claw(fig. 5)(5) dentate on all legs, empodium (6) as long as the claw. Ovipositor : (46)(fig.2), protractile, typical lasiopterian type, nearly one third the length of the body; dorsal lamella (13:1), fleshy, with a curved hood medially, broad upto medially and tubular apically; ventral lamella short, elongated oval. Male : Unknown Material examined : Holotype : One female dissected and mounted on slide labelled "reared from leaf gall of *Garuga pinnata* Roxb. (Burseraceae) Aundha, Dist.Hingoli (India) ." Paratype : One Female dissected and mounted on slide labeled as of holotype. Type slides are retained presently in U.G. Dept. of Zoology, Bahirji Smarak Mahavidyalaya Basmathnagar, Hingoli. Distribution : Sitakhandi, Bholar, Kinwat, forests of Nanded (Maharashtra, India).

REMARKS

The Present species is named *garugai* because the specific epithet *garugai* refers to the host plant, *Garuga pinnata* Roxb. from which these midge flies were bred. The present species *Lasioptera garugai* is very close to *L. falcate* Felt (1919) but it can be distinguished easily from it by its antenna with 31 segments and extended beyond the base of ovipositor; abdomen without any submedian line; ovipositor 0.3 the length of the body.

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Agricultural Land Holding

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Summary

It is not only the land tenancy and the system of ownership which influence the agricultural pattern, the size of the holdings of fields also has a close impact on agriculture. In the densely populated areas the size of holdings is generally very small. The size of holding and the size of the farm decide the degree of risk that a farm operator may bear. Giving access to land not only reduces poverty but also dignity in the lives of today's excluded. In this lesson the,

Introduction to Land Holding

Land is the basic means of production in an agrarian society without which no agricultural production can take place. Two aspects of land that affect the agriculture efficiency are (i) Size and distribution of land holdings, and (ii) Land tenure system. Landholding is defined as the area of land which a person or a family owns. It could be one piece of land or a number of small scattered pieces of land. At the time of independence, what prevailed were division, subdivision, and fragmentation of landholdings.

In every country, the land tenure system is very important for the development of agriculture. According to the **Vera Anstey**, "The position of agriculture and agricultural production in any country is dependent, to a large extent, upon the relationship between the land holding and land ownership in that country."

Hence this lecture includes the following aspects,

- a) Land Tenancy
- b) Size of Land Holdings and Fragmentation of Fields
- c) Consolidation of Land Holdings
- d) Ceiling on Land Holdings
- e) Land Holdings Distribution in India

➤ Land Tenancy

Land Tenancy is an institutional factor which affects agriculture development. Land Tenancy means temporary possession of ownership of land by a tenant. The ownership of agricultural land is determined by the law of Land tenure and Land Tenancy.

The main problem in relation of farming in India is the relationship between the landlord, the cultivator and the government. The landlord and the cultivator may be two separate persons, or the same person may own and cultivate the land. The land lord is also related to the government and is responsible for the payment of land revenue. Therefore, the relationship between the landlord, the cultivator, and the government is known as the "Land tenure system" or as the 'Cultivation Tenure system'.

A land or cultivation tenure system refers to the possession of rights for the use of land. The English word 'tenure' has been derived from the Latin word 'tenere' meaning 'to hold'. There may be many different situations in which the cultivator has rights over the land. At one extreme of such situation is ownership, where the farmer himself is the owner or the landlord. On the other extreme is the landless agricultural labourer. There are many intermediate system between these two, such as cropping tenant cultivators, non- tenant cultivators, sub-cultivator, etc..

Before the advent of British rule, the land tenure system in India was static. The system implemented by the British also did not encourage economic development in any way. So, during the period of the British rule, the main aim of the land tenure system was to generate income. But, under this system, no efforts were made towards any economic development and the upliftment of the farmers. In India at the time of independence, there were three main land tenure systems. They are, (i) The Ryotwari system, (ii) The Mahalwari System and (iii) The Zamindari system

➤ Size of Land Holdings and Fragmentation of Fields

In India the size of land holdings is too small. This is due to over population. Due to the rapid growth of population and the existing law of inheritance, the agricultural land is divided equally among the male children of the deceased farmer. At present, the per capita available land is only about 0.10 hectare. This is much below the world average of about 4.50 hectares. Over 75% of the land holding are less than one hectare. Such small

holdings are not economically viable. In fact, small holdings cannot produce enough to meet the costs of irrigation, improved seeds, chemical fertilizers, insecticides, pesticides and farm machinery.

Another important feature of land holdings is that each of the 105 million holdings comprises 4 to 8 plots scattered far away from each other around the farmer's village. The average size of each plot is not more than one-fifth of a hectare. This type of fragmentation of land poses one of the most serious obstacles to any efforts to increase agricultural productivity in India.

Effects of Fragmentation:

There are lots of disadvantages from fragmentation of land. They are, (i) most of the labour of the farmer and his animals is exhausted in journey from one plot to another. (ii) Most of the time of the farmer is lost in shifting animals, fertilizers, seeds and other equipments. (iii) A good proportion of cultivated land is wasted in boundaries, hedges, ditches, footpaths, etc. (iv) the use of modern farm machinery in small fragments is virtually impossible in the fragmented land. (v) It is responsible for increased overhead costs, including even the cost of production resulting in low returns from agriculture.

➤ **Consolidation of Land Holdings** It is important to know that farms in India are not only small in size but also distributed in a scattered way. Unless the farm land is of reasonable size, farmers cannot make proper use of their resources. In the interest of progressive farming, it is essential that the farmer be given one consolidated piece of land. Hence, the conversion of many small and fragmented holdings into one or two big farms is called Consolidation of Land Holdings.

Methods of Consolidation: Two methods of consolidation have been adopted in India. They are,

a) **Voluntary consolidation:** If the farmer agrees voluntarily to get his holdings consolidated, it is called voluntary consolidation. The process of voluntary consolidation in India was first initiated in 1921 in Punjab.

It is found to be the best method, as no pressure is exerted on anybody. The work of co-operative consolidation society does not lead to any dispute, but its progress is very slow. Zamindars usually create hurdles in its progress. Laws favoring voluntary consolidation have been passed in Gujarat, Madhya Pradesh and Bengal.

b) **Compulsory Consolidation:** When consolidation is made compulsory by law, it is called compulsory consolidation. It may be of two types:

Partial Compulsion: Under this, if a majority of farmers in a village agree to get their holdings consolidated, then the rest of the farmers too will have to get their holdings consolidated, according to the law.

Complete Compulsion: In this case, the government by legislative enactment introduces an element of compulsion in the process of consolidation. Maharashtra was the first state to enact compulsory consolidation. Now many states have also passed laws to this effect.

Advantages of Consolidation: The advantages of consolidation are, (i) Scientific methods of cultivation become possible on consolidated land. (ii) Time, effort and money wasted in moving from one farm to the other are saved. (iii) The farmer feels encouraged to spend money on the improvement of his land. (iv) No land is wasted in making boundaries. (v) Irrigation can be done efficiently.

Disadvantages of Consolidation: There are many difficulties in consolidation. The notable ones are:

- i) Lack of records: In many areas records showing title to the land are not available.
- ii) Lack of trained staff: Consolidation work is a technical work, it requires trained persons. Such trained staff is lacking.
- iii) Expenditure: It is an expensive operation. It is a problem to meet this expenditure.
- iv) Differences in the Land value: One of the main difficulties pointed out by the Fourth Five Year Plan was variation in the price of land in the villages. This variation is chiefly due to irrigation facilities.

In brief, consolidation of land holdings reduces the problem of fragmentation of holdings. While doing so, the size of the farms is enlarged. Hence, it helps in increasing agricultural production.

➤ Ceiling on Land Holdings

Ceiling on land holdings means fixation of maximum size of holdings and to take away surplus land, if any, for distribution among others. Land over and above the ceiling limit is called as surplus land, and such surplus land is taken from the landlord on payment of compensation. This surplus land is distributed among small farmers, tenants, landless labourers. The objectives of ceiling on land holdings are; (i) To minimize inequality in the ownership and use of land so as to provide social benefit to all. (ii) To reduce inequality of income from agriculture. (iii) To provide self-employment opportunities to agricultural labourers. (iv) To satisfy the desire to own land.

Ceiling on land holdings is of two kinds. They are

- **Ceilings on Existing Holdings:** In this case ceiling is imposed on the present holdings. Land above the ceiling limit is declared surplus and taken by the government.
 - **Ceilings on Future Acquisition of Land:** Under this, ceiling is fixed on the land that an individual or a family may acquire in future with a view to enlarging their existing holdings.
 - **Progress of Ceilings on Land Holdings:** In almost all states of the country ceiling on land has been fixed. In case of irrigated land, land ceiling varies from 4 to 7 hectares; while in case of dry land ceiling varies from 8 to 70 hectares. So far 73.36 lakh hectares of land has been declared surplus.
 - **Advantages of Ceilings on land holdings:** Main advantages of ceilings are,
 - **Reduction in Inequality:** Supply of land being limited and its demand being unlimited, it becomes essential that land should be divided among larger number of people. When all farmers get some land, inequality in the distribution of land gets reduced. Agriculture being the main source of income in villages, there will be reduction in income inequality and social inequality as well.
 - **Development of Cooperation:** It will promote spirit of cooperation among villagers because the land available after imposition of ceiling, can be cultivated on cooperative basis.
 - **Increase in cultivated area:** Large tracts of land belonging to big zamindars remain uncultivated. When these lands handed over to landless labourers, it may bring them under cultivation. As a result, total cultivated area in the country will increase.
 - **More Production:** Equal distribution of land may also encourage intensive cultivation resulting in increased agricultural production. Farm management studies conducted in India testified that small farms yielded more production per hectare. It is so because family members themselves cultivate small farms.
 - **Increase in Employment:** Fixation of ceiling on land holdings is expected to increase employment. On one side, landless farmers get some land for cultivation. On the other, there will be more demand for goods owing to increase in the income of the farmers. To meet the increased demand, more labourers are to be employed.
 - **Economic size of holding:** Land declared surplus consequent upon ceiling on land holdings could be distributed among small farmers turning their holdings into economic holdings.
 - **Decrease in Class Struggle:** With reduction in inequality among the villagers, possibility of class struggle will be minimized. They will live with perfect peace and harmony.
 - **Advantages to landless labourers:** If ceiling on land holdings is fixed at lower levels in all states, then huge surplus land will be available. It will provide basic holdings to most of the landless labourers.
- Evaluation:** As a result of ceiling on land holdings, roughly 160 lakh hectares of land was likely to be made available as surplus land. However, only 73.36 lakh hectares of land has been declared as surplus. Thus, progress in this direction is very slow.

➤ **Land Holdings Distribution in India**

India is a big country and also called as sub continent. The government of India categorizes farmers with less than 1 ha of land as “marginal” and those with 1-2 ha as “small” farmers. Almost 20% of the survey households were landless and 42.7% had marginal or sub marginal landholding, thus fragmentation of landholdings was high.

Data from land and livestock surveys conducted by the National Sample Survey Organization (NSSO) are the most important source of information on distribution of landholdings in India. As part of these surveys, detailed data are collected on ownership and operational holdings, tenancy, nature of land use, status of irrigation, and cropping pattern. The distribution of ownership holding of land in India is extremely unequal.

In many states of India, a substantial share of land continues to be in the hands of large landowners (having more than say five hectares of land). States that are particularly noteworthy in this context are Punjab, Haryana, Gujarat, Maharashtra, Karnataka and Andhra Pradesh. Clearly, a substantial potential for land redistribution exists in these states. It may be noted that large landholding sizes in Rajasthan and in parts of some other states in central and western India are also associated with poor quality of land. In contrast, in Kerala, West Bengal and Tripura, three states where substantial land reforms have been implemented, a very small amount of land is now under large holdings.

Since independence, in India, a number of steps have been taken to make structural changes in the agrarian societies and land reforms. The Kumarappa Committee, also known as the Congress Committee of Agrarian Reforms, recommended comprehensive measures for land distribution, creation of basic holdings, tenancy reforms, organization of small cooperative reforms and minimum agricultural wages. But so powerful was the lobby of the big and middle class peasants that the recommendations were shelved.

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A Study On Ebanking Service Quality Of The Banking Industry – An Empirical Study**U Hemalatha**

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Abstract

In the current banking scenario, it is evident that banks has acquired competitive advantage by rendering quality service thereby enhancing customer relationship. It is crucial for banking industry to understand the customer needs and wants. This is in turn will pay the attention for achieving customer satisfaction to larger extent. The Ebanking service quality is one of the major components of the customer satisfaction. It offers the platform to the customers to have convenient and secured banking transactions. Moreover the dimensions such as tangibility, realibility, responsiveness, assurance and empathy proved to be major dimensions which have more influence on customer satisfaction. The purpose of this study is to make assessment of whether service quality dimensions have positive impact on customer satisfaction or not. The data have been collected from the 120 respondents who have account in the public sector banks by using questionnaire through convenience sampling method. The researcher has used both primary data and secondary data. The meanscores were used to anlyase the factors to know the level of satisfaction of the customers. The findings of the study revealed that all four dimensions such as tangibility, reliability, empathy and assurance are positively related to the customer satisfaction.

Keywords : E banking, Service quality, Tangibility, Reliability, Empathy.

1. Introduction :

E banking enables the bank to the use of sophisticated information technology to offer better service to the customers in a secured manner. The use of technology is very much needed for banking industry. It plays a major role in the banking sector. Due to the use of information technology, bank has increased productivity and efficiency. It creates different choices, enhance new markets and explore new oppurtunities. Moreover bank has increasingly adopted core banking concept which interconnect the computer system not only to the different branches but also other geographical locations. E banking, mobile banking, ATMS, debit cards, credit cards are some of the few outcomes in the process of computerization in the Indian banking industry Nowadays customers are moved towards Ebanking services but they are very much worried about privacy and security of E banking. E banking emerged as new trend in the Indian banking industry and plays a key role in improving service quality and strengthening the banking sector. The credit of bringing E banking first goes to ICICI bank and next state bank of India has bringing its service in 2001. Also other public sector banks like Bank of Baroda. Syndicate bank, Allahabad bank and Bank of India has also adopted ebanking services during the same time. Ebanking gives lot of benefits to bank as well as customers. From the customer point of view, bank enables the customers to perform a wide range of banking transactions electronically through the bank websites anytime and anywhere. Nowadays public sector banks play an key role in retail banking service to the customers thereby maintaining service quality and customer satisfaction. Hence it is imperative for banks to assess the E banking service quality based on customer satisfaction.

2. Statement of the Problem :

In today's competitive world service quality is an important strategy for the success of any business Bank should improve their quality of customer service constantly to distinguish themselves from competitors. Technological advancement had given a wide range of self service technologies like E shopping, Internet banking, E banking etc. Moreover companies employed all these dimensions of technology inorder to deliver the product in an efficient manner and to make the customers satisfied with more offerings. Ebanking provides a platform for all financial and banking service to their customer with advanced technology. Now adays banks are facing many challenges with heavy competition. Hence service quality is essential for banking industry to provide quality customer service. Therefore the research aims to study the Ebanking service quality of the banking industry.

3. Objectives :

1. To know about the demographic profile of the customers.

2. To know about the customer satisfaction towards the Ebanking service quality dimensions.

4. Review of literature :

Sadaf firdous & Rahela Farooqi (2017) attempted to measure the impact of ebanking service quality on satisfaction of customers. Results are based on the data collected through 194 respondents of State Bank of India, New Delhi from a questionnaire through convenience sampling method. The study revealed that internet service qualities are positively related to the customer satisfaction and have a significant impact to satisfy the customers of banking industry. The study also suggested that banks should make efforts by effectively and efficiently improving the service qualities for attracting new customers and retaining the existing ones for its long run continuity and success.

S.P.Thenmozhi (2018) assessed the relationship between E service quality factors on the satisfaction and loyalty of customers of private banks in India Data was collected through 290 respondents of salem Tamilnadu through questionnaire by using convenience sampling method. The study concluded that private banks should consider the profile variable of customers and E service quality factor inorder to improve the service quality. Service failure and recovery should be given the major attention to retain customers. Efficiency and convenience to use E service were found to be the most influential factors. These two are related to the demographic profile of users As most of the users of online services are young and middle aged group people.

Jamil Hammoud (2018) attempted to study the impact of E service quality and customer satisfaction. The primary data for the study was collected from 258 respondents of Lebanese collected through a structured questionnaire. The findings of the study confirmed the relationship of Eservice quality on customer satisfaction of banking Industry. All the proposed dimensions reliability, privacy, efficiency responsiveness were found to have a significant influence on customer satisfaction of E banking transaction. Out of these dimension reliability was found to the most influential.

Amit Shankar (2019) investigated the impact of ebanking service quality on customer loyalty with the trust and customer involvement as mediator and moderator factor respectively. Results were based on the data collected from 526 offline and 502 online by random sampling technique through a survey instrument questionnaire collected from the respondents of Hyderabad, Kolkata, Mumbai, Chennai and Delhi and their nearby suburban areas. Data was analyzed through SEM analysis From the identified dimensions of eservices quality, reliability and security and privacy are found to have significant effects on loyalty. Whereas the contrary website design and customer supports and services were not found to exert significant effect on loyalty.

Sindhu Singh (2019) attempted to measure the E service quality of Ebanking and its relation with the satisfaction of customers Data was collected form 650 banking customers of India through convenience sampling technique. Eservice quality dimension was found to be a stronger antecedents of customer satisfaction. All three identified dimension of Eservice qualities ie responsiveness, efficiency and perceived credibility had a positive and significant impact for unfluencing satisfaction of customers in ebanking. Out of the significant dimensions responsiveness was found to be the most significant factor followed by efficiency and perceived credibility respectively having substantial impact on the satisfaction stating the fact the most of the users of online service are young and middle aged group people.

5. Research Methodology

Both primary and secondary data were used for the study. The primary data were collected from the 120 respondents who have account in the public sector banks in Tirunelveli district. The secondary data were collected from the journals, magazines and websites convenience sampling method was used for the study. The structured questionnaire have been used for collecting the information from the respondents. The meanscores and percentage method were used for analysing the data.

6. Analysis Interpretation

Table 6.1
Demographic profile of the customers

Demographics	Category	No of respondents	Percentage
Gender	Male	76	63%
	Female	44	37%
Age	20 – 30	12	10%
	30 – 40	28	23%
	40 – 50	38	32%
	50 – 60	32	27%
	Above 60	10	10%
Education	Higher Secondary	12	10%

	UG	28	23%
	Graduate	32	27%
	Post Graduate	48	40%
Occupation	Self employed	14	11%
	Private Employee	26	22%
	Government Employee	42	35%
	Business	38	32%
Account Type	Fixed Deposit	16	13%
	Saving Account	42	35%
	Current Account	24	20%
	Loan Account	38	32%
Duration of Account	Upto 2 years	23	19%
	2 - 3 years	26	21%
	3 – 4 years	20	10%
	4 – 5 years	24	20%
	Above 5 years	36	30%

From the above table it is evident that 63% of the respondents are male, 32% of the respondents are in the age group of 40-50, 40% of the respondents are postgraduate, 35% of the respondents are government employee, 35% of the respondents are holding saving bank account, 30% of the respondents are having their duration of account is above 5 years respectively.

Table 6.2

E banking service quality dimension

S.No.	Dimensions	Variables	Mean scores
1.	Tangibility	Aesthatic bank websites	3.61
		Debit cards and credit cards make transaction easily	3.88
		Ebanking reduces queues in the bank	3.83
		Ebanking provides quick service	3.44
2.	Reliability	It keeps accurate records	3.25
		It perform services within a stipulated time	3.31
		It quickly resolves problems	3.35
		It responds suddenly through email	3.06
3.	Responsiveness	Ebanking provides quick service	2.58
		Ebanking service is prompt	2.67
		E banking provides quality customer service	2.49
		It handled complaints easily	2.56
4.	Assurance	Quick transfer of funds through E banking channels	3.11
		It provides upto date information	3.23
		Use latest technology	3.40
		Secured transaction	3.30
5.	Empathy	Individualised attention to every customer	3.28
		Websites caters to the needs of the customers	3.22
		Easily accessible service	3.45
		convenient location	3.35

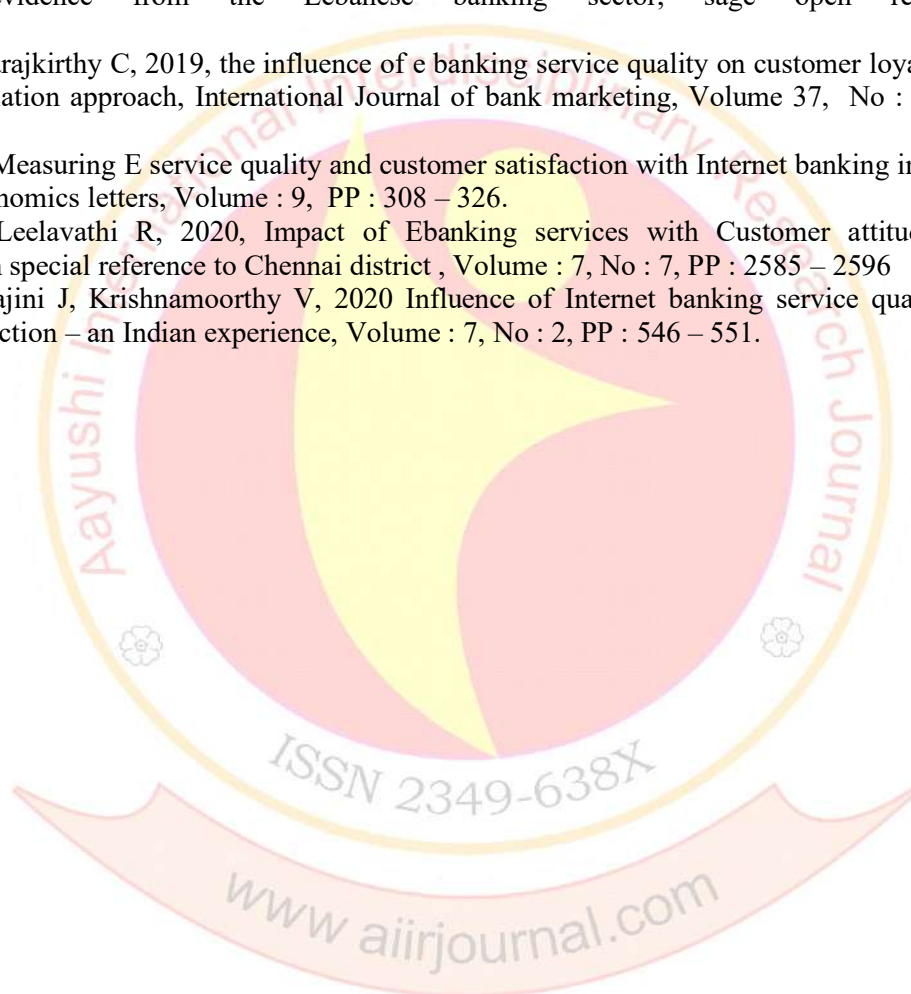
It is clear from the table customers of the public sector banks were satisfied towards the service quality dimensions., From the table it is highlighted that tangibility, reliability, assurance and empathy are having highest mean scores as it indicated that customers are more satisfied by the service quality dimensions whereas responsiveness are having lowest mean scores as it indicated the customers are less satisfied by the service quality dimensions. From the analysis it is evident that customer satisfaction is positively influenced by the service quality dimensions except responsiveness dimensions which has negative impact.

7. Conclusions :

The findings of the study revealed that customer satisfaction is positively influenced by the service quality dimensions. Therefore it is important for the banks to assess the service quality dimensions in order to reduce the customer switch over to other banks. The study identified the variables of service quality dimensions such as aesthetic bank websites, quick service, security and privacy individualized attention are the most significant dimensions that attracted customers. Finally it can be concluded that the overall findings are important for service quality manager to identify the efficient approach for improving service quality dimensions in their banks.

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Industries And Environmental Pollution in Bhadravati**Dr. Prakash B. Holer**

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Abstract

Man is the most important factor in an ecosystem who is wholly responsible for its creation, maintenance and modification. "The main causes of the environmental degradation are the industrial set ups. From all angles, right from man, the machines and the wastes, the problems created, have almost no solutions and it is a fact that industrialisation has introduced the word "slum".

Now, it has become a serious problem for the developing countries. The main problem is the protection of environment from the several environmental pollution like water, air, land, noise etc.. It requires special attention from scientists, ecologists and geographers etc... can contribute much to the solution of these problems and thus, help in the effective management of the ecosystem.

Bhadravati is one of the taluka headquarter of Shimoga district. Bhadravati has been selected for the study of Impact of industrialisation on environment. The study accounts for a remarkable growth in general, in industrial sector and more so in manufacturing. Earlier generally people say that Shimoga district is free from environmental pollution but now the quality of environment in and around of Bhadravati and Shimoga have gradually been deteriorating, due to changes in several aspects because in Bhadravati the most predominant industrial region of the district, in the fold of which are found a host of industries ranging from iron and steel, engineering and electrical, chemicals, paper, sugar, leather and other goods. This area has heaviest concentration of industries. So the researcher to choose the current problem.

Introduction:

The "environment" is a combination of all these concepts plus many, many more it includes not only the areas of air, water, plants and animals but also other natural and man modified feature which constitute the totality of our surroundings thus, transportation systems, industries land uses characteristics, community structure and economic stability all have one thing in common with carbon monoxide levels, dissolved solids in water and natural land vegetation they are all characteristics of the environment. In other words, the environment is made up of both biophysical and socio-economic elements which should be considered in environmental impact analysis.

Man is the most important factor in an ecosystem who is wholly responsible for its creation, maintenance and modification. In the new age of environment degradation the power to destroy has been democratized "The main causes of the environmental degradation are the industrial set ups. From all angles, right from man, the machines and the wastes, the problems created, have almost no solutions and it is a fact that industrialisation has introduced the word "slum".

Now, it has become a serious problem for the developing countries. The main problem is the protection of environment from the several environmental pollution. It requires special attention from scientists, ecologists and geographers etc... geographers with their disciplinary approach can contribute much to the solution of these problems and thus, help in the effective management of the ecosystem.

Research Problem:

Man is social animal. He has liberty in the society to behave in his own way. This we may also call his right, claim and interest.

The main cause of select this problem for research is modern industries and other human activities, industries discharge different effluents like smoke, industrial waste and sewage without any treatment given. There are harmful to the biological world for instances, the products of degradation are more toxic than the original chemicals themselves.

Objectives :

- To study the geographical distribution of industries.
- To identify Industrial Categories -the large, medium and small scale industries in particular place

- To know the impact of environment on human health
- Suggestion for environmental balance

Hypotheses :

- Industrialisation is long been regarded as key elements in development as well as hazardous to environment.
- Lack of co-ordination and co-operation between department of environment and industrial authorities resulted in the determination of environmental quality with industrialization.

Data Base:

The present study aims at the geographical analysis and impact of industrialisation on environment in Bhadravati. The overall data base for the study is generated through the collection of secondary information and primary survey of few large and medium units. Graphs, maps and photos are employed to the present study.

Geographical Location Of Bhadravati



Shimoga District is having 7 taluks – Shimoga, Bhadravati, Sagar, Shikaripur, Soraba, Hosanagar and Thirthahalli. Bhadravati lies in the central part of the Karnataka State, in the south-east corner of the Shimoga district. The Bhadravati is located at 13.84 N Latitude and 75.70 E Longitude. Bhadravati city is at a distance of about 20 KM from Shimoga. Bhadravati is one of the big towns in Shimoga District. Bhadravati area is surrounded on the West by Shimoga Taluk, East by Channagiri Taluk of Davangere Dist, South by Tarikere of Chikkamagalur District and North by Honnali Taluk of Davanagere District. The NH206 and SH 65 are passing through Bhadravati. The Bhadravati Railway station is located inside the city. The nearest Air ports are Mangalore and Hubli at a distance of about 220 KM.

Bhadravati derives its name from the Bhadra River which flows through the city. It was earlier known as Benkipura or Venkipura and earlier Benki Pattana which in English means city of fire. Iron ore from the hill station of Kemmannugundi and water from the Bhadra River helped the establishment of an iron mill in 1918 and paper mill in 1936. Bhadravati Taluk is having an area of 690 Sq Km. The total population of the area is 3,38,989. Bhadravati is having a town area of about 67 Sq KM and population is 1,60,662. There are 2 major industries located in Bhadravati of which one is a 17 category. The average temperature in the summer is between 25°C (77 °F) and 37 °C (99 °F). The average winter temperature is between 20 °C (68 °F) and 30 °C (86 °F). The annual precipitation in the city is around 950 millimetres (37 inch). It has Tropical savanna climate. Bhadravati is at an altitude of 597 meters (1,959 ft) above sea level.

Impact Zone of Bhadravati :

Total population and sensitive receptors (hospitals, educational institutions, courts etc) residing in the area comprising of geographical area of the cluster and its impact zone (minimum 2 km).

Bhadravati Taluk is having a total population of 3,38,989. Bhadravati town is having a population of 1,67,269. The impact zone covers about 70% of the Bhadravati Town. There are 13 hospitals in the impact zone, out of which two hospitals are having bed strength of 100 and 115. The court complex is located in the impact zone. Education institutions of MPM and VISL and other

education institutions are located in the impact zone. The following villages/hamlets are located within 2 km of the impact zone.

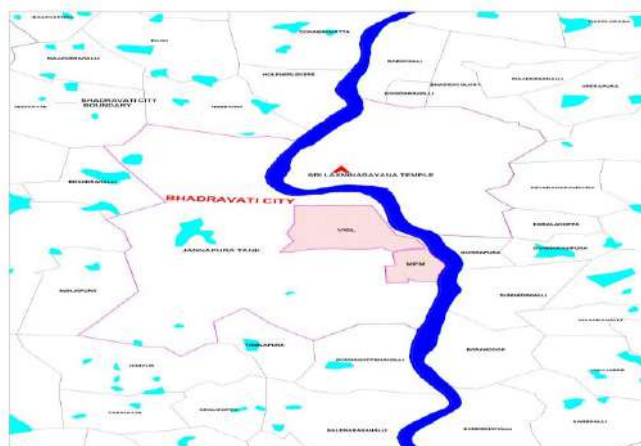
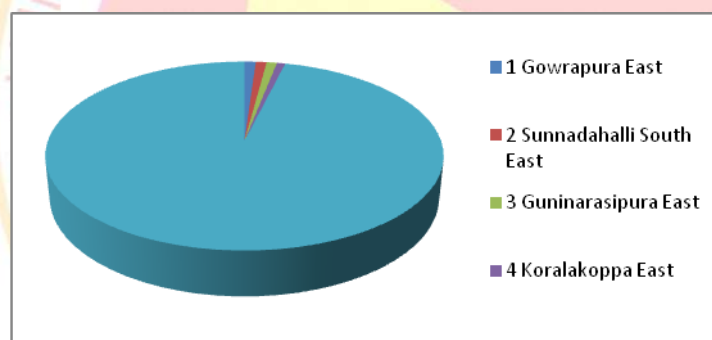


Table:1
Impact zone of Bhadravati

Sl.No	Name of the village/hamlets	Direction in which located	Population
1	Gowrapura	East	1,800
2	Sunnadahalli	South East	1,716
3	Guninarasipura	East	1,632
4	Koralakoppa	East	1,313
5	Bhadravathi town	North, West, South	1,60,808



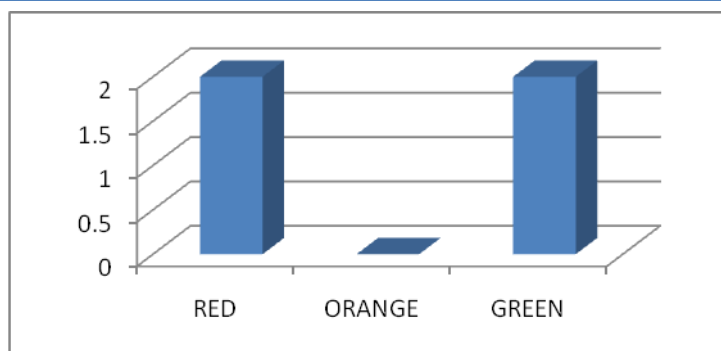
Categories Of Working Industries In Bhadravati :

The IndustrialCategories of working industries in Bhadravati cluster is as follows.

Table:2

Industrial Categories in Bhadravati

Industries	Red	Orange	Green
Large	02	-	01
Medium	-	-	-
Small	-	-	01
Total	02	-	02



Red category industries are mostly polluted, Orange category industries are partly polluted and Green category industries are free from pollution. The major industries located in and around Bhadravati are paper and steel. There is only one 17 Category industry and one Large Red Category industry located in Bhadravathi viz.

1. The Mysore Paper Mills Ltd (MPM), Paper Town, Bhadravati having latitude and longitude –N13.82760, E-075.70831 respectively.
2. Steel Authority of India, Visvesvaraya Iron and Steel Ltd (VISL), Bhadravati having latitude and longitude N-13.83788 and E-075.70084 respectively.

Highly Polluting industries (17 categories) The Mysore Paper Mills Ltd., is the only 17 category industry in Bhadravati and engaged in the manufacture of paper and sugar.

Red category industries (54 categories) The Steel Authority of India Ltd, Visvesvaraya Iron and Steel Plant is the only Large red industry located in Bhadravati and engaged in the manufacture of mild steel and alloys.

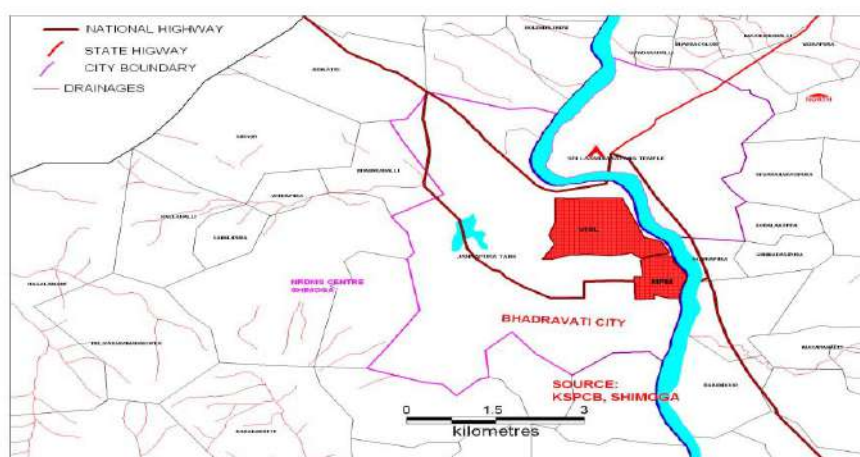
Water Environment In Bhadravati :

The quantity of water used and effluent generated from large industries located in the cluster are given below:

Table:3

Water consumption & Waste Water Generation

Name of Industries	Activity	Water consumption in KLD		Waste Water Generation in KLD	
		Domestic	Industrial	Sewage	Trade Effluent
MPM	Paper and Sugar	8000	44200	6000	40000
VISL	Steel	4300	4550	3440	4420



The Mysore Paper Mills Ltd, Bhadravathi

The Mysore Paper Mills Limited was founded in 1937 with a modest capacity to produce 6,000 TPA of paper. During last Seven decades the mill has stepped up its production to 1,05,000 TPA of paper including Newsprint, Writing & Printing paper. Due to shortage of cellulose raw materials, MPM has also established a Sugar mill with a crushing capacity of 2500 TCD in the year 1984, which provides bagasse as raw material to meet expanded paper mill capacity. The mill is located at Bhadravati, Shimoga district, on the left bank of river Bhadra in Karnataka State.

The MPM is discharging the treated trade effluent to the Bhadra river. There are domestic outfalls from city which join the river. The parameters chosen for the analysis though limited, is adequate

to assess the water quality. The Board is collecting the Bhadra river water samples at 3 locations every month within Bhadravati impact area. The water samples are generally meeting the C class standard. Bhadra River passes through the Bhadravati town. The topography of the town is in such a way that the sewage generated from the town is joining the river at different locations. The treated trade effluent from MPM is discharged to Bhadra river. The MPM is the major industry contributing for water pollution. The domestic effluent from the Bhadravati town is also contributing for water pollution.

Steel Authority of India Limited Visvesvaraya Iron and Steel Plant ,Bhadravati

Purpose Consumption of water for Domestic use 4300 KLD m³/d and Waste water generation 3440 KLD. Consumption of water for Boiler feed 50 KLD m³/d and Waste water generation 20KLD. Consumption of water for Cooling 4500 KLD m³/d and Waste water generation 4400KLD (Recycled).

Air Environment In Bhadravati :

The major air pollutants monitored in the industrial cluster are SPM, SO₂, and NO_x, as per the earlier norms specified for Ambient Air Quality. All the industries have provided stipulated chimney height and other air pollution control measures to control the emissions from point sources. Karnataka State Pollution Control Board (KSPCB) and industries are also monitoring Ambient Air Quality in the area of cluster of industries. The parameters are meeting then few occasions is not meeting to the new carried out within the industrial cluster. VISL Township meters, special parameters and air toxics relevant to the area in three categories known earlier AAQM standards. RSPM standards.

a) **M.P.M** is having Five boilers, out of which Four One Chemical Recovery Boiler (45 TPH capacity). Out of four coal fired boilers one is 90TPH boiler the other a PH C b All Five boilers are having individual ESPs. All the four coal fired boilers flue gas through a 105m common chimney. The Soda Recover boiler flue gas is discharged through a 45m chimney. They provide the control equipment and chimney as per the consent condition.

b) **VISL** following predominant sources of air pollution

1. basic Oxygen furnace
2. Ladle refinery furnace.

Besides the industry is having 35 air pollution sources. The unit has provided stipulated air pollution control equipment to all the sources except ladle refinery furnace.

c) **Vehicular pollution:** The NH 206 and SH 65 are passing through Bhadravati. The movement of vehicle to transport raw material and finished products is more. The movement of heavy vehicles and light vehicles on high ways and within city are also contributing to the air pollution.

Since the industrial source is quantifiable, the other sources are of area/volume source is difficult to quantify. The air pollution load on to the atmosphere from major industries is presented below.

Table:4

The Air pollution load on to the atmosphere

Industries	PM Kg/day
MPM	80.11
VISL	39.76

Present Environmental Position of Bhadravati :

Bhadravati is declared as critically polluted area and stands at 35th position with a Central Environment pollution Index (CEPI) score of 72.33. The sub index score assigned for different environment is indicated below:

Table:5

CEPI score of Bhadravati

No Industrial area/ cluster	Air	Water	Land	CEPI	
Bhadravathi (Karnataka).	62.75	56.50	45.50	72.33	Ac_Ws_Ln
Note : Ac - Air Critical : Ws - Water Severe :Ln –Land normal					

Suggestions :

From the above analysis it can be said that whatever environmental degradation in Bhadravati can be considered for sometimes at infancy stage.

Therefore some suggestion for restoring the past environment and monitoring the environment degrading at present have been made.

1. Industrial authorities to follow properly the guidelines of the pollution control board.

2. Government and authorities are to follow properly environmental acts.
 3. They should be protect environmental balance by water, air and land etc..
- Thus all these and some other proper measurs will may check the environmental degradation in Bhadravati.



Impact Of Covid 19 Pandemic on Corporate Social Responsibility and Organisational Sustainability

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ABSTRACT

In this work, we provide an initial assessment of how the Covid-19 pandemic may affect the evolution of CSR. The Covid-19 epidemic provides a fantastic chance for corporations to move toward more true and authentic CSR and help address major global social and environmental issues. The goal of this study is to focus on the evolution of the notion of corporate social responsibility (CSR), its theoretical worth, and tactics used at various stages of its growth in enterprises, particularly amid fatal crises such as the COVID-19 pandemic disaster. The pandemic has brought to light and exacerbated certain long-standing socioeconomic problems.

Keywords: Covid-19, Corporate social responsibility, decision making, organization, stability, Business.

INTRODUCTION

In this article, we offer some initial examination on how Covid-19 pandemic can influence the developments of CSR and marketing. We argue that Covid-19 pandemic offers a great opportunity for businesses to shift towards more genuine and authentic CSR and contribute to address urgent global social and environmental challenges. We also discuss some potential directions of how consumer ethical decision making will be shifted to due to the pandemic. In our discussion of marketing, we outline how we believe marketing is being affected by this pandemic and how we think this will change, not only the context of marketing, but how organizations approach their strategic marketing efforts. We end the paper with a identifying a number of potentially fruitful research themes and directions.

Keywords: Covid-19, Corporate social responsibility, Marketing, Consumer ethical decision making, Marketing philosophy, Business ethics

Covid-19, like other global events with global ramifications, has the ability to alter how we perceive the world, think about it, and live our lives. Despite the human tragedy of lost lives, shattered families, and damaged towns, the economic and societal upheavals brought on by a pandemic-induced lockdown will leave a cultural legacy that will live on in our memories and the memory of future generations. Personal, emotional, psychological, sociological, economic, and cultural anguish are all present, and they will leave scars. In many regards, we view Covid-19 as analogous to that which [24] calls a 'Black Swan Event' – a shocking event that changes the world (as similarly also noted concurrently by a number of authors and editors – see for example [25][26]. While [24] discussed a range of examples of such past events (such as the events of 911) his analysis highlighted that human responses to such shocks tend toward critical reverse prediction. That is, after cultural shocks occur, people inside those cultures almost immediately justify such events by reflecting on how they could have been expected and most likely averted. Is Covid-19 an example – we believe so? The world will never be the same after Covid-19, and despite the various apocalyptic movies, conspiracy theorists, and political opportunists, we can't help but hope that future pandemics may be prevented if we learn the lessons that we can't help but believe should have been taught before Covid-19.

The global economic impact of Covid-19 is likely to be unprecedented since the Great Depression of the 1930s. As a result, the Covid-19 epidemic is likely to be one of the most significant environmental changes in recent marketing history, with the potential to have a huge impact on CSR, consumer ethics, and basic marketing philosophy. Because of the widespread lockdown and social distancing measures around the world, the short-term influence of Covid-19 is instantly and easily recognized. Regardless of how the pandemic ends, it is already expected to have long-term economic, social, political, and cultural consequences.

Review Of Literature

We live in a new economic and social environment that necessitates a rethinking of public and private strategies, decisions, and actions in the face of international threats to mobility and the welfare state. These situations are frequent in developing nations, and the 2030 Agenda [10] provides a path to solve them. This path necessitates collaboration, dedication, and responsible practises on the part of the many players, who should direct their actions toward the pursuit of a common good that addresses the issues mentioned in the SDGs [11,

12]. Corporate social responsibility (CSR) methods incorporate business contributions. In this regard, some business studies have begun to consider the influence of COVID-19 on various industries (e.g., [9,13]) as well as the role that business should play in the post-COVID age [14]. All of this takes place in the current context, in which CSR methods are being questioned for their financial benefits to businesses [15–18], without necessarily translating them into significant environmental or societal effects [19,20]. In this regard, the findings of these research necessitate a comprehensive case study of CSR practises due to the wide range of reasons that organisations may use to develop their sustainability plans. Such reasons can range from self-interest to managerial altruism [21], but the latter does not always mean that organisations' strategies harm owners and investors [22]. However, addressing all of the severe repercussions of the COVID-19 epidemic will necessitate the involvement of private actors. In Spain, such contributions have been particularly important. Various firms, for example, have demonstrated their dedication to society by partnering with the third sector to improve the situations and living conditions of the world's most vulnerable people, as well as launching economic programmes targeted at boosting economic activity [23]. Also, there have been several problems in the logistics of medical equipment related to masks, gloves, glasses, protective overalls, and respirators, which has been mitigated by the responsible involvement of Spanish companies, who have played an unquestionable role with important donations of these materials and economic funds for research, such as by temporarily lend capital goods for free, including airplanes for the transportation of healthcare resources and spaces for the location of patients and healthcare facilities, among many other actions [7].

CORPORATE SOCIAL RESPONSIBILITY AND ORGANIZATIONAL STABILITY

In various places of the world, CSR theory and practise are being investigated. Corporate social responsibility is defined as a broad concept that incorporates a wide range of concepts and ideas, including corporate responsibility, corporate accountability, business ethics, corporate citizenship, responsible entrepreneurship, sustainable development, and so on. The concept of social responsibility may be traced back to Andrew Carnegie (1835–1919), the creator of US Steel, who developed two concepts, namely, the principle of charity and the principle of stewardship, which he believed were required for capitalism to function. The first premise dealt with providing assistance to the unemployed, the elderly, and the sick. The second principle required merchants to serve as stewards of their wealth for the sake of the rest of society [1]. Berle examined the obligations of managers in giving protection or support to those people of the community who could not earn a living in his paper "For whom corporate managers are trustees: A remark" published in 1932. Although this was one of the first conversations on the concept of social responsibility, Bowen provided the first formulation in 1953. Bowen defined social responsibility as an entrepreneur's commitment to adopt plans, make judgments, or follow policies that society wants and values [2]. The modern concept of corporate social responsibility arose from this definition. The number of scientific papers on social responsibility expanded dramatically in the 1960s, paving the way for the notion of corporate social responsibility to emerge [3]. To describe corporate social responsibility, [4] used charitable words. [5] Economic commitment was defined by [6] as the production of value for shareholders. [8] claimed in his book "Capitalism and Freedom" that a business's main social obligation is to use its resources and function in a way that maximises profits while adhering to the game's rules, in other words, through open and fair competition without deception or fraud. [17] claimed that social responsibility encapsulates society's views toward economic and human resources, i.e., the desire for resources to be used for a variety of social ends rather than only to benefit individuals or enterprises. According to [16], there are two aspects to corporate social responsibility. Entrepreneurs understand that controlling the economic unit of society is part of their responsibility to contribute to economic progress, which decides society's well-being. Corporate social responsibility, on the other hand, is an entrepreneur's commitment to promote and develop human values such as morality, cooperation, motivation, and self-realization at work. As a result, the term "corporate social responsibility" refers to a company's economic and social responsibilities to others. Corporate social responsibility was predominantly associated with economic and social responsibilities until the 1970s. Corporate social responsibility was viewed as more of a responsible mindset than a specific action.

As a result, a more optimistic view is that the Covid-19 pandemic will hasten post-pandemic CSR development in the long run, as more firms and businesses realize that their long-term survival and development is dependent on striking a delicate balance between profitability and harmony with their various stakeholders. The more pertinent and pressing question is probably not whether or not to invest in CSR, but rather how to invest in CSR in order to achieve mutually beneficial and interrelated social/environmental and economic goals. The pandemic will educate us that "we are all in this together," and people will surely demand businesses to be more socially responsible as a result. As a result, we may see the post-pandemic period as one

in which enterprises with strong CSR commitments, effective CSR strategies, and efficient implementations would thrive.

Conclusion

Poverty and inequality have been highlighted and increased as a result of the Covid-19 pandemic. In terms of the medical truth that persons from different demographic backgrounds are equally prone to the condition, the general storey is that Covid-19 does not discriminate. The Covid-19 epidemic is clearly having an impact on every organization's decision-making during the pandemic. Given that the pandemic is expected to endure for a long time on a worldwide scale, its effects are likely to linger long after the pandemic has ended. Organizations should cultivate some habits, particularly in relation to the increasingly important role of ethics in decision-making; some of these habits will likely stick or even fundamentally shift toward more responsible behavior.

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Covid-19 Lockdown Impact On Rural Economy (Case Study of Sangavi Village in Phaltan Tehsil, Satara District, MH)

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1. Introduction

Agriculture and its allied activities are the main source of income and food for more than seventy percent population. It has needed various man-power to do a work but these days agriculture is not very rewarding enterprise especially for marginal and small farmers with small holdings. On the other hand, allied agricultural sectors such as vegetable cultivation, floriculture, dairy farming, Poultry and Beekeeping etc. have great potentialities for uplifting the growth and livelihood sustainability. India has achieved a rapid and remarkable growth in agriculture during last few decades. But we are facing the challenging task of maintaining food security, and how to meet the demand of its ever-growing population. India is a high densely populated country and maximum people live in villages. Out of them are involved in agriculture. Most of people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. The impacts of that virus on people various sectors; mostly in agricultural & economy. Present research paper shows that the corona lockdown impacts on economy in Sangavi Village. Income sources are very low in that period, so most of the people are affected & their problems to loss of money.

2. Covid-19 Lockdown

Coronavirus disease Covid-19 is an infectious caused by a newly discovered coronavirus. The global pandemic of Covid-19 lockdown is suffering in a Satara district as well as Phaltan tehsil. Sangavi village has same condition as like headquarter. In the first phase of (March 2020) the Corona affection is lesser than the second phase of (March 2021). Because of the precaution taken by each and every people of each limit, but nowadays people are taking it easily and the effects of this is on eye.

3. Study Region

The Sangavi village is located in Phaltan tehsil of Satara district in Maharashtra State (Fig. 1). It is situated on bank of Nira river; It is situated 10km away from sub-district headquarter Phaltan and 75km away from the district headquarter Satara. As per 2020 stats, Sangavi village is also a *Gram-Panchayat*. The total geographical area of village is 1762.88 hectares. Sangavi has a total population of 6,195 people there are about 1,267 houses. Boundaries of village are Nira River in North Side, South boundary is bounded by Vidni Village, Eastern side is bounded by Songaon and Western side bounded by Somanthali Village. Sangavi village promoted by the *Gram-Panchayat* is a main administration center.

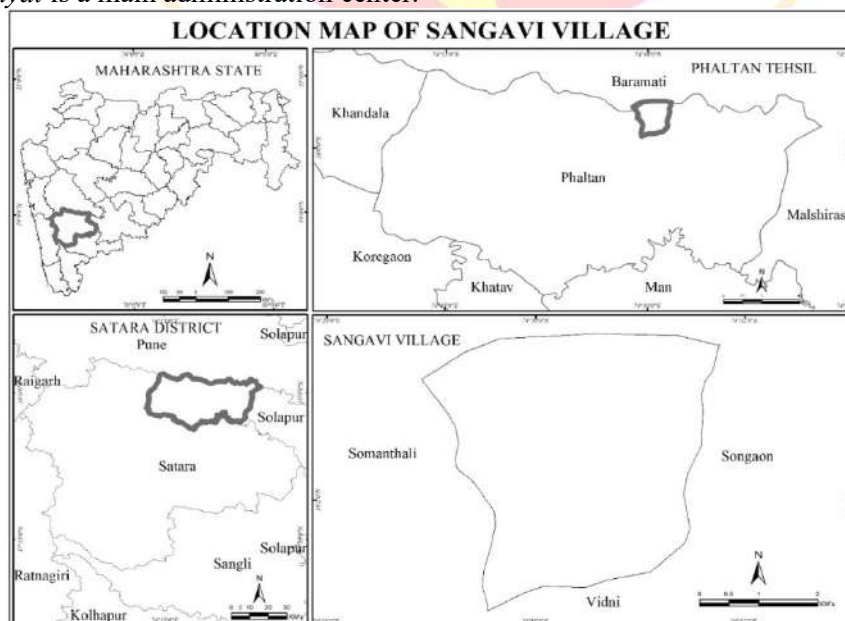


Fig. 1: Location Map of Sangavi Village

4. Objective

- To study the COVID-19 lockdown impact on rural economy of Sangavi village.

5. Database And Methodology

The proposed research paper work researcher are collected the primary and secondary data. The primary data obtained by observations, direct interviews of respondents through questionnaire. All the primary data are collected in February to May 2021. In a secondary data sources researcher obtained a Sangavi village .shp file (Village area boundary) from USGS data bank, household record of study area are collected from SangaviGram-Panchyatoffice. Out of the total households, for the details study researcher are selected those households who are affiliated to mentioned activities of the study region. 250 households are selected for sample basis. These samples are based on random sampling method. The sample size is 20 percent of the total household's. The obtained data are calculated by using simple percentage method.

6. Discussion

Researchers discussing the Sangavi village scenarios of rural population, family size, mode of workers, daily income, per capita income, etc. Here, the covid-19 lockdown impact on economic conditions of rural people in study region.

Agronomy of Sangavi Village

Sangavi village is the vibrant village in agronomy especially in dairy activity and fresh vegetables production in key activities. It have a two private milk unions and one chilling center in a village limits and vegetable market centers are between 10 km limits. Dairy Farming and vegetable products are supporting of each and every families to managing their daily routine. A Cowplay a crucial role in Dairy Farming, more than 700 cows are in-milk condition. The Tomato, Chili, Karla, Cauliflower, Cabbage, Lady Fingers, Potato, Cucumber, Onion are key vegetables of the village; these vegetables have daily fresh market.

Table 1: Daily Activity of Rural Populations in Sangavi Village

Sr. No	Activity	People	Engaged People	Percentage
1	Agriculture Worker (Labours	Male	86	6.75
		Female	66	5.18
		Total	152	11.93
2	Sales Worker (Agricultural Products	Male	86	6.75
		Female	87	6.83
		Total	173	13.58
3	Animal Husbandry	Male	147	11.54
		Female	80	6.28
		Total	227	17.82
4	Poultry Farming	Male	25	1.96
		Female	25	1.96
		Total	50	3.92
5	Goat Farming	Male	47	3.69
		Female	0	0.00
		Total	47	3.69
6	Private Job	Male	214	16.80
		Female	66	5.18
		Total	280	21.98
7	Government Job	Male	24	1.88
		Female	1	0.08
		Total	25	1.96
8	Own Business	Male	37	2.90
		Female	0	0.00
		Total	37	2.90
9	Education (Enrolled Students)	Male	130	10.20
		Female	153	12.01
		Total	283	22.21
Total Sampled People			1274	100.00

Source: Based on field work, February to May-2021

Out of the total sampled population (1274) more than 50 percent (649) population of direct engaged in agronomical activity. Remaining is based on Jobs, Business or educational activity. The highest working populations (22 %) of the village are engaged in private job. 22 percent young generation are engaged in obtaining a knowledge within a school and colleges of the nearest cities. It is interesting picture shows that more than 50 percent populations sharing in agricultural & agro allied activities.

Before Lockdown: Family Income Status (February 2021)

The Income is money what an individual or business receives in exchange for providing labor, producing a good or service or through investing capital. Individuals most often earn income through wages or salary. Businesses earn income from selling goods or services above their cost of production. In the Sangavi village, there 78 percent people are obtaining a money doing any mentioned economic activity. More than 50 percent populations are engaged in agriculture and its allied activity.

Table 2: Sampled Households Family Income of February, 2021

Sr. No	Income Class (In Rupees)	Income Group	Families	Percent
1	Less than 25000	Very Low	13	5.2
2	25001 to 50000	Low	27	10.8
3	500001 to 75000	Moderate	144	57.6
4	750001 to 100000	High	53	21.2
5	More than 100001	Very High	13	5.2
	Total		250	100

Source: Based on field work, February to May-2021

In the above mentioned table 2 shows that the family income of February month. Out of the total surveyed families population more than 55 percent populations are obtaining moderate income after that the 21 percent families are obtained high income. 16 percent families are getting low and very low income. Only 5 percent families are obtaining more than 1 lakh family income in February month that is before lockdown period in study region.

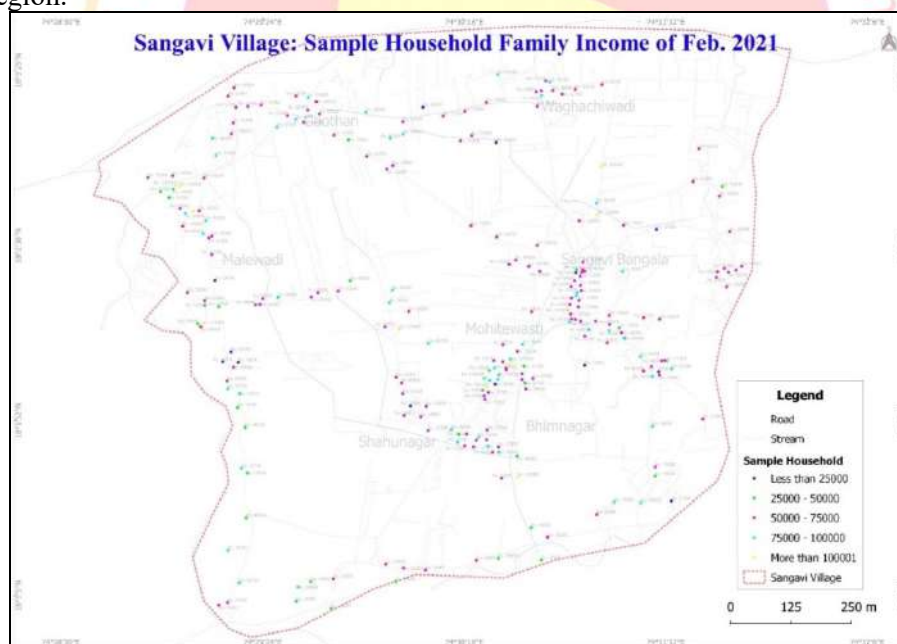


Fig. 2: Sampled Households Family Income of February, 2021

In Lockdown: Family Income Status (March to May 2021)

The lockdown of the Sangavi village are started in first week of the march 2021 because of the corona infections are spread over the village limits. The remarkable patients are found in that time so local government is decided to lockdown the village for 15 days.

A.Family Income Status: In Lockdown (March, 2021)

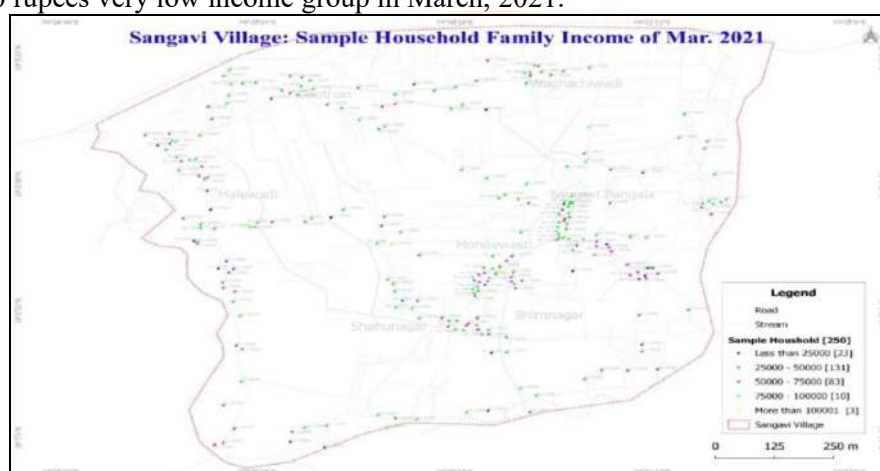
The first week of the March 2021 village workers passed in regular type but after that the working days are come down due to mentioned lockdown. The officials are doing their work from home but agriculture and business workers are breakdown their work. The incomes of peoples are stepped down.

Table 3: Sampled Households Family Income of March, 2021

Sr. No	Income Class (In Rupees)	Income Group	Families	Percent	Changes in Family Over Feb. 2021
1	Less than 25000	Very Low	23	9.2	10
2	25001 to 50000	Low	131	52.4	104
3	500001 to 75000	Moderate	83	33.2	-61
4	750001 to 100000	High	10	4	-43
5	More than 100001	Very High	3	1.2	-10
	Total		250	100	0

Source: Based on field work, February to May-2021

The large number of families are comes under the low income group. They have 131 families (52 %), they earned 25000 to 50000 rupees monthly income after that 33 percent family (83 Families) are comes under the moderate group of income; this group having 50000 to 75000 rupees per month income. Only 4 percent families are having 75000 to 100000 rupees income per month that is high. Less than 10 percent (23 families) are earned in less than 25000 rupees very low income group in March, 2021.

**Fig. 3: Sampled Households Family Income of March, 2021**

As compare to February month, there are drastic changes in monthly income of March, 2021. The 10 families are losing their previous month position and come under the very low (less than 25000 rupees) group. The 104 families are behaving as like same trend and come in the low income group (25000 to 50000 rupees). In the moderate income group families are changes; the February month (144 families) trend and they comes down to 83 number family earned monthly income between 50000 to 75000 rupees in March, 2021. In the high income group (53 families) these families are comes down in less than 75000 to 100000 rupees income group. In the March 2021 only 10 families are denotes this income group.

B. Family Income Status: In Lockdown (April, 2021)

In the month of March 2021, the lockdown are follows a very strictly by government as well as local peoples for the breaking the chain of corona spread. In this month all economic, social and political activities are stepped down. So the incomes of individual person as well family are come down and the economic balance of family as same as society is slow down and the people facing economic crisis with social emergency.

Table 4: Sampled Households Family Income of April, 2021

Sr. No	Income Class (In Rupees)	Families	Income Group	Percent	Change in Family Over Feb. 2021	Change in Family Over March, 2021
1	Less than 25000	83	Very Low	33.2	70	60
2	25001 to 50000	155	Low	62	128	24
3	50001 to 75000	11	Moderate	4.4	-133	-72
4	75001 to 100000	1	High	0.4	-52	-9
5	More than 100001	0	Very High	0	-13	-3
	Total	250		100	0	0

Source: Based on field work, February to May-2021

In the month February, 2021 near about 40 percent families of their monthly income are come down in below the 50000 rupees. With respect to March month 238 families (95 %) are come down to low and very low income category from its high & very high category in April, 2021. More than 50000 rupees income group maintained by only 12 families (4.4 %).

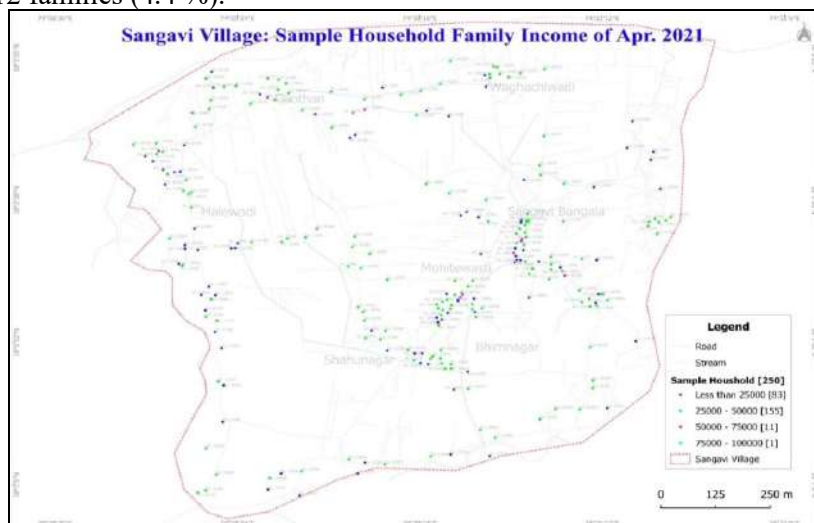


Fig. 4: Sampled Households Family Income of April, 2021

C. Family Income Status: In Lockdown (May, 2021)

In the May, 2021 the Covid-19 condition of the village are slightly coming on the track with taking care of social distance, making quarantine system and the office work are starting with optimum workers in presence. The working places again flowing with workers. The agriculture workers are taking care of wearing a mask, using hand wash, using self-water bags and important things is that they are making a specific distance during a work. In the month of April the income trend are same in condition. The families are not changed their position in the income category. Slightly one or two families are changed position otherwise all is well.

Table 5: Sampled Households Family Income of May, 2021

Sr. No	Income Class (In Rupees)	Families	Percent	Change Over Feb. 2021	Change Over March, 2021	Change Over April, 2021
1	Less than 25000	84	33.6	71	61	1
2	25001 to 50000	154	61.6	127	23	-1
3	50001 to 75000	10	4	-134	-73	-1
4	75001 to 100000	2	0.8	-51	-8	1
5	More than 100001	0	0	-13	-3	0
	Total	250	100	0	0	0

Source: Based on field work, February to May-2021

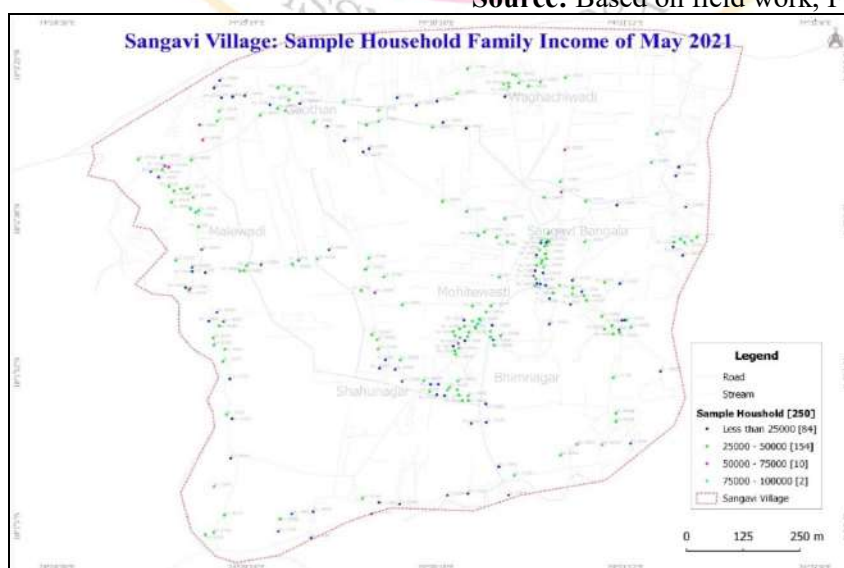


Fig. 5: Sampled Household Family Income of May, 2021

Income Status: Compare to District

In the Sangavi village, below mentioned table 6 show that the income loss details of sampled households to Satara district within the February to April, 2021 months period. Per capita incomes of sampled households are drop down from 12632 to 5899Rs. per month. The loss of each people between these mentioned periods is 6733 Rs. but with respect to Sangavi Grampanchayat this income the loss are goes to near about 66 lakh. With respect to Vidni Mahsul Vibhag the income loss are marked 18 Cr. We are calculating income as a Phaltan tehsil this loss may goes to 226 Cr. If we calculate the district level loss of income it will be marked position 1783 Cr.

Table 6: Income Status Compare to District of Sampled Households Family in February to May, 2021

Description	Pop ⁿ (Approx.)	Per Capita Income (in Rupees)			
		February	March	April	May
Sampled Households of Sangavi Village (2021)	1274	12632	9678	5791	5899
	Monthly Income	16,093,168	12,329,772	7,377,734	7,515,326
Sangavi Village (2021)	5915	12,632.00	9,678.00	5,791.00	5,899.00
	Monthly Income	74,718,280	57,245,370	34,253,765	34,892,585
Vidni Mahsul Mandal (7 Villages)	30557	12,632.00	9,678.00	5,791.00	5,899.00
	Monthly Income	385,996,024	295,730,646	176,955,587	180,255,743
Phaltan Tehsil (128 Villages)	383667	12,632.00	9,678.00	5,791.00	5,899.00
	Monthly Income	4,846,481,544	3,713,129,226	2,221,815,597	2,263,251,633
Satara District (11 Tehsils, 1722 Villages)	3023741	12,632.00	9,678.00	5,791.00	5,899.00
	Monthly Income	38,195,896,312	29,263,765,398	17,510,484,131	17,837,048,159

Source: Based on field work, February to May-2021

7. Conclusion

Most of people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. The impacts of that virus on people various sectors; mostly in agricultural & economy. Present research paper shows that the corona lockdown impacts on economy in Sangavi Village. Income sources are very low in that period, so most of the people affected & their problems to loss of money. Within the study this four months period of global pandemic (Covid-19 Lockdown) creating very immoral economic scenario crisis. If this pandemic are suffer single year what is the condition of rural economy as well as rural people those who are based on agriculture and its allied works. The conclusion is that, the global pandemic (Covid-19 Lockdown) is not beneficial to rural as well as urban economy. For breaking this virus's people should be aware about the Precaution is better than illness.

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Natural Resources And Indian Laws-With Special Reference To Sustainable Development Through Conservation of Forest Resources In India.

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ABSTRACT

Natural resources are materials from the Earth that are used to support life and meet people's needs. Any natural substance that humans use can be considered a natural resource. For economic growth, the existence of natural resources in abundance is essential. A country which is deficient in natural resources will not be in a position to develop rapidly. The essence of sustainable development is the well-being of the people, which is formulated as the maximization of social welfare function (SWF). Economic activities lead to transformation of natural resources into consumable/usable goods and services, in other words, production of goods and services, create income earning job opportunities for achieving best outcomes of SWF. There are some important natural resources available in India like Water Resources, Forest Resources, Mineral Resources, Food Resources and Land Resources. This study focus on forest resources and related things. The 2013 Forest Survey of India states its forest cover increased to 69.8 million hectares by 2012, per satellite measurements; this represents an increase of 5,871 square kilometres of forest cover in 2 years. However, the gains were primarily in northern, central and southern Indian states, while north-eastern states witnessed a net loss in forest cover over 2010 to 2012. In 2018, the total forest and tree cover in India increased to 24.39% or 8,02,088 km². It increased further to 24.56 percent or 807,276 square kilometres in 2019. This study is based on the secondary data derived from various research papers, journals, books, published material. Various research papers, Govt. websites and opinions & reports of the experts has been explored to gather information about importance of Natural resources for sustainable development and important information about forest resources (uses/exploitation) and time to time measures taken by govt. for its conservation. forest resources could be saved by adopting some effective measures like implementation of National Forest Policy (Joint Forest management to involve local villages worked together to manage forest), Conservation of Reserve forest, Local People Involvement, Adopting afforestation Scheme, Increasing Forest Productivity (Proper Forest Management, Supplying proper nutritional demand to the plants by inorganic and organic fertilizer, Controlling disease, pests and weed by adequate insecticides, pesticides and weedicides, Use of advanced technique for forest tree breeding and tissue culture method).

Keywords: Natural Resources, Sustainable development, Forest resources, Conservation of forests.

Introduction :

Natural resources are materials from the Earth that are used to support life and meet people's needs. Any natural substance that humans use can be considered a natural resource. Oil, coal, natural gas, metals, stone and sand are natural resources. Other natural resources are air, sunlight, soil and water. Animals, birds, fish and plants are natural resources as well. Natural resources are used to make food, fuel and raw materials for the production of goods. All of the food that people eat comes from plants or animals. Natural resources such as coal, natural gas and oil provide heat, light and power¹. For economic growth, the existence of natural resources in abundance is essential. A country which is deficient in natural resources will not be in a position to develop rapidly².

The essence of sustainable development is the well-being of the people, which is formulated as the maximization of social welfare function (SWF). Economic activities lead to transformation of natural resources into consumable/usable goods and services, in other words, production of goods and services, create income earning job opportunities for achieving best outcomes of SWF. Natural resources have a double-edge effect on economic growth, in that the intensity of its use raises output, but increases its depletion rate. Natural resource is a key input in the production process that stimulates economic growth³.

Some of the important Natural Resources available in India are:-

1. Water Resources
2. Forest Resources
3. Mineral Resources
4. Food Resources
5. Land Resources.

For any country, the forest policy is an important guideline to maintain forest resources and their interaction with other land uses. India devised its first National Forest Policy (NFP) back in 1894. There has been a paradigm shift from timber production to forest conservation followed by community-based agroforestry and social forestry bringing a change in perspective towards forest resources. This change has been socio-economic, cultural and ecological. Since the 1952 NFP, there has been an advocacy for 33% forest cover with a

60% forest cover in mountainous and hilly regions. This objective was reiterated in the NFP 1988 and also confirmed in the National Forestry Commission report in 2006. This paper reviews the probable reasons for these targets. This paper also analyzes forest cover trends at state level and assesses the likelihood of meeting the prescribed policy targets under present perspective of land use practices. Only three Indian states meet the pre-scribed policy, while three more have the potential to do so, if their state wasteland area is afforested. Among the rest, a few states may achieve the 33% goal provided land conversion to tree cover is not hindered, and adequate resources are available at state level. The Planning Commission (XI Five-year Plan, 2007–12) has emphasized inclusion of other natural ecosystems (including treeless areas and trees outside forests) to forest cover. The paper also examines the above prescribed targets in light of the Planning Commission recommendations. It is argued that that the NFP

Review of Literature :

N. H. Ravindranath, Rajiv Kumar Chaturvedi and Indu K. Murthy (2008)⁴, This article presents an assessment of the implications of past and current forest conservation and regeneration policies and programmes for forest carbon sink in India. The area under forests, including part of the area afforested, is increasing and currently 67.83 mha of area is under forest cover. Assuming that the current trend continues, the area under forest cover is projected to reach 72 mha by 2030. Estimates of carbon stock in Indian forests in both soil and vegetation range from 8.58 to 9.57 GtC. The carbon stock in existing forests is projected to be nearly stable over the next 25 year period at 8.79 GtC. However, if the current rate of afforestation and reforestation is assumed to continue, the carbon stock could increase from 8.79 GtC in 2006 to 9.75 GtC by 2030 – an increase of 11%. The estimates made in this study assume that the current trend will continue and do not include forest degradation and loss of carbon stocks due to biomass extraction, fire, grazing and other disturbances. timber production to forest conservation followed by community-based agroforestry and social forestry bringing a change in perspective towards forest resources. This change has been socio-economic, cultural and ecological. Since the 1952 NFP, there has been an advocacy for 33% forest cover with a 60% forest cover in mountainous and hilly regions. This objective was reiterated in the NFP 1988 and also confirmed in the National Forestry Commission report in 2006. This paper reviews the probable reasons for these targets. This paper also analyzes forest cover trends at state level and assesses the likelihood of meeting the prescribed policy targets under present perspective of land use practices. Only three Indian states meet the pre-scribed policy, while three more have the potential to do so, if their state wasteland area is afforested. Among the rest, a few states may achieve the 33% goal provided land conversion to tree cover is not hindered, and adequate resources are available at state level. The Planning Commission (XI Five-year Plan, 2007–12) has emphasized inclusion of other natural ecosystems (including treeless areas and trees outside forests) to forest cover. The paper also examines the above prescribed targets in light of the Planning Commission recommendations. It is argued that that the NFP For any country, the forest policy is an important guideline to maintain forest resources and their interaction with other land uses. India devised its first National Forest Policy (NFP) back in 1894. There has been a paradigm shift from timber production to forest conservation followed by community-based agroforestry and social forestry bringing a change in perspective towards forest resources. This change has been socio-economic, cultural and ecological. Since the 1952 NFP, there has been an advocacy for 33% forest cover with a 60% forest cover in mountainous and hilly regions. This objective was reiterated in the NFP 1988 and also confirmed in the National Forestry Commission report in 2006. This paper reviews the probable reasons for these targets. This paper also analyzes forest cover trends at state level and assesses the likelihood of meeting the prescribed policy targets under present perspective of land use practices. Only three Indian states meet the pre-scribed policy, while three more have the potential to do so, if their state wasteland area is afforested. Among the rest, a few states may achieve the 33% goal provided land conversion to tree cover is not hindered, and adequate resources are available at state level. The Planning Commission (XI Five-year Plan, 2007–12) has emphasized inclusion of other natural ecosystems (including treeless areas and trees outside forests) to forest cover. The paper also examines the above prescribed targets in light of the Planning Commission recommendations. It is argued that that the NFP For any country, the forest policy is an important guideline to maintain forest resources and their interaction with other land uses. India devised its first National Forest Policy (NFP) back in 1894. There has been a paradigm shift from timber production to forest conservation followed by community-based agroforestry and social forestry bringing a change in perspective towards forest resources. This change has been socio-economic, cultural and ecological. Since the 1952 NFP, there has been an advocacy for 33% forest cover with a 60% forest cover in mountainous and hilly regions. This objective was reiterated in the NFP 1988 and also confirmed in the National Forestry Commission report in 2006. This paper reviews the probable reasons for these targets. This paper also analyzes forest cover trends at state level and assesses the likelihood of meeting

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National Forest Policy in India: Critique of Targets and Implementation

Aditya Kumar Joshi • Pallavi Pant • Prasant Kumar •

Amarnath Giriraj • Pawan Kumar Josh

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Ashutosh Ranjan Srivastava & Nilakshi Barman (2019)⁶, This Research paper is intended to be a systematic and practical guide to the basic features of modern forestry legislation. It identifies a range of issues that should be considered in assessing the adequacy of forest laws and presents options for addressing those issues in ways that may improve the effectiveness of law as a foundation for sustainable forest management. First segment of the research work locates forestry law within the wider legal framework, exploring its complex interrelations with other local and general laws. Second, segment talks about enforceability in detail, the legal treatment of core forest management issues, such as forest classification, policy making, concessions, licensing, and private forest management. Third Segment focuses on the role of national and local Agencies/departments working in the sustainable management of forest resources. Fourth segment explores a range of environmental and trade issues. Fifth segment examines financial and enforcement measures, emphasizing that compliance and enforcement of forest law should be reinforced by financial and administrative sanctions. The study concludes with some reflections on how the effectiveness of forest law can be enhanced by attention to the principles that guide the process of enforceability of forest laws.

Objectives of the study:

- To study the importance of Natural resources for sustainable development.
- To gather the information about Forest resources in India-uses, reasons of exploitation.

- To find out the different Acts formed, constitution and rules for conservation of forest as natural resources.

Research Methodology:

This study is based on the secondary data derived from various research papers, journals, books, published material. There are some important natural resources available in India like Water Resources, Forest Resources, Mineral Resources, Food Resources and Land Resources. This study focuses on forest resources and related things. Various research papers, Govt. websites and opinions & reports of the experts have been explored to gather information about the importance of Natural resources for sustainable development and important information about forest resources and time to time measures taken by govt. for its conservation.

Forest Resources:

The forest (*vana/aranya*) played a major role in early Indian literature, usually presented in opposition to settled society. It was represented as the setting for royal hunts, and as the home of hermits, whose hermitages are depicted as idyllic societies in harmony with the natural environment⁷.

Yajñavalkya Smṛiti written before the 5th century AD prohibited the cutting of trees and if a tree is cut punishments were prescribed for such acts. The Kautilya's Arthashastra written in the Mauryan Period, says about the need of forest administration. It also says how a forest is important for a successful kingdom⁸.

Forestry in India is a significant rural industry and a major environmental resource. India is one of the ten most forest-rich countries of the world. Together, India and these other 9 countries account for 67 percent of total forest area of the world⁹.

India's forest cover grew at 0.20% annually over 1990–2000, and has grown at the rate of 0.7% per year over 2000–2010,¹⁰ after decades where forest degradation was a matter of serious concern.¹¹ As of 2010, the Food and Agriculture Organization of the United Nations estimates India's forest cover to be about 68 million hectares, or 22% of the country's area^{12,13}.

The 2013 Forest Survey of India states its forest cover increased to 69.8 million hectares by 2012, per satellite measurements; this represents an increase of 5,871 square kilometres of forest cover in 2 years¹⁴. However, the gains were primarily in northern, central and southern Indian states, while north-eastern states witnessed a net loss in forest cover over 2010 to 2012. In 2018, the total forest and tree cover in India increased to 24.39% or 8,02,088 km²^{15,16}. It increased further to 24.56 percent or 807,276 square kilometres in 2019¹⁷.

Uses/Reasons for exploitation of Forest resources¹⁸:

Uses of Forests:

- Commercial uses
- Ecological uses
- Regulation of climate
- Reducing global warming
- Soil conservation
- Regulation of hydrological cycle
- Medicinal value
- Oils
- Food products
- Desert vegetation
- Shelter for tribal people
- Pollution moderators
- Aesthetic value

Reasons for Exploitation of Forest Resources¹⁸: Exploitation of vast potential of forests may be due to the following causes:

- Commercial Demand
- Raw Materials for Industrial Use
- Development Projects
- Growing Food Demands
- Fuel Requirement

Forest Conservation¹⁸:

The National Forest Policy of India (1988) recommended that one-third (33%) of our land should be under forest cover. But today, the forest cover has reduced to merely 12%. Per capita forest area available in India is 0.06 hectare as against 0.64 hectare of the world's per capita forest area. We have almost reached a critical state which must be remedied before it is too late for our own survival. Some conservation strategies have been listed as follows.

1. Conservation of Reserve Forests-Reserve forests include National Parks, Sanctuaries, Biosphere Reserves

2. Production Forestry-Production of commercial forestry is intended entirely for commercial purposes to meet the needs of the forest based industries.

3. Social Forestry-Social forestry is based on public and common land to produce firewood, fodder, fruits and small timber for rural community.

4. Agro Forestry-Same land is used for farming and forestry by taungya (growing crops between rows of trees) and jhum (shifting crop and forest cultivation) techniques.

5. Urban Forestry-It aims at growing ornamental and fruit trees along roads, parks or vacant lands.

In 1969, forestry in India underwent a major change with the passage of the Forest Rights Act, a new legislation that sought to address the needs of forest dwelling communities that resulted from the failure to record their rights over forest land and resources. It also sought to bring in new forms of community conservation.

Forest reserves and Acts/Constitution^{19,20}: The need for protection and conservation of environment and sustainable use of natural resources is reflected in the constitutional framework of India and also in the international commitments of India.

Some of the important legislations for environment protection are as follows:

- The National Green Tribunal Act, 2010
- The Air (Prevention and Control of Pollution) Act, 1981
- The Water (Prevention and Control of Pollution) Act, 1974
- The Environment Protection Act, 1986
- The Hazardous Waste Management Regulations, etc.
- The Wildlife Protection Act, 1972
- The Forest Conservation Act, 1980
- Biological Diversity Act, 2002
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
- Compensatory Afforestation Fund Act, 2016

Other Important things :

➤ The Environment and Forests Division provides relevant strategic and technical advice across key elements of policymaking and disseminates best practices to protect our environmental resources—water, land, and forests. The Vertical intervenes to resolve inter-sectoral and inter-departmental issues between Central/States/UTs/other stakeholders to ensure smooth implementation of projects for national development. Ministry of Environment, Forest, and Climate Change is an important line ministries/relevant Stakeholders in govt²¹.

➤ A new version of FSI Forest Fire Alerts System (Version 3.0) was launched in 2019 by adding several new features to the earlier Version 2.0. A major improvement over the previous version is the addition of large forest fire monitoring which identifies and tracks large fires in an automated manner²².

Conclusion and suggestions:

The importance of forests cannot be underestimated. Dependence on forests for survival, from the air needed to breathe to the wood used. Besides providing habitats for animals and livelihoods for humans, forests also offer watershed protection, prevent soil erosion and mitigate climate change. They provide ecosystem services that are critical to human welfare (Absorbing harmful greenhouse gases that produce climate change, a trillion tons of carbon is stored in above and below ground biomass, Providing clean water for drinking, bathing, and other household needs, Serving as a buffer in natural disasters like flood and rainfalls, Providing habitat to more than half of the world's land-based species). Yet, despite our dependence on forests, we are still allowing them to disappear²³.

However, forest resources could be saved by adopting some effective measures like implementation of National Forest Policy (Joint Forest management to involve local villages worked together to manage forest), Conservation of Reserve forest, Local People Involvement, Adopting afforestation Scheme, Increasing Forest Productivity (Proper Forest Management, Supplying proper nutritional demand to the plants by inorganic and

organic fertilizer, Controlling disease, pests and weed by adequate insecticides, pesticides and weedicides, Use of advanced technique for forest tree breeding and tissue culture method)²⁴.

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A Study of Fertilizers Use in Satara District**Mr.Prakash Krishna Tone**

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Abstract:

The present Research paper is the use of fertilizers in satara district. The Researcher has studied the use of fertilizers in satara district in its whole sense. The Researcher has found that farmer has use the organic and Inorganic Fertilizers like Dunk, Compost, Chemical, Green, Vermin Compost, Poultry etc. in study area.

Key Words : Fertilizers organic and Inorganic Vermin Compost Green.

Introduction:

Agriculture has played an Important role in the economic development. Agricultural productivity has to much depend upon use of fertilizers. Fertilizer has play vital role in Agriculture Development. Fertilizer help to increase the production and food production. Fertilizer role is provide nutrient not available in the soil, Replace nutrient removed at honest. India's agriculture is heavily dependent on the usage of fertilizers. Chemical substances such as fertilizers and pesticides are used by farmers in a bid to increase crop yield. The long term potential for increase in fertilizer usages is made rutely high in India.

Objectives:

1) To study the use of various types of fertilizers in study area.

Research Methology:

This Research paper data has collected both Primary and Secondary Sources

Primary data :

The primary data was collected through intensive fieldwork with the help of questioner, interviews and personal discussion with the farmers, agricultural experts, other relevant persons and authorities.

Secondary data:

The secondary data was collected from the District and State Census Reports and Statistical Abstracts, Epitome of Agriculture in Maharashtra Part-II, Season and Crop Report, Economic Survey of Maharashtra District Gazetteers and some unpublished records. Some data were collected from Zila Parishad, Panchayat Samiti, and Village Revenue Officer and from different government office like irrigation, Agriculture Animal Husbandry, Public Work, Regional Transport Office, District Dy. Registrar Office of Co-operative Societies and Soil Conservation Department etc.

Research Methodology and Sampling Design:

The present study was conducted using a sample survey methodology and we have used a random sampling method for selecting the samples. Total 300 respondents were selected from Mahabaleshwar, Patan and Jaoli Tehsils of the Satara district. Total 100 respondents were selected from each Tehsil for in-depth investigation.

Sampling Design:

In the present research work 30 villages are selected from three Tehsils in which the researcher has selected randomly 10 villages from three major Tahashils such as 10 villages from Mahabaleshwar Tehasil, 10 villages from Jaoli and 10 villages from Patan Tehsil. Beside this 10 farmers are selected randomly from each village based on the appropriate representation of the economic and social status of the farmers that are form marginal small, Medium and big categories of landholding. Hence, the study covered 300 farmers from 10 villages of Mahabaleshwar Tehsil, 100farmers from 10 villages of Jaoli Tehashil and 100farmers from 10 villages of Patan Tehashil Thus, total 300 sample farmers from these three Tehashils are selected.

The Study Area:

This study covers a hilly area of Satara district particularly Mahabaleshwar, Jaoli and Patan Tehsils.

Review of Literature :

C.G. Rande: Examined the impact of plant fertilizer patterns and irrigation on agricultural output is per hectare in 54 agro-climatic regions covering 16 major states during the pre-green revolution era from 1960 to 1965 and then the post-green revolution period.

Use of Organic and Inorganic Fertilizers**Table No. 1.0****Use of Dunk (Kg Per Ha)**

	Tahsil			Total
	Patan	Jaoli	Mahabaleshwar	

Dunk (Kg Per Ha)	.5	0	4	2	6
	1.0	16	35	18	69
	2.0	31	27	34	92
	3.0	19	12	12	43
	4.0	10	7	11	28
	5.0	12	8	4	24
	6.0	5	3	2	10
	7.0	1	1	0	2
	8.0	3	1	0	4
	10.0	3	0	4	7
Total		100	98	87	285

Table No. 1.0 depicts that most of the famers are using 0.5 to 4 kg dunk per accer in the study area. In the study area we observed that 92 farmers are using 2 Kg dunk in their farm. We found that only 7 farmers are using 10 kg dunk in their farm. It is also observed that 15 farmers are not using dunk in their farm only 285 farmers are using dunk in their farm.

Table No. 1.1
Use of Compost Per Ha in Kg

		Tahsil		Total
		Pathan	Mahabaleshwar	
Compost (Kg Per Ha)	2	1	0	1
	3	1	0	1
	50	0	1	1
	500	0	5	5
	600	0	2	2
	800	0	7	7
	900	0	1	1
	1000	0	2	2
	1500	0	1	1
	1800	0	1	1
Total		2	20	22

Table No 1.1Indicates that the use of compost per acre In kg. It depicts that very few respondent are using the compost for agricultural activities in study area. Only 3 respondents are using compost of 2kg to 50 kg and 19 respondents are using the compost 500kg to 1800kg.

Table No. 1.2
Use of Chemical Fertilizers (Kg Per Ha)

Kg Per Ha	Pathan	Jaoli	Mahabaleshwar	Total
0 to 5 Kg	79	69	24	172
6 to 10 Kg	13	19	49	81
11 to 20 Kg	3	9	17	29
21 to 44 Kg	0	0	6	6

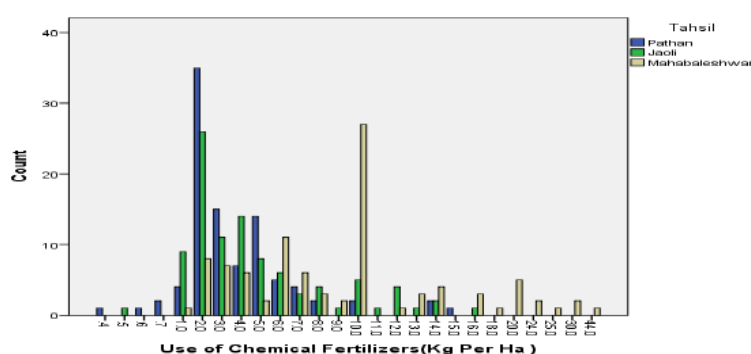


Table No 1.2 Indicates that the use of chemical fertilizers for farming in study area. It is found that most of the respondents are using chemical fertilizers. Table indicates that the 172 respondents were using the chemical fertilizers out of 300 respondents. It is also found that 81 respondents of the respondents using 6 to 10 kg chemical fertilizers. We observed that most of respondents using chemicals for agriculture.

Table No. 1.3
Use of Green Fertilizers (Kg Per Ha)

	Kg Per Ha	Tahsil		Total
		Jaoli	Mahabaleshwar	
Use of Green Fertilizers (Kg Per Ha)	40	1	0	1
	50	1	2	3
	60	1	0	1
	150	0	1	1
	200	1	0	1
Total		4	3	7

Table No 1.3 shows the detailed statistics of use of Green fertilizer in agriculture. The data indicates only 4 farmers are using Green fertilizer in agriculture; farmers from mahabaleshwar tahsil only 3 farmers are using green fertilizer in agriculture out of 7 farmers 3 farmers use of green fertilizers 50 kg per . In Patantahsil there is no one farmer using green fertilizers.

Table No. 1.4
Use of Vermin Compost (Kg Per Ha)

Kg Per Ha	Tahsil			Total
	Pathan	Jaoli	Mahabaleshwar	
2	1	0	0	1
40	1	0	1	2
50	0	2	0	2
100	2	3	2	7
150	1	0	1	2
200	1	0	12	13
300	1	1	12	14
400	0	1	1	2
500	0	2	14	16
600	0	2	1	3
700	0	0	4	4
800	0	0	2	2
1000	0	0	1	1
1500	0	0	1	1
2000	0	0	1	1
Total	7	11	53	71

Table no. 1.4 indicates the detailed information about the use of Vermin Compost in the study area. It is found that there are very few farmers are using Vermin Compost for the agricultural activities. Data shows that only 71 farmers are using Vermin Compost in the study area. Out of the total study area 7 farmers belongs to Pathan, 11 farmers are belongs to Mahabaleswar and 53 farmer belongs to the Jaoli Tahsil. Overall data shows that there is much more use of the Vermin Compost in Jaoli Tahsil in the study area.

Table No. 1.5
Use of Poultry Fertilizers (Kg Per Ha)

	Tahsil		Total
	Pathan	Mahabaleshwar	
1	1	0	1
80	0	1	1
200	0	1	1

300	0	1	1
340	0	2	2
500	0	2	2
900	0	1	1
2000	0	1	1
Total	1	9	10

Table No. 1.5 Indicates the use of poultry fertilizer in study area the data shows that only few farmers make use of poultry fertilizer and out of 300 farmers only 10 few use the poultry fertilizers. In study region mahableshwarTahashil 9 farmers use the poultry and in Patantahsil only 1 farmer make use of poultry fertilizer. In JawaliTahashil there is no any respondent found that who are using poultry fertilizer in agriculture.

Findings:

To study the use of organic and inorganic methods adopted by the farmers in the study region we have studies this aspect of the agriculture sector and we found the followings findings;

- Most of the farmers are using dunk fertilizer and Chemical Fertilizers but very few farmers are using compost, Vermin Compost, Poultry Fertilizers and Green Fertilizers in their farm.
- For the knowing the applicability and usefulness we collected responses about usefulness of fertilizers 259 of the respondents said that
- We observed that out of 300 farmers 285 farmers are using dunk in their farm, however the level of use is very lower. They are using dunk along with the chemical fertilizers.
- It is found that out of the 300 respondents 296 respondents mentioned that the compost fertilizers are more productive and only 4% respondent mentioned that the use of compost fertilizers is not productive.
- However, e observed that most of the farmers perceived that the chemical fertilizers are most productive for the current agriculture activities.

Suggestions:

- On the basis of empirical findings and discussions made with the respondents and policy makers we have recommend the following recommendations and suggestions for betterment of the farmers' community.
- Some of the farmers are using compost, vermin compost, poultry fertilizers in their farm however, the ratio of the users is very low hence, there is need to promote them for more use of these fertilizers. It can be leads toward organic farming.
- In the study region most of farmers spending more money onchemical fertilizers. It creates diseconomies in the agriculture. If we succeed in the creating awareness about the organic and conventional fertilizers this cost will declined and it will able to create many types of economies and cost effectiveness in the agriculture sector

Conclusions:

After in depth investigation and analysis empirical data we found that's use of fertilizers in Agricultures is not proper .farmen use fertilizers in low ratio in study area We also found that use of chemical fertilizers is very high compare to organic fertilizers some of farmers are using ,compost .vermin compost , poultry fertilizers in their farm however the ratio of uses is very low.on this background we should recognise their problems and execute the proper policy for betterment of farmers.

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Role of Road Transport in Indian Economy

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Abstract:

Transport plays an important role for Indian economy of any country by providing basic infrastructure for systematic and timely movement of raw materials and industrial products from surplus zones to deficit zones and easier accessibility of people to different regions of a country. The important role that transport plays in economic development is well recognized, a country cannot progress economically unless it has a very good system of transport which links its variable part together and also different parts of the world. The importance of transport in national economy has been explained in this paper and also socio economic significance of transport, road transport definition is given in this paper.

Introduction:

The living conditions of men have been influenced by their capacity to move from one place to the other from the earliest times. By harnessing nature directly and indirectly man has been able to explore and exploit the earth's resources. The early man was a wanderer of necessity rather than choice. Food was scarce and hard to get and this necessitated the invention of the vehicle to carry loads. Techniques were invented for carrying loads through different means of transport. From this developed the y-shaped sledge or travois the slide car, sledges and skis animal transport and water transport. In the early stages of civilization men were nomadic with the development of permanent settlements, nomadic culture gradually faded with the passing of time, the hunting, agriculture, trading and pastoral economics of these settlements required movement. Technological innovation facilities developing specialization in social organization transportation systems in operation are reflections of the decisions and actions of individuals with optional means of movement.

Objectives:

1. To study is to explain the importance of transport sector in economic development.
2. To study developing of road transport sector in India.
3. To analysis social-economic significance of transport.

Research methodology:**Data Collection:**

Present research paper has depends on secondary data. The secondary data has collected from Books, Research papers articles, variable website etc.

Meaning

According to the definition and general usage of the term transportation means simple the movement of persons and good from one place to another. But on careful observation it will be evident that the different aspects of transportation are complex and complicated. With the rising need for constant movement and demand for quicker and safer transport of various kinds, the pattern of transport is changing to meet the needs of the present and future generations.

Road transport_ Definitions:

Surfaced road – A road with a hard smooth surface of bitumen or tar

- **Highway** – is a main road for travel by the public between important destinations, such as cities and states.
- **Fleet Utilization** – average number of buses on road during the year average number of buses held during the year.
- **National Highways** – the arterial roads of the country for interstate and strategic defence movements. They traverse the length and width of the country connecting the national and state capitals, main ports and rail junctions and link up with border roads and foreign highways.

- **District Roads** –The branch roads of the state and national highways to serve as the main roads for intra-district movements. They traverse the length and breadth of a district to connect the areas of production and marketing in the district to one another and to the national highways.
- **State Highways** – the arterial roads in a state for inter-district movements. They traverse the length and width of a state connecting the state capital, District headquarters and important towns and cities and link up with the national highways and adjacent state highways.
- **Main District Road** – district roads for which higher specifications are prescribed.
- **Other District Road** - district roads for which lower specifications are prescribed.
- **Rural Road** – other district roads plus village roads for which the specification prescribed are lower.
- **Road Density** -geography area or population of India.
- **Village Roads** – these roads serve as the feeder roads of the other highways as well as the roads for inter village movements. They pass through rural area connecting the village to one other and to the nearest district roads, state highways, national highways, railway roads.
- **Urban Roads** –a road within the limits of the area of municipality, military cantonment, port or railway authority.
- **Project Roads** -a road within the limits of the area of a development of a public authority for the exploitation of resource like a forest, irrigation, electricity, coal, sugar-cane, steel etc.

History of Road Transport –

India which is considered to be having civilization from age-old times has records of the existence of transport systems even in five thousand B.C. In Vedas particularly in Athava Veda the construction and maintenance of road and the means of transportation were mentioned Vimana (aeroplane) was described in the Vedas which was supposed to be used for aerial transport. The excavation at Mohanjodaro in Sindh and Harappa in Punjab revealed that in the ancient cities which existed in 3400 and 2400 B.C. Mauryan kings realizing the necessity of transport paid great attention for the construction and maintenance of the roads since it is the only developed mode of transport.

Important Role of Transport Service in National Economy:

The link between transport infrastructure and economic development such as giving water to a tree. The key factor which largely influences the economic growth process is clearly the transport infrastructure. According to the world development report 1994, infrastructure capacity grown in concert with economic output, the important of transport in national economy has been explained below:

1. Transport help to create new economic activity.
2. Transport is the basic service for increasing national income.
3. Transport enlarges the trading activities of a nation.
4. Transport influence daily life of the people.

Socio – Economic Significance of Transport:

1. Transport promotes industrialization.
2. Transport system provides access to rural area.
3. Transport system is a catalyst of the Socio-Economic development.
4. Transport system provides the vital linkage between production and consumption.
5. Transport is the key factor to link dispersed areas.
6. Transport increases the economic efficiency of resources.
7. Transport provided mobility of labour and boost tourism industry.
8. Transport creates competitive environment.
9. Transport promotes social welfare.
10. Transport help to stabilize price.
11. Discovery of new market.
12. Transport curbs monopoly of the trader.
13. Transport provided large employment opportunities.
14. Transport is helpful in funding revenue to the Govt.

Conclusions:

Road development in India was taken up in the framework of two perspective plan called Nagpur plan (1942-60) and Bombay (1960-80) recently the third development plan for 1980-2000 has been drawn up to sustain planned road construction. Transport is very vital key factor for economic development.

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Sustainable Development Goals: India's Challenges**Vitthal Haribhau Nagre**

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Abstract

The world's economies have banded together to achieve sustainable development goals. This is in stark contrast to previous practises, in which governments sought to achieve economic growth and development goals. The pursuit of excellence and expansion has caused an imbalance in economic development across countries, depleted some natural resources, and shifted the ecological balance. Global warming and climate change are two examples of the consequences of this. Because this puts human life on the planet in jeopardy, a path of action that ensures a safe environment for future generations has become critical. Sustainable development is a phrase coined to ensure that development is carried out in such a way that natural resources are preserved and passed down to future generations without degradation. This study attempts to comprehend India's problems in reaching Sustainable Development Goals and presents recommendations for how to overcome them.

Key Words: Ibrahim Index of African Governance (IIAG), Millennium Development Goals (MDG), Sustainable Development Goals (SDG).

1. Introduction

The term "sustainability" has become a buzzword in the world society. The pursuit of excellence and expansion has caused an imbalance in economic development across countries, depleted some natural resources, and shifted the ecological balance. Because this puts human life on the planet in jeopardy, a path of action that ensures a safe environment for future generations has become critical. Sustainable development is a phrase coined to ensure that development is carried out in such a way that natural resources are preserved and passed down to future generations without degradation. Seventeen Sustainable Development Goals (SDGs) have been devised with the goal of making the world more rich, egalitarian, and secure by 2030. They were accepted by 193 Member States as part of their Sustainable Development Agenda at the United Nations General Assembly Summit in September 2015. India is a signatory to this summit and is dedicated to the 2030 Agenda for Sustainable Development.

Current study attempts to comprehend the problems that India faces in fulfilling the Sustainable Development Goals at this time. The report also makes an attempt to propose solutions to the problems.

2. Goals For Sustainable Development

The Sustainable Development Goals (SDGs), which took effect on January 1, 2016, are a step forward from the Millennium Development Goals (MDGs)

In terms of the MDGs, India has made significant progress in the areas of basic universal education, gender equality in education, and global economic growth. However, improvement in health indicators such as mortality, morbidity, and different environmental variables contributing to poor health conditions has been gradual.

With the SDGs in place, the Indian government is now attempting to merge MDG-related efforts with SDG-related efforts. SDGs have a broader scope.

The following are the 17 SDGs:

Sustainable Development Goals

Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster

	innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts*
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

Source: www.un.org/sustainabledevelopment/sustainable-development-goals/

Sustainable Development Goals have been built on the universal principle of 'leave no one behind'. As far as India is concerned, the national development goals of India, converge well with the SDGs and India is expected to play a leading role in determining the success of the SDGs, globally.

3. Measures Taken In India To Implement SDGS

The coordination of the SDGs has been given to NITI Aayog, the Government of India's primary think institution. States have also been asked to map their systems, including those funded by the federal government. Furthermore, the Ministry of Statistics and Programme Implementation (MoSPI) is working to produce national indicators for the SDGs. The SDGs are at the heart of several of the government's key programmes, including Swachh Bharat, Make in India, Skill India, and Digital India. Many of these programmes rely heavily on state and municipal governments. Visioning, planning, budgeting, and building implementation and monitoring systems for the SDGs are all priorities for state governments.

4. India Receives Un Support For Sdg Initiatives

The UN in India encourages civil society organisations, think tanks, and the Indian media to participate in talks and side sessions at the International Conference on Financing for Development in Addis Ababa, as well as during the United Nations General Assembly in New York. The United Nations Country Team in India supports NITI Aayog in its efforts to address the objectives' interconnection, ensuring that no one is left behind, and lobby for enough funding to achieve the SDGs. The UN has supported thematic dialogues on the SDGs to bring together various state governments, central ministries, civil society organisations, and academics to discuss on specific SDGs in close coordination with NITI Aayog and partners.

5.State Government Assistance

The UN in India is now assisting five state governments (Assam, Chhattisgarh, Gujarat, Haryana, and Odisha) in localising the Sustainable Development Goals to solve important development concerns at the state level.

6. India's Challenges In Achieving The SDGS

In order for India to achieve the SDGs 12, four areas have been recognised as areas of concern. They'll be mentioned farther down.

Indicators to Define

Developing appropriate metrics to adequately monitor the development of the SDGs is one of India's biggest difficulties. India's track record reveals that it has struggled to establish useful indicators for measuring outcomes. The availability of hand pumps and tube wells has muddled the definition of "safe" drinking water, and official figures claimed that 86 percent of Indians had access to safe drinking water, putting them "on track" to meet the MDG objective on drinking water. In India, however, the number of waterborne infections and diarrhea-related mortality is relatively significant.

SDGs Funding:

India has the biggest number of people living below the international poverty line, despite its best attempts to eradicate poverty. According to a World Bank estimate from 2013, 30% of the population lived on less than \$1.90 a day. 13 Despite rapid economic growth, one-third of the world's 1.2 billion extreme poor lived in India alone in 2010, according to the United Nations MDG 2014 report. 14 At today's levels of public and private investment in SDG-related industries in poor countries, a \$2.5 trillion yearly financing gap remains between 2015 and 2030. 15 Only greater private sector investments, particularly in infrastructure, food security, and climate change mitigation, can close this gap.

Ownership and Monitoring:

Ownership would be a third big difficulty in fulfilling the SDGs. Though NITI Aayog is expected to take the lead in tracking SDG achievement, some members have expressed misgivings about the organization's ability to handle such a massive assignment.

Progress Evaluation:

The final problem is determining how to assess the development or achievement of the SDGs. The Indian government has stated that a lack of data (especially at the subnational level), periodicity challenges, and poor administrative data coverage have made proper monitoring of even MDG achievement nearly impossible.

7. Efforts To Overcome Obstacles

The issues mentioned above can be addressed by creating a unique methodology for implementing, monitoring, measuring, and reporting SDG-related actions. Though India has well-established agencies to supply statistical data, such as the CSO, the data is frequently broad and does not meet specific requirements. Even in the instance of the Millennium Development Goals, India was unable to adequately assess its progress due to a lack of data. As a result, developing appropriate indicators to measure the development of the SDGs, as well as a system that can support this effort by providing the necessary data, is critical.

8. The Responsibility Of Implementing SDGs

With the NITI Ayog voicing doubts about how far it will achieve in this difficult endeavour, it is past time for the Indian government to decentralise it, keeping in mind that SDGs aim to conserve and pass on natural resources to future generations. This cannot be accomplished without the participation of society. However, it is practically impossible for a society with such knowledge to use its natural resources in an ecologically healthy manner. Changes in social, political, cultural, technological, and ecological conditions will put fresh strains on the natural resource base, and the risk of mismanagement or exploitation will always exist. As a result, a political system in which people who would experience the repercussions of decisions make decisions would be optimal. It is necessary to develop a new structure that ensures participation from groups that are directly affected by the situation.

9. Conclusion

India is the world's second-largest country by population. To the rest of the world, India's efforts to attain the SDGs are critical. If India achieves the SDGs, it will signify that a larger portion of the world has done so. As a result, India must create efficient mechanisms for implementing, monitoring, and measuring the SDGs' progress. The establishment of appropriate indicators appears to be India's largest issue. This can be addressed by creating an Indian Index for Sustainable Development (IISD), which is based on the Ibrahim index.

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Fruits Export Potential in Market Integration With Reference to India

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Abstract:

Goods and services are increasing their contribution in the market integration. The process of market integration growing day by day. Since ancient era India has involved through its trade of goods and services. However, the present paper will guide the changing nature of India's horticulture specific fruits trade.

Research Methodology: The data and information collected from various types of existing research - books, journals, magazines, periodicals, FAO, UNCTAD, IMF, WTO, RBI and Ministry of Agriculture GOI would use to support arguments or to examine objectives.

Major Findings: An outcome of this paper will be helpful to enhance the performance of fruits vegetable flowers during the process of market integration. The same paper will find the problems of selected commodities at international trade.

I. Introduction:

The participation of a nation in global trade depends upon its internal and external factors. In the process of globalization, a nation can gain by increasing its trade of primary, manufacturing, or service sectors. In the beginning, the developing economies were the exporters of primary products but in current times they are becoming the exporters of manufactures and services. On the other hand, developed countries are the exporters of all primary, manufactured and service sectors' products. Developing and less developed countries depend upon the developed economies for economic growth. Developing and less developed economies also expect technological, technical, and financial aid from the developed or advanced economies. The process of globalization increases the trade volume of developed, developing and less developed countries. However, in globalization every nation can grab some advantage by knowing its own individual potential. India ranks second in fruits and vegetables production in the world after China. However, its share in the global market is still nearly one percent only. On this backdrop that, it was realized, that there is a great potential for undertaking research in the trade of FVF's. This paper seeks to evaluate the present and prospects of horticulture specific fruits of a developing country and India in particular. The trades of certain primary products have a capacity of employment generation, growth in national income and obtain foreign reserves. Developing countries have considerable potential in the agricultural products. According to the past researchers, in developing countries there was a considerable increase in the value of intratrade agricultural product during the period 1960-62 and 1980-82, it increased 11.7 per cent per year. As against during the same period developed countries agriculture products increased by 8.2 per cent. So, there is a constructive role of intratrade in the economy of developing countries as regards to agricultural products (Islam, 1992). The Latin American and Asian countries have given their considerable share in the export of agricultural commodities. The growth in export of agricultural commodities helps to earn economies of scale in some cases. It also encourages the modernization of production, marketing, quality, and post harvesting process. The agriculture trade among the developing countries has good prospects in the global market. Developed countries are the major market source for developing countries of agricultural products but due to decline in rate of population of developed countries, the trade expands slowly. In the process of globalization, agricultural product can also become a major source of export earnings for developing countries. The approach of more export earnings is an important factor for rapid economic growth. In the process of globalization, not only developed economies but developing countries also expand their market. But the traditional agricultural exports of developing countries such as tropical beverage and agricultural raw material face slow growth in global market. Due to certain subsidies of developed countries, most of the traditional agricultural product cannot compete in the market (Ingco & Nash, 2004). Naturally, there is a need to identify the nontraditional agricultural exports, which will be the source of export earnings. In the global trade, horticultural commodities are increasing its share rapidly. Developing countries can reap the advantages by improving their horticultural commodities exports.

II. Horticulture of Developing Countries in Market Integration: The various types of soil, climate, and labor abundance are the strength of developing countries, and with the help of this strength they can speedily enhance their exports of horticultural commodities. In the integration of market, developing economies are contributing along with developed economies by its horticulture crops export. The share of horticulture exports

in most of the developing countries is more than 25 per cent of total agricultural exports. The horticulture exports shares of developing countries in world horticulture increasing day by day. The Indian export of agricultural commodities has given a poor performance. The implementation of appropriate policy and internal drawbacks are responsible for the decelerate performance of agriculture exports. As compared to service and industry sector, agricultural sector is facing a lot of internal and external problems in export promotion like illiteracy of farmers, less financial aid, transports, fluctuations in domestic and international prices and subsidies of developed countries to their farmers. The agriculture sector of the developed countries has based on the commercial nature. The farming of developing or less developed countries remains a source of livelihood. There is a need to change such attitude in the process of globalization. India should find out some potential in this sector for reaping more benefits from the globalization.

Due to the variation in weather and soil, the developing countries can produce various types of fruits, vegetables, spices, aromatic, ornamental and medicinal plants, and plantation crops. The use and growing of fruits and vegetables is an inherent potential of most of the developing countries (Singh et al. 2004). U.S. and Germany were the largest importers of vegetables till 2000. During the same year, these two countries grab one-fourth share of total import in vegetables. U.K., France, and Japan are big markets for vegetable producers after U.S. and Germany. As far as fruits and nuts are concerned, in 2000 USA was the top importer and largest exporter. However, UK, France, Japan, and Germany are major importer of fruits and nuts. Flowers are one of the important products from the category of horticulture. Flowers are used for various occasions like social, culture, and religious. The flowers, ornamental, and aromatic products are produced on the basis of commercial approach. Ornamental horticulture is key products, and they cover considerable share of flower industry. In current times instead of live plants and dried flowers the cut flowers consumption is increasing drastically.

Among the horticultural product fruits, vegetables and flowers have increased their export contribution. Due to the changing pattern of consumption, expenditure and less trade restriction, the developing countries are increasing their participation of fruits and vegetables exports in the global market. Trade of fruits and vegetables has a potential to raise the income and the developing countries have a capacity to meet the increasing demands of various types of fruits and vegetables. Trade in such type of horticulture products is an attractive market for the developing countries but there is a need of proper policy, advanced technology, post harvesting handling, and processing. Against the volatility in the price of traditional products the exports of fruits and vegetables can take more advantages at international market. The fresh fruits and vegetables exports share of developing countries to total agriculture exports; accounted 16.7 per cent in 1980-81 this share had increased to 21.8 per cent in 2000-01. As compared to other products the exports of fruits and vegetables from developing countries are more than double for tropical beverage; five times for sugar exports, seven times for textile exports, three times for grains exports, and three times exports for livestock product (Diop & Jaffee, 2005). During the period 1981-97, the markets share of developing countries in world agriculture exports declined but in the context of the market share of fruits and vegetable exports slightly increased. During the same period the market share of fruits and vegetables of developing countries is low but the growth in exports of fruits and vegetables as compared to the total agricultural exports is fast. As compared to the developed countries, such exports growth of developing countries is also rapid. In late 1980s the exports of fruits and vegetables has grown tremendously in most of the developing countries (Shah, 2007).

III. Swiftness of Horticulture in Indian Economy : Late 1960s was a period in which India had faced the problem of shortage of food grains. The Green revolution in mid 1960s was a milestone in the history of Indian agriculture. During the period from 1950-51 to 2004-05 India has increased food grains production from 50.8 to 206.4 million tones. India has proved its ability of food production through various types of measures. India has a capability to gather benefits from various types' agricultural commodities by using natural resources. From the category of primary products all products growth ratio is not the same; some are doing well while some are not. Meanwhile, the horticultural crops are performing well from the export's basket of Indian economy. It is possible to increase export earnings from the horticultural crops by implementing appropriate government policy.

As far as India's export performance is concerned, Maize is the product whose exports have increased rapidly and become attractive with \$600 million in 2007-08. Rice is the major cereals because this item has also increased from \$641.84 million in 2001-01 to \$2, 920.12 million in 2007-08. This growth was more as compared to Africa, west Asia and Asian neighbors. Meat is another item which has grown rapidly. It has increased from \$321.70 million to \$931.75 million in 2000-01 and 2007-08 respectively. But from the category of 'meat and preparation' buffalo-meat has a lion's share in exports performance. It significantly increased at \$875 million in 2007-08. Last but not the least, fresh fruits and vegetables are also dominant horticultural

products from the export basket of primary sector. This is known as an emerging product in globalization. In 2007-08 it contributed \$726.74 million while it was \$184.59 million in 2000-01.

India is a one of the major producers of fruits and vegetable. India ranks first in the combine production of fruits and vegetable in the world. It has a potential to perform well at international market in crops like mango, banana, pineapple, strawberry, kiwi, apple, passion fruits, roses, anthuriums, illumes, orchids and other cut flowers and in high value vegetables. The share of Indian agriculture exports had declined from 31.7 per cent in 1970-71 to 17.6 per cent in 1992-93. But the horticulture sector has created a hope of rays from the export side. From the category of horticulture, exports of fresh fruits and vegetables have recorded a growth rate of about 24 to 25 per cent in quantity and value during the same year. The export of fruits increases day by day from India. The export earnings of fresh fruits increased from Rs. 726.5 million to Rs. 2384.48 million in 1998-99. Among the group of fruits, mango occupies a major share with Rs.791.37 million. Other fruits like grape, walnut, citrus, banana, apple, litchi, guava, custard apple, pineapple, papaya and tamarind have also been in demand in the domestic as well as in the international market. Countries like Zimbabwe, Kenya, and South Africa have experienced over time a sustained growth and expansion in their export earnings from non-traditional agricultural products. Such countries have become the emerging market leaders for some products, like pineapple, French beans, baby corn, cut flowers, papaya and mangoes. Indian soil and weather have a potential to produce various types of vegetables. The total amount from exported vegetables was Rs. 2104.23 million in 1998-99. With a share 83.66 percent onion become the major vegetable in this group of vegetables. India continues larger exporter of onion and sometimes India ranked second after the Netherland in onion exports. However, due to excess in production and government policy, onion creates problems in domestic market. Other crops like tomato, cucumber, are also playing vital role in exports basket of vegetables. Not only in the developing but in the developed countries also, horticulture has become an integral part of agriculture sector. It has offered huge choices to the farmers for crop diversification. It also provides opportunities to maintain agriculture base industries which create ample employment opportunities. The introduction of new crops such as bamboo, mushroom, and bee keeping has increased the scope of horticulture in the process of globalization. Due to barrier less investment in globalization, it is an opportunity for investors who want to invest their funds. According to the Indian Flowers and Ornamental Plants Welfare Association (IFOPWA) India is the fastest growing retail market in the business of floriculture.

India has established National Horticulture Board (NHB) and launched National Horticulture Mission (NHM) to reap more benefits of horticulture products in globalization. The objective of such board and mission is to enhance the share of horticultural crops at international market. For reaping more and more benefits from the market integration India has taken many projects which involve financial and technical collaboration with well-established international companies. As a part of boosting flower exports, Indian government has approved 26 projects between August 1991 and July 1994. The Harrison Malyalam, Essar Agrotech, Indrayani Biotech, Randeep, Flora Fresh and Deccan Florabase were interested in Indo Dutch collaborations in floriculture in 1994. Moerheim and Flodac bv both are major Dutch companies collaborating with Indian companies for propagating planting material. Except these two companies' other companies like Alered Vahldiek GBR, Multiflor Holland NV, Hatt The Netherlands, Chr. Haeusler AG, Harder Nurseries, Dalsem Horticultural, and Floriclone Indo-Holland are the foreign collaborator with Indian companies (Prasad & Kumar, 2003). Such kinds of efforts will increase the Indian floriculture market. The fragrant flowers like rose and lavender champak are useful for perfume industry. In the integration of world market, it is easy to access the raw material, which is useful for perfume industry. Countries like Israel, Kenya, Columbia and Italy have become the destination floriculture industry.

IV. Conclusions:

During the process of market integration FVF have an integral part not only in the world agriculture trade but in developing countries trade as well. Due to changing pattern of expenditure and consumptions, innovation in transportation and communication the share of these commodities to world market is increasing day by day. Fruit and fruit products and vegetables and vegetables products are contributing as one of the key commodities in the horticulture trade of developing countries. Fruits and vegetables exports rose much faster in relation to total agricultural exports in developing countries during the period. China, India, Brazil, USA, Italy, Spain, Mexico, Iran, Philippines and France are the major producers of fruits and vegetables. Asia dominated in the production of vegetables. China, India, E.U. and USA are the important nations in the vegetables production. India is one of the largest producers of fruits and vegetables. However, its exports share to world market is not considerable relative to production, since its own market is large.

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Depiction of Place and Geography in the Novel, *How Many Miles to Babylon?* : An Ecocritical Perspective

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Abstract

The present research paper aims at to analyse the depiction of place and geography in the novel, How Many Miles to Babylon? The researcher intends to apply an ecocritical perspective to interpret the place and geography portrayed in the novel and understand its impact on the psychology of the characters emotions, feelings and behaviour. The setting of the novel is taken into consideration for the study. As a result of the study, the conclusions have been drawn that the place and geography influence the behavior of the characters in the novel.

Key words: Place, Geography, Ecocriticism

Rationale of the study:

People-place relationship is prime concern of the present time. His association with the surrounding is unique. The geographical surrounding where he lives and grows has immense significance for his own identity and comfortable survival. Place matters much more than any other factors. His total mindset is connected with his surrounding as it provides comfort, mental stability and sense of belonging. Thus, the study of place and geography in relation with the human beings is important to understand sense of belonging and its influence on the behavoiur of someone.

Objectives of the Study:

- 1) To study depiction of the place and geography in the novel.
- 2) To interpret the influence of environment on the behavior of the characters.

Hypothesis:

Jennifer Johnston's novel, *How Many Miles to Babylon?* reveals the impact of place on the emotions and behavior of the characters. The characters exhibit place attachment and belongingness throughout the novel.

Methodology:

The researcher will follow interpretative and analytical method for understanding the novel.

About the Novel:

Jennifer Johnston is one of the most unsurpassed prolific Irish writers of the recent time. *How Many Miles to Babylon?* is her third novel published in 1974. The novel is an autobiographical documentation of the protagonist, Alec. The novel documents traumatic life experiences of the protagonist. The first experience deals with the protagonist's childhood life and the second event concerns war experiences. However, the novel exposes two settings: childhood life in a remote country in Warwick, Dublin in Ireland and the battlefield of the First World War in Flanders, Belgium. The novel recounts the personal past and the impact of the First World War on the human as well as physical environment of France.

Place and Geography: An Ecocritical Perspective

Ecocriticism is recent development in the field of literary criticism. It is an interdisciplinary approach that studies the relationship between literature and environment. Rising environmental consciousness of the people of the world gave birth to this new critical approach in literature. Man lives on planet earth and is consuming the natural resources uncontrollably for his benefit at the cost of higher loss of environment as well as his life. This approach studies the interconnectedness and the interdependence of the man and nature. The ecocritics study the representation of the nature as well as the role of physical setting in the novel. However, the relationship between the man and environment is reciprocal.

The term 'place' refers to 'location' in our everyday language. A sense of place is evoked through the physical environment. Place includes geographical space or location. Space is an abstract term that refers to geographical environment whereas place refers to a space to which meaning has been ascribed (Carter xii). Each place is typical, containing its climate, animal life, soil, vegetation and landforms.

Place plays very important role in one's life. According to Tuan the place has a felt value where biological needs of a person such as those for water, food, rest and procreation are satisfied (Space and Place 4). People have close bonding with their places as it provides security, comfort, satisfaction and rootedness. There is a strong sense of belonging. It may refer to a person where he lives and spends most of the valuable time such place includes a house, surrounding area, a country or nation. The place is so crucial that it adds meaning to

one's life and one's memories are related with it. The terminology of place invokes the relationship between people and their spatial-environmental settings" (Nielsen Pincus & Wulforth, 443). While defining the sense of place, Steele states that it is "the pattern of reactions that a setting stimulates for a person. These reactions are a product of both features of the setting and aspects the person brings to it" (Sense of Place 12). Place always influence the emotions and feelings of a person affecting his behavior. Sense of place has various dimensions including place attachment, place dependence and place identity. One's place attachment refers to his emotional bonding with the physical environment whereas place dependence connotes reliance of one on the natural resources that provides comfort. The place identity refers to "those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, beliefs, preferences, feelings, values, goals, and behavioral tendencies and skills relevant to this environment" (Proshansky 155).

Depiction of Place and Geography in the Novel:

However, the present study intends to understand the sense of place i.e. place belongingness, place dependence and place identity of the characters. The novel depicts Alec's journey from Dublin to Belgium and from there to other parts of France. Novel describes Alec's individual experiences of these places. Alec's stay at a remote country in Dublin among the natural surroundings is contrasted with his stay at Belgium on a war field. The nature and surrounding both differ. The physical and psychological impact of place and environment is contrasted in the novel. The atmosphere in the village is supportive and pleasing, whereas the atmosphere in Belgium is painful and destructive. The novel documents the ecological transformation of surroundings. Johnston points out the environmental problems caused due to world war, for example land degradation, loss of biodiversity and pollution. These are all anthropogenic activities that are responsible for ecological change. Power and politics is the basic reason behind environmental degradation. Johnston embodies her ecological concern in her characters and settings.

The sense of place belonging is strong in Jerry and Alec. Jerry does not feel connected with the place in Belgium. There is a closer psychological association with Ireland than France. France is still an unknown place and hostile but at the same time Ireland remains a sense of solace to Jerry and Alec. Jerry mentions his bond with Ireland saying, "When we get home we'll get a place of our own" (How Many 170). They are homesick of their own place. This place provides them security and comfort.

Conclusion:

Jennifer Johnston has very realistically depicted the place and environment in her novel. The place and geography plays very prominent role in the plot of the novel. It is closely associated with the characters in the novel. The characters feel very deeply connected with their place. There is feeling of belongingness about their native place. There is deep influence of the surrounding on the behavior of the characters.

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Judiciary - A Driver of Sustainable Development

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Abstract

A popular “mantra” in contemporary development korero is the term Sustainable Development (SD). In 2015, the United Nations adopted The Sustainable Development Goals (SDGs), also called as the Global Goals, as a universal call inorder to eradicate poverty, protect the earth and to ensure that by the year 2030, all people enjoy peace and prosperity. The Judiciary may be seen as a sharp-eyed protector of democracy. A major push towards environment preservation and balanced development in India has, no doubt, started from the Indian judiciary. It is important to mention here that the Legislature has recently started talking about sustainable development in some of its enactments. However, the acclaim for making sustainable development as a fundamental principle of the Indian legal system goes to the judiciary. Considering the number of legislations related to the environment in India, we find that there is no shortage of laws. However, still more needs to be done by the key players, particularly by the United Nations (UN), the governments, private sector, and civil society organisations, in terms of education, policies and regulation on economic, social and environmental resource management to ensure that everyone is aware, conscious, cultured and compliant with Sustainable Development. The purpose of this paper is to put forth the activism of Judiciary by illustrating the cases and its implications on mankind and on the environment and the actions taken in the quest for sustainable development.

Keywords : Sustainable Development, democracy, Legislature, UN, environment.

Introduction

“A rise in climate litigation cases has made courtrooms increasingly important as a venue for addressing climate change around the world, according to a report released on Tuesday by the UN Environment Programme (UNEP)....The UNEP Global Climate Litigation Report: 2020 Status Review, finds that climate cases have nearly doubled over the last three years and are increasingly pushing governments and corporations to implement climate commitments, while setting the bar higher for more ambitious climate change mitigation and adaptation.” was reported under the article *“Climate litigation spikes, giving courts an ‘essential role’ in addressing climate crisis”* on UN News Global perspective Human stories on 26th January, 2021.

“Around 58 per cent climate litigation cases concluded between May 2020 and May 2021 globally had outcomes favourable to climate change action, while 32 per cent had unfavourable outcomes, according to Climate Change Laws of the World (CCLW), a global database of climate change laws, policies and cases.” was reported on 06 July 2021 on the website of DownToEarth, a fortnightly magazine focused on politics of environment and development.

A state's duty is to facilitate sustainable management of environmental resources such that its citizens can fully enjoy their basic rights. The citizens in good faith trust that the state will undertake measures for safe and clean development. However, maintaining a safe and clean environment is not just a state's duty, there are multiple factors involved like usage of hazardous chemicals, plastic waste, pollution etc. which have harmful consequences on the environment. Such challenges are then brought before the Judiciary, the “third-wing” of the government. The Judiciary in its review and decision making evaluates the challenges considering the international standards laid down by International bodies. Judiciary plays a key role in creating, interpreting and performing treaty and international obligations from varied sources which is fundamental to achieve basic safe environmental rights of the individuals.

The COVID-19 pandemic is not nation-specific, but a global tragedy. The pandemic has exposed how the degradation of ecologies is not only declining the Earth's life-support systems, which include the regulation of the virus but also leaving our societies and economies enormously vulnerable to sudden and unexpected shocks. Though the pandemic has had devastating effects, nonetheless, it is just an overture of what is yet to be arrived at unless we transform our economies and societies in the right manner. It implies, adopting real, effective and actions to stabilize the climate, protect our natural resources and combat against pollution. Everyone should practice this as this will pave the way towards having a world of prosperity, equality and peace for all.

To carry out this essential task, the shaping of environmental rule of law will be critical. The environmental rule of law is vital for the enjoyment of the right to a healthy environment, which is sequentially essential for the agenda of sustainable development.

In this journey, Judges are at the heart of the law. Judges facilitate climate and environmental justice by making all actors, including governments, to account and enforce laws. By safeguarding the environmentalist's interests, judges protect the flora and fauna. Judges are playing and will play an ever-increasing role in forming a sustainable future. In fact Judges have stepped up to incorporate principles of environmental law in their judgements.

The Concept of Sustainable Development

How can the word sustainable development be defined? How has the concept evolved throughout the years? What's the existing framework of sustainable development?

There's a very long history of growth of sustainable development. The major milestones in formation of the concept are noteworthy. Primarily, in the year 1713 Hans Carl von Carlowitz made a reference to "sustainable yield" (nachhaltiger Ertrag) in relation to sustainable forestry management. Later on the Brundtland report¹⁴ of 1987, named Our Common Future, provided the definition of the concept of sustainable development as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The first markable international recognition of the concept was in 1972 at the UN Conference on the Human Environment held in Stockholm. Subsequently, the concept was adopted by Governments at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, or "Earth Summit" as it is famously known. The consequential Rio Declaration on Environment and Development (known as the "Rio Principles" and the global action plan Agenda 21 included many goals and targets, some of which informed the Millennium Development Goals (MDGs) a decade later. To evaluate the progress of Rio, in 2002, at Johannesburg, the World Summit on Sustainable Development was held. The key outcomes included those on sustainable consumption and production, water and sanitation, and energy.

In 2015, all United Nations Member States adopted the 17 Sustainable Development Goals of the 2030 Agenda for Sustainable Development, which provides a shared blueprint for peace and prosperity for people and the planet. In essence it implies that development must balance social, economic and environmental sustainability.

The Paris Agreement adopted in 2015 at the United Nations Framework Convention on Climate Change is worth a mention. It was agreed by all countries to work to limit global temperature rise well below 2 degrees Celsius, and strive for 1.5 degrees Celsius. Execution of the Paris Agreement is vital for the achievement of the Sustainable Development Goals, and provides a path for climate actions which will help reduce emissions and build climate resilience.

The Role of the Judiciary

The Judiciary is one of the pillars upon which the structure of a government is built. The Judiciary has been instrumental over the years in enforcing the law in the field of environment and sustainable development. It has in fact filled up the gap and strengthened the base of law related to the environment and sustainable development. The Judiciary has played the role of defender of the environment and insurer of the human right of life and sustainable development.

Major industries fail to include climate change into their business plans and strategies. Further, they hide climate-related risks to their consumers and shareholders. The failure to safeguard the citizens from ill-effects such as floods, wildfires and other climate-related disasters result in numerous lawsuits. The legal actions are initiated not only against the industries but also government authorities. Individuals, NGOs, children and indigenous communities, most often approach the courts of law to compel governments, large businesses to honour and accelerate commitments on a safe and healthy environment.

The Judiciary is enforcing the existing national and international laws that guarantee citizens a fundamental right to a healthy environment. The judicial decisions have compelled oil companies to retain fossil fuels in the ground, hold businesses responsible for pollution and forced governments to enact climate-related regulations and policies. The extraordinary vision and enforcement of environmental law has led governments from evading or weakening existing environmental legislation and empowered the concept of sustainable development.

Some Important National Judicial Decisions - Local

It will be correct to state that environmental variances have created some landmark and striking precedents in India.

The doctrine of Sustainable Development was enforced by the Supreme Court in the case of *Vellore Citizen Welfare Forum vs. Union of India*. The court held that: "*Remediation of the damaged environment is*

part of the process of 'Sustainable Development' and as such the polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology."

In *Narmada Bachao Andolan vs. Union of India*, the Hon'ble Supreme Court held that "Sustainable Development means what type or extent of development can take place, which can be sustained by nature or ecology with or without mitigation".

In *T.N. Godavaram Thirumulpad vs. Union of India*, the Hon'ble Supreme Court observed "as a matter of preface, we may state that adherence to the principle of Sustainable Development is now a constitutional requirement. How much damage to the environment and ecology has got to be decided on the facts of each case"?

In *Indian Council of Enviro-Legal Action vs. Union of India*, the Apex Court held: "while economic development should not be allowed to take place at the cost of ecology or by causing widespread environment destruction and violation; at the same time, the necessity to preserve ecology and environment should not hamper economic and other developments". Hence, significance was placed on both the aspects of development and environment at the same time.

In *Ambika Quarry Works vs. State of Gujarat*, apex court gave effect to doctrine of sustainable development in the context of deforestation.

In *G.R. Simon and Others etc. vs. Union of India Others*, the Delhi High Court held that Wildlife is Heritage and an important component of sustainable development.

Some Important Global Judicial Decisions

The Courts in other countries around the world too have significantly laid down the principles related to sustainable development and environmental law. Few notable case laws are as follows:

The Dutch District Court in May 2021, ruled that the Royal Dutch Shell shall reduce its emissions by 45% by 2030 as compared to the levels in 2019. The Court decided that Shell's climate plan was not "concrete" enough and added that meeting the goals of the Paris Agreement is not just the duty of government authorities.

In the same month i.e. May 2021 in one of the cases, the Federal Court in Australia held that the Minister for the Environment has an obligation of care towards Australian children who would face substantial "catastrophic harm" from the climate change repercussions owing to sanction of an extension to a coal mine.

The Supreme Court of the Netherlands, in a case of the *Urgenda* climate case ordered that the European Convention on Human Rights, as incorporated into domestic Dutch law, obligated the state to safeguard its citizens' right to life. The court held that the obligation mandated the government to take measures to cut down carbon emissions and limit global warming.

In Brazil minimum three litigations have been filed challenging orders to annul regulations on timber harvesting and seeking to revive funds set aside in the past to pay for efforts to fight Amazon deforestation and climate change.

In Colombia, a group of young plaintiffs filed a lawsuit against the government, and won before the Supreme Court. The order compelled the state to frame a plan to stop the deforestation of the Amazon.

In the case of *Future Generations vs. Ministry of the Environment and Others*, the court acknowledged the plaintiffs' constitutional rights to life, health, subsistence, freedom and human dignity, which the court affirmed that they were linked to the state of the Amazon.

In *Sheikh Asim Farooq vs. Federation of Pakistan*, citizens filed litigation against many administrative agencies for failing to act towards protection of national forests under numerous legislations enacted to protect and restore forests. The court affirmed by ordering, inter-alia, that "the applicable laws . . . shall be implemented in letter and spirit in order to plant, protect and preserve the forest."

Suggestions & Conclusion

The above rulings by courts in various parts of the world make it explicitly clear that the risk of environmental damage, be it for a smaller group of people for public interest is admissible. The numerous case laws in the context of environment rule of law and sustainable development prove that the work performed by Judiciary is exemplary and laudable. Courts in several nations have recognised and declared the right to pollution free air, water and clean environment as basic human rights. However, there are number of hindrances in achieving sustainable development, which are given listed below:

The Powers of Judiciary are limited. Many times, even if courts would have given directions to the executive wing of the government in relation to closure of the industries and projects which are hazardous for the environment and sustainable development, the administration refuses to abide by the directions of the Judiciary in the name of policy decision.

Besides the above, the professionals, environmentalists and even judicial people are sensitive in nature. Hence, trust, accountability and transparency in judicial institutions by all including the administrative agencies, industries, people, is the need of the hour.

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Water Resource Management for Sustainable Development

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Abstract:

The global water demand continues increasing, the quantity and quality of water resources is decreasing in many regions. Conflicts over competition in the use of water are likely to increase as societies face social, economic and political challenges, especially aggravated by climate change. In this scenario, sustainable management of water resources is a key priority to meet the growing demand for water and to achieve a safe and environmentally sustainable future supply. Water is a very valuable resource, sustaining human life, production processes, and ecosystems; thus, particular attention should be paid to the management of water resources. India is now facing a serious water crisis, including water shortages, flooding, and water pollution, due to both natural and artificial causes. This water crisis has threatened human health and economic development. More than one-sixth of the world's population does not have access to safe water supplies. The potential conflicts from this disparity are frightening. The escalation of a water crisis in the world is due essentially to the unsustainable use and management of water resources and to the destruction of ecosystems such as forests, wetlands, and soil that capture, filter, store, and release water.

Keywords: Water management, water resources, Sustainable development, Economic development and Ecosystem.

Introduction:

Water is a very valuable resource, sustaining human life, production processes, and ecosystems; thus, particular attention should be paid to the management of water resources. India is now facing a serious water crisis, including water shortages, flooding, and water pollution, due to both natural and artificial causes. This water crisis has threatened human health and economic development. Water resources management is one of the most important challenges the world faces. It is difficult to think of a resource more essential to the health of human communities or their economies than water. Humans cannot live for more than several days without water, shorter than for any source of sustenance other than fresh air. In meeting their demand for water, societies extract vast quantities from rivers, lakes, wetlands, and underground aquifers to supply the requirements of cities, farms, and industries. Sustainable Water Resources Management presents the most current thinking on the environmental, social, and political dimensions of sustainably managing the water supply at local, regional, or basin levels. The twin challenges of ensuring an adequate water supply and the optimal allocation for different uses are compounded by changes in climate, land use, demographic patterns, and water availability. The global water demand continues increasing, the quantity and quality of water resources is decreasing in many regions. Conflicts over competition in the use of water are likely to increase as societies face social, economic and political challenges, especially aggravated by climate change. In this scenario, sustainable management of water resources is a key priority to meet the growing demand for water and to achieve a safe and environmentally sustainable future supply.

Water is a scarce natural resource, essential for life and to carry out the vast majority of economic activities; it is irreplaceable, non-expandable by the mere will of man, irregular in its way of presenting itself in time and space, easily vulnerable and susceptible of successive uses. Easily available water resources have already been widely exploited across most of the planet, and the pressures from development, population growth, and climate change exert additional tensions on this vital element¹. More than 35 years have passed since the concept of "sustainable development" was introduced for the first time by the World Conservation Strategy². Sustainable development balances the exploitation of natural resources, technological development and institutional change, in order to improve the potential to meet human needs and aspirations, now and in the future³. The main challenge facing today's society is to develop sustainable management that ensures an adequate supply of quality water and at the same time prevents the overexploitation and degradation of associated aquatic ecosystems. A key aim of Integrated Water Resources Management is to promote the coordination and integration as a means to achieve holistic water management and improve the sustainability of water resources⁴. Like the concept of sustainability, it is not a final state to be achieved, but a continuous process with the aim of creating a closer link and a better understanding of human and natural needs, as well as interactions between both⁵.

Water resource management is the cornerstone for sustainable development. According to the United Nations world water development report, one-fifth of the world's population lives in areas characterized by

physical water scarcity⁶. The increase of water demand concomitantly with water scarcity is a common threat for humanity; it is expected to be worse in the future. Almost half of the world population will be living in area with high water stress by 2030 (United Nation Department of Economic and Social Affairs 2012). Thus, potential water resources need to be monitored with care for strategic management. Population growth and economic development cause significant increase in agricultural and industrial demand for water.

Water Resources Management:

No life on earth can exist without water. Scientists estimate that there is over one billion cubic kilometers of water on this earth, which covers nearly three fourths of the earth's surface in the form of oceans, rivers, lakes, snow, glaciers and groundwater. Though this seems an inordinately huge amount, in actual fact, less than one percent is fresh and usable found in lakes, ponds, rivers and groundwater. Of the remaining, 97% is found in oceans and 2% is locked up in glaciers and ice-caps. Only 1% is available for use..

Desiltation:

Canals, tanks, yeris, etc. must be desilted regularly during the summer months. People should be encouraged to revive the ancient practice of protecting trees around tanks. Major rivers were sanctified and groves were established around villages and on the river banks.

Afforestation:

Afforestation of barren, hilly slopes on a warfooting should be carried out. Trees withstand drought better than crops. They check dust, replenish streams, provide shade to cattle and man and give fodder for cattle. They provide innumerable uses for man. Denuding the land of trees without compensatory afforestation is a suicidal and short-sighted approach to solving immediate needs.

Ponds and Tanks

- Creation of small reservoirs and percolation tanks to hold run-off water must be implemented and maintained well.
- Agronomic practices like off-season tillage (prior to pre-monsoon showers) conserve soil moisture. Moisture penetration to a depth of 90 cm. is achieved if the land is ploughed to a depth of 30 cm. Other practices like early sowing of seeds, moderate use of fertilisers, weeding, pest and disease control and timely harvesting increase the yield inspite of limited moisture in the soil.
- Terrace cultivation of hilly slopes prevents water run-off.
- Contour ploughing and planting of grasses and trees check run-off water and increase the soil's capacity to retain moisture.
- Green manuring (incorporation of fresh green leaves into the soil) and crop-rotation (cultivating different crops in rotation depending upon the soil and climate, e.g. cereals followed by legumes) conserve soil moisture.
- Mulching the soil with organic residue conserves soil moisture.
- The use of sprinkler irrigation for closely-spaced crops like millet, pulses, groundnuts, etc., conserves 30 to 40% of the surface water.
- Drip irrigation is most suited for closely-spaced row crops like vegetables, cotton, sugarcane. The efficiency of this system is around 25 to 30% in conserving soil moisture. The cheapest and easiest form of drip irrigation is to drill one to three holes in a mud pot and bury it partially in the soil next to the plant. The water in the pot drips slowly, ensuring that the soil is continuously moist and the plant gets a constant supply of water.
- Harvesting rain water and storing it in small ponds ensures water supply during summer.
- Deep trenches can be dug adjacent to bunds to collect runoff water and soil.
- All these practices are useful only if utilized properly.⁷

Sustainable Development:

"Sustainable development is development that meets the needs of the current generation without compromising the opportunities of future generations to meet their needs".⁸ Confronted with the challenges of the new time, not only science but also societies are becoming aware that sustainable development is not possible without sustainable management of water resources.⁹ Until recently, management of water resources was the task and responsibility of water engineers only. However, since water is a common good, it is everyone's responsibility to take care of it. For many years, people involved in management of water recourses have been using various techniques to serve human beings, including building of infrastructures, regulation of

river flows for flood control, building of power plants, but now it is time for establishing new criteria that will enable sustainable management of water resources¹⁰.

Sustainable Development and Water:

Sustainable development is a collection of principles and advices whose pursuit will enable a better economic, social and ecological life. Since water is the keystone of life, sustainable development cannot be successful without sustainable management of water resources. For this purpose, many different methods and technologies can be applied.

Conclusions:

More than one-sixth of the world's population does not have access to safe water supplies. The potential conflicts from this disparity are frightening. The escalation of a water crisis in the world is due essentially to the unsustainable use and management of water resources and to the destruction of ecosystems such as forests, wetlands, and soil that capture, filter, store, and release water. Through our evaluation of water resource sustainability, we must not only increase public awareness about the challenges the world is facing in relation to water, but we must also change the way the water issue is perceived: from being a driver of conflict to being a catalyst for collaboration. In doing so, we must not only view sustainability as a problem of science, engineering, or economics; it is also founded on values, ethics, and the equal contributions of different cultures. Lack of proper water resource management is still present in the India, causing flooding or scarcity of water. Even though much progress has been made toward sustainable water resource management, more action is still required because of various challenges.

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An Analysis of Sustainable Development and Resources Management**Dr. Tilekar Sharad B.,**

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Abstract: -

Today the demand of natural resources for needful services and products are increasing rapidly. With the increasing technology and personal satisfaction the consumption of natural resources are also increasing. The developmental activities are brought indicates environmental degradation. There is need to proper use of natural resources like as water, soil, minerals, air, etc. Due to the misuse of natural resources we are losing biodiversity. For this reason it is necessary to protect and proper use of resources for the future generation. Today the world's population growth marked more demand of resources and present scenario shows that the natural resources passing through difficult phase all over country. The pressure from rapid growth of population, industrialization, urbanization and climate change are significantly affected on the misuse of resources. The India has rapid population growth which is already suffering water, food and health problems. This indicates that increase use of resources efficiency and improve resources management. This had turn into the focus term resources management. The resources management is one of the most burning challenges in the 21st century. This paper focused the scope of resources management concerns with the use of resources are environmentally and economically beneficial and conservation of ecosystems. In the India most of people live in the regions experience water stress and it will be increased day by day. To resolve these issue there are necessities of transformation in management of resources through policy maker in India.

Key Words: Natural resources, resources management, and sustainable development.

1. Introduction:-

Today, Indian economy known as developing economy and more depend on the natural resources. India having second largest population in the world and hug part of population lived in urban area all over the country. The natural resources are prime sector to supply raw material for industries and employment of Indian people. But the growths of industries are more than double than the any other sector. It is clearly shows that the rate use of natural resources is more than double. The term natural resources include all resources that exist in nature state and useful for mankind. The renewable and nonrenewable resource more depends on the proper use, administrative methods and proper storage of resources. Today there are more fundamental problems in the field of resources. But day by day the resources marked decreasing trend, due to the hug and misuse of resources and the other hand pressure from rapid growth of population, industrialization, urbanization and climate change. There is need of effective natural resources management for sustainable development. All above discussion shows that the resources management for sustainable development passing necessity all over country.

2. Objective:-

The present study identifies to the valuable importance of natural resources and its management. The study also addressed future policies relating sustainable resources management.

3. Data Base and Methodology:-

The present study is based primary and secondary data and observation method. The primary data obtained from observation. The secondary data obtained from report of national resources management department, various journals, books, news papers and different websites.

4. Resource Management:-

The term resource management has used in different manner. The resources management helps to reduce unproductive resources losses and improving resources productivity. The resources management also helps to the improve crop production; reduce soil evaporation and understanding of requirement of resources for the specific sector. We are having different type of resources including air, water, soil, minerals. We can use these resources for different manner. Most of this, proportion of resources used by industrial activity. With help of resources management we reduce the unproductive losses of valuable resources and reuse of resources for sustainable development. The natural resources are found in the environment and they are developed by without human's intervention. The air, water, soil, plants, fossil fuels, wind, sunlight and animals are some of them. All these resources are very useful to the supply of technological, economic and social circumstances, supply of food, cloth, water, and building material, fertilizer for plants, metals, and power supply for a long time of period. Hence the misuse of resources creates fundamental problems which are turning to attention to control and conservation natural resources significantly. The resources management tries to proper way of resource

consumption. The resources management is the process of utilization of different types of resources with effectively and efficiently. e. g. minerals, equipment, assets and also human resources. The term resources management refers to the scheduling and planning, future allocation with the managing right project with the consternating cost and time. We can improve profitability with the help of resources management in the utilization of skilled workforce.

5. Impotence Resource Management:-

Today the population of world is growing rapidly. And the agricultural is main source of requirement food for the population. A high population growth rate turns into the serve food shortage. Therefore the possibility of increasing the demand of food with increasing the more consumption of natural resources. If the crops are not optimally watered than the high yielding seeds and fertilizer fail to achieve their potential. The India accounts 4% of fresh water and 17% of world's population. The necessity of food led to increasing consumption of water. The water management means resources management promotes proper growth of crops and maintaining the proper level of soil moisture. This is also helps to the reduce losses of water. This had resulted increasing crop production. All though the resources management is play significant role in environmental as well as social changes. The term resources management drives to apply the principles to our needful purpose. With the help of these principles we understand the root causes and challenges to recognize the necessary action plan and solutions. The natural resources are renewable and non renewable forms. They are limited preparations. The human population increasing tremendous rate and the demand of all type of resources is increasing exponential rate. Therefore the management of resources requires long term perspective for the upcoming generation. The management of resources can supplies equal distribution for consumption of people and control unlimited use of resources. Hence, the management of resources are immense significant.

6. Classification Natural Resources:-

The natural resources are defined on the earth without dependent of human action. All these resources are occurring naturally and very useful to the human being. Without resources we could not develop technological and economic development and also human life. On the basis of availability natural resources are divided in two types.

- a) Renewable Resources:- This type of resources are available in infinite quantity. We can use renewable resources repeatedly and unlimited. e.g. Solar energy, water, wind, forest, soil, rock, etc. They are available in quickly, low cost basis and environment friendly.
- b) Non- Renewable Resources:- Due to the non renewable nature they are called non renewable resources. This type of resources are limited in abundance, whose availability may be run out in the future. e. g. different type of minerals, wild animals, fossil fuels, specific plants, etc. Due to the limited stock this type of resources cannot be renewed. They are available in high cost and less environment friendly. However natural resources are more significant and marked necessary steps to conserve the resources.

7. Challenges in Resources Management:-

The country India is poor in natural resources due to limited stock and unlimited use, high proportion of wastage resources as well as poor management policies. The lack of resources, adequate infrastructure and low level of management system are the major obstacles in the resources management. Today the sustainable resources management became a difficult task, and need to accept rules, laws and regulations to protect environmental balance. The country faces many challenges regarding resources, such as supply of fuels, securing energy, poverty and inequality, developing industrialization and creating jobs. Around these challenges health and well being are more significant. The natural resource provides our basic need and makes us healthier. The most important resources are air, soil, and water supply breathe, drink and food and give us prosperity and security of human life. We have increasing long term risk and worse challenges due to poor management of resources. The resources provide multiple benefits for people and environment as a whole. For the future upcoming generation healthy and prospers life necessity of management of resources in continue conservation. To manage environment, ecosystem and resources we can act and improve smarter new way of conservation of resources. There are more potential and opportunities to limited use of resources. However to improve proper use of resources with conservation are became significant.

8. Conclusion:-

Today natural resources have suffering difficult phase and this sector requires huge support and investment. India facing resource crises and several regions are experiencing r stress all over the country. If the resources management does not apply in the country, it suffers under resources scarcity. Therefore, there are necessities to taken significant steps to motivate people especially youth. By using education we achieve the

goal regarding conservation of resources. The Government provides favorable policies that encourage the alternate of resources and help them in finding their passion especially youth.

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Solar Energy and Sustainable Development in India

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Abstract

Energy is inevitable for "Development" and thus the demand for the energy is tremendously increased in the past and is expected to increase even more in the future. Earlier countries and their economics were focusing only on development which resulted in depletion of non-renewable resources and ultimately elevated the environmental problems such as air pollution, climate change etc. Looking to the incorrigible hazards caused by the non-renewable recourses consumption, today world has recognised the importance of "Sustainable Development". Sustainable Development is achieved when inevitable energy consumption is supported by the calculate balance of non-renewable energy sources and renewable energy sources. Today economies are mainly focussing on fossil fuels and thus innovative paradigm shift to renewable resources of energy is a global agenda. Undoubtedly Solar Energy as it is a cleaner, largely available renewable energy, can be the bridge to the Sustainable Development.

Rationale of the study

The primary objective for deploying renewable energy in India is to advance economic development, improve energy security, improve access to energy and mitigate the climate change. Sustainable development is possible by use of sustainable energy and by ensuring access to affordable, reliable, sustainable, and modern energy for citizens. The United Nations (UN) General Assembly in its 70th Session held on 25th September 2015, with the aim of taking forward the success of Millennium Development Goals, adopted the document titled "Transforming our World: The 2030 Agenda for Sustainable Development" consisting of 17 Sustainable Development Goals and associated 169 targets (Sustainable Development Goals, GOI 2021). In response, India has ambitiously committed to reducing the emissions intensity ^(Appendix I) per unit of GDP by 33% -35% by 2030 relative to its 2005 levels (UN High Level Political Forum 2017). However in February 2021, in the Third Biennial Update Report (BUR-3) to the United National Framework Convention on Climate Change (UNFCCC), India stated that it had achieved a 24 per cent reduction (excluding agriculture) from the 2005 levels in emission intensity of GDP by 2016 (International Energy Agency 2021), which is not very satisfactory. Further As per India Energy Outlook 2021 of the International Energy Agency (IEA), India is the third largest global emitter of CO₂. CO₂ contributes more than 78 per cent of India's total Green House Gas emissions (2016), and the energy sector contributes more than 92 per cent of all CO₂ emissions from the country. The carbon intensity of the Indian power sector in the year 2020 was 725 grams of CO₂ per kWh (gCO₂/kWh). Though this was lesser than 830 gCO₂/kWh during 2012-13, it was still well above the global average of 510 gCO₂/kWh (India Second Biennial Update Report 2018). This points the dominance of inefficient coal power in India. Moreover India has a target of 175 GW on renewable energy capacity by 2022. Till 28 February 2021, the country had achieved 94 GW, comprising 25 per cent share in total installed capacity for power generation. It gives the evident picture that fossil energy continues to dominate.

Objective of the study

1. Study the contribution of Solar Energy in the reducing Energy Intensity / Carbon Intensity / Emission Intensity of GDP in India
2. Study the scope to enforce solar energy in India

Data and Methodologies

The Data from the following sources are being taken in this research paper

1. Sustainable Development Goals, National Indicator Framework, Progress Report 2021, Ministry of Statistics and Programme Implementation, National Statistic Office, Government of India;
2. Annual Progress Report 2020-21, Ministry of New and Renewable Energy, Government of India;
3. National Electricity Plan-2018, Ministry of Power, Government of India;
4. India's Voluntary National Review Report on the implementation of sustainable development goals presented to United Nations, High level Political Forum 2017

According to a World Energy Council prediction (World Energy Scenarios composing energy futures to 2050), global electricity demand will peak in 2030. India is one of the largest coal consumers in the world

and imports costly fossil fuel. Close to 74% of the energy demand is supplied by coal and oil. According to a report from the Centre for monitoring Indian economy, the country imported 171 million tons of coal in 2013–2014, 215 million tons in 2014–2015, 207 million tons in 2015–2016, 195 million tons in 2016–2017, and 213 million tons in 2017–2018 (Blondeel and Van de Graaf 2018). Therefore, there is an urgent need to find alternate sources for generating electricity.

The size and growth of a country's population significantly affects the demand for energy. With 1.368 billion citizens, India is ranked second, of the most populous countries as of January 2019 (Wordometers 2019). The yearly growth rate is 1.18% and represents almost 17.74% of the world's population. The country is expected to have more than 1.383 billion, 1.512 billion, 1.605 billion, 1.658 billion people by the end of 2020, 2030, 2040, and 2050, respectively. Each year, India adds a higher number of people to the world than any other nation and the specific population of some of the states in India is equal to the population of many countries.

Table No 1: The Power Supply Status in the Country from 2009-10 to 2017-18
(Anon n.d.)

Year	Energy				Peak			
	Requirement (GWh)	Availability (GWh)	Surplus(+)/Deficits(-) (GWh)	(%)	Peak Demand (MW)	Peak Met (MW)	Surplus(+)/Deficits(-) (MW)	(%)
2009-2010	830,594	746,644	-83,950	-10.11	119,166	104,009	-15,157	-12.72
2010-2011	861,591	788,355	-73,236	-8.50	122,287	110,256	-12,031	-9.84
2011-2012	937,199	857,886	-79,313	-8.46	130,006	116,191	-13,815	-10.63
2012-2013	998,114	911,209	-86,905	-8.71	135,453	123,294	-12,159	-8.96
2013-2014	1,002,257	959,829	-42,428	-4.23	135,918	129,815	-6,103	-4.49
2014-2015	1,067,085	1,028,955	-38,130	-3.60	148,166	141,160	-7,006	-4.70
2015-2016	1,114,408	1,090,850	-23,558	-2.10	153,366	148,463	-4,903	-3.20
2016-2017	1,142,928	1,135,332	-7,596	-0.66	159,542	156,934	-2,608	-1.63
2017-2018	1,212,134	1,203,567	-8,567	-0.7	164,066	160,752	-3,314	-2.0
2018-2019 (31.10.2018)	769,399	764,627	-4,773	-0.6	177,022	175,528	-1,494	-0.8

Even though India has achieved a fast and remarkable economic growth, energy is still scarce. Strong economic growth in India is escalating the demand for energy, and more energy sources are required to cover this demand. At the same time, due to the increasing population and environmental deterioration, the country faces the challenge of sustainable development. The gap between demand and supply of power is expected to rise in the future (Arto et al. 2016). Table 1 (Anon n.d.) presents the power supply status of the country from 2009–2010 to 2018–2019 (until October 2018). In 2018, the energy demand was 1,212, 134 GWh, and the availability was 1,203,567 GWh, i.e., a deficit of - 0.7%. According to the Load generation and Balance Report (2016–2017) of the Central Electricity Authority of India (CEA), the electrical energy demand for 2021–2022 is anticipated to be at least 1915 terawatt hours (TWh), with a peak electric demand of 298 GW (Khare, Nema, and Baredar 2013). Increasing urbanization and rising income levels are responsible for an increased demand for electrical appliances, i.e., an increased demand for electricity in the residential sector. The increased demand in materials for buildings, transportation, capital goods, and infrastructure is driving the industrial demand for electricity. Thus for India, Enforcement of Renewable Energy like Solar Energy, Wind Energy etc is the only escape to cater such a huge population effectively.

Solar Energy Under the National Solar Mission, the MNRE (Annual Report 2020-2021 Ministry of New and Renewable Energy, Government of India) has updated the objective of grid-connected solar power projects from 20 GW to 100 GW by the year 2021–2022. In 2008–2009, it reached just 6 MW. The “Made in India” initiative to promote domestic manufacturing supported this great height in solar installation capacity. Currently, India has the fifth highest solar installed capacity worldwide. By the 31st of December 2018, solar energy had achieved 25,212.26 MW against the target of 2022, and a further 22.8 GW of capacity has been tendered

Table No 2:
Solar Capacity Additions compared to the target between 2013-14 and 2018-19

Year	Solar power capacity additions in MW	
	Target	Achievements
2013–2014	1100	962.1
2014–2015	1100	1112
2015–2016	1400	3019
2016–2017	9100	5526
2017–2018	10,000	9363
2018–2019 (31st of December 2018)	10,000	3270

out or is under current implementation. MNRE is preparing to bid out the remaining solar energy capacity every year for the periods 2018–2019 and 2019–2020 so that bidding may contribute with 100 GW capacity additions by March 2020. In this way, 2 years for the completion of projects would remain. As per Table No 2, against Solar Power Capacity Addition Target of 10,000 MW for 2018-19, India has achieved 3270 MW. Thus although the plan looks satisfactory, it is evident that the additional efforts are needed because the energy demands in India will surely have increasing trend and the deficit gap will continue to exist.

This can be supported by The International Renewable Energy Agency (IRENA 2017). IRENA is an intergovernmental organisation that supports countries in their transition to a sustainable energy future and serves as the principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

According to IRENA (2017);

- In India, where energy demand in industry and other sectors is assumed to increase rapidly, it is virtually impossible to increase the share of renewable energy in the Total Primary Energy Supply (TPES). New approaches will be needed to offset the planned increase in energy demand, and to improve the sustainability of the energy system
- CO₂ emissions in India rise compared to 2010, even in the IRENA Global renewable Energy Roadmap (REmap) + Energy Efficiency (EE) Case, due to the projected tripling of its absolute GDP and related energy use over the period 2010–30. While India aims to reduce its emission intensity by 33–35% by 2030 compared to 2005 levels (ibid.), which translates to a maximum CO₂ emission level of 3.8–4.0 Gt/yr in 2030. This target can only be achieved with a combination of RE/EE technologies.
- By adding Energy Efficient options, incremental annual system costs fall to USD –105 billion, equivalent to nearly 1% of India's GDP in 2030.

Conclusion

In India out of the total estimated power generation by renewable sources, 68% is being done by Solar Energy. Although Solar Energy contributes maximum power generation share, only 10 states in India are evident to install significant cumulative capacity of solar power (Annual Progress Report 2020-21). Thus the need of aggressive enforcing of National Solar Mission in the states where significant cumulative capacity of solar power is not yet installed.

Subsidy to Fossil Fuel : Although India has a clear intend to increase the production of energy from renewable sources, subsidy scheme benefits are still applicable to fossil fuel energy production. It is evident that the Initial Cost of the Project / Unit of Renewal Energy is significantly high than fossil fuel and thus it is very difficult to get investors in renewable energy projects. However for promotion of renewable energy sources, govt has introduced subsidy, incentive scheme. Thus on one hand govt is promoting renewable energy and on other hand by providing subsidy to fossil fuel, wrong message is being given to the investors. Why investors would take a tough route? Thus complete restructuring of the subsidy scheme may help to gain investor and achieve mission objectives.

Promotion of the Policies : The Manufacturing and Distribution of the Solar Energy generally happens in India through four markets namely 1. Government Owned Market where the projected in owned by the government and the output is utilised by the government for public/units etc 2. Government Aided Market where the project owned by Companies/Trust/Partners etc is financially supported by government and output consumer is attracted by providing subsidies, incentives etc. 3. Finance Market where loan at subsidised rates through ministry department or banks is provided to project owner to promote production 4. Cash / Liquid Market where individual are encouraged (incentives, subsidiaries etc) to use solar energy output for household needs. Today our country has worked well in the first two markets. However promotion of policies in loan market and cash market could increase the volume of the markets thereby advancing renewable energy goals.

Quality Standard Compliance Mark : In case of Solar Energy, mostly end user is needed to install a Solar Power Generator Unit and consume the output. In such case the central government agency is required to approve the quality and reliability of the unit components, panels, reading meter etc to win the trust of the people. It is evident that the ISI for Industrial Products, BIS Hallmark for jewellery products, FPO Mark Processed Food Products win the trust of the end consumer. On the same line it could be said that the quality assurance mark on solar unit will increase the consumer trust and ultimately increase the solar unit installations.

Budget Allocation to clean energy sector : Additional allocation to renewable energy sector is needed. Our neighbouring country China in 2017 had allocated Rs.9 lac crores for clean energy sector is much higher as compared to India's Rs.75500 crores. Thus additional allocation is in component production, research and development may become a game changer.

The Goods and Service Tax (GST) : In 2017 GST was introduced in most of the ongoing Renewable Energy Projects. It is evident that the Renewable Energy Projects are costly and most of the budget allocation is being done on the basis of initial cost estimates. In such scenario, most of the time project doesn't have the capacity to handle additional burden of GST which was not in place during initial phase and the project progress is stopped. Government should handle such issues of the projects.

Interest Rate Rebate : Today individual gets the subsidy on solar appliances like solar lights, PV Panels, solar heaters etc. In case of subsidy, individual is needed to incur the full cost of the appliances (cash or loan) and subsidy gets deposited in his account after installation is complete. Many times individual do not remain satisfied with the mechanism for subsidy calculation or time taken to get the subsidy, especially when he has invested his money in the appliances already. Instead the Upfront Bank Interest Rebate Scheme would provide more satisfaction to the individual.

Solar Energy Lost during Transmission : India is intended to set up Solar Cities in the states where abundant Solar Energy is available (Karnataka, Rajasthan, Gujarat, Tamil Nadu, Telangana, Andhra Pradesh, Madhya Pradesh, Maharashtra etc) and transmit the output solar energy to other state where solar energy production is not sufficient. Although Inter State Transmission System (ISTS) was introduced in 2018, due care in implementation is needed to avoid the energy loss in the transmission.

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Annexure I

(Definitions as per India's Climate Change Strategy, Centre for Science and Environment
<https://cdn.cseindia.org/userfiles/On-the-road-to-OP26-factsheet.pdf>)

Energy intensity, Carbon Intensity and Emission Intensity

Energy intensity: Energy Intensity is defined as the amount of energy consumed for every unit of GDP. This includes all fuels used in the country. The energy intensity of the economy can be reduced by fuel shift from fossil to non-fossil fuels, energy efficiency measures, new and improved technologies, increased productivity, and shifts in overall production from sectors that use a lot of energy (like manufacturing or mineral processing) to others that do not (like services).

Carbon Intensity: The Carbon Intensity of the economy is measured as carbon dioxide (CO₂) emissions per unit of GDP. It is dependent on the fuel mix (carbon intensity of the energy sector) and energy intensity. Theoretically, the lowest carbon intensity would be of a country that has the least use of fossil energy in its fuel mix and the energy that it uses, and has the best energy intensity also dependent on the nature of the economy (service vs manufacturing for instance).

Emission Intensity: Emission Intensity is defined as the total amount of greenhouse gas emissions emitted for every unit of GDP. Importantly, it counts emissions beyond those related to energy (such as emissions from agriculture), and greenhouse gases beyond carbon dioxide (such as methane). It is different from the energy intensity of the economy, which is how much energy a country uses to generate wealth measured in terms of its GDP

Natural Resources And Sustainable Development

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Introduction:-

Natural Resources and Sustainable Development Programme research focuses on the different dimensions of sustainable development. We consider the environment and its natural resources and ecosystem services as an overarching foundation for society and economy and aim to provide knowledge on how to identify, explore for, extract, and utilize natural resources in a safe and sustainable fashion. Our work involves considerations of both natural and social systems and their interactions, often adopting transdisciplinary approaches.

The concept of sustainable use of earth's resource is an ancient one. Without the principles of sustainability as a way of life, humans would not have survived in the 20th century. The principle of sustainable development received impetus with the adoption of Stockholm Declaration in 1972, World Conservation Strategy prepared in 1980 by the World Conservation Union (IUCN) with the advice and assistance of the United Nations Environment Programme (UNEP), World Charter for Nature of 1982, Report of the World Commission on Environment and Development under the chairmanship of Geo Harlem Brundtland (Brundtland Report), Our Common Future of 1987, the document Caring for the Earth: A Strategy for the Sustainable Living developed by the second world conservation project. comprised of the representatives of the IUCN, UNEP and the Worldwide Fund for the Nature. The concept of sustainable development is the foundation stone of the Montreal Protocol for the Protection of Ozone Layer of 1987 and the instruments adopted at the UN Conference on Environment and Development (World Summit) held at Rio in 1992.

Meaning and Definition:- The Brundtland Report defines, 'sustainable development' as 'development that meets the needs of the present generation without compromising on the ability of the future generations to meet their own needs.' The report emphasizes that sustainable development means an integration of economics and ecology in decision making at all levels. The Caring for the Earth document defines 'sustainability' as 'a characteristic or state that can be maintained indefinitely' whereas 'development' is defined as 'the increasing capacity to meet human needs and to improve the quality of human life.' This means that sustainable development would imply improving the quality of human life within the carrying capacity of the supporting ecosystems. The concept of sustainable development rejects the old notion that development and environment are antithesis of each other. On the contrary, it emphasizes that development and environment are synthesis of each other. Both are complimentary and mutually supportive. Sustainable Development is a process in which development can be sustained for generations. It means improving the quality of human life while at the same time living in harmony with nature and maintaining the carrying capacity of the life supporting ecosystem. Development means increasing the society's ability to meet human needs. Economic growth is an important component but cannot be a goal in itself. The real aim must be to improve the quality of human existence to ensure people to enjoy long, healthy and fulfilling lives. Sustainable development focuses at integration of development and environmental imperatives. It modifies the previously unqualified development concept. To be sustainable, development must possess both economic and ecological sustainability. The concept of sustainable development indicates the way in which development planning should be approached. For being sustainable development must be both economic and environmentally viable. The necessary condition for achieving sustainable development is ecological security, economic efficiency and social equity. Sustainable development is, in fact, a multi-dimensional concept involving three interacting aspects—ecology, economy and ethics. Ecological restoration, economic betterment and social justice mutually reinforce one another. In practice environment protection is the development because environment degradation leads to poverty and distorted development. Sustainable development is the only path for conserving and promoting the socio-economic well-being of people.

Objective Of The Study:-

- 1] To study the availability of the natural resources and its importance in economic and sustainable development.
- 2] To study the effects of environmental changes on the economic and sustainable development.
- 3] To suggest policy measures for the protection of environment.

Research Methodology:-

The present research paper studies relationship between Natural Resources and Sustainable Development. The study is descriptive in nature based on the secondary data and secondary data have been collected from different sources i.e. The reference book, textbook, research paper, journal, and websites.

Sustainable development is the management of renewable resources for the good of the entire human and natural community. Built into this concept is an awareness of the animal and plant life of the surrounding environment, as well as inorganic components such as water and the atmosphere. The goal of sustainable development is to provide resources for the use of present populations without compromising the availability of those resources for future generations, and without causing environmental damage that challenges the survival of other species and natural ecosystems. The notion of sustainable development recognizes that individual humans and their larger economic systems can only be sustained through the exploitation of natural resources. By definition, the stocks of non-renewable resources, such as metals, coal, and petroleum, can only be diminished by use. Consequently, sustainable economies cannot be based on the use of non-renewable resources. Ultimately, sustainable economies must be supported by the use of renewable resources such as biological productivity, and solar, wind, geothermal, and biomass energy sources.

However, even renewable resources may be subjected to overexploitation and other types of environmental degradation. Central to the notion of sustainable development is the requirement that renewable resources are utilized in ways that do not diminish their capacity for renewal, so that they will always be present to sustain future generations of humans.

There Are Three Pillars Of Sustainability:-

Economic, Environmental and social. So far economic and environmental aspects of sustainability have received the required attention. The thinking about social sustainability is not yet as advanced as the other two pillars.

Economics Aspects Of Sustainability:-

Economics aspects of sustainability are generally highlighted in the context of ensuring at least a constant flow of consumption for maintaining equity in intergenerational well being. But what is to be done to achieve this objective? Economists argue that a country's ability to sustain flow of consumption depends largely on change in its capital stock or wealth. According to World Development Report 2003, "intergenerational well being will rise only if wealth [Measured in shadow prices and excluding capital gains] increases over time - that is, only if a country's adjusted net savings are positive"

Social Sustainability:

Ideas about social sustainability are not as yet fairly developed through increasingly social inclusion is discussed in the same breathe as economic growth and environmental management. Societies have transformed in the past and will continue to change over time. In the process of transformation social stresses are often social conflicts develop which lead to not only destruction of existing assets but hamper accumulation of new assets. This continuous activity disrupts maintenance of equity in intergenerational well-being.

Environmental Sustainability:

An important issue with regard to equity in intergenerational well-being is substitutability of assets. Some natural assets or more precisely some of the functions performed by these assets, such as global life support cannot be substituted by others. Technology may continue to increase potential substitutability among assets over time. But it has now become increasingly clear that for many essential environmental services there are no alternatives and potential technological changes are not necessarily expected to provide substitutes for depleting natural assets, such as forests and clean water.

Relationship Between Natural Resources And Sustainable Development:-

The natural resources and sustainable development. The sustainable development and natural resources are indissoluble linked of the society existence, of development of the economic, technologic, social, human medium, and of ensuring the environment protection (Zaharia, 2008; Negrei, 1999). At the most simple level, the probability as an agricultural poor country to be capable to oppose to the external shocks (e.g. climate variations) or stresses (e.g. international obligations) increases as the reserves/stocks of natural resources increase. The natural resources help the economies to come back from shocks. In these conditions the increasing of natural resources is the only way to the toleration. In the case of industrialized countries subdue to ecological shocks or stresses, there are limits of risks more flexible than those of the poor ones, where the rapid demographic increase and the low economic progress have often as effect the narrowing of risks' limits against the external disturbances (Diop, Leautier, 2007). The industrialized countries possess also a much higher

capacity to replace the technologies than the developing countries when are exerting ecological pressures. The irrational exploitation of non-renewable resources must be avoided if the benefits from the intensive exploitation of natural resources are very high on short time term. This represents a basic rule in approaching of environment conservation using standards of minimal safe. If a resource is exploited into tolerability parameters, his stock will remain constantly in time. Contrarily, the reserve will be diminishing to the prejudice of future generation. This future benefit is lost because of a management out of tolerability parameters, quantified into the sacrifice costs of future use that represent the user costs or “exhaustion prizes”. The basic rule is that the proper price of a natural resource must reflect the extraction costs (or production costs), the environmental costs and the utilization costs (www.geneva.org, 2002). By comparing of the concepts of economic and ecologic tolerability it is concluded that it is more suitable to exam the keeping of a set of possibilities to rational exploitation of natural resources, in comparison with the strict conservation to the basic value of natural resources. This fact is due to the fact that the preferences and technologies are not constant during generations, so that the conservation of a basic value can be proven to be excessive. The diversity of demands and preoccupations on short time term, as well as the targets on long time term existed into the whole world, suggests the fact that it not exist a “good” or “bad” sustainable development, universally valid. The maximization concept for the net benefits of economic and social development in conditions of keeping the natural resources and environmental services vs. time can be useful in decisions taking. This supposes the use of renewable resources, especially if these are poor, in small rates or equal with the natural rate of regeneration. The efficiency of using the non-renewable resources must be optimized by mean of the technological progress.

Conclusion:-

The actual generation supports evidently the degradation and sometimes diminishing of natural resources caused by the last generations. The future generation will need to support not only the cost of actual environment degradation, of exhaustion of natural resources, but also the cost of pollutants accumulation into the environment, of diminishing of fuels reserves, of losing of the tropical forests and biodiversity. From this reason it is necessary to accept the sustainable development as the only safe way to the actual society development, the implementation and intensifying of using the renewable resources for satisfaction of productive and consumption demands, but also the rational alternative use or ‘as time as necessary’ of non-renewable resources. The ensuring of natural resources and sustainable development for the present and future generation must become a strategic national objective gradually applied as a function of tradition, potential and natural, technical, social and human capital from each state of the world as well the evolution tendencies of regional, geographic and environmental development in the world.

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The Natural Resources And Sustainable Development

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Abstract

The use of natural resources into the productive technological processes means the direct consumption of resources for satisfaction of needs of products and services. The exploitation of natural resources can be performed into a complex, coordinated manner, through the simultaneous satisfaction of more consumption demands. The actual generation evidently supports the degradation and sometimes decreasing of natural resources because of the past generations. The future generation will support not only the actual cost of environment degradation, of natural resources diminishing but also the cost of accumulation into the environment of atmospheric pollutants and toxic heavy metals, of losing the tropical forests and biodiversity. For this reason it is necessary the actual consideration of the needs for the future generation, even if that implies supplementary charges for political institutions that are obliged to satisfy only the economical, social and environmental demands and needs for the actual generation.

Key words: Natural resources; Environment, Sustainable development

Introduction :

The term of natural resources includes “all resources” that exist in natural state and all systems that are or can be useful to the man in the actual technological, economical and social circumstances . Frequently, into the economic speciality literature and not only the term of “resources” was associated with the one of “reserves” that indicate well defined resources that are known to exist. Nevertheless, the data concerning the reserves are subdue to frequent changes and, supplementary, seem to support a high level of uncertainty. Therefore, the term of reserves is the most frequently mentioned in the connections with the non-renewable reserves (e.g. fossil fuels, iron and non-iron ores, deposits of stones, marble, uranium). The most used classification of natural resources is that which divides them into renewable resources (i.e. solar energy, wind energy, tidal energy, agricultural lands, forests, air and waters) and non-renewable resources (i.e. mineral substances and fossil fuels). The renewable attribute of the natural resources depends more times of the proper use of some unrestrictive administrative methods, as the case of agricultural lands and proper storage of wastes, because some changes in the system of natural resources can be proven to be irreversible. The supplementation of stocks of natural resources is generated as a result of discoveries by explorations. From this reason the process of exploration is highly linked with the administration of natural resources. The renewable resources possesses proper rate of increasing or regeneration. Generally, the explorations supply information concerning the reserves of resources. Sometimes these informations are precise, with a high level of certainty, but, other times the information can be no more than probable and so subdue to a certain error. Besides, the explorations against the existent stocks are not free but expensive and the information that are supplied must be treated as a ,poor input’ in the production process of goods from natural resources.

Research Methodology:

This paper is based on the role of natural resources and sustainable developments in economy with the help of secondary data collection. The secondary data is gathered from various published Journals, Books Internet (websites) and research papers.

Objectives:

- To study natural resources development.
- To study renewable and non renewable resources.
- To study value of natural resources.

The Most Important Natural Resources Are:

Land Resources:

Land as a resource: Landforms such as hills, valleys, plains, river basins and wetlands include different resource generating areas that the people living in them depend on. Many traditional farming societies had ways of preserving areas from which they used resources. Eg. Inthe ‘sacred groves’ of the Western Ghats, requests to the spirit of the Grove for permission to cut a tree, or extract a resource, were accompanied by simple rituals.

The outcome of a chance fall on one side or the other of a stone balanced on a rock gave or withheld permission. The request could not be repeated for a specified period. If land is utilized carefully it can be considered a renewable resource. The roots of trees and grasses bind the soil. If forests are depleted, or grasslands overgrazed, the land becomes unproductive and wasteland is formed. Intensive irrigation leads to water logging and Salination, on which crops cannot grow. Land is also converted into a non-renewable resource when highly toxic industrial and nuclear wastes are dumped on it. Land on earth is as finite as any of our other natural resources. While mankind has learnt to adapt his lifestyle to various ecosystems world over, he cannot live comfortably for instance on polar ice caps, on under the sea, or in space in the foreseeable future. Man needs land for building homes, cultivating food, maintaining pastures for domestic animals, developing industries to provide goods, and supporting the industry by creating towns and cities. Equally importantly, man needs to protect wilderness area in forests, grasslands, wetlands, mountains, coasts, etc. to protect our vitally valuable biodiversity. Thus a rational use of land needs careful planning. One can develop most of these different types of land uses almost anywhere, but Protected Areas (National Park's and Wildlife Sanctuaries) can only be situated where some of the natural ecosystems are still undisturbed. These Protected Areas are important aspects of good land use planning.

Forest Resources :-

Forest is important renewable resources. Forest vary in composition and diversity and can contribute substantially to the economic development of any country. Plants along with trees cover large areas, produce variety of products and provide food for living organisms, and also important to save the environment. It is estimated that about 30% of world area is covered by forest whereas 26% by pastures. Among all continents, Africa has largest forested area (33%) followed by Latin America (25%), whereas in North America forest cover is only 11%. Asia and former USSR has 14% area under forest. European countries have only 3% area under forest cover. India's Forest Cover accounts for 20.6% of the total geographical area of the country as of 2005.

Significance of forests:

- (i) Commercial values
- (ii) Life and economy of tribal
- (iii) Ecological uses
- (iv) Aesthetic values

Water Resources :

Water is an indispensable resource for life on earth. Approximately 70.8 % surface of earth is covered with water in the form of oceans. Out of this, about 97% is not fit for human consumption, about 2% is locked as a glacier and only less than 1% available as fresh water that can be used for human consumption and other uses. Water is a very important source and essential for life because it has very unique characteristic such as.

- (i) Agricultural Use:
- (ii) Industrial Use:
- (iii) Domestic Use:
- (iv) Use for Hydropower Generation:
- (v) Use for Navigation and Recreation:

Energy Resources:

Energy Scenario Energy is a key input in the economic growth and there is a close link between the availability of energy and the future growth of a nation. Power generation and energy consumption are crucial to economic development. In India, energy is consumed in a variety of forms such as fuel wood; animal waste and agricultural residues are the traditional sources of energy. These non-commercial fuels are gradually getting replaced by commercial fuels i.e. coal, petroleum products, natural gas and electricity. Out of total energy, commercial fuels account for 60% whereas the balance 40% is coming from non-commercial fuels. Of the total commercial energy produced in the form of power or electricity, 69% is from coal (thermal power), 25% is from hydel power, 4% is from diesel and gas, 2% is from nuclear power, and Less than 1% from non-conventional sources like solar, wind, ocean, biomass, etc. Petroleum and its products are the other large sources of energy. In a developing country like India, in spite of enhanced energy production, there is still shortage due to increased demand of energy. In spite of the fact that there is a phenomenal increase in power generating capacity, still there is 30% deficit of about 2,000 million units.

Use of Alternate Energy Sources

- 1) Hydel energy
- 2) Wind energy
- 3) Geothermal energy

- 4) Ocean thermal energy conversion (OTEC)
- 5) Biomass energy
- 6) Bio-fuels
- 7) Solar energy

Renewable Resources :

The resources that can be replenished through rapid natural cycles are known as renewable resource. These resources are able to increase their abundance through reproduction and utilization of simple substances. Examples of renewable resources are plants (crops and forests), and animals who are being replaced from time to time because they have the power of reproducing and maintain life cycles. Some examples of renewable resources though they do not have life cycle but can be recycled are wood and wood-products, pulp products, natural rubber, fibres (e.g. cotton, jute, animal wool, silk and synthetic fibres and leather. In addition to these resources, water and soil are also classified as renewable resources. Solar energy although having a finite life, as a special case, is considered as a renewable resource in as much as solar stocks is inexhaustible on the human scale.

Non-Renewable Resources :

The resources that cannot be replenished through natural processes are known as nonrenewable resources. These are available in limited amounts, which cannot be increased. These resources include fossil fuels (petrol, coal etc.), nuclear energy sources (e.g. uranium, thorium, etc). metals (iron, copper, gold, silver, lead, zinc etc.), minerals and salts (carbonates, phosphates, nitrates etc.). Once a non-renewable resource is consumed, it is gone forever. Then we have to find a substitute for it or do without it. Non-renewable resources can further be divided into two categories, viz. Recyclable and non-recyclable.

Conclusions :

The actual generation supports evidently the degradation and sometimes diminishing of natural resources caused by the last generations. The future generation will need to support not only the cost of actual environment degradation, of exhaustion of natural resources, but also the cost of pollutants accumulation into the environment, of diminishing of fuels reserves, of losing of the tropical forests and biodiversity. From this reason it is necessary to accept the sustainable development as the only safe way to the actual society development, the implementation and intensifying of using the renewable resources for satisfaction of productive and consumption demands, but also the rational alternative use or 'as time as necessary' of non-renewable resources. The ensuring of natural resources and sustainable development for the present and future generation must become a strategic national objective gradually applied as a function of tradition, potential and natural, technical, social and human capital from each state of the world as well the evolution tendencies of regional, geographic and environmental development in the world.

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A Spatio-Temporal Anylisis of Heart Attack Diseases in Satara District**Prof.S.P.Patil**

BalasahebDeasi College, Patan

Introduction :

Diseases is a particular abnormal condition of body, It is associated with function of normal homeostasis. Disease is impairment of the normal state of the living animal or plant body or one of its parts that modifies that performance of the vital functions, is typically manifested by distinguish and symptoms, and is a response environmental factor as malnutrition, industrial hazard or climate to specific infective agents to inherent of the organism as genetic anomalies or to combinations of these factor. Tuberculosis, hepatitis, HIV, influenza, malaria, dengue, and other vector-borne diseases are a constant concern for health authorities, practitioners and patients. A variety of environmental, climatic and socio-economic factors underlie their spatiotemporal patterns. In addition, factors such as changes in climate, habits or land use intervene and complicate the understanding of these processes.

Study Region

Satara district lies at the western limit of the Deccan table and in southern Maharashtra. It is situated in the river basins of the Bhima and Krishna but from the point of view of the Peninsular drainage, the entire land of the district belongs to the larger drainage system of the Krishna river. The district extends between 17^{0.5'} and 18^{0.11'} north latitudes and 73^{0.33'} and 74^{0.54'} east longitude. It is surrounded by Pune district to the north, Solapur to the east, Sangli to the south and Ratnagiri district to the west. It is also has a small boundary of about 24km with Raigarh district in the north-west. The district has an area of 10480.0 sq. km. and a population 2808994 as per the 2001 census. The density of population is 268 persons per sq.km. as per the 2001 census.

Objectives:-

In view of the above, main objectives of proposed study are as following:

- To study the Heart attack death rate of the study area.
- To study correlation of temperature and Heart attack diseases in Satara District.

Database:-

The present study will be depending on primary as well as secondary data. Primary data will be collected through the questionnaire. For the purpose villagers will be chosen by stratified random sampling, and photographs, video shooting will be collected for the better understanding of the study region. Secondary data will be collected through the related reference books, magazines, published, unpublished thesis, journals, and published Govt. Report, District Census, hand book.

Methodology:-

Analysis of various facts will be made at District, Tahasil, and block and village level. Intensive field work and data collection will be made at District, Tahasil, Block and Village level of that geographical area. The collected data will be analyzed and interpreted with the help of qualitative and quantities techniques like ratio, percentage and average. The collected data will be presented in the form of various tables also, while analyzing the data certain parameters will be used. The data may be presented with the help of charts and graph

Spatio-Temporal Analysis:

Spatial refers to space. Temporal refers to time. Spatiotemporal, or spatial temporal, is used in data analysis when data is collected across both space and time. It describes a phenomenon in a certain location and time. A person uses spatial-temporal reasoning to solve multi-step problems by envisioning how objects move in space and time.

Applications for spatial-temporal data analysis include the study of biology, ecology, meteorology, medicine, transportation and forestry. Spatial -temporal data visualization and analysis can be challenging because space has unlimited directions up, down, sideways, North, South, East, West while time can only go forward. Combining and assessing the two factors of space and time can be complex. The data can produce different results depending on how space is defined a zip code, a census tract or a state. Time can also provide conflicting answers depending on whether it is measured in seconds, minutes, hours, days or years.

Correlation Factor:

The correlation between various factors and diseases is calculated by Karl Persons formula, which is as below'.

$$r = \frac{\text{Sum } (x-x)(y-y)}{E(x-x) E(y-y)}$$

Where r = correlation

x = independent variable.

$\bar{X}$ = mean of independent variables.

Y = dependent variable.

$\bar{Y}$ = mean of dependent variables.

The value of V_{is} observed in between +1 to -1.

$r = +1$ shows the perfect positive correlation.

$r = -1$ shows the perfect negative correlation,

$r = 0$ shows the absence of correlation.

By this method researcher could find out positively and negatively correlated factors.

Heart Attack:

A heart attack occurs when the flow of blood to the heart is blocked. The blockage is most often a buildup of fat, cholesterol and other substances, which form a plaque in the arteries that feed the heart (coronary arteries). The plaque eventually breaks away and forms a clot. The interrupted blood flow can damage or destroy part of the heart muscle. A heart attack, also called a myocardial infarction, can be fatal, but treatment has improved dramatically over the years. It's crucial to call 911 or emergency medical help if you think you might be having a heart attack.

Common Heart attack signs and symptoms include:

- Pressure, tightness, pain, or a squeezing or aching sensation in your chest or arms that may spread to your neck, jaw or back
- Nausea, indigestion, heartburn or abdominal pain
- Shortness of breath
- Cold sweat
- Fatigue
- Light-headedness or sudden dizziness

Correlation factor:

The incidence of Heart Attack is insignificantly correlated with all selected variables. The table no. 5.20 shows the correlation between Heart Attack and various factors. The correlation between average temperature and deaths by Heart Attack is observed to be negative in the study region. The average -0.33 negative correlation found in between temperature and Heart Attack disease in Satara district

Distribution of correlation of Heart Attack diseases with various factors.

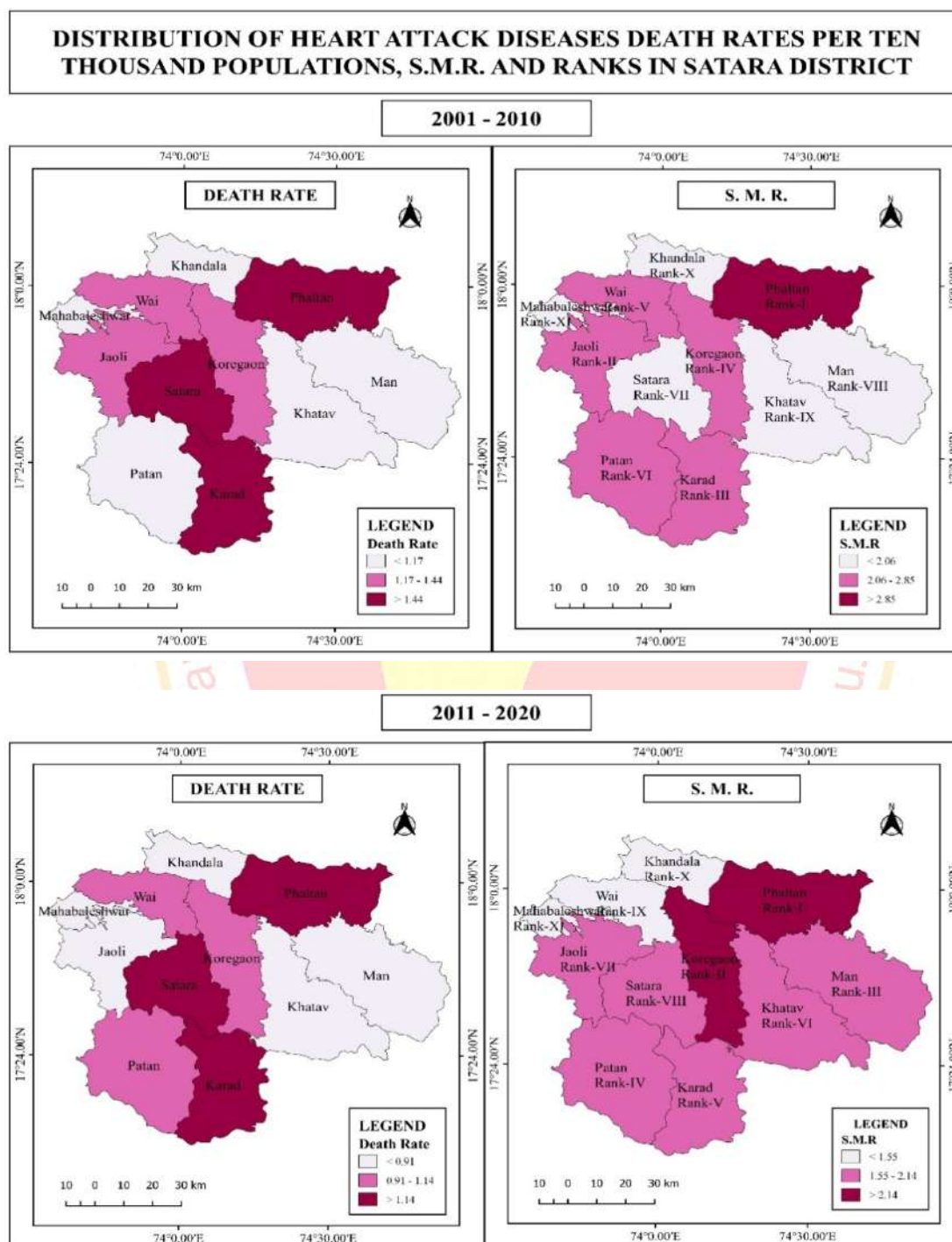
Sr. No.	Tahsil Name	Correlation to Ave. Temperature	Correlation to Death rates	Correlation to Population Density	Correlation to Literacy
1	Karad	-0.76	0.89	0.34	0.31
2	Patan	-0.48	0.75	-0.23	-0.13
3	Satara	-0.64	0.66	0.42	0.54
4	Jaoli	-0.47	0.42	-0.24	0.62
5	Mahabaleshwar	0.25	0.31	-0.13	0.81
6	Wai	0.13	0.33	-0.31	0.68
7	Khandala	0.09	0.41	-0.42	0.74
8	Phaltan	-0.57	0.59	0.21	-0.19
9	Koregaon	-0.41	0.67	-0.43	0.43
10	Khatav	-0.38	0.49	-0.38	-0.21
11	Man	-0.39	0.44	-0.32	-0.29
	Total District	-0.33	0.54	-0.14	0.31

Source: Data compiled by Researcher.

The correlation between total death rate and deaths by Heart Attack is observed to be positive in the study region. The average 0.54 positive correlation found towards the total death rates of the

study region. The correlation between density of population and death by Heart Attack is observed to be significantly negative in the study region. The average -0.14 negative correlations is found in between population density and Heart Attack disease death rate in the Satara district. The correlation between literacy rate and deaths by Heart Attack is observed significantly positive in the study region. But in Patan, Phaltan, Khatav and Man tehsils have negative correlation because having low literacy rate. The average 0.31 positive correlations found in the study region.

Distribution of Heart Attack diseases death rates per ten thousand populations, S.M.R. and Ranks in Satara district.



Conclusion:

In the conclusion analysis Heart attack diseases are important diseases in the Satara district. The Patan, Karad, Satara, Koregaon and Phaltantahsils have more infected by all types of diseases in the district. Man and Khatav tahsils are moderate infected by such diseases. Remaining tahsils like Jaoli, Mahabaleshwar, Wai, Khandalatahsils are less infected by different diseases in the district.

The correlation factors like average temperature, total death rate, population density and literacy are less in positive correlation to the different diseases death rates in the district. All diseases death rate to total death rate are in positive in correlation.

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Water Resources of India

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Abstract:

Water resources of a country constitute one of its vital assets. India receives annual precipitation of about 4000 Km. The Rainfall India shows very high spatial and temporal variability and paradox of the situation is that Mousinam near Cherrapunji, which receives the highest rainfall in the world. Also suffers from a shortage of water during the non-rainy season, almost every year. The total average annual flow per year for the Indian rivers is estimated as 1953 km. The annual replenishable groundwater resources are assessed as 432 km. The annual utilizable surface water and groundwater resources of India are estimated as 690 km per year, respectively. With rapid growing population and improving living standards the pressure on the water resources is increasing and per capita availability of water resources is reducing day. Due to spatial and temporal variability in precipitation the country faces the problem of flood and draught syndrome. Overexploitation of groundwater is leading to reduction of low flows in the rivers, and salt water intrusion in aquifers of the coastal areas. Over canal-irrigation in some of the command areas has resulted in water logging and salinity. The quality of surface and groundwater resources is also deteriorating because of increasing pollutant loads from point and non-point sources. The climate change is expected to affect precipitation and water availability. The paper presents availability and demands of water resources in India as well as describes the various issues and strategies for developing a holistic approach for sustainable development and management of the water resources of the country.

Keywords: Water resources, drought, surface water, ground Water, precipitation, population, sustainable development, etc.

Water is essential for human civilization, living organisms, and natural habitat. It is used for drinking, cleaning, agriculture, transportation, industry, recreation and animal husbandry, producing electricity for domestic, industrial and commercial use. Due to its multiple benefits and the problem created by its excesses, shortage and quality deterioration, water as a resource requires special attention. Table gives land and water resources of India. On global scale, total quantity of water available is about 1600 million cubic km. The hydrologic cycle moves enormous quantity of water around the globe. However, much of the world's water has little potential for human use because 97.5% of all water on earth is saline water. Out of the remaining 2.5% freshwater, most of which lies deep and frozen in Antarctica and Greenland, only about 0.26% flows in rivers, lakes and in the soils and shallow aquifers which are readily available for mankind.

TABLE – 1:- LAND AND WATER QUANTITY RESOURCES OF INDIA PARTICULARS	
Geographical Area	329 million ha.
Flood Prone Area	40 million ha.
Ultimate irrigation Potential	140 million ha.
Total Cultivable Land Area	184 million ha.
Net Irrigated Area	50 million ha.
Natural Runoff (Surface water and Ground water)	1869 Cubic km.
Estimated Utilizable Surface Water Potential	690 Cubic km.
Groundwater Resources	432 Cubic km.
Available Groundwater resource for irrigation	361 Cubic km.
Net Utilizable Groundwater source for irrigation	325 Cubic km.

Water Resources

Water resources are sources of water that are useful or potentially useful to humans. Uses of water include agricultural, Industrial, household, recreational and environmental activities.

Water Surface

Surface water is water in a river, lake or fresh water wetland. Surface water is naturally replenished by precipitation and naturally lost through discharge to the oceans, evaporation, and sub-surface.

India's average annual surface run-off generated by rainfall and snowmelt is estimated to be about 1869 Billion cubic meter (BCM). However, It is estimated that only about 690 BCM or 37 per cent of the surface water resources are actually mobilized. This is because (i) over 90 per cent of the annual flow Himalayas rivers occur over a four month period and (ii) potential to capture such resources is complicated by limited suitable storage reservoir sites.

Rainfall

The average annual rainfall in India is about 1170 mm. This is considerable variation in rain both temporarily and spatially. Most rain falls in the monsoon season (June-september), necessitating the creation of large storages for maximum utilization of the surface run-off. Within any given year, it is possible to have both situations of drought and of floods in the same region. Regional varieties are also extreme, ranging from a low value of 100 mm in Western Rajasthan to over 11,000 mm in Meghalaya in North-Eastern India. Possible changes in rainfall patterns in the coming decade, global warming and climate change and other predicted or observed long-term trends on water availability could affect India's water resources.

Ground Water

Sub-surface water, or groundwater, is fresh water located in the pore space of soil and rocks. It is also water that is flowing within aquifers below the water table. Sometimes it is useful to make a distinction between sub-surface water that is closely aquifer (sometimes called "fossil water").

India's rechargeable annual groundwater potential has been assessed at around 431 BMC in aggregate terms. On an all India basis it is estimated that about 30 per cent of the groundwater potential has been tapped for irrigation and domestic use. The regional situation is very much different and large parts of India have exploited almost all of their dynamic recharge. Haryana and Punjab have exploited about 94 per cent of their groundwater resources. Areas with depleting groundwater table are found in Rajasthan, Gujarat, most of western Uttar Pradesh and in all of the Deccan states.

Occurrence of water availability at about 1000 cubic meters per capita per annum is commonly threshold for water indicating scarcity (UNDP). Investment to capture additional surface run-off will become increasingly more difficult and expensive in the future. Over time, both for surface and groundwater resources, and situation where resources were substantially under utilized and where considerable development potential existed, has transformed in little more than a generation to a situation of water scarcity and limited development options.

India faces an increasingly urgent situation: its finite and fragile water resources are stressed and depleting while various sectoral demands are growing rapidly. Historically relatively plentiful water resources have been primarily for irrigated agriculture, but with the growth of Indian economy and industrial activities water demands share of water resources. Summing up the various sectoral projection reveals a total annual demand for water increasing from 552 billion cubic meter (BMC) in 1997 to 1050 BMC by 2025.

Conclusion

Resources are an important part of development of the country. The country has a much diversified hydro geological settings. Further the main source of the country's water resources (apart from Himalayan Rivers) is rainfall, which has very vocational characteristic as well as is very erratic in nature. The amount of holistic approach in evolving suitable management strategies. A Sustainable approach towards surface water and ground water is required for the proper management of water resource of the country in the backdrop of a diminishing resource.

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A Study Of Business Ethics And Corporate Social Responsibility In The Indian Economy**Mrs. A. Subashini**M.A., M.Phil., PhD Research Scholar in Economics Dept.
Thiruvalluvar University, Vellore.**Abstract:**

The effects of globalization and its impact on the transition from the industrial to the digital era are explored. Although the behaviour of business organizations has always had a profound worldwide impact, with the decline of the nation state economic power has, for the first time, eroded political power. Simultaneously, the undergoing revolution in contemporary information and communication technologies has significantly empowered the customer. Responding to enhanced customer awareness and sensitivity to business and social responsibility issues -coupled with consumers' increasing ability to react- companies in the digital age may be expected to develop even stronger cultures of corporate social responsibility, proactively seeking to increasingly honour their moral obligations to society in the 21st century. The paper addresses the concepts of business ethics and corporate social responsibility in the old vis-à-vis the Indian economy. The implications of the findings are crucial to support policy makers in organizations to consider the relationship between the two concepts as building blocks in their strategic initiative.

Keywords Business Ethics, Indian Economy, Corporate Social Responsibility, Global Standards, Social Accountability.

Introduction

In recent year, there is a growing trend toward the value of Ethical Business and Corporate Social Responsibility to a business. The European Commission defines CSR as “a concept whereby companies decide voluntarily to contribute to a better society and cleaner environment. In this way, CSR is “about how companies manage the business processes to produce an overall positive impact on society”. Besides, according to The World Business Council for Sustainable Development in its publication “Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local communities and society at large”. Business ethics is a “form of applied ethics or professional ethics that examines the ethical principles and moral or ethical problems which arise in a business environment”. In the same vein, we find that ethics in business “involves a basic dislocation relating to phenomenal experiences arising when things are out of place”. The role and the importance of Corporate Social Responsibility and Business Ethics are evident essentially in business development. It is expected in research works speaking about the major benefits these two concepts may bring to a business. For example, they may: 1) attract customers to the company's products, thereby boosting sales and profits; 2) encourage employees to adhere to the business, reducing labor turnover and therefore increasing productivity; 3) attract more employees to the business, thus enabling the company to hire the most skilled employees; and 4) attract investors and keep the company's share price high, thereby protecting the business from takeover. The paper addresses the concepts of business ethics and corporate social responsibility in the old vis-à-vis the Indian economy. The implications of the findings are crucial to support policy makers in organizations to consider the relationship between the two concepts as building blocks in their strategic initiative.

The paper studies the CSR and Business Ethics as a concept and tries to identify the relation, which can exist between them. The methodology persuaded by this study is qualitative in nature based on the comparative content analysis of reported literature about both CSR and business ethics. Therefore, based on the secondary data reported in books and journals, we intend to carry out our analysis to explore the relationship between CST, Business Ethics and Indian Economy. Consequently, the next sections of this paper expose what CSR and Business Ethics are followed by addressing their relationship.

Corporate Social Responsibility (CSR)

There have been active efforts and discussions for the international standardization of CSR, such as the UN Global Compact. In 2000, the UN enacted the UN Global Compact as an international protocol, which establishes ten principles in four large areas: human rights, labor, environment, and anti-corruption and classifies CSR as an international norm. The International Standardization Organization (ISO) and the Organization for Economic Cooperation and Development (OECD) have also implemented measures to internationally standardize CSR. This work toward international standardization suggests that CSR may become the new trade barrier in the near future, requiring more active and strategic responses from firms. As efforts toward international standardization are increasing and the environment and ethics of firms are becoming main issues domestically, a new perspective on CSR has become more prominent.

The concept of CSR has different terminology. It is called, social accounting, corporate citizenship, corporate responsibility, sustainable business and finally corporate social and environmental responsibility; and corporate social performance. It is interesting to observe that none of the definitions actually define the social responsibility of businesses, but rather describe it as a phenomenon. Many definitions call for a business to make a “commitment” to contribute to sustainable economic development, to work with society, and to contribute to a cleaner environment to improve quality of life without the need for coercion. Corporate Social Responsibilities (CSR) is divided into economic, legal, and ethical responsibilities. Also, CSR is seen “as integrated corporate activities abiding by the legal regulations and going beyond compliance, and investing more in human capital, the environment and the relations with stakeholders; as the business pursuit of sustainable development and focus on economic, social and environmental aspects; and, as primarily concerned about the environmental protection and the wellbeing of employees, the community and civil society in general”.

Business Ethics:

Ethics symbolize codes of values and principles that govern the action of a person or a group of people regarding what is right versus what is wrong. Therefore, ethics set standards pertaining to what is good or bad in organizational conduct and decision making. It also deals with internal values that are a part of corporate culture and shapes decisions concerning social responsibility regarding the external environment. Furthermore, the terms ethics and values are not interchangeable. Nevertheless, ethics is concerned with how a person should behave morally, and the values are the inner judgments that determine how a person actually behaves. Values concern ethics when they pertain to beliefs about what is right and wrong. The aforementioned is confirmed by Jones and George who define ethics as “ethics are the inner guiding moral principles, values, and benefits that people use to analyze and interpret a situation and then decide what is right or the appropriate way to behave”.

Nowadays, business ethics has a considerable growth in organizations. It is a comprehensive term covering all ethical issues that arise in the course of doing business. It represents rules, standards, symbols or principles that provide guidance for ethically appropriate behavior in management decisions related to company operations, and working relationship with the community. It applies to all aspects of business behavior and is relevant to the behavior of individuals and the entire organization. Moreover, the main purpose of ethics in business is to lead businessmen and businesswomen to abide by the codes of conduct that would help them secure public confidence in the services and products they offer to the concerned stakeholders.

Relationship Between Business Ethics And CSR :

To be implemented successfully, sound ethics policy is required for companies. Therefore, companies that adhere to the highest ethical policy must communicate clearly a strong and contemporary code of ethics to employees who are formally trained in it and invited to deal with ethical challenges. The unethical and scrupulous practices always necessitate spirituality and ethical support from management. Ethics policy is concerned with providing the assurances essential to all trust-based relationships. It does not regulate only business conduct and personal acts, but also offers an important form of liability limitation.

Hence, and according to the vital role that represents ethics for business and for the corporate social responsibility, it is possible to distinguish a relation between business ethics and corporate social responsibility. Moreover, the interpretation of theory in business literature and society considers that both CSR and business ethics are the same. In fact, both corporate social responsibility and business ethics are part of the other, which means that business ethics are part of corporate social responsibility or vice versa. In addition, locating an organization’s “pressure points” that highlight the need for CSR action is recommended. The first pressure point is “The firm’s values and ethics”. The concepts of work ethics and social responsibility are distinct Matches. However, they are often used to refer to the same argument or symbol. The term business ethics is supposed to be “a combination of two very familiar words, business and ethics.” The call to align business ethics and CSR in practice is mirrored by calls from scholars to better define the conceptual relationship between business ethics and CSR in the aim to better support theory development while still contested, most scholars interpret business ethics and CSR as having a close relationship.

Business Ethics And Corporate Social Responsibility In The Old Economy

Economy has been defined as “a systematic way of describing how goods and services are exchanged among members of a given community”. The earliest economies were agricultural in nature and centered on

producing, exchanging and consuming products derived from the natural world. In agricultural economies land and labour were understandably the most important factors determining economic and business success. The emergence of industrial economies, following the Industrial Revolution, was characterized by a drive of business organizations to produce goods for mass markets. In the industrial era capital and labour were by far the most important ingredients of success, leading to a hundred years of astonishing economic progress: “the industrialised countries are about 20 times better off at the end of this century than they were a hundred years earlier”. The close link between economy and the nation state constitutes one of the most prominent features of the industrial era, with political power significantly surpassing economic power. Traditionally, national governments in industrialized countries tended to focus on economic growth and full employment via creating a business environment characterized by a fairly low degree of uncertainty. The most successful type of organization in this environment was the “make-and-sell” organization, namely the organization that was able to accurately predict what the market should demand, made the product and then went out and sold it.

Business Ethics And Corporate Social Responsibility In The New Economy

Just as the industrial economy gradually evolved from the agricultural economy, so the industrial economy is currently giving way to the emerging digital economy. In the new economy technology becomes the dominant factor of wealth generation “rather than land, labor and particularly capital”, whereas “information and its proper management through information technology are making the difference and separating the winners from the losers”. In the digital environment the balance of power shifts inexorably from the manufacturer to the consumer. To be competitive in the new economy companies must offer products and services that are specifically customized to meet the needs of individual consumers. This implies that “businesses in the digital age must employ product development processes that interact dynamically with customers; that they perform a more constant-and precise- monitoring of overall market trends; that cycle times get dramatically reduced; that raw materials are procured rapidly and in a cost-effective manner; and that distribution methods that suit the customer’s, not the company’s convenience are put into place. In short, the free flow of information made possible in the digital age will put the customer at the center of business priorities and strategies”.

Economics, Ethics, And Csr: Towards An Integrated Approach Economics And Ethics:

The concept of action plan incorporates a series of elements that are extremely important for explaining rational human action. Let us consider two fundamental elements: the goals of action and the projective character of action. Agents choose their action goals after taking into account a multitude of factors: psychological, social, cultural, ethical, etc. These plans are constituted using the imagination, considering that the goals pursued are located in a future that is imagined by the agent. The purpose of Economic Theory is not to value the goodness or badness of certain behaviors, change processes or the novelties that arise; this is the domain of Ethics. However, Economics does consider what the agents conceive as ought to be (and not only what they understand as is) because this determines decisively how agents form and select their action plans and, therefore, the actions they will take to achieve their goals and the consequences they have for the physical and natural world and the human and socio-cultural domain. And this points out the exact location of the element of connection between the ethical and economic domains. Economic action presupposes Ethics; however, economic actions do not prescribe ethical contents.

CSR and Economics:

Let us now briefly examine the relationship between Economics and CSR from the point of view proposed here. Economic agents (individuals or organizations) not only differ from each other in their knowledge and capabilities but can also be distinguished by the goals to which they aspire. For example, with quite similar capabilities, different individuals or organizations may have very different aspirations. It is not our intention here to examine whether the particular prescriptive content of the goals each agent pursues is good or bad. The point here is to indicate that the content of the agents’ goals also has an ethical origin. This specific content is an essential constituent part of the agents’ action, and it cannot be explained as a mere result of knowledge and learning processes, but is direct and intimately tied to the conceptions of those agents and their ethical formation.

Conclusion

Business Ethics and Corporate Social Responsibility have always been a preoccupation of research works and present topic of debates. The objective of this paper was to present a literature review about the concepts of CSR, Business Ethics and Economics, the main relationship that we should consider as a major factor of the development of business and society. Regardless of the summarized approach to justify the current study considered a limitation, this research does offer indispensable insight into how companies deal with CSR and Business Ethics besides it contributes to further understanding of how the relationship in fact is a

fundamental requirement for organizations while transforming their strategic intent into an actual strategy seeking organizational sustainability. In this way, a new framework for strategic CSR implementation stress the above is presented. According to this framework, “there are four components that are essential to defining strategic CSR: First, that firms incorporate a CSR perspective within their strategic planning process; second, that any actions they take are directly related to core operations; third, that they incorporate a stakeholder perspective; and fourth, that they shift from a short-term perspective to managing the firm’s resources and relations with key stakeholders over the medium to long term”

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Corporate Social Responsibility

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Abstract-

Corporate Social Responsibility is explained under section 135 of Companies Act 2013. This is a voluntary concept involving the actions by companies voluntarily by way of contributing for the betterment of the society and maintaining clear and healthy environment. Here companies integrate some of the social concern related to the society and its other stakeholders for their betterment along with its business operations, in a voluntary manner.

Corporate Social Responsibility is not restricted to-

- 1 All activities covered under those projects or programs which are specified under schedule VII of the Companies Act.
2. All activities, which are conducted by the board of directors of a company in the projects, or programs, which were recommended by the CSR committee of the board of directors. These activities are conducted as per the CSR policy of the company, which is in alignment with the schedule VII of the act.

Requirement of introducing CSR for companies on mandatory basis.

Key words: Corporate Social Responsibility, Business, Philanthropy, Environmental, Social, Companies Act, 2013, etc.

Introduction

In today's world we all have face life in a complex manner and there are several issues involved on global basis in relation to environment, social, cultural and economic. It is the duty of every organisation that it should grow along with its contributors and Society. profit making should not be the only sole objective of every corporate but they have some duty towards the society where they are standing and making profit

In India, Companies Act 2013 has put this responsibility on the corporate by providing a clear and transparent CSR framework. Many big business houses that are Tatas, Birlas are voluntary contributing for CSR activities. CSR with the main principle of giving back to the society.

Applicability of CSR-

The provisions of Companies Act 2013 are applicable in relation to CSR for the following-

1. every company registered under the Companies Act
2. Its holding company as well as
3. its subsidiary company and also
4. the foreign company.

These companies, in the preceding financial year-

- Networth of more than 500 crores
- Turnover of more than one thousand crore
- Net profit of more than 5 crore

Importance of CSR

CSR is directly connected with the betterment and improvement of the society. These are simply the efforts taken by a company for the betterment of the society. The company makes expenses towards CSR from its net profit. The company also enjoy certain benefits like;

- 1) It improves the public image of a company when the efforts of company becomes public and especially when these efforts are taken for the upliftment of the society and betterment of the society.
- 2) The company also becomes known, familiar, and favourable in the consumers market.
- 3) CSR helps company to increase its brand value, once it has better relationship with its customers.
- 4) CSR contribution company always stands on the different footing when it comes to competition with its competitors in the market.

Duties and Responsibilities of board of directors in relation with CSR-

1. Board need to approve the CSR policy for the company In line with the recommendations suggested by the CSR committee.
2. All the activities in the name of CSR should always be from those activities which are specified in the CSR policy.
3. Board needs to check that at least minimum of 2% of average net profits which are made by the company in the last preceding three financial years, is actually spent by the company for CSR activities specified in the CSR policy.
4. If the company is newly incorporated and has not completed three financial years after its Incorporation, then the average net profit would be calculated only for that financial years which are completed since the date of incorporation of this company.

It is the duty of the boat to cover in the board report the following;

- The composition of CSR committee
- CSR policy in detail with its contents
- If for any reason CSR amount is not being spent for 2% of the net profit, then must specify the reasons for this unspent amount and provide the details of any transfer made for this unspent amount, which relates to some ongoing project to some specified fund. This transfer should be made within 6 months from the expiry of the financial year.

Provisions dealing with the transfer and also about the use of unspent amount-

Following are the funds wherein the transfer can be made for the unspent amount of CSR:

- 1 Any contribution made for the Prime Minister's national relief fund
2. Any other fund which has been initiated by the central government for the development of socio-economic for providing relief and also their welfare of the scheduled caste Scheduled Tribes minorities women and other backward classes.
3. Any type of contribution made in favour of an incubator, which is funded from either central government or state government or any of the public sector undertaking belonging to the state or Central government or any of their agency.
4. Several contributions made in favour of--
 - a) public funded universities
 - b) all those National laboratory and autonomous bodies which are established under the Indian Council of Agricultural Research ICAR
 - c) Council of scientific and Industrial Research CSIR
 - d) The Department of Atomic Energy DAE
 - e) Indian Institute of Technology IITs
 - f) Defence research and development organisation DRDO under the ministry of Electronics and information technology
 - g) Department of Science and Technology involved in research activities in technology, science, medicine and Engineering which has ultimate goal of encouraging sustainable development goals SDGs.
5. In a situation, where the unspent amount related to some ongoing project as per the companies CSR policy then this amount should be transferred in maximum 30 days from the financial year ending date in a separate account of a scheduled bank which is opened by the firm
6. The name of the account should be "Unspent Corporate Social Responsibility Account" and the funds, which has been credited here, should be utilised as per the CSR policy within 3 years from the date of transferring the amount.
- 7 If the company fails to use this amount within 3 years then this unspent amount should be transferred to some other specified fund after completing the 3rd year date.

Composition of CSR committee

1. It is the duty of every company to whom CSR provisions are applicable constitute a CSR board in the name of CSR committee.
2. There should be at least three directors to form this committee
3. Among the three specified directors above, one of them must be an independent director
4. If a company is not required to have an independent director then search unlisted public company for a private company can form CSR committee without having any independent director

5. For foreign companies, this committee shall consist of minimum two persons, out of 21 should be able to accept all the notices and other documents on behalf of this foreign company being an Indian resident. This foreign company should also nominate the other person.

Responsibilities of the CSR committee

1. The first and foremost responsibility of this committee is to draught a CSR policy and recommend the same to the board of a company. This policy would specify all those activities, which can be undertaken by this company as per schedule VII of the Companies Act.
2. This committee also recommend about the expenditure amount, which would be incurred for CSR activities conducted by the company in future.
3. The board should always monitor the CSR policy with the reasonable gap of time.
4. This committee should have a transparent mechanism for implementing all those CSR activities conducted by the company during the year.

Provisions for CSR reporting under the act

1. It is the duty of the board to include in the board report for any financial year starting from first of April 2014, one annual report relating to CSR.
2. If it is a foreign company, then its balance sheet shall have CSR report as an annexure to it.

CSR Policy

This policy contains all those activities, which should be undertaken by the company as per schedule VII to the act and spending made in relation there to. CSR activity should in no case be the same as activities conducted during the normal course of the business of company.

1. Board should display the contents of CSR policy on the company's website
2. All the specified activities in the policy should be conducted by the company
3. For large projects or programs some companies can come together and conduct CSR activities in a group and they can report separately for such programs or projects or activities
4. CSR policy shall have monitoring provisions in relation to these programs, projects or activities.

Activities, which are permitted under, schedule VII to the Companies Act 2013 in the name of CSR

It is the first and foremost responsibility of the board to check the CSR policy of the company and see to it that the activities covered by the company as per schedule VII to the Companies Act. Following can be the activities conducted by the company in the name of CSR:

1. Activities for poverty abolition, hunger malnourishment, preventive Health Care activities, sanitation related activities, making arrangements for safe drinking water
2. Activities for education improvement and Employment strengthening vocational skills for children women and for elderly and for differently abled projects.
3. Activities conducted for gender equality improvement and for constructing homes and hostels for orphans and for women
4. Steps taken by the company to bring socially and economically backward people at par and thereby reducing inequalities faced by them
5. Maintaining ecological balance and safeguarding the sustainability of environment by protecting the flora and fauna, Welfare of animals, Agroforestry, conserving the natural resources by maintaining a quality of soil and water, air. This also includes all the contribution made in relation to rejuvenation of river Ganga.
6. Expenses incurred for protecting the national heritage art and culture by re-storing the building and historical sites works of art, promoting and developing traditional arts and handicrafts and also setting up some public libraries.
7. Anything done for the benefit of skilled armed forces, war widows and their dependents.
8. Providing training for encouraging rural Sports, national sports, Paralympic Sports, Olympic Sports.
9. Any contribution made to Prime Minister's national relief fund or any fund set up by central government for the development of social economic and for the Welfare of scheduled castes and tribes and backward classes minorities and women
10. Central government approved incubators for Technology, can be funded under CSR
11. Any project for rural development
12. Disaster management activities including relief rehabilitation and reconstruction

13. Slum area development, any area which is declared as slum area by the central or State government or any other local authorities for the time being in force.

Provision for fines and penalties in case of non-compliance of CSR provisions

If a company default in complying with CSR provisions in relation to the CSR spending amount or transferring the unspent amount and utilising the same amount as per the CSR provision such company shall be punishable with minimum fine of rupees 50000, which can be increased up to 2500000 rupees.

Every officer in default for such compliances would be liable for a punishment of imprisonment, which may extend up to three years or minimum fine of rupees 50000, which can be increased to five lacs or with both.

CSR Amendment rules, 2021

The Ministry of Corporate Affairs as notified through a notification of 22 January 2021 about the company CSR policy amendment rules 2021. As per this amendment, now from 1 April 2021, all those companies or entities which are undertaking CSR activity need to register with central government by filing e form CSR 1 with the registrar of Companies.

Summary of CSR Amendment Rules, 2021

1. Filing of E form CSR 1 with register of company for generating unique registration number by the entities who are undertaking CSR activities from 1st April 2021.
2. Now board of directors are duty bound to disclose the composition of CSR committee and CSR policy about the project approved by them to maintain transparency, they shall display on the company's website.
3. Companies having average CSR obligation to pay 10 crores or more in the last three financial years they shall undertake from an independent agency and impact assessment of their CSR projects with outlays of 1 crore rupees.
4. This amendment has put restriction on administrative overhead that board shall not incur more than 5% of total CSR expenses made by the company in a financial year.
5. A company can spend CSR amount for creating or acquiring a Capital Asset, which can be held by three entities.
6. The unspent CSR amount needs to be mandatorily transferred.

The following activities will not be included in CSR

1. Any activity undertaken during the normal course of business of the company. explanation says that if any companies involved in research and development of a new vaccine or medicines in its normal course of business then such company can undertake research and development for new vaccine or medicines related to covid-19 for financial years 2020- 2021, 2021-2022, 2022- 2023.
2. If a company undertakes any activity outside India, except other than providing training for Indian sports personnel who is representing the state or union territory at a national level or representing India at international level.
3. Any contribution made to political party as per section 182 of the Companies Act either directly or indirectly.
4. Any benefits provided to employees of the company as per clause (k) of the code on wages, 2019
5. Any sponsorship activities provided by the company having some marketing benefits in relation to its products or services.
6. Any statutory activities undertaken by the company for fulfilling its statutory obligations as per any law in force in India.

The following rules have been amended by January 2021 amendment

Amendment in rule 12 definitions

Administrative overheads definition includes expenses for general management and administration of CSR function in the company but it will not include the expenses directly in curd or designing or implementing monitoring and evaluating a particular CSR project or program.

CSR policy definition means a statement, which contains the fruit and directions given by the board of a company after considering the recommendations of CSR committee. This policy also includes guiding principles for selecting implementing and monitoring activities as well as formulating annual Action Plan.

Internal organisation definition means an organisation which is notified by the central government as an international organisation as per section 3 of United Nations privileges and immunities act 1947 to which the provisions of schedule to the act applies.

Ongoing project definition means a multiyear project started by a company for fulfilling its CSR and Publication having three years' timeline but excluding the financial year in which it was commenced. this shall include any such project which was initially not approve as a multimedia project but its duration has been extended for more than one year by the board reasonable justification. So,Ongoing Project includes project already commenced and multiyear project with minimum 1 year and maximum 3 years duration.

Public authority is defined as per clause h of section 2 of The Right to Information act 2005.

CSR committee means corporate social responsibility committee of the board as per section 135 of the Companies Act.

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Indian Rustic Life in Kamala Markandaya's *Nectar in a Sieve***Dr.Prashantkumar Kamble**Department of English,
Rajarshi Shahu Arts & Commerce College, Rukadi**Introduction-**

Kamala Markandaya is one of the foremost woman novelist of Indian origin writing in English. She won international fame and recognition with the publication of her very first novel, *Nectar in a Sieve* (1954). She occupies a very prominent place in the world of Indian English Novel. A wonderful story teller she is able to comment upon the Indian reality in an authentic manner. She is one of the remarkable novelists in Indo-Anglian Literature. All the ten novels authored by her reflect the Indian scenario in a realistic manner. Her novels deal with diverse themes that touch upon domestic, economic, political, social, ethical, cultural and religious aspects of life. She portrays how the society becomes totally degraded because of its withdrawal from the original village atmosphere. The impact of modernization is felt not only by the society but also by the individuals who experience the pangs of material miseries. East-west conflict, the problem of poverty and unemployment, the tug-of-war between traditional values and modern life, conflict between religion and science, the problem of hunger and starvation etc. are some of her recurring themes in her novels. The problems of independent India such as violence, murder, alcoholism, sexual abuse, prostitution, corruption, dishonesty are brought to light in an authentic way.

In Kamala Markandaya's *Nectar in a Sieve*, the traditional Indian village life is brought before our eyes. The novel revolves around a south Indian village where the people live in harmony with Nature. As man has to lead his life by the mercy of Nature, an ancient, traditional, land-based society like this one, stresses cooperation with Nature. In such a society, man fulfils his needs in a simple and eco-friendly manner. Bayapa Reddy opines: The novel presents a realistic account of rural India with all its sensitiveness to nature, convictions in traditions and attitudes to life. The economic system here is totally based on need and not greed. Only in a village, Nature abounds in her beauty. Unlike the present modern civilization where man fulfils his needs in an artificial way by means of industrial enterprise, a villager is satisfied with the basic necessities of life. The villagers, despite their apparent poverty, are more content than the city dwellers who have copious money and modern amenities. Rukmani in this novel is a personification of such a complacent villager. She never hankers after anything. She is totally satisfied with the basic necessities of life provided by Nature. Her simple way of living gives her peace of mind. She says: While the sun shines on you and the fields are green and beautiful on the eye and your husband sees beauty in you which no one has seen before and you have a good store of grain laid away for hard times, a roof over you and a sweet stirring in your body, what more can a woman ask for? ... Peace and quiet were ours.

On Agriculture

Agriculture is the backbone of any civilization. Without agriculture, a civilization will be ruined. The village people derive great satisfaction and peace of mind by engaging in agriculture. A villager derives great pleasure in seeing the rich harvest which is the outcome of his hard labour. Rukmani summarizes this in her own words: The sowing of seed disciplines the body and the sprouting of the seed uplifts the spirit, but there is nothing to equal the rich satisfaction of a gathered harvest, when the grain is set before you in shining mounds and your hands are whitened with the dust of the good rice; ... (NS:107)

The village people know how to utilize natural resources to meet all their requirements for simple living. Fresh air, fresh food and hard work constitute the average village life style. The villagers always whole heartedly acknowledge God's mercy and God finds a place at the center of all their activities. When the land is ready for sowing the seed, they seek the blessings of God for a good harvest. The following words of Rukmani corroborate this fact: As soon as the rains were over and the cracks in the earth had healed and the land was moist and ready, we took our seed to our Goddess and placed it at her feet to receive her blessing and then we bore it away and made our sowing.

Equilibrium Of Mind

The villagers possess equilibrium of mind which makes them face the vicissitudes of nature and challenges of life without being disturbed. Sometimes there is abundance of rain and at other times there is insufficient rain. They accept the vagaries of nature as part of their lives and they hope for the best. But the

advent of tannery proves to be a death blow in the calm and peaceful life of the village. It deracinates the ancient cultural roots and makes people ape the western culture in the name of modernization. It not only spoils the wholesome atmosphere of the village but also lures the innocent villagers into greedy, self-centered, deceitful and grossly materialistic beings. The unexpected change brought about by the tannery ushers in disastrous consequences. Yashoda Bhat comments: The 'change' comes to the village in the form of the tannery abruptly, like a stone dropped into a quiet pond giving rise to numerous ripples and waves. But however quietly it comes, it is a veritable bombshell.

Gradually Submerged In Social Evils

All social ills like prostitution, crimes, demoralization, dishonesty, corruption, alcoholism etc. gradually engulf the villagers and they start behaving in a different way. Prices of essential commodities shoot up, inflation clenchs the vulnerable villagers and everywhere there are crowds, filth and noise. The tannery, besides polluting the village, succeeds in polluting the body and minds of the villagers. It spoils Nature and distorts the village life totally. Rahmat Jahan points out: Though a sign of modernity, this industrialization spoils the natural beauty, uphauls village economy, destabilizes a tenant farmer, sets in social degradation and erosion of traditional and human values. The owners of the tannery behave in an abnormal way. They seem to be callous hearted people who treat the poor without any compassion for them. Saxena remarks: The owners of the tannery did not behave like normal human beings. They were devoid of any feelings of compassion and kindness to the poor. The tannery had made them savages.

Demoralization

Demoralization, which is the outcome of industrialization, takes its root in the quiet life of the village. The smell of tannery, the shouting and the crowds make the village a replica of hell. The youngsters have become ruffians by exhibiting rude behavior. Everybody has become selfish and money-minded. Rukmani's daughter Ira turns to prostitution and money has become everybody's interest. Rukmani sums up the prevailing condition: Now it is all noise and crowds everywhere and rude young hooligans idling in the street and dirty bazaars and uncouth behaviour and no man thinks of another but schemes only for his money.

Damage Through Urbanization

In *Two Virgins*, Kamala Markandaya touches upon the traditional ways of Indian rural life and the damage brought about by the impact of urbanization. The story centres around two sisters, Saroja and Lalitha, the former being rooted in Indian tradition and customs and the latter being influenced by the western ways of living. Saroja is a God fearing village girl. Generally the villagers acknowledge God's mercy and love by giving offerings to God in the temple. Kamala Markandaya informs: People were always surrendering things in the temple, not to each other but to God. The priests took them in his name. Mostly it was fruit, flowers, coconuts, honey and milk which they laid at God's feet, which Saroja considered beautiful and proper.

Anti-Machine Attitude And Other Trends

Like Rukmani in *Nectar in a Sieve*, Saroja is also totally against allowing machines into her village which, according to her will spoil the skills of her people. Having influenced by the western education, Lalitha willfully gives up the long cherished tradition and rich heritage of her country. She frowns upon the traditional village life as it is devoid of all modern gadgets. Anita Mahajan points out: Lalitha, being modern in her ways and outlook, always disparages the traditional village life considering it primitivistic due to the absence of comforts and facilities the city life has, such as refrigerators, telephones and electric fans.

She wants to become a film star and enter into the glamorous world. She comes across Gupta, a film director. But Gupta seduces her and makes her pregnant. She tries to commit suicide and ultimately runs away from the village never to return. Kamala Markandaya, through the character of Aunt Alamelu, clearly brings out age old virtues and time honoured traditions which are always held in high esteem in the society.

When Lalitha reveals her mind to become a film star, Aunt Alamelu warns her about the consequences. As Lalitha is adamant, the Aunt sums up the mentality of modern youth in the following words: I know what is going on these days, these days young people think they know best, they have no respect for their elders, they have no respect for anything except their own willful ways.... But Saroja, on the contrary, is deeply rooted in the village soil. She loves her village with its buffalo, monsoon rain and the calm and serene atmosphere with green fields and fresh air. Unlike Lalitha, she abhors the lure of the city and escapes the sexual temptation of Devaraj, assistant of Gupta. Though Lalitha is beautiful, well educated and modernized, she has become a victim of illusion.

She lives in a world of fantasy, but finally she realizes what reality is.

Crime-Ridden Cities

Despite their advancement and economic development, modern, unhealthy, crimeridden cities are unable to even provide fresh air and food, what to speak of peace of mind. Modernization has totally destroyed the traditional culture and values and modern man descended to a level of a massive hard-working machine. Lust, greed, anger, sense gratification, avarice etc. have become the constant companions of modern men and women. Though modern man does not believe in hell, he is busy creating it on earth by leading a machine life. The motto of ancient Indian Rustic life is to lead a simple life without any anxiety. teaches people how to utilize the rare human form of life for a higher purpose of living harmony with Nature. It shows the way to the people to lead a life of tranquility without striving hard for the basic necessities of life. The ancient Indian culture is not a primitive it is pragmatic and universal. By following the traditional Indian life style, modern man indubitably find the oasis of peace in the desert of material miseries.

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Research On Impact Of Covid 19 and Economic Development With Sustainable Development.**Prof. R.R.Godbole,**
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VPIMSR, Sangli.**Prof.R.P.Shinde,**
VPIMSR, Sangli.**Abstract:-**

All the countries have agreed on a goal to modify our world till 2030, by using the Sustainable & Stable Developmental Goals (SDGs) that aim to ensure no one is left behind, and everyone benefits from development Efforts & enrich activities. There is a great need to now include a homogeneity of three elements: economic growth, social development and environmental protection. The inappropriate balance between environment and development is causing issues in achieving sustainability. In this paper we aim to study the possibilities to achieve sustainable development. In this paper secondary sources of information have also been used.

Key words:-sustainable development, economic growth

Introduction:-

Sustainable development is that the buzz word today. Every world body and nation moreover as policy thinkers engross about the concept of sustainable development. The way to conserve the natural resources for future generation? But truly nowhere there are sustainable developments. Now every nation wants rapid economic process to alleviate poverty and make employments. Rapid economic process implies to unsustainable environment. Newly developed economies depend on cheap natural resources for higher economic process. Presently there's a wave of right nationalism in every a part of the globe. Be it India or within the UK or within the USA. Protectionism is that the main mantra. At the value of environment degradation. Although Paris summit is successful, still there's an issue of derailment by the USA. President Trump has taken away from the Paris Convention. How is it possible when rapid consumption is that the main thrust of the government.

The year 2020 was purported to be the year by which the Progressed country parties were to fulfil the goal of jointly assembling US 100 billion dollar a year for climate finance, a vital component of the commitments made by the developed countries, The adjournment of COP 26 to 2021 also gives less time for negotiations and other evidence based effort to year -2025

What is sustainable development?

"Sustainable development is expansion that meets the necessities of the current deprived of negotiating the power of forthcoming generations to fulfil their own needs." Sustainability is that the foundation for today's leading global framework for international cooperation. Back in 1972, the boundaries to Growth had warned that we'd soon exceed the 'carrying capacity' of the earth, and by the mid-1980s the authors were proved right. Since that point, industrial sophistication has been bankrupting future groups not just financially, but by stealing an unfair proportion of their resources. Unless dramatic changes are made, within 20 years the world supply of oil, H₂O, food and plenty of minerals will cease to satisfy demand. Yet even against this backdrop, researcher feel that we must always cease our dangerous obsession with 'sustainability'. In fact, there's no such thing as renewable energy in any respect. Altogether other tools & sources of power generation put away non-replenishable resources. For example, Wind turbines require facilities such as generators, towers, glides to be constructed, while photovoltaic solar cells don't materialise out of void. All styles of alternative power generation even have a limited working life, additionally as a comparatively low.

India and the SDG's:-

India has taken several active steps at both the nation-wide and also the sub nationwide level to conventional the SDGs into the policies, schemes and platforms of the govt. In 2020, the highlight of India's SDG initiatives has been the Voluntary National Review (VNR) presented to the world organization High-Level Political Forum (HLPF) on Sustainable Development which is that the highest international platform for review and follow-up of the SDGs under the auspices of the world organisation Economic. The reviews are voluntary and country -led and are geared to enabling the allocation of experiences, containing successes, loopholes and lessons learned.

Climate change:-

India is adopting many different climate actions to fulfil its requirements. In its NDC(Nationally determined contribution), India has sought to scale back the emissions intensity of its GDP by 33 to 35 per cent below 2005 stages by the year 2030; achieve 40 per cent of cumulative power installed capacity from non-fossil fuel sources by 2030; and enhance forest and tree cover to make additional carbon sink love 2.5 to three billion plenty of greenhouse gas by 2030. the opposite goals pertain to adoption of sustainable lifestyles supported traditional values of conservation and moderation, adaptation to global climate change, clean economic development and environment friendly technology, etc.

Present situation worldwide:-

Globalization has reached at saturation. Observe the bulk of the planet economic institutions just like the IMF, the WB, the WTO and also the EU. All are non-effective. So multilateralism is dead now. It's taken over four decades to realization of the WTO but now it's non effective. Inordinate economy such as USA which activist of world occupation, transaction and free market herself voted for Trump who symbolize American identity. Russia has way back lost her identity in global economy but recently bounced back under Putin. China is often hawkish to uplift her interest. India is incredibly curious case. Under the leadership of PM Narendra Modi, she has asserted her presence in every global front. It's emphatic in her self-interest. To not be intimidated down by up-to-date pressure. Recent election within the UP has proved the recognition of present govt. during this scenario most are forgetting the precarious environmental and ecological condition of the planet. Day by day we are witnessing record temperature each year. Freezing snowflake is hazardously disappearing. Flora and fauna is admittedly in peril. Global climate change isn't any more myth. It's reality. Still we aren't in war footing against environmental degradation.

Localization of the SDGs:-

Localisation of SDGs is crucial to any strategy geared toward achieving the goals under the 2030 Agenda. Essentially, localising SDGs involves the method of adapting, planning, implementing and monitoring the SDGs from national to local stages by relevant institutions and funds Controllers. In terms of engagement and collaboration of institutions, it's consequential how the Centre, State and native Governments work together to realize the SDGs at the national level; and the way SDGs provide a framework for subnational and native policy, planning and action for realisation of the SDG targets at local phase. The SDG India Index and Dashboard, designed and developed by NITI Aayog, is that the principal tool to live and monitor SDG performance at the national and sub-national phases.^[1] The states are institutionally sanctioned and placed to attain the SDGs with the support of the Central Government and associated institutions. Henceforth, the States are the key actors within the progression of localisation of SDGs with the Central Government in performing an enabling role.

Indian Scenario:-

In case of India, it's visiting face the most important problem in water scarcity. Present government has started projects like Namami Ganga, but it's not specified appropriate result. The Ganges is that the life line of individuals of gangetic belt. But the Government is not doing proper. Erratic monsoon has been playing havoc with the agriculture. It's a really adverse effect on our agricultural growth. Previous year whole South India was reeling under the destructive famine situation. Total north India is rely upon Himalayan Glacial fed river system. So any regression within the Himalayan glaciers are adversely affects the lifetime of the 60% of our entire population. All available indicators point to the ecological situation being nothing in need of disastrous. Two-thirds of the land is degraded to numerous stages of sub-optimal productivity; pollution in several cities is amongst the world's worst; 'recent' wastes including electronic and chemical are bring manufactured at charges far beyond our capacity to reprocessor accomplish. In India, In 1972, the then Prime Minister of India, Mrs Gandhi emphasized, at the UN Conference on Human Environment at Stockholm, that the removal of poverty is an integral a part of the goal of an environmental strategy for the planet. The representations of intertwined & interrelated of a collective global social conscience and of 'spaceship earth' cannot be constrained to environmental issues alone.

SDG related intermediation of the Centre Governments through the pandemic

The COVID-19 pandemic has, further, underscored the requirement to stay sustainable development at the very core of any development approach. The pandemic has challenged the health infrastructure, adversely impacted livelihoods and exacerbated the inequality within the food and nutritional availability within the

nation. Confirming that nourishment and nutritious necessities are met which the well-being facilities are improved to address the pressure created by the contagion. Moreover several improvements processes are conveyed in like in agricultural labour and MSME reforms which can directly or indirectly influence the SDGs. The State Governments also responded with several measures to support those laid low with the pandemic through various initiatives and reliefs to fight this pandemic.

Poverty Eradication and Sustainable Livelihoods

Poverty and a degraded environment are closely inter-related, especially where people depend for his or her livelihoods totally on the natural resources base of their immediate environment. Restoring natural systems and improving natural resources management practices at the grassroots level are central to a technique to eliminate poverty. The survival needs of the poor force them to still degrade an already degraded environment. Poverty magnifies the matter of hunger and malnutrition. The matter is further compounded by the inequitable access of the poor to the food that's available. Economic process also result in the elimination of crops that have traditionally been integral to the diet of the poor, thereby threatening food security and nutritional status. Sometimes our present need exceeds our greed. as an example for electricity we rely upon thermal power which is ecologically and environmentally unsustainable.

Other means like apparatus is additionally environmentally unsustainable. And new mean of energy sources like solar, tidal, wind and other renewable sources don't seem to be as popular because of various reasons. Genetically modified food also create problem in ecosystem which isn't environmentally sustainable. Now the requirement of the hour is to extend food production to feed ever growing population in our country. But traditional agricultural isn't ready to increase food production to match the ever growing need of the population. That the modern agriculture technique called revolution has achieved that concentrate on. For instance in Punjab and Haryana thousands of hectares agricultural lands are tormented by increasing salinity of the soil. There are such a lot of examples in our country which result in unsustainable agricultural growth. Consequently Government is now generous importance on "Evergreen green revolution" which is maintainable one. Physical infrastructure is incredibly essential for economic development of country. But sensitive selection of natural resources for improvement of physical infrastructure is incredibly much important. We all know land, water and forest are very limited in nature and size. But recent incidents of agitation by farmers against land acquisition by Government and industrial home is serious in nature. Thanks to increasing population thousand hectares of fertile land are converted to industrial and residential purpose. Development is important for any economy, but it mustn't hamper the sensitive ecological balance.

Conclusion:-

Therefore now it's widely accepted that development is incredibly necessary for growth of any economy. But it's also true that ecological and environmental sustainability of nature shouldn't be hampered. In India it's very sensitive issue. In one hand rapid economic process requires to get gainful employment and in other hand we've got to conserve our delicate ecosystem without hampering the economic development. It's ratified Paris Convention which needs definite cut in emission. In Economic Survey report it talked about gradual phasing out of fuel and replacement of renewable energy. In few cases Government has shown its commitment like phasing out of administrative price of petrol and diesel, Ujjala scheme which popularize the utilization of LPG among poor people. But the important issues are in Land Acquisition Policy and environmental clearance of assorted projects. Therefore the real challenge of sustainable development in India is to form an ideal trade-off between environment and economic development. Although it's very painful but we've got to unanimously agree that we've left with no other

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The FMCG Industry A Research and Dependency on Sales Channels.**Rupali Jadhav**Ph.D. Scholar, Department of Management
Shri. J. J.T. University, Rajasthan**Dr.Arun Ingale**Research Guide at Department of Management
Shri. J. J.T. University, Rajasthan**Abstract:**

The FMCG business has been one of the main ventures in the Indian economy in the last couple of years. The development of this industry is, for the most part, reliant upon the increment in their provincial pay and the range of items and administrations to end customers with the assistance of promoting channels. Legitimate showcasing channel inclusion is a successful way to invigorate requests and to hold onto existing clients and to acquire new clients. This paper gives an inside and out take a gander at the fulfillment and reliance on showcasing channels by the FMCG business. The examination is a review type where an advantageous arbitrary testing method is utilized. The information was collected by means of a survey of 50 FMCG companies with appropriate advertising channels. The quantifiable methods used in the research are bewitching and chi square measures. The findings of the research have shown that the advertising channels of the FMCG industry in India are indisputable and dependent.

Keywords: FMCG sector, quantitative methods, marketing channels, advertising channels.

Introduction

The quickest moving buyer's merchandise industry is the fourth driving area in India. Family things and individual considerations are the main fragments utilized by this area for creation. Simple access, mindfulness and way of life changes are the vital drivers for their development. The FMCG market faced gigantic development and offered more from the metropolitan area, around 55%, yet in earlier years it changed and the country fragmented its commitment. Over the last couple of years, there has been fast development in the FMCG business on account of the half country's spending. Showcasing assumes a basic part in the advancement of any organization. The principal capacity of the showcasing channel is to reduce the distance between the dealer and the purchaser. It additionally gives a connection between vendors and purchasers inside a similar country. It is the best manner in which the dealer can undoubtedly convey their items and administrations to the clients. There are three classifications of establishments in the promoting channel. The clients of the items are families, people, government, business purchasers, organizations. Advertising channels have various functions. Marketing channels have various capacities. The capacities will be founded on the sort of action which is being completed. The three fundamental capacities are conditional capacities (hazard presumption, purchasing), strategic capacities (transportation, stockpiling, arranging, getting together) and working with capacities (financing, channel coordination, post-buy administration, upkeep.) The principle utilization of the showcasing channels is to trade labor and products with end buyers. Among the all the advertising channels, the dissemination channel has an essential job in the appropriation of items until they arrive at the end customers. The dispersion channel, for the most part, centers around conveyance and it assists with the dissemination of private and public merchandise to different degrees of clients. There are a ton of go-betweens, similar to appropriation offices, and organizations, that have arisen to offer help to enterprises for the viable conveyance of merchandise. The showcasing channel is a section which assists firms with accomplishing a specific cycle. It incorporates exercises, associations, and individuals who give the utilization of products at each degree of dispersion. Showcasing procedures and deals methodologies are created by enterprises for the viable administration of channels and they additionally assist organizations with improving their customer base. Mr. Ashish Rehate (2006) 'www.scribid.com' has directed an undertaking report on "The circulation channel of soda organizations in Nagpur". He examined the accessibility, purchaser inclinations, and spot significance of circulation channels. They found that accessibility is especially impressive for coke. The showcasing channels on which they depend are ads, retailers, and wholesalers. They closed by saying that the benefits which are given to retailers and wholesalers by the organization are particularly small. So it ought to be seen by the organization.

Promoting directs have a job in the advertising of items and administrations. They give a connection between makers and customers, and it influences firms' value. They likewise assist with redoing benefits and with introducing, keeping up with and offering credit. There are various promoting diverts that right now exist on the lookout for the FMCG business. AmulPvt. Ltd, Dabur India Pvt. Ltd, Britannia, PatanjaliAyurved, PepsiCo, Coca-Cola India, Hindustan Unilever, Nirma, Himalaya Healthcare. Ltd. The variables which each

organization ought to consider at the hour of planning a showcasing channel are the time assumption for the client, request size, administration required, accommodation, and cost saving.

Businesses pick advertising channels solely after considering factors like transformation, adaptability, and cost. In some cases, it likewise shifts dependent on the item and market. At the arranging stage, businesses should choose fitting showcasing channels and decide if middle people are productive and appropriately checked.

The chances of promoting channels are exceptionally wide and advertisers can without much of a stretch discover open doors on the lookout. Advertisers might deal with issues in tracking down the best chances. While moving through the wide chances, they can not uncover and use all the accessible advertising channels with the best possible Return On Investment. Mr. James R Brown, Cheketan S Dev (2000) 'Diary of Marketing, 64 (2), 51-65, 2000' has directed an investigation into "Overseeing showcasing channel openings: The effectiveness of elective administration systems". The destinations of their examinations are to decrease progress in promoting channels and to comprehend the advancements associated with social trade, proprietorship, and interests in exchanges of explicit resources. They clarified that progress is bothered when possession and interests in exchanges of explicit resources are perceptible as administration systems.

In India, agribusiness contributes around 16% to GDP and it additionally helps in the absolute advancement of the country. In the year 1963, the Agriculture Produce Marketing act was passed by the Indian government for ranchers. This demonstration assists in lessening the misuse of ranchers by mediators. Dr. Ingrid Verhaegan, Mr. Guido Van Hylenbroeck (2001).

The 'Diary of Rural Studies, 17 (4), 443-456, 2001' has directed a rustic report on "Cost and its advantages for ranchers taking part in imaginative showcasing channels for quality food items. They read about the exchange costs for ranchers utilizing promoting channels and tracked down that co-agents are making a fundamental move to decrease exchange expenses and some different advantages for ranchers.

The promoting channel is likewise called the dissemination channel, or, of course advertising. Indian businesses can get an upper hand in the market through the effective administration and activities of showcasing channels. The advertising channels likewise assist with the creation and conveyance of merchandise. Mr. Krunal.S (1998) 'www.slideshare.com' has led an examination on "A Brief Study on the Effectiveness of the Market Distribution Channel of Pepsi Products in Patna". They contemplated the thickness of the dissemination channels on which they utilized and depended by contrasting them with rivals in their market. The examination uncovered that the fundamental channels they utilized were promotions, retailers, and wholesalers. They discovered that a few retailers and wholesalers were griping about the accessibility of items dependent on request. They finished up by saying that their promotion channels are very much evolved and coordinated.

Businesses pick advertising channels solely after considering factors like transformation, adaptability, and cost. In some cases, it likewise shifts dependent on the item and market. At the arranging stage, organizations should choose suitable promoting channels and decide if middle people are productive and appropriately observed. The advertising channel faced a change from conventional structures to present-day structures, and it changed the way utilized by individuals to showcase brands. Besides, it made changes in organizations too. The mainstream advanced showcasing channels are Email Marketing, Pay-Per-Click Advertising (PPC), Search Engine Optimization (SEO), Display Advertising, Social Media Marketing (SMM), Content Marketing, Affiliate Marketing, and Online Public Relations. These days, computerized showcasing has evolved and has totally changed the market situation for organizations from various topographies, ventures, and time regions. The advancement of the computerized advertising industry gives a prologue to different advanced promoting channels and it likewise assists with focusing on legitimate shoppers for the showcasing of labor and products offered by the advertisers. Taimopaavola (2017) 'www.slideshare.com' has done an investigation into "Successful advanced promoting channels": In this they enquire about the best approach to getting more clients with the assistance of a showcasing channel for an IT organization, and furthermore about the best offer to draw in online clients. They gave a clarification about the most proficient promoting channel, email, and the best offer was to check the adequacy of the assistance given since it is a piece of B2B promoting.

Global advertising diverts are useful in organizing firms for various showcasing exercises between various countries. Worldwide showcasing channels can be adequately used uniquely through the determination of the best and most appropriate advertising channels. It assists firms with meeting their worldwide advertising procedures among clients to impart from one side of the planet to the other. The circulation channel is the primary channel among showcasing channels and it primarily centers around conveyance. "www.slideshare.com has an article on "wellsprings of force in global showcasing channels". The investigation is to discover the connection between foreign merchants and fare manufactories in dealing with the wellsprings

of force. They found that foreign merchants' utilization of installment is totally identified with deciding, distinguishing, adjusting, and mastering power sources as they are perceived and endorsed by sending out directors. They likewise clarified that particular prizes and discipline components have a significant role in the connection between foreign merchants and fare producers. Struggle Coordination Learning is one of the primary spaces of advertising channel executives. It is a component that plans to work on the capacities and help to improve and build esteem in showcasing channel connections. It principally upholds the wholesaler.

Review Of Literature

1) Jehoshua Eliashberg and Donald A Michie (1984) led an examination of "Various business objectives sets as determinants of advertising channel struggle: An experimental investigation". This investigation obliges ideas and thoughts from different disciplines to investigate and gauge connections among clashes and define numerous business objectives in a dispersion channel are checked observationally through a bunch of dyadic information. The outcome builds up an examination between clashes of channel individuals and as a contention determinant among channel individuals.

2) Dr. Ian Wiking (1981) directed an examination on "Force, struggle, and fulfillment in dispersion channels-an experimental investigation". The point of the examination is to comprehend the association between force, fulfillment, and struggle and how they are created. They utilized mass brew conveyance channels with the end goal of speculation testing. For this, they utilized an easygoing way of investigation and an optional relaxed model, which added to great ideal information.

3) Mr. James R Brown and Cheketan S Dev (2000) led an examination on "Overseeing advertising channel openings: The effectiveness of elective administration components". The goals of their examination are to know how well they reduce progress in advertising channels and to realize the advancement associated with social trade, proprietorship, and interests in exchanges of explicit resources. They inferred that progress is bothered when possession and interests in exchanges of explicit resources are recognizable as administration components.

4) Fabio Musso (2000) led an examination on "Development in Marketing Channels". Connections, innovation, channel structure. The primary objectives of the investigation are to comprehend the development of showcasing channels and the impact of this on the channel in general. The investigation results show that a large portion of the channel development consequences for cooperation exercises and the impacts are comprehensively obvious.

5) Dr.IngridVerhaegan, Mr.Guido Van Huyenbroeck (2001) led a country to concentrate on "Cost and advantages for ranchers taking part in creative showcasing channels for quality food items": The fundamental target of their task is to break down the advantages and expenses of ranchers when they rely upon advertising channels. They found that there will be exchange costs for the ranchers when they use showcasing channels. It is very terrible for them. However, ranchers can get more benefits through the selling of valuable items. They likewise tracked down that the co-employable are doing whatever it may take to reduce the exchange expenses and some different advantages for ranchers.

6) Margret Jekanyaka and Matanda, Bill Schroder (2004) led an investigation into "Business-To-Business connections by classifications of providers in the advertising channel". The investigation separates purchaser vendor social measurements for various classes of providers, like little essential makers, long direction for huge essential makers, and social holding for wholesalers. In view of the above and some different angles, they closed by saying that undeniable degrees of contrast are there for most social elements of these three classifications.

7) Donald F Gotcher and K H Chang (2008) have done "An article dependent on 'struggle coordination' learning in advertising channel connections: The merchant see". Their examination explores how struggle coordination learning (CCL) is utilized by channel individuals as an instrument of compromise, which can keep up with related esteem and further develop abilities according to a merchant's perspective. They found that CCL had positive struggle mentalities and intervention in a joint advertising methodology among CCL and joint benefit execution.

8) Constantine S. Katsikeas, Mark NH Goode, Eva Katsikea have composed an article on "wellsprings of force in worldwide advertising channels". The fundamental point of their examination is to comprehend the connection between foreign merchants and fare manufactories in dealing with the wellsprings of force. They found that foreign merchants' utilization of installment is totally identified with deciding, distinguishing, adjusting, and mastering power sources as they are perceived and endorsed by trade directors. They finished up by saying that particular prizes and discipline components have a significant role in the connection between foreign merchants and fare producers.

9) Taimopaavola (2017) has done an investigation into "Viable advanced promoting channels". The scientist enquires about the best approach to getting more clients with the assistance of an advertising channel for an IT organization and, furthermore, about the best incentive to draw in online clients. They finished up by clarifying that the most proficient promoting channel is email, and the best incentive is to check the adequacy of the assistance given since it is a piece of B2B advertising.

10) Inge Geyskens and Nirmala Kumar (1999) led an examination of "A Meta-investigation of fulfillment in advertising channel connections." The scientists meant to do an examination of the reasonable method of channel part fulfillment that sorts out the contrasts between financial and non-monetary fulfillment are "explicit builds" with isolated connections of different levels and significance. This investigation shows that fulfillment is both theoretically and systematically reliant upon the development of trust and responsibility.

11) Mr. Krunal.S (1998) directed an examination on "A concise report on the adequacy of the market circulation divert of Pepsi items in Patna". This investigation is completely founded on Lumbini.pvt.ltd., Hajipur. The primary goal of the examination is to discover the distinctive promoting channels utilized by that organization. They additionally examined the thickness of conveyance channels on which they utilized and depended by contrasting them with rivals in their market. The examination uncovered that the primary channels they utilized were ads, retailers, and wholesalers. They discovered that a few retailers and wholesalers were complaining about the accessibility of items dependent on request. They finished up by saying that their promotion channels are very much evolved and coordinated.

12) Mr. Ashish Rehate (2006) has directed a venture report on "The dispersion channel of soda organizations is embraced in Nagpur". Specialists likewise considered the accessibility, customer inclinations, and spot significance of circulation channels. Through this examination, they found that accessibility is especially impressive for coke. The showcasing channels on which they depend are ads, retailers and wholesalers. They finished up by saying that the benefits which are given to retailers and wholesalers by the organization are less. So it ought to be seen by the organization.

13) Dr. Rishi Raj Bora (2011) led a venture report on "Mercedes Benz channel conveyance". The principle point of their venture is to discover how showcasing and appropriation are done by Mercedes Benz. Through this task, they did point by point concentrate on their absolute advertising channels. They found there are various showcasing channels they are utilized, similar to ads, specialists, and clients, and they referenced that circulation work is just done through coordination. They finished up by saying that an organization which has an expansive marketing channel can develop and support itself without any problems. In any case, individuals who have restricted promoting channels might confront unreasonableness.

14) Chandrasekhar Subramanian, Michael J Shaw, and David M Gardner did an article on promoting and diverting executives in electronic trade. "The principle point of this investigation is to comprehend the elements of channel board in general. The principal objective is to investigate their thoughts and to pass on guidance on the utilization of web-publicizing, virtual store-text styles, and virtual networks for better correspondence with clients, to adjust their inclinations, and for more successful improvement than the conventional way. They closed by saying that, through inventive advancements in item showcasing and channeling the board, they introduced another shopper interaction to satisfy the client's exchange and dispersion needs. They likewise said-distinguish the right channel for the right item by utilizing business sector and item attributes.

15) Mr. RijilRadhakrishnan (2016) has led a task report on "A Study of the Effectiveness of the Distribution Channel of Paragon Steels Pvt Ltd, Kanjikode". They had a short conversation about the different showcasing and dispersion exercises of the organization. The primary goal is to check the strength of the advertising directed at associations. The discoveries were totally certain in nature and they tracked down that the advertising channel is exceptionally coordinated and the purchasers are additionally content with their dissemination. Analysts closed by saying that the organization's generosity is profoundly founded on its rivals and the organization needs to secure the interests of shoppers.

The Study Objectives

- To identify the FMCG industry's most successful marketing channel.
- To know the reliance on FMCG industry marketing channels.

Related studies

In the wake of assessing the experimental papers I examined, I tracked down that very little exploration is done dependent on the reliance on advertising channels of any industry. The majority of the examination is dependent on the circulation channel of a specific industry, and it is only a piece of the entire advertising channel the executives. These days, promoting channels have become an unavoidable factor for support and

they rely on ventures. A couple of examination researchers have especially done research dependent on showcasing channel reliance by FMCG enterprises.

Proclamation OF The Problem

In this examination, the analysts have put forth an attempt to contemplate the importance and reliance of advertising channels on the FMCG business. The showcase channels go about as a fundamental factor for the promotion of labor and products. Henceforth, the examination is named "A Research on the importance and reliance of promoting channels dependent on the FMCG Industry".

Speculation of The Study

- H0: There is no reliance on advertising channels by FMCG enterprises.
- H1: There is reliance on advertising channels by FMCG enterprises.

Investigation & Interpretation

To Understand The Usage Of Special Resources Or Working Men

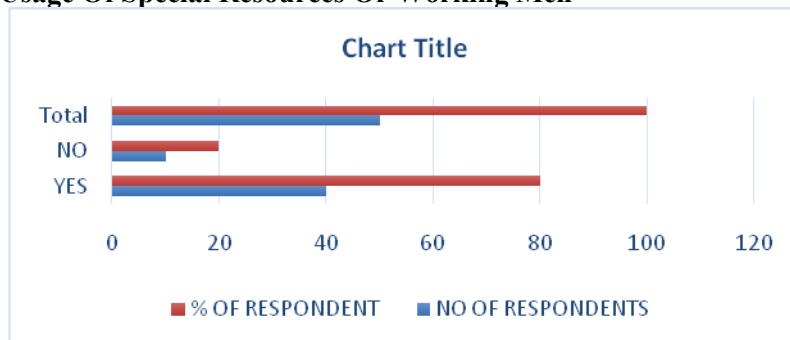
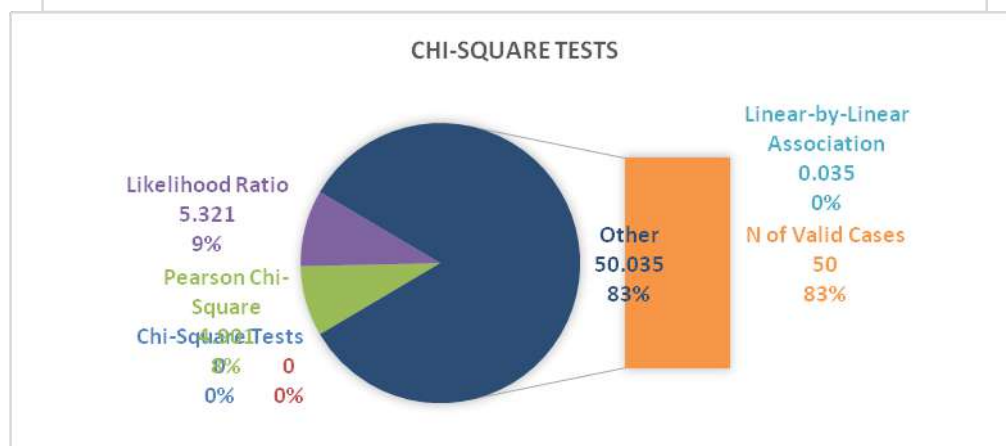
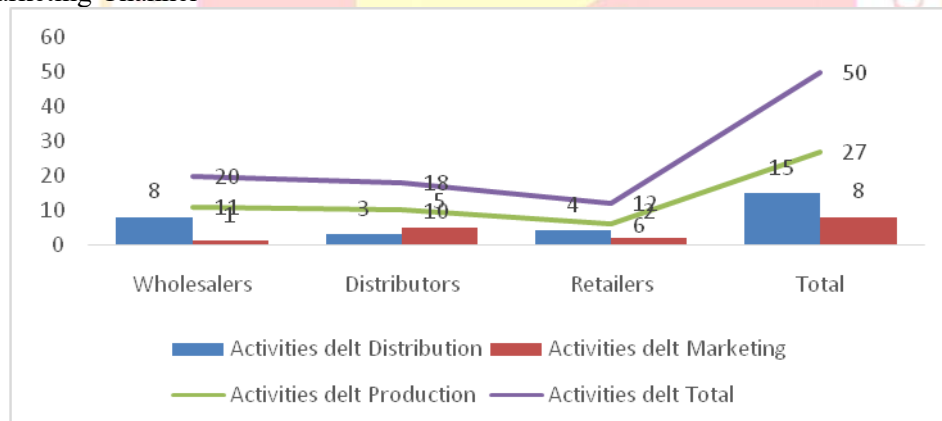


Chart 1 shows the evaluation dependent on 20 enterprises. Among the all respondents, 80% are utilizing either uncommon assets or working men to deal with their promoting channels, and the excess 20% are not utilizing any exceptional assets or working men to deal with the advertising channels.

To Understand The Reliability of Marketing Channels

Dependable Marketing Channel



A. The predicted numbers of four cells (44.4 per cent) are under 5. The predicted minimum number is 1.92.

Chart 2 shows that there is no critical distinction between exercises done by businesses and promoting channels, so we can not acknowledge the invalid theory. Hence, we infer that there is a connection between the exercises done by an organization and the promoting channel.

Study Revelations

It was tracked down that FMCG ventures utilize either uncommon assets or working men to deal with their showcasing diverts to expand their creation and procure more benefits. It was additionally seen that most enterprises depend on their advertising channels as they hold an essential job in settling on significant market choices about the highlights and cost of a particular item. We can comprehend that showcasing channels play a critical part in the FMCG business.

Suggestionof The Study

The merchandise created by FMCGindustriesare immense in number and change, so they need more effectiveness to deal with their promoting channels. It prompts simple accessibility and reach of their items to the end-customers.

- The yearly valuation of advertising channels won't be viable for items and administrations that have a variance of popularity.
- Distributorsand wholesalers can undoubtedly execute the best showcasing channel capacities for the FMCG creation businesses.
- The promoting channel system can be accomplished distinctly with the outrageous trust of clients in their advertising channels. So they need to keep up with great client connections.

Conclusion

The investigation led to tracking down the degree of fulfillment and reliance on showcasing channels by FMCG ventures. Information from different FMCG businesses assisted with getting precise data. This article additionally assists with discovering the mentality towards their current showcasing channel. During the review, it was found that most enterprises are well dependent on the showcasing channel. The steady assessment of the showcasing channel will assist enterprises with procuring better benefits, which will expand trust among clients. The fundamental feature of this paper is that most businesses expand their deals through the proficient administration of promoting channels with the assistance of an exceptional asset or working man without making any replacements for their advertising channels. So it is perceived that drawn out benefits and deals can be procured uniquely through the appropriate administration of their advertising channels.

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Sustainable Development and Indian Ecological Policy**Dr. Shrikant Hanmantrao Deshmukh**Department of Political Science
Annatrao Pawar College, Pirangut, Pune**Introduction :**

While understanding the concept of development, we must first realize that the concepts of economic development and growth are different. The concept of development is used in a broader sense than growth. The concept of economic growth is one of the concepts of economic development. Growth is mainly the increase in national income.

Growth is a measure of the total economic turnover of a nation in a given year. Development is not just economic growth, it is the development of a nation from a holistic point of view to raise the standard of living. Of course, economist Amartya Sen's interpretation is that "they include issues such as the availability of independent economic tools and facilities, social opportunities, transparent governance, a safe environment, etc. in economic development."

At the same time, all these factors are complementary. Government policy should be decided by considering all these factors, "said Amartya Sen. Do we see the development of poverty, exploitation, oppression, the basic needs of the majority of the people on the one hand, and the threat to the environment on the other, while there is huge prosperity on the one hand and wealth on the other? This creates a question mark.

Despite economic progress, political policies need to have maturity to achieve development. Political policies that seek to increase the national income of a nation by putting aside the overall development of its citizens are not called development in the true sense of the word.

The issue of development has always been on the agenda in the nineteenth and twentieth centuries. Along with human culture, the evolution of development culture can be observed. Human evolution has taken place at different stages of evolution. In the post-globalization context, however, some new questions arise as to whether there is a correlation between development and the environment. This is also studied. The present research policy analyzes the decisions that are taken in the context of the current political policy process.

I

The Brandland Commission was the first to introduce the concept of sustainable development. According to him, "Future issues can be solved through present decisions. The aim was to make decisions in that way and create a sustainable state of development. The allocation and conservation of resources should be done in a systematic manner to stop the increase in industrial production and to prevent air pollution and water pollution from industrial production.

The Sustainable Development Commission was set up in 1992 at the summit in Rio de Janeiro, Brazil. The summit was held in Johannesburg, South Africa in 2002 and the third summit was held in Brazil in 2012. Overall, the concept of sustainable development has become very important in modern times. Many nations of the world seem to be depleting natural resources at a tremendous rate for the sake of physical facilities. If natural resources are depleted in the same way, then future generations will have to face many natural problems. Therefore, the concept of sustainable development seems to be coming forward as a very important concept.

II

The environment is the foundation of sustainable development, so it is important to protect and nurture the environment here. Today, it has become necessary to conserve living creatures. In the last few decades, industrial production has been taking out the elements that are harmful to the environment.

Due to increasing population, urbanization, industrialization and deforestation, the available natural resources are declining. The world is divided into two groups, the rich and the underdeveloped. Developed countries consume a lot of natural resources per capita but their population is limited. On the other hand, in an underdeveloped country, poverty and overpopulation are leading to degradation of the environment, even with less use of natural resources. Strict environmental restrictions are being imposed on these nations by developed nations. For example, In Africa, the use of forest resources is a major part of their economy. Infrastructure development and industrialization are the things that all nations are striving for. As the needs of the people have increased, so has the struggle to accelerate their development. But while doing this development, we do not think about whether or not we destroy all the opportunities for further development. If we do not improve the agricultural land at this time, we will have to bear the consequences. Seeing that the land is becoming barren

does not change it. The visionary scheme is neglected for the sake of immediate gain. Just as there is agriculture, so there is industry. The emission process is neglected to save on production costs. Citizens are easily seen ignoring the environment, such as pollution of old vehicles, increasing use of plastics, increasing use of petrol, diesel, etc.

III

Citizens are easily seen ignoring the environment, such as pollution of old vehicles, increasing use of plastics, increasing use of petrol, diesel, etc.

The following factors are considered when preparing this report.

Biodiversity	15%
Environmental service	6%
Air quality	20%
Sanitation and water	16%
Water resources	3%
Climate change	24%
Pollutant emissions	3%
Agriculture	3%
Heavy metal	2%

- According to the Environment Performance Index (EPI), India was ranked 177th in 2018 and 168th in 2020.
- India's Environmental Performance Index (EPI) is somewhat better than Burundi, Haiti, Chad, Solomon Islands, Madagascar, Guinea, Cote d'Ivoire, Sierra Leone, Afghanistan, Myanmar and Liberia
- With the exception of Afghanistan, all the South Asian nations are ahead in the Environment Performance Index (EPI).
- In the Environmental Development Index of major countries

Country	Rank
Denmark	1
Luxembourg	2
America	24
China	120
Liberia	180

(Environment Performance Index- EPI)

Country	Rank
Bhutan	107
Sri Lanka	109
Maldives	127
Pakistan	142
Nepal	145
Bangladesh	162
India	168
Afghanistan	178

- Based on the analysis of the above facts, some conclusions can be determined as follows
India has serious environmental problems compared to other countries in terms of air quality, sanitation, water etc.
- India also lags behind Asian countries in the Biodiversity Index.
- Carbon dioxide emissions and greenhouse emissions have increased in the last 10 years.

Summary:

The Summit of All Nations was held in September 2000 with some objectives, With this in mind, it is important for nations to pursue future goal-oriented policies. The main objective was to protect the environment and to create awareness about it as it is very important for the political system to make laws and enforce the environment. At the same time, it was necessary to take care of the atmosphere of global cooperation and

understanding in this conference Although the above objective has been set according to the Human Development Index, it is safe to say that even today, thirty years later, much has changed. You can see that some factors have changed for the better, but they have not been able to bring about the most effective change in the world order. Even today, the infant mortality rate does not appear to have fully achieved the goal of environmental conservation. It is important for the government of any country to formulate policy while determining the environmental conditions. People's participation in the policy making process, transparent exchange of views, independent media, presence of NGOs, rule of law, etc. should be promoted.

Minimize the use of natural resources, use of unconventional energy sources, plan development including pollution control and include environmental conservation plans in the project plan. If we do things, we can maintain the quality of the environment which will lead to sustainable development.

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The Study Of Population Characteristics In Rahuri Tahsil Of Ahmednagar District (Maharashtra)

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1. Introduction :

Demography study is very important to find out strategy of the any area. Demography is the statistical description and analysis of human population. Study of population seeks to discover the causes and consequences of population change. Present study we workout the population structure of Rahuri tahsil. Study is important because it is focused various aspect of population in Rahuri tahsil.

2. Geographical Location :

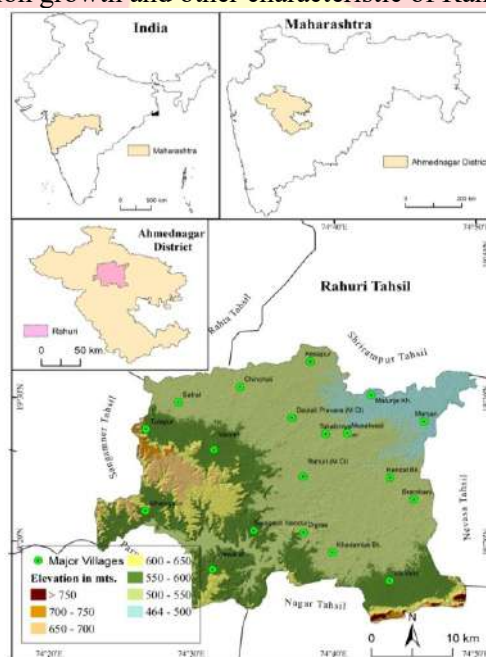
Rahuri is located at $19^{\circ} 15'$ to $19^{\circ} 30'$ North latitude and $74^{\circ} 15'$ to $74^{\circ} 30'$ East longitude, in the north eastern part of Ahmednagar district, Maharashtra (India). Rahuri tahsil is bounded by Rahata tahsil on the north, Nagar tahsil on the south, Newasa on the east and Sangamner and Parner tahsil on the west, of the same district. It is well connected by roads to Mumbai (240 k.m.), Pune (140 k.m.), Aurangabad (120 k.m.) and the district headquarter Ahmednagar (37 k.m.). It is connected by broad gauge railway to the above places as it falls on Manmad-Dound route. The nearest airport is at Aurangabad (120 k.m.), which is linked to Mumbai. Pune is another airport) 160 K.M. (located close by. Saibaba international airport Shirdi is newly established (2017) by the state Government near Shirdi which is hardly 50 km. from Rahuri.

3. Hypothesis:

The study of Population is help to find out planning strategy and overall development of the study area.

4. Objective:

1. To study the characteristic of Population of Rahuri tahsil
2. To study the changes in population growth and other characteristic of Rahuri tahsil



MAP 1 LOCATION MAP OF STUDY AREA

5. Population Growth Rate

The growth of population of any area is an index of increase or decrease in houses and settlement. The growth of population is related economic and social development of its higher than population is increase very high. Population change dependent on the Birth rate and Death rate. This causes is directly affected of population growth. Migration is an indirectly effected on population growth because not a change internal population growth.¹³ The population growth rate to effect on population density, sex ratio and occupation structure will change. ⁵Population is one of the important elements and responsible for overall regional

development. According to 2001 census the total population of Rahuri Tahsil was 294768. It is 13.87 percent (40, 88,077) of Ahmednagar District's and 0.36 percent in the Maharashtra State.

TABLE NO. 1 POPULATION GROWTH RATE

Year	Population	Decade Variation	Growth Percentage
1911	37362	-	-
1921	46280	+8918	23.86
1931	53668	+7388	15.96
1941	68386	+14,718	27.42
1951	88636	+20,250	29.61
1961	117728	+29,092	32.82
1971	159343	+41615	35.34
1981	20,40,93	+44750	28.08
1991	2,52,570	+48477	23.75
2001	2,94,768	+42198	16.70
2011	3,22,823	+28055	9.51

Source: District Census, Ahmednagar

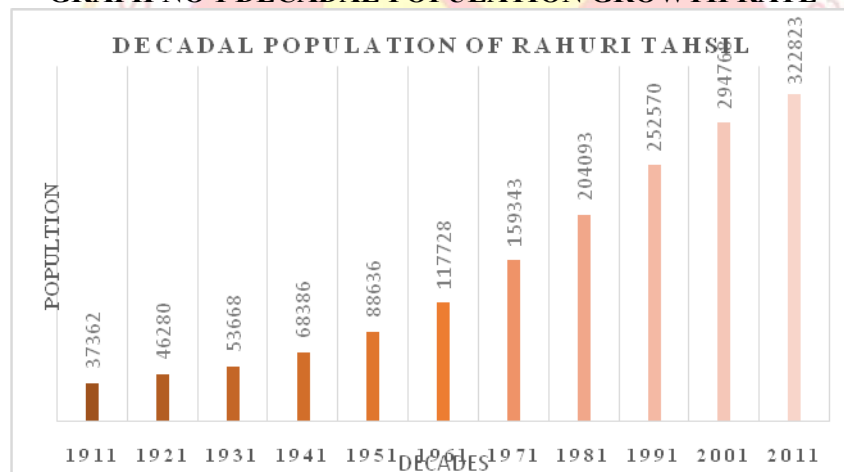
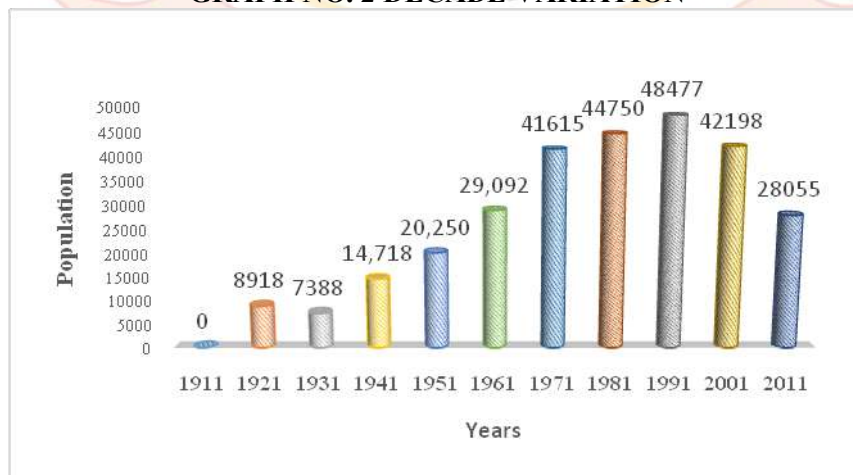
GRAPH NO 1 DECADAL POPULATION GROWTH RATE**GRAPH NO. 2 DECADE VARIATION**

Table No.2.1 shows the population since 1911 with its decade variation and percentage of growth. It is observed from the above table that the population in Rahuri tahsil has been steadily increasing from 1911 to

2001. ⁷The population of Rahuri tahsil in 1911 was 37,362 while it increased and attained 2, 94,768 persons in 2001. The total increase in population during the above period is 2, 57,346 persons with higher rate (Table No.2.1) excepting during the decade 1911 to 1921. During this decade, spreading (1918-19) of influenza epidemic coupled with crop failure has decreased the growth of population (13.76 percent).

In the period of 1931 and 1951 the population was not increased fastly. It was increased from 13.76 % to 21.52 %. The Epidemic diseases facilities were such as Malaria, cholera had controlled the population.

¹⁰Medical facility was not sufficient in rural areas at that time.

6. Population Density

The general density of population is the concept mainly related to the number of the peoples and total land area. Which give pressure of population over the resources available in unit area. So density of population is significant aspect, which studying population characteristic of an geographical area. It suggests direct relation between the size of population and the geographical land area.

The density of population is a quantity measurement of a region and its corresponding geographical area. It has been used a parameter for measuring socio- economical development. The population density a calculated total population ratio in total geographical area, this population density in per sq. km. It is a simple man land ratio and is commonly used for comparative analysis the apply a following formula.

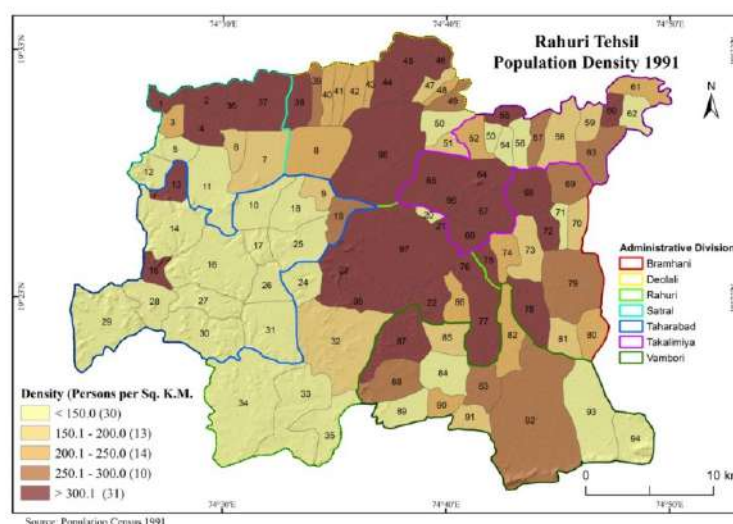
$$\text{Population Density} = \frac{\text{Total Population}}{\text{Total Geographical Area}}$$

TABLE NO. 2. POPULATION DENSITY (1911 TO 2001)

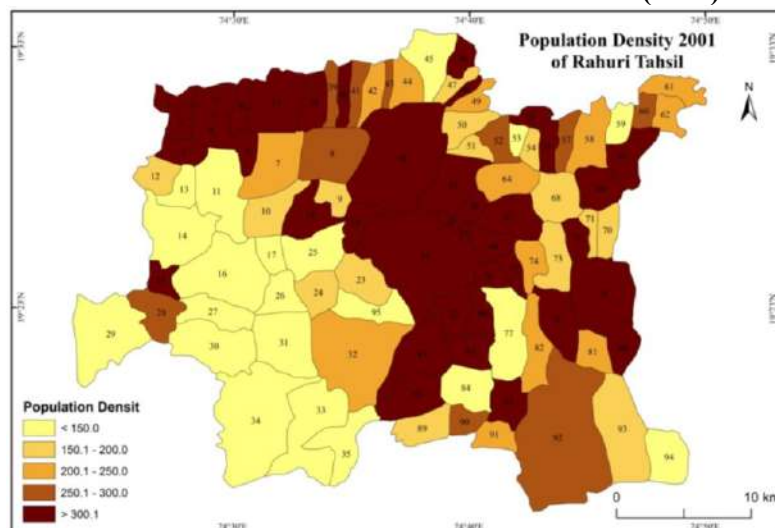
Sr. No.	Year	Population	Area (Sq. k.m.)	Density	Increase (%)
01	1911	37,362	1022.96	36.52	-
02	1921	46,280	1022.96	45.24	23.87
03	1931	53,668	1022.96	52.46	15.29
04	1941	68,386	1022.96	66.84	27.41
05	1951	88,636	1022.96	84.64	26.63
06	1961	117,728	1022.96	115.08	35.96
07	1971	159,343	1022.96	155.76	35.34
08	1981	2,04,093	1022.96	199.51	22.95
09	1991	2,52,570	1022.96	246.90	23.75
10	2001	2,94,768	1022.96	288.15	16.70
11	2011	3,22,823	1022.96	315.57	10.57

Source- Compiled by Author

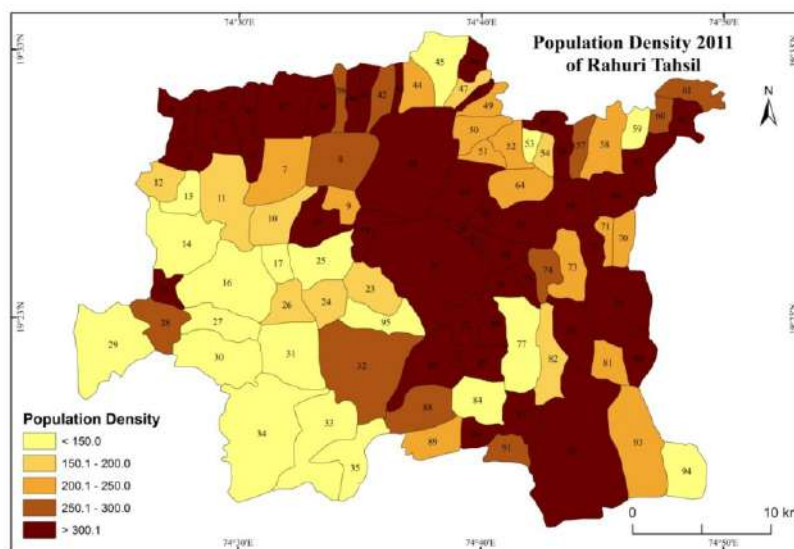
MAP NO. 2. POPULATION DENSITY MAP (1991)



MAP NO. 3 POPULATION DENSITY MAP (2001)



MAP NO 4 POPULATION DENSITY MAP (2011)



Population and Density of population have affected on land use and basically Agricultural Land use. In census of 2001, 70% population of tahsil (206337) was related to Agricultural base. As far as the year 1911 to 2001 is concerned the population density is shown with the help of total population and geographical Area.

As per above table, the population of Rahuri tahsil is increasing from year 1911. In the year 1911 the density of population was 36.52. In year 2001, the density of population was 288 people. But in 1911 to 1921 the density of population was very less; it was recorded 45.24. So we come across that in the year 1991 - 2001 the density of population was recorded as increasing. In Rahuri tahsil more density of population is in Deolali Pravara Circle, Total population of this circle is 56401, which resides in 330 sq.km. and included 33 villages with a area of 17055 hect. ³The density of population of Vambori circle is 319 (population 99645) and lower population density is of Rahuri circle is only 310 person's (Population 138702) per sq.km.

TABLE NO. 3 POPULATION DENSITY

Year	Density Classification					Total Villages
	< 150	150-200	200-250	250-300	> 300	
1991	30	13	14	10	21	96
2001	17	16	15	10	38	96
2011	17	16	09	12	44	98

Source- District Census

As per observation and according to 2001 census report, the population density, in 35, villages of Rahuri Tahsil is more than 300 people and find out that in five villages the density is recorded highest. Which was 987.16 (Desvandi) 870 (Songaon) 686.19 (Musalwadi) persons. ⁴These villages have highest density

because well irrigated agricultural area, market facility, and educational facility, road network and communication Sugar industry entertainment etc. In Western part of tahsil the density of population is very less between 0 to 50 and 51 to 100 people Namely Jambhulban (13.60), Jambhali (23.25), Wavrath (27.47), and Wablewadi (50.00) have less density of population. ⁴This area of low density attributed to less fertile soil of the region having low yield per hector. In this area the population is not concentrated because of lack of facilities such as social and educational.

Resume

Population is the main aspect of any country or region. The study of this aspect is important to know its structure and characteristics. Population is directly affected on social and economic development. So this chapter is focused on various aspects such as population growth rate, Density, Sex ratio, literacy, Occupational structure, Main working population, Agriculture labour and Main household etc. Beside this factors the study is covered various amenities in study area, Educational facility, Transportation and Irrigation etc.

The growth rate of population is found continuous in the study area. It is directly affected on present resources in Rahuri tahsil. Consider this growth of population there is require investment in secondary and service sector by state government and non-government organization. This explanation is important to solve the problems related to agricultural. Similarly the study of population will be helpful for development of tahsil.

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Ozone Natural Resouress, Its Depletion & Sustainable Development

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The whole things which surrounds us is known as environment. The word environment is derived from environment. Means the meaning was stated in above definition. It consists of two factors i.e. Biotic factor & Abiotic factor. Biotic factor includes plant, animals and Micro-organisms as well as abiotic factor includes Air, Water, Soil, Minerals and main source of light i.e. sunlight. There are the natural resources. Earth is the abundant source of natural resources. All these sources are much more important to living things like Animals, plants and human being but man encroaches all these natural sources and now they are going towards endpoint. So here we need of thought like sustainable development. This term arrived in 1987 in Brundtland commission. This commission gave emphasis on sustainable development.

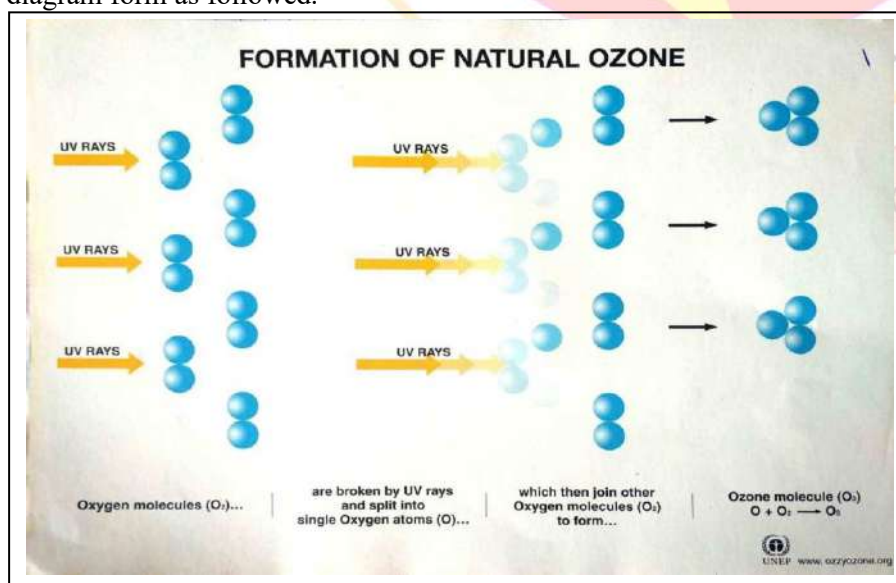
Sustainable development is nothing but we full fill our needs by protecting, presenting, conserving future generation needs. The main two objectives of sustainable development as followed: The development which can be maintained for a long time without undue damage to the environment i.e. i). To provide the economic well being to the present & future generation ii) To maintain a healthy environment and life support system.

And air is the important abiotic factor for healthy environment & life support system. Air is a mixture of different gases like oxygen, carbondioxide, Nitrogen, hydrogen, helium, Neon, Argon, Carbon monoxide & Ozone. All these gases play different role, oxygen is important for all animals, carbondioxide is important for plants; like that ozone is also important for living plant. It plays very crucial role in the environment. And it is also a type of Natural resource. Seventeen goals declared by SDG. 193 countries accepted these goals and it was stated by UNESCO & WHO. In that one goal is about Global warming & Ozone depletion, so here we are going to discuss about ozone, how it forms, its definition, on which layer it will be helpful & on which layer it will be harmful, its depletion, its effect on ozone hole, its effect on living planet & solutions.

Objectives of this paper is 1. To get acquainted with the health issues related to ozone layer depletion and objective no. 2. To create awareness about the importance of ozone on the earth and remedies.

About ozone:

Ozone is a form of oxygen. Indeed ozone molecules are composed of three atoms of oxygen. That is why ozone molecules are written O_3 . In the upper atmosphere ozone molecules are created through the breaking apart of oxygen molecules by the sun's energy. When the sun's rays strike an oxygen molecule made of two bonded oxygen atoms (O_2), it splits apart into two single oxygen atoms (O , O). One of these single oxygen atoms then combines with an oxygen molecule to form an ozone molecule ($O + O_2 \rightarrow O_3$). It is shown in diagram form as followed.



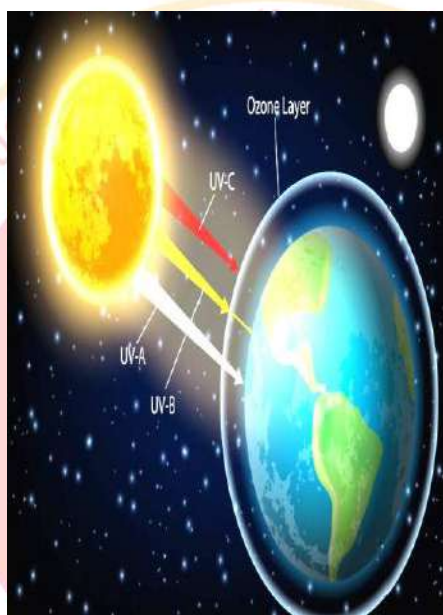
90% of ozone molecule are found in the upper atmosphere (stratosphere) and form our protective ozone layer. But ozone is also found at ground level. In the lower atmosphere (Trophosphere), stratospheric ozone palys a positive role as it protect us from the dangerous UV rays of the sun. But at ground level, troposheric ozone palys a negative role, it is a very harmful pollutant as breathing ozone can cause health problems like shortness of breaths, lung diseases, asthma and eye irritation. But the important thing is that the stratospheric ozone is good for living planet. Because ozone layer protect the planet from UV radiation & its harmful effects.

What is UV Radiation-

The sunlight has a very harmful component called ultraviolet radiation (or UV rays) that we cannot see or feel. It is not the warmth or the brightness of the sun that causes health problems but these invisible UV rays. Hence a bad and even cold wleather does not mean there are no UV rays in the sunlight and no danger. UV readiation levels (the more UV rays the more dangerous) are independent from temperature and can still be high when the sky is cloudy.

The ozone layer protect us from most UV rays but not 100% of them. Some UV rays can still reach us and therefore we need to be protected from them.

There are three different categories of UV rays that do not have the same strength and therefore do not after us the same way.



UV-A: Rays are the most common rays to reach us because the ozone layer lets them through. They are the least strong UV rays are still har full to our health which means we need to be protected from them. UV-B: Rays cause them most damage to human health. Although the ozone layer prevents most of UV-B rays from reaching us. Some can still go through and do serious harm. A significant increase of UV-Brays radiation reaching the earth can be very dangerous for us, but also for plants and animals

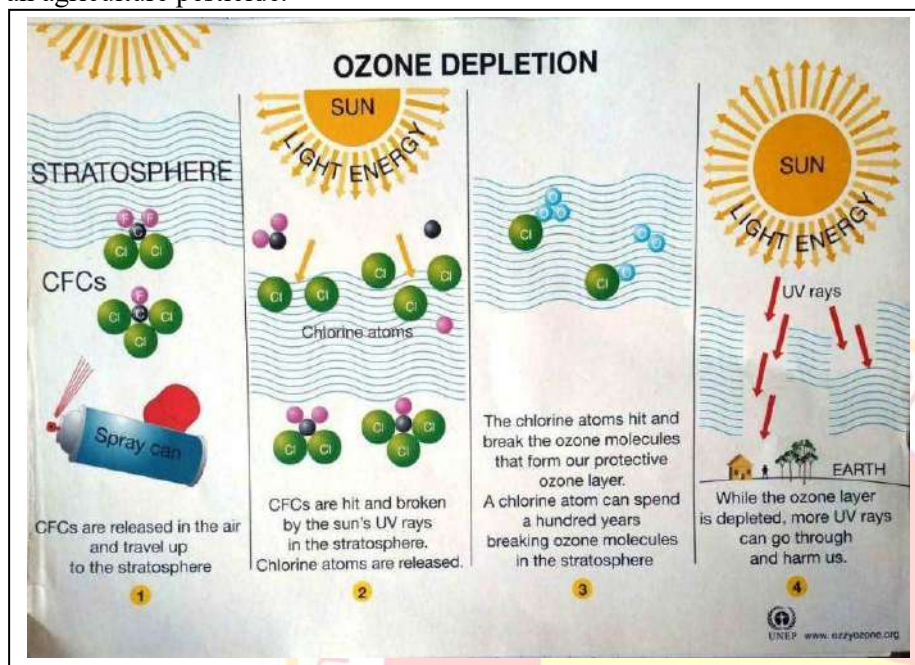
UV-C: Rays are extremely strong and dangerous fortunately they are completely blocked by the ozone layer and absorbed in the atmosphere.

In short the sun's UV rays are dangerous for us as well as for plants and animals because they burn. They damage our health by penetrating deep into our skin and eyes. and by weakening our immune system. Spending some time in the sun without protection when UV radiation is high can cause immediate health problem. But the bad effects of the sun are cumulative, they stay with us for life. It means exposure to UV radiation today can also cause serious health problems in the future. To avoid this we have to protect ozone layer or ozone umbrella. Otherwise ozone will be depleted.

Ozone depletion: A delicate balance is naturally maintained in the amount of stratospheric ozone. Unfortunately, since form 1950's, a number of human activities have been seriously disturbing this balance, threatening & harming our natural protective ozone layar. These activities developed by human societies are dangerous because they release in the air some chemicals that destroy ozone molecules in the upper

atmosphere. This causes what we call ozone layer depletion. The consequence for us is an increased amount of damaging UV rays reaching the surface of the Earth.

The chemicals that are responsible for ozone depletion are called ozone depleting substances or ODS. These substances are mainly chemicals called chlorofluorocarbons (CFCs) and halons. Chlorofluorocarbons and halons are not found in nature, they are man made. Indeed, although we may never have heard about them. CFCs and halons have many uses in everyday life. CFCs are used in refrigerators, air conditioner's and sprays. Halons are used in fire-extinguisher's. Another ozone depleting substances called methyl bromide is also used as an agriculture pesticide.



This does not mean that these products are dangerous for us. CFCs or other ODS can only become harmful to the ozone layer, when they escape into the air. This can happen during manufacturing but also when people decide to repair or throw away appliances that contain ODS without precautions.

Process of ozone depletion;

1. CFCs (or other ODS) can migrate into the upper atmosphere thanks to the air currents that carry them.
2. Once CFCs have reached the upper atmosphere, they are hit and broken by UV rays.
3. During this process, some substances that are particularly harmful to the ozone layer are released that is to say chlorine and bromine atoms.
4. Once released in the upper atmosphere, chlorine and bromine atoms react with ozone molecules and break them. Which leads to the thinning of the ozone layer. Each chlorine atom can spend almost a hundred years breaking ozone molecules and can break apart as many as 100000 atoms that are released today through CFCs travelling in the upper atmosphere could still be doing harm in hundred years.

By releasing these chemicals in the atmosphere, we harm ozone layer and ourselves as the ozone layer is being depleted, less UV rays are absorbed and consequently more can reach and harm us. It was shown that for every 1% decrease in the stratospheric ozone, the UV radiation reaching us will increase by 2%.

Ozone hole and global warming:

Everybody on earth is concerned and affected by the consequences of ozone layer depletion. However some regions of the world are already more severely affected. During the 1980s scientists discovered an extremely alarming thinning of the ozone layer over the region of Antarctica (Southern pole of the globe). Then they have proved that every year in spring when ozone layer is destroyed over Antarctica; this is called ozone layer depletion process is at its highest at least 50% of the ozone layer is destroyed over Antarctica, this is called ozone hole.

Unfortunately, since then evidence has been made that the ozone layer was also being severely depleted over the Northern pole of the globe which means we have to talk about the 'Ozone holes'. In summertime 2005 the Northern ozone hole was all over Europe.

The ozone layer is thinning severally over many regions and countries where people live. parts of South America, Austrellia, Newzealand and South Africa are particularly affected. Over North America, Europe and Asia the ozone layer is also getting thinner.

The consequences of this phenomenon can be dreadful. The more the ozone layer is depleted, the more the people who live in these regions and countries are exposed to increased amounts of damaging UV rays. In addition 'global warming' may delay the ozone layer recovery.

Effects of ozone depletion on living system:

1. **Skin damage:** when we are outside in the sun we are exposed to UV rays (specially UV-B) that penetrate and damage our skin deeply. Leading to various health problems. The skin has its own system to try to prevent the dangerous caused by UV rays. It produces a kind of shield from a dark-coloured pigment called melanin aimed at blocking UV rays. This is the reason why some people get suntanned. while producing melanin, their skin gets darker. The most common & immediately visible damaging effect of excessive exposure to UV rays is sunburn (i.e. tchy, warm and redskin). If the level of UV radiation is high sunburn can occur very quickly. The first noticeable sign is that skin becomes red. And in the long run, excessive exposure to UV rays can cause premature ageing (wrinkling to the skin) & severe skin diseases such as skin cancer.
2. **Eye Damage:** Just like our skin, our eyes can be sunburnt and damaged by UV rays. our eyes have a natural protective reaction to bright light (they close instantly) but they must be protected from the harmful and invisible UV rays of the sun. UV radiation increases the rate of eye problems, such as eye irritation or inflammation.
In the long run UV rays can cause severe damage to the transparent part of the eye that regulates the amount of light. We need to see clearly, this part of the eye is called the 'lens' when damaged by UV rays, the lens loses its transparency which is a disease called 'cataract'. According to world health organization eye cataract are the world's leading cause of blindness.
3. **Immune system:** Excessive exposure to UV rays has also been proved to weaken our immune system, that is to say the natural ability to our body to fight diseases and to recover from them.
4. High UV radiation slows the germination process.
5. High UV radiation kills plankton, the basic food supply for fishes.

Preventive measures to protect ozone layer:

The best way to prevent increased levels of UV radiation in the future is to protect the ozone layer. There are simple ways to participate in the protection of the ozone layer at an individual level.

1. **Buy Ozone-friendly products:**
Buy products that do not contain CFCS or other ODS as often as possible (refrigerator, air-conditioning, sprays, fire extinguisher's). Ozone-friendly products always have a specific label that makes them easily recognizable.
2. **Be careful with products/appliances likely to contain ODS:**
CFCS and other ODS can be found in a number of products/appliances. For example, refrigerators and air conditioner's (in cars) can contain CFCS that are likely to be released into the atmosphere if not properly handled. If refrigerators or air conditioner's are to be repaired or thrown away, it is important to remove carefully the CFCS. CFCS need to be stored or recycled. So that they are not released into the atmosphere and they cannot harm ozone layer. Mechanics who repair this kind of appliances should be specifically certified to work with CFCS.
3. **Do not use pesticides with methyl-bromide:** When they have to use pesticides, people who work in agricultural production should use some that do not contain methyl bromide, another ozone depleting substances.
4. **Inform:**
Everyone can spread the message to his or her friends, family and community. It is important to explain what can be done to protect the ozone layer, our natural shield against UV rays.

Protection Measure to Protect Ozone layer:

Our exposure to the sun is dangerous for our health ozone layer depletion has made the sun even more dangerous. Being depleted, the ozone layer cannot play fully its protective role against the dangerous UV rays of the sun. There are simple measures to be well protect from these increased levels of UV radiation.

1. Avoid the sun and seek shade during the hour's of the day with maximum UV rays that is to say from 10 a.m. to 4 p.m.
2. Look at your shadow, the shorter your shadow is the more dangerous UV radiation is.
3. Cover your skin as much as possible; so that UV rays simply don't reach it. This always means wearing protective clothes with long sleeved shirts, long pants, trousers or skirts and shoes every time we are in the sun and UV radiation is high.
4. Wear a hat as much as possible. It is also important to pay special attention to the parts of your body that are particularly exposed to the sun's rays that is to say your face. Your eyes your ears and the back of your neck. A hat with a wide brim offers good protection from UV rays.
5. Sunglasses are also very efficient to protect the eyes from being damaged by UV rays and reduce the risk of eye cataracts. Whenever it is possible, it is good to wear sunglasses in the sun.
6. Sunscreen can also be very efficient to protect the skin from UV rays. Sunscreen can be applied on all parts of the body that are not covered (Hands, ankles, neck), whenever it is possible, it is also good to use sunscreen in addition to other sun protection measures.
7. Celebrate 16 September as ozone protection day.

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Language: A Natural Resource for Sustainable Development**Dr. Uttam Ramchandra Patil,**Associate Professor & Head, Department of English,
Rajarshi Shahu Arts & Commerce College, Rukadi,
Tal. Hatkanangale, Dist. Kolhapur (MS) INDIA**Abstract**

Language is a means of human social communication. It is used for exchanging emotions, ideas and information. In this way it becomes a resource with which we perform our day to day physical as well as intellectual activities. Every human community has a language. It is cultured. The advanced communities may find it difficult to develop further without language. All the information and knowledge is stored and exchanged with the help of language. Like the natural resources, language has also become a part of human life. It has become so indispensable that absence of language would cause a great disturbance to human race. It may be as inseparable to human life as natural resources like the sunlight, air, water, land and minerals, etc. Language exists before the birth of an individual. Hence, when an individual human being takes birth, language becomes a naturally existing phenomenon, a natural resource for human interaction. The present paper attempts to consider language as a natural resource for sustainable development.

Keywords: language, natural resource, communication, information, knowledge

Rationale:

The end of 20th century and the beginning of the 21st century have experienced a substantial change across all domains of human life due to the revolution in information technology. The advancement in science and technology has been generating tons of information. Technology has successfully made the transfer of information that whole world has been turned into a global village. Information is facts about something. And this information can be generated, stored and transferred mostly with language which has become such an indispensable part of the human world that it is impossible to think about human life without language. So it would be rational to take language as a natural resource and consider its contribution in sustainable development.

Objectives of the study:

1. To consider language as a natural resource.
2. To consider the role of language in sustainable development.

Hypothesis:

Resources are means which are used to perform certain activities and attain specific achievements. Natural resources are available naturally. They are basically used for survival. They are utilized for social, commercial, industrial, aesthetic, scientific, cultural and other purposes. Language serves all these purposes. Hence though it is supposed to be man-made it is hypothesized:
'Language is a natural resource and it contributes in sustainable development'.

Methodology:

The researcher has used qualitative research which involves several methods out of which natural observation method has been used here. The method offers the space to present the observations about the topics to be researched. The present paper is often composed of the observations of the researcher about language by considering its various aspects.

Explanation:

In fact, natural resources are parts of a compositional system called nature. The major natural resources are land, air, water, sunlight and others. They can be called the elements of nature. The nature and availability of these elements determine the environment of specific location on the earth. These elements are naturally available and man with his inquisitive, creative and innovative mind has been converting or rather utilizing these elements as resources for development. Advancement through science and technology has been the result of optimum utilization of these natural resources. It can be observed that language has been contributing as a resource in the development man has been attaining across the time. The present paper attempts to consider whether language can be a natural resource like air, water, sunlight, land, minerals and so on.

Initially, language is a purely human phenomenon. It is species specific as well as species uniform. It means only human beings use or have language and all human beings have language. Humans use language as a

means of social communication. Subsequently language becomes a resource which is used to share emotions, desires, ideas and information. This means language is a natural resource for human interaction. It is pointed out by many scientists that language is non-instinctive. It is a conventional tool of communication between individuals as well as it is used as a means of social communication wherein members of a society interact. However, with the recent development in language learning theories Noam Chomsky observes that language is instinctive and there is universal grammar with which human beings are able to acquire language. The inherent language theory is developed by linguistic doyens like Noam Chomsky and Steven Pinker. But still it is very difficult to provide a logical as well as scientific evidence to prove that language is inherent. Subsequently, it would be illogical to say that language is a natural resource. It is manmade. But we must not forget that language is not a product of single person. It is social system developed over a long time by those who use it. Hence language appears like a living species. It grows, evolves and even dies in the course of time. One thing should not be neglected that the natural resources exhaust or deplete if overused, but language gets enriched with its utilization. That is how English, once the language of a very small island, has emerged as a global language.

The languages are basically of two types: natural languages and artificial languages. There are around 6500 natural languages spoken by different speech communities across the world. These languages are developed and evolved through human use. The artificial languages are developed for computer programming. The present paper is concerned with natural languages which are far more complex than artificial languages. Now let us discuss how a natural language can be a natural resource.

Natural resources are productive. They can be used to produce varieties of things. The development attained by man today could be possible through the use of natural resources. Similarly language is also productive (Hockett, 1970). It is used to exchange messages. Actually language is a symbolic system. It has limited number of symbols but these symbols can be used to produce unlimited messages. In fact, language is a naming system used to create an identity of everything that is found and felt by us. It not only defines and describes everything tangible and intangible, seen and unseen, real and imaginary, natural and supernatural and so on. It becomes a resource to understand the world around. Just imagine the world without language. We cannot even think about the sciences that we have without language. Various sciences contribute to development by using natural resources. But to understand these sciences we need language. Therefore, it would not be illogical to consider language, especially a natural language as a natural resource. Language is culture. It is culturally transmitted from generation to generation. Language evolves with the evolution of culture. Language bears a strong impact of the surrounding natural resources. Furthermore, a language can have many dialects or varieties. Even these dialects can also show the impact of natural environment. As a culture gets developed according to the climate so does its language. As nature, society and culture come to us with the birth so language does. We use the language of society in which we live. It is used as a natural resource to be the part of community to which we belong. Every individual acquires the language of society and uses it as per the need and may enrich it by speculating about a subject and by expressing those speculations. In this way a language keeps growing and becomes a reliable resource that contributes to the overall development along with the other natural resources.

Language is a social phenomenon. It is a social resource of communication, interaction and even transaction. All the human activities are developed, described, understood and expressed with the help of language. Moreover, language is used to store the information about everything and about every human and non-human activity. The information about miraculous human achievements is stored only with help of language. The experiences and experiments can be kept for generations to come with the resource of language. Hence, language becomes a resource to obtain information and convert it into knowledge. It is a resource to upgrade human skills. Education system in today is possible only because of knowledge of language. The knowledge about the pure or applied sciences, social sciences, sports, commerce, trade, and economics offered, environment and all the general things can be offered presently through language. Hence language may become a resource like other natural resources.

Language has made a considerable contribution in the sustainable development in the social, economic, commercial, industrial, scientific and environmental fields. It is a resource which can be used to propagate, project, promote the positive and sustainable development through the natural resources. Language is also a resource to protest against the negative development. Hence, language is a part and parcel of human life. No doubt, it is not as natural as natural resources like air, water, sunlight, land, vegetation and minerals are. But for an individual human being, the existence of language is natural as it exists in the society before the arrival of the individual human being who has to acquire it naturally. This happens with the first language. No doubt, life

can be sustained without natural resources. Similarly, the absence of language can make a great difference to the existing human life.

Language has aesthetic value and cultural features. The natural resources too have aesthetic value and cultural features. When we stay in the company of uncontaminated natural resources, it can be seen, we remain happy and have celestial pleasure. They make us joyous outwardly as well as inwardly. The same aesthetic pleasure can be attained through language, when it is used by master wordsmiths whose writings have been pleasing and inspiring the people for ages together. Language in its both spoken and written forms provides us information as well as entertainment. In its spoken form along with music it offers melody that makes not only man but other creatures merry. The natural resources, it can be observed, influence the culture. The nature of natural resources determines our way of living, which is culture. Language is itself a culture developed as per the natural resources of the locality. It is but common that the sounds of a language bear the influence of the natural resources available around.

As far as sustainable development is concerned, the contribution of language cannot be ignored. Man uses natural resources for survival; air to breathe, water to drink, vegetation to eat and so on. In addition, the civilized modern man uses the natural resources to earn livelihood and attain development with scientific and technological inventions. Similarly, language also becomes a source of livelihood for human beings. No doubt, language cannot be breathed, drunk, or eaten. But there are so many people in this civilized modern world who use language to earn livelihood, and this has been being done since ages ago. Language is a source of earning money. The great number of language teachers across the world is the evidence of this. Just consider the example of English language. It operates like an industry. It is a knowledge industry that offers a big room for sustainable development. English language teaching and learning has become an obligatory part of the life across the world. English is being exploited as a resource, rather a natural resource. It offers people jobs off various types. Hence, there is no harm in considering language as a natural resource and utilize it properly for sustainable development.

Conclusions:

To sum up, there is no doubt that language is not as indispensable as the natural resources like air, water, sunlight and land, etc. are. But as it is being used as a resource and it exists before the individual human being's arrival in the existing society and we use it naturally to store and exchange knowledge, it can be considered a natural resource.

Suggestions:

Language should be considered a natural resource. The contribution of language in the sustainable development should be studied with due consideration. Language should be stored and sustained to understand life in better way.

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Cotton Pest In Agro Ecosystem Dr PanjabraoDeshmukhKrishi Vidyapith, Akola**Dr Shubhangi V. Gawande,**Assistant Professor Department of Zoology
ShriShivaji College of Arts, Commerce and Science, Akola**Introduction**

Bt cotton is the first genetically modified crop to be used in India. Cotton cultivation in India is mainly dominated by Bt cotton hybrids, approved for commercial cultivation in the year 2002. Currently above 90 per cent of the cotton area is under hybrid Bt cotton in India and about 95 % in Maharashtra. When it comes to Vidarbha, the main cash crops of the region are cotton, oranges and soybeans; further the Yavatmal District is the largest cotton growing area. There have been more than 32,000 farmers' suicides in Maharashtra in the last decade, of which 70% being from the 11 districts of Vidarbha region (Sainath, 2007). Ironically, maximum suicides are found in the most prosperous district of the cottonbelt i.e. Yavatmal. It is proving to be the worst place in the nation to be a farmer. The next few sections discusses about the use of pesticides, their effects and cost of farming against the yield in Btcotton forming.

Importance of cotton

- It is cultivated Primarily for lint.
- Row cotton is also used for medical & surgical Purpose.
- Linter are used Cushions, pillows etc.
- Linter also also used for high grade Pepar, rayon, Films, Explosives.
- Seed crushed for edible oil.
- Cack& meals & are excellent cattel feed.

Major pest of cotton

- Red cotton bug :-



- Cotton aphid :- (Aphis gossypii)



- Cotton jassid :-
- mealy bug :- (PhenacoccusSolani)

Red cotton bug

Order :-Hemiptera

Family :-Pyrrhocordia

Red Cotton Bug

• Found to infest cotton in all cotton growing regions. It is a major pest of cotton in most parts of tropical Africa, tropical Asia, USA and South America . Also attack Hibiscus spp., okra, Abutilon, etc. • Appearance:

• Nymphs and adults are reddish with white bands on the abdomen and black markings on forewing . •Life cycle of red cottonbug.

Life cycle :-

Eggs are laid in the soil near the plants. The incubation period is 7 days and nymph become adults in 49- 90 day.

**Nymphs****Adul****Damage**

- **Damage symptoms:**

The damage is caused by both nymphs and adults by sucking the sap of the plant as well as that of bolls and stain the lint. They are also, therefore, termed as cotton boll stainers. The bugs are gregarious in habit. Attacked seeds loose viability. The bacterium *Nematosporagossypii* enters the site of injury and stains the fibre.

- **Bionomics:**

The adult is a red and black bug with white stripes ventrally on the abdomen. The eggs are laid in loose masses in the soil. The fecundity of the bug is 100 – 130. Egg period 4-7 days. The nymph undergoes six instars to become adult. The nymphal period lasts for 26 - 89 days. The adult bug undergoes hibernation (resting period) during winter months.

Management:

- Biocontrol agent *Harpactor costalis* is predaceous on nymph and adult;
- Since the pest feeds gregariously, the infested leaves or bolls can be shaken in water and drowned.
- Plough the field to expose the eggs.
- Spray fluvalinate 25 EC 200-400 ml/ha or endosulfan 35 EC 750 ml/ha.

**Cotton aphid**

Order :-Hemiptera

Family :-Aphididae

Distribution & status : India, Occasionally serious.

Host range :- Cotton , bhendi Brinjal, chillies gurva

Life cycle aphid

Since some aphids use asexual reproduction and others use sexual, while still others use both, there are a few different paths their life cycle may take. The cycle is also affected by environmental factors. The average lifespan of an aphid is one month.

Holocyclic Life Cycle

In a holocyclic life cycle, the aphid starts as an egg that is usually planted before winter. From there it hatches into a fundatrix, which is a wingless female aphid. Next, the fundatrix will create daughter clones. These females will then go on to create both males and females. These males and females mate and create an egg that can survive the winter.

Anholocyclic

In an anholocyclic life cycle, female aphids simply create live birth clones of themselves without the help of males. So the life cycle usually looks like this: a female aphid which sometimes has wings and sometimes does not, creates a clone called an aptera. This aptera is unwinged and can survive the winter, then goes on to continue the cycle by creating more clones.



Signs & Symptoms

Aphids feed using piercing-sucking mouth parts that are used to penetrate the sap stream of plants. Both adults and nymphs cause damage. However, the direct feeding by aphids is normally regarded to be of minor importance unless very high numbers of aphid are present on a crop

- The principal cause of damage by green peach aphid and melon aphid is through the transmission of plant virus diseases.

- Aphids generally prefer feeding on the young, soft leaves, stems and buds, where they form colonies.
- Signs and symptoms of aphids include:

- Colonies of aphids clustered on young stems, leaves and buds
- Wilting and distortion of leaves and young shoots
- Yellowing and premature death of leaves and young plants
- Honeydew on leaves and fruit, with black sooty mould fungus
- Symptoms of virus disease (which vary with crop plant and type of virus)
- It is important to seek early professional advice if you suspect the virus disease is present.

Cotton jassid Identification

Eggs :- Yellowish White

- Nymph adult :- greenish Yellow colour with black spot on the tip of each following
- Jump on distributing.

Life cycle cotton jassid

Adult female leafhoppers each lay between 60-200 eggs beneath the epidermis of the stalk or leaf, during their 2-3 week life span. The eggs hatch 6-10 days after oviposition and the nymphs pass through five ecdyses in the next 14-18 days before the adult stage is reached.

Our offer

Galil ,Acetastar , Kohinor , Lamdex Super, Keshet , Keshet Super

Damage

Edges of leaves curl turn yellow and later become reddish-brown. The remainder of the leaf is often covered with small yellow spots on the lower surface. The leaves then usually dry up and are shed. Buds and young bolls may also open early or drop.

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Soil Pollution

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Introduction

The alternation or change in physical, chemical and biological characteristics of air, water and land is called as pollution. Pollution is the introduction of harmful materials into the environment. These harmful materials are called pollutants. Pollutants can be natural, such as volcanic ash. They can also be created by human activity, such as trash or runoff produced by factories. Soil pollution causes a chain reaction. It alters soils' biodiversity, reduces soil organic matter and soils' capacity to act as a filter. It also contaminates the water stored in the soil and groundwater, and causes an imbalance of soil nutrients.

Different Sources of Soil Pollution

Industrial Waste: Release of industrial waste is a major problem for soil pollution. Pollutants are mainly discharged from pulp and paper mills, chemical industries, oil, refineries, sugar factories, tanneries, textile, steel distillaries, fertilizers, pesticides industries. It is reported that about 20 million tonnes of substance are disposed off in the soil as industrial waste. Industrial sludge is more dangerous than industrial solid waste.

Urban Waste: Both commercial and domestic solid waste are called as refuse. These solid waste refuse contribute for soil pollution. Mainly this waste contains garbage and rubbish material like plastics, glasses, metallic, fibres, paper, rubble, fuel residue, leaves, containers, street sweeping.

Radioactive Pollutants: Hazardous radioactive substance produced from explosion of nuclear weapons, devices, atmosphere fallout from nuclear dust and radioactive waste penetrate the soil and accumulate and causes land pollution. Radio nuclides of radium, thorium, uranium, isotopes of potassium and carbon are very common in soil, rock, water and air. Radioactive waste contains several radionuclides such as strontium-90, Iodine-129, Barium-140, Lanthanum-140. These are also produced from nuclear fission.

Agricultural practices: Due to advanced agro-technology today farmers use modern fertilizers, pesticides, herbicides, weedicides and soil conditioning agents for increasing crop yield. Plants and animal waste which including farm waste, manure slurry, debris, soil erosion containing mostly inorganic chemicals causes soil pollution.

Chemical and Metallic pollutants: Many industries such as textile, pesticides, paints, rubber, petroleum, paper and pulp, sugar, steel, glass electroplating and metal industries release their toxic effluent in soil and water and make it contaminated and affect the living organisms. Synthetic chemical and fertilizers are also source of trace metal. Excess of sulphur in soil is also injurious for plant tissue.

Biological agents: Biological agents act an important role in polluting soil. Soil gets contaminated with large quantities of human, animal and birds excrete which constitute source for soil pollution. In addition to this excreta, faulty sanitation, municipal garbage, waste water and agriculture practices also include heavy soil pollution, pathogenic organisms, occurring naturally and excreted by animals, man also influence soil by altering its fertility, physical texture, etc.

Different Effect of Soil Pollutant

Effect of Industrial Pollutants:

- 1) Industrial waste is toxic and is fatal for living beings. Industries release out their chemical, metallic waste, which is not degradable in the soil. All the chemicals transferred to different organisms through food chain.
- 2) Industrial effluent discharged through sewage system disturbs the sewage treatment mechanism and causes the soil and water-borne diseases.
- 3) Metallic compounds containing heavy metals like (Tin, Pb, Zn, As, Cd, Cr, etc) destroy the micro fauna present in the soil.
- 4) Soluble salts cause crop loss, metallic corrosion and lead to costly cleaning activities.
- 5) Chemical effluent having high acidity and alkalinity causes agricultural crop damage.

Effect of Urban Waste:

- 1) Urban waste is a very high problem in pollution studies. Million tonnes of waste is dumped by polluted cities like Delhi, Mumbai, Kolkata, etc. and spread several chronic disease posing a serious threat to human health.
- 2) The waste like building material, sludge, dead animal skeletons and garbage thrown away at public places causes diseases and obstruction in daily life.
- 3) Sewage is an excellent medium for growth pathogenic bacteria, viruses and protozoa. It may cause cholera, shigella dysentery etc.
- 4) Solid waste results in offensive odour and cause clogging of ground water filters, suspended matter sewage can cover the soil, it may interfere the soil moisture.
- 5) The use of polluted ground water containing human excreta, sewage sludge i.e. solids from trace metal, detergents in the agricultural fields damage crop and decrease the agricultural production and kill the bacteria and soil microorganism.

Effect of Radioactive pollutant:

- 1) Radiation accurately affect the soil and soil fertility. These radiation kill plant species.
- 2) Volatile materials when released into atmosphere come down to earth with the rain and rain containing radionuclides on the soil.
- 3) When food containing radionuclides is taken by man, species organ get affected and undesirable diseases occur in digestive track.

Effect of Fertilizers

- 1) The use of fertilizers, pesticides and biocides in agriculture practices makes soil no fertile reduces the humus, nutrients and spoils the microflora in the soil.
- 2) Use of potassium and nitrogenous fertilizer causes adverse effect on soil, plant and human being as well.

Different Control Measure of Soil Pollution**1) Sewage Treatment:**

➤ **Biological Method of Treatment:** It involves microorganism as bacteria, fungi, protozoa and other microbes etc. domestic sewage can be readily decomposed by these microorganism.

➤ **Chemical Method of Sewage treatment:** can be treated by following methods.

A) **Primary Treatment:** Generally primary treatment is given to the domestic sewage. It involves the following steps for removing the waste.

i) **Screwing** – It is used to remove the large soil object from waste.

ii) **Grit Chamber** – A fairly large object can be removed which is escaped from screwing.

iii) **Sedimentation Tank** – The sewage or waste is allowed to settle down the sand and other suspended matter for several hours. Chlorination is done for killing the bacteria and other organisms.

iv) **Sludge Diaster** – Soil settles waste is collected in sludge diaster and is decomposed in absence of oxygen.

B) Secondary Treatment:

Secondary treatment is advanced and involves bacteria activity. Following steps are involved in the treatment of suspended organic matter.

i) **Aeration** – Sufficient supply of oxygen is given to the liquid in aeration tank to decomposed the material by aerobic bacteria.

ii) **Activated Sludge treatment** – Settled down sludge from second sedimentation tank is called as activated sludge and is contaminated with many bacterial growth which is brought to the sludge diaster.

iii) **Sludge Diaster** – Activated sludge is treated in the sludge diaster, remaining sludge is recycle back to aeration tank and the second sedimentation tank.

iv) **Sludge Treatment** – The solid waste which remain after the sewage treatment plant. A new disposal method is suggested that is the sludge is first decomposed and digested, then it is pumped to strip-mined barren and marginal farm land away from the locality.

3) **Treatment of the Industrial Effluent:** The following methods of disposal can be implemented as a method of treatment.

i) One can treat the waste and removes the suspended soil material and can release into water course.

ii) Release of untreated effluent into public sewer system and can be processed by municipal sewage treatment plant.

iii) Transport of untreated effluent to land disposal site.

iv) Chemical treatment should be given to the waste as coagulation and precipitation for the removing solids.

- v) Distillation, Steam or inert gas stripping for removing low soiling wastes.
- vi) Screening, Oxidation, flocculation and sedimentation of waste forward by biological treatment.

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Natural Resources and their Conservation**Dr. Magar S. R.**

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Email. Shirm15@gmail.com**Abstract:**

“Natural resources are that resources which is play an important role in human life. Natural resources occur naturally on earth surface, we cannot make it in industries. Natural resources are classified into many categories but mainly it divided into two types one is renewable and another is nonrenewable. Day today use of natural resources are increasing for development purpose, this results the ecological imbalance. For better future of our generation everyone need to conserve the natural resources in a planned manner. Alternative resources are used for nonrenewable resources to maintain them.”

Introduction:

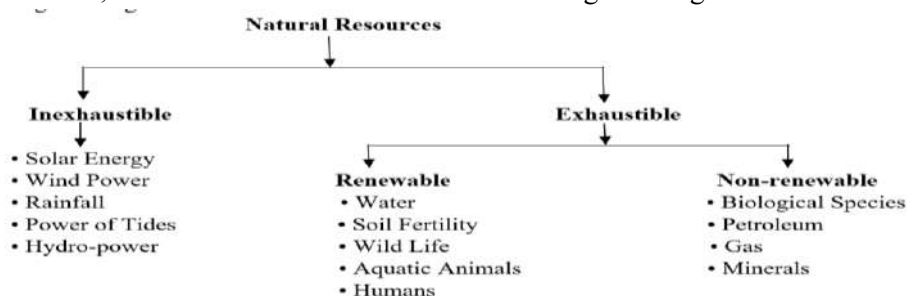
Natural resources are the precious resources on the earth. Natural resources play an important role in human life, without natural resources we cannot develop. Natural resources are that resources which is naturally occur on earth without interference of mankind. Air, water, sunlight, coal, minerals, forest and animals are the natural resources. These resources are useful for daily life as well as development of human beings. Natural resources are divided into two main types one is renewable and another is nonrenewable. These two types are divided according to their use. Natural resources are also classified into two types one is biotic and another is abiotic. Biotic resources are obtained from organic material and abiotic resources are obtained from non-organic material. Natural resources are used for to make food, fuel, goods production and raw material¹. Natural resources are used to meet people needs. The development of country is depend on natural resources, the country rich with natural resources has chance to develop their economic activates as well as country enrichment.

Natural resources are important for us, day today the usage of natural resources are increased for development of every sector. This more use of natural resources are the alarm of human being, we need to conserve the natural resources for future life. Conservation means to prevent, preserve, protect and manage the natural resources. Conservation is the careful upkeep and maintain and preserve natural resources to secure it from disappearing. We need to use natural resources wisely for conservation of it², if we could not use carefully then it would be harmful for our environment.

Conservation of natural resource are importance for our next generation as well as maintain the health of environment. Natural resources are very important for all kinds of development activities. Population of the world is increasing at very high rate and this impact on natural resources reduction, so our prime duty to conserve the natural resources through various practices. If we cannot conserve the natural resources then we face drought, flood, climate change, global warming and other related crisis. Everyone need to more use of renewable natural resources and reduce the use of nonrenewable resources³. Every people has prime duty to conserve the natural resources for our bright future.

Classification of Natural Resources:

Natural resources are very important for our environment, but these resources are available in various types. Some resources are need to manage wisely for our future generation. Natural resources are classified into inexhaustible, exhaustible, renewable and non-renewable. Below figure categorized the natural resources.



According to above figure natural resources are classified into main two types one is inexhaustible and another is exhaustible. Exhaustible resources are also classified into two sub types these are renewable and non-renewable. The resources cannot be end by human consumption that resources are called inexhaustible resources these are solar energy, wind power, rainfall, power of tides and hydro power. The resources are end by human use that resources are called exhaustible resources, exhaustible resources are renewable and non-renewable. Renewable resources are naturally regenerated after consumption of human being that resources are called renewable resources, these are water, soil fertility, wild life, aquatic animals and humans. The non-renewable resources are cannot be naturally regenerate after its consumptions these resources are known as non-renewable resources, these are biological species, petroleum, gases and minerals⁴.

Conservation of Natural Resources:

Planet earth is rich with natural resources due to this living and nonliving things are developed, but now a days the consumption of natural resources are increasing by human being for their development. For better future of our generation to conserve the natural resources. Following are the some natural resources and they need conserve by various human activities.

1) Water:

Water is an essential natural resource for us, without water we could not survive. India is a second largest country in the world in terms of population but only 4% of water resources available in country with compare to the world, these resources are deploying due to the over burden of population on it as well as the development activities in the country. Water conservation is important because fresh water resources are very few, our duty is to that to conserve them for our future generation and also for balancing the environment. Climate change has been deep impact on water resources, glaciers, snow, wetland and water bodies are effected due to the climate change. Water conservation is a practice to use water efficiently for reduce unnecessary water usage. Water conservation includes all the policies, activities and strategies to sustainable manage the fresh water. Water conservation includes reducing usage of water and reuse or recycle of waste water. Water is used for different purpose like farming, domestic, industrial and other development purpose⁵, so we need to use water carefully.

2) Soil:

Soil is an essential resource for us. Without soil we cannot get food, cloth and fodder, for human beings and other animal as well as other living organism need soil for their growth. Soil is an important for sustainable growth and production of crops. Soil conservation is a practice to protect soil from degradation. Soil conservation is an operation and management strategies to protect soil from erosion, soil particles are transport in water and air, these particle are to prevent from transport and conduct method to conserve them. To reduce soil erosion from wind need to provide a barrier between soil and wind. Soil conservation is a set of techniques to avoid soil erosion, degradation and depletion of land. Different types of soil conservation methods prevent land pollution, sedimentation, runoff soil and protect bare surface from cracking due to the wind, water and heat⁶. For Maintaining the natural environment and incassation of crop production needs conservation of soil.

3) Air:

Air is a precious resource on earth, air has consist of so many gases out of them some are very important for mankind. Air is contaminated by various activities like transportation, industrial plants, power plants and various other day today tasks. This air pollution create so many problems regarding health, and environment. There are so many simple steps in our everyday life's to help improve the air conditions. Using the public transport, turn of the unnecessary lights, reducing the daily fire and smoking, use of fans instead of air conditioners, use filters for chimney, avoid the usage of crackers, avoid using of product with chemicals these are the way we contribute to reduce the air pollution⁷. Air is a most important element for survive life on earth. Our prime duty to reduce pollution and make air clean for every life on earth.

4) Minerals:

Mineral resources are most important for the growth of life, mineral resources are the key material; for development of every country. Mineral resources are nonrenewable in nature. Mineral resources are used

for various purpose. Mineral resources are divided into three main categories, these are industrial minerals, fuel minerals and metallic minerals. The mineral resources we cannot make in laborites, so we need to use it carefully and conserve it for future generation. Now we excess use of mineral for various purpose, we need to reduce it usage and move towards renewable resources. Use of mineral resources in a planned and sustainable manner. Mineral resources we cannot produce so once destroy they are destroy forever. Use alternative resource for mineral resource and we need to reuse of waste mineral resource⁸. We conserve the mineral resources by reusing, recuperating and recycling method, to finding new area of minerals, to utilizing renewable resources, substitute the mineral resources by renewable resources and using the modern technology.

5) Forest:

Forest is an extremely important natural resource for us. Without forest we cannot breathe clean air. Forest is necessary for survive of mankind as well as all species. Forest is a storehouse of various species like mammals, birds, plant, reptiles, insects, birds and various life forms. Nearly 4 billion hectares are covered by forest on earth surface, this is roughly 30% of its total land⁹. In India 7,12,249 sq. km area under the forest which is 21.67 percent of geographical area of the country. Below table shows the forest and tree cover of India.

Forest and Tree Cover in India

Class	Area (sq. km)	% of Geographical Area
Very Dense Forest	99,278	3.02
Moderately Dense Forest	3,08,472	9.38
Open Forest	3,04,499	9.26
Total Forest Cover	7,12,249	21.67
Tree Cover	95,027	2.89
Total Forest and Tree Cover	8,07,276	24.56
Scrub	46,297	1.41
Non-Forest	25,28,923	76.92
Total Geographical area	32,87,469	100

Source: India State of forest report 2019, Ministry of Environment, Forest & Climate Change, Government of India.

According to above table total area of forest cover is 7,12,249 and total tree cover is 95,027 both total area is an 8,07,276 sq. km area under forest and tree cover which is 24.56 percent of geographical area out of total area of India.

Now a days for the development of various sectors deforestation is increased this is a not good sign of our future generation. Everyone need to protect forest from deforestation and require plantation for increase the forest area for clean environment for our future generation. Conservation of forest is more important for every species on earth, government, community organization, individuals and private bodies are need to protect and manage the forest in a planned way for its conservation. Natural and manmade forest will be protect for ecological balance of environment. Conservation of forest need to take the some steps like regulated and planned cutting of tree, proper utilization of forest product, reforestation and afforestation, protection of forest, check over forest clearance for agricultural and industrial purpose and control over forest fire¹⁰.

6) wildlife:

Wildlife are the important natural resource for maintaining environment as well as the development of mankind. For humans animals are the productive resource for daily life. Animals are provide wide variety of products that human needs to survive like milk, egg, meat cheese, butter, beauty products, jewelry and cloths. Animals are also play an important role for maintaining healthy environment on the earth surface. Now a days some species are at risk level, so we need to conserve the wildlife for better environment. According to international union for conservation of nature estimate that 27,000 species are at risk for extinction. When the some species are disappeared then this is a harmful effect on the ecosystem¹¹.

Wildlife conservation is refers to protect wild species and their habitat for maintain healthy ecosystem. Wildlife conservation through the some practices like monitoring wildlife population, habitat protection, habitat management, conserve species in their wild state, rehabilitation of threatened species, breeding program, celebrating the various program on wild life species, awareness program, publication of wildlife film, book etc¹². creating various law regarding wildlife protection. For our bright and healthy future everyone needs to involve the activities that conserve wildlife.

Conclusion:

Natural resources are precious in nature, humans cannot make it in industries. Some natural resources are renewable and some are nonrenewable. Natural resources are naturally occur on earth without interference of human being. Every day the consumption of natural resources are increasing for the development purpose by mankind, due to this some nonrenewable resources are at risk. Everyone's prime duty is that to conserve the natural resources for future generation as well as healthy environment. We need to use alternative resources for nonrenewable resources. To protection, management and maintenance of natural resources every one need to carefully use it and planned for conserve the natural resources for healthy environment.

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Water Resources And Sustainable Development With Reference To The Irrigation Of High Plateau In Satara District Under Urmodi Lift Irrigation Scheme

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Abstract:

Water resources are essential for sustainable development. This fact needs no introduction and it needs no explanation. The history of human civilization bears testimony to this fact. History of human development shows that civilizations developed along the river valleys and they owed their existence to these water resources to such an extent that these civilizations are named after these rivers. These civilizations flourished for thousands of years and they sustain this long due to the sustainable water resources.

The present subtheme of 'WATER RESOURCES AND SUSTAINABLE DEVELOPMENT', holds relevance in modern context of development. This relevance has its roots in modern way of development. In our modern world we come across such models of development which do not rest on the firm footing of sustainable water resources. We see that there is a growing trend to use technology to harness a water resource and then base our development on the strength of this summoned resource. As an example, we can think of the development of Riyadh city in Saudi Arabia where the water is supplied from a resource at Al Jubayl which is 466 km away from Riyadh city and it requires lifting of that water quantity through an elevation of 2340 meter! (Ref: <https://www.sciencedirect.com/science/article/abs/pii/S0011916400861287>) This model of development poses the question of sustainability due to its heavy dependence on water resource made available by consumption of energy. This trend therefore needs to be examined critically. An attempt is done here to study a typical case of Urmodi Lift Irrigation Scheme in the Maharashtra State of India wherein a water resource is developed in such a way that it requires continuous supply of high electrical power while the basic data shows that such a resource could have been developed with virtually no cost for energy.

Rationale of the study:

In the post-independence era in India, there was a prime focus on making India a self-reliant nation as regards to its food security. This was achieved successfully by irrigating the cultivable land. For this development, large irrigation facilities were generated by building many dams across the rivers in India. This path of development was followed in the various states in India. Maharashtra is one such state which resorted to development of agricultural production through irrigation. Initially, the irrigation in the Maharashtra state was gravity flow type irrigation only and many dams built in the earlier stage of development like the Ujani project and the Dhoni project are examples of this type of gravity flow irrigation projects. Later on, a concept of lift irrigation schemes was developed. In this type of schemes, water is lifted to higher elevations and then it is distributed to irrigate higher patches of cultivable land. Major examples of such type of irrigation schemes in the Krishna basin are Takari lift irrigation scheme and Tembhuri lift irrigation scheme. These schemes came up as an attempt to provide irrigation facility to the agricultural lands on the rain-scarcity prone high plateau in the Satara and Sangli districts in the Western Maharashtra. These lift irrigation schemes ensured judicious distribution of available water in the region. But it is to be always kept in the mind that the lift irrigation comes at a cost and this cost is the electrical energy that it consumes. And it is important to study whether the water can be supplied to high tracts of land without consumption of energy as it will lead us on the path of sustainable development.

Objective of the study:

While pumping up the water mass to higher elevations, high consumption of the electrical energy takes place and therefore, it is necessary to check again and again whether the lift irrigation can be replaced with gravity flow irrigation even if the gravity flow irrigation may come at higher initial cost. In the present paper,

this type of analysis of the Urmodi lift irrigation scheme shall be presented to show that if it is planned to divert the waters in the Dhom dam to the inlet of Khatav tunnel then, the entire scheme of irrigation in the drought prone Khatav and Man talukas in the Satara district can be based on the gravity flow irrigation and thus precious electrical energy can be saved. It is important to save this electrical energy because, in Maharashtra state the electricity is generated in the thermal power stations which burn coal as their fuel and we know that the coal is a non-replenishable source of energy and its burning degrades the environment due to emission of carbonic gases. Thus, replacement of Urmodi lift irrigation scheme by Dhom high level canal and aqueduct is going to serve a three-fold purpose. Firstly, it shall save precious electrical energy; secondly, it shall save the non-replenishable energy source of coal and thirdly, it shall save the environment from large scale emissions of the carbonic gases.

Hypothesis:

If thought in larger perspective of a main river basin as a whole, the lifting of water for irrigation can be saved in the case of Urmodi lift irrigation scheme by replacing this lift irrigation scheme by constructing Dhom high level aqueduct.

Methodology:

This paper uses analysis based on factual topographical data and information of the various irrigation projects and schemes in the Krishna basin in the Maharashtra State, published in Government Publications and made available on the internet.

The Urmodi lift irrigation scheme:

River Urmodi is a right-side tributary to the Krishna River. It rises, flows and meets the Krishna River in the Satara district. Across this river, a dam is constructed. The height of this dam is 50 meters and the full reservoir level of this dam is 696.000 meters. The water from the reservoir behind this dam is distributed through left and right bank canals. The Urmodi right bank canal supplies some of its water to Urmodi lift irrigation scheme. For facilitation of this supply, the water from the Urmodi right bank canal is let into Kaner canal and through Kaner canal, this water is taken to the Arphal canal. The Arphal canal lets this water to the inlet of the lifting station at Wathar-Kiroli. From this lifting station, the water is lifted to the first stage feeder channel. The first stage feeder channel leads the water to the second stage pump house at Kombadwadi. From the Kombadwadi pumping station we have second stage lifting. After this second stage lifting, the water is left into the Khatav tunnel. This tunnel leads the water for more than a kilometer length and opens into an open channel. This open channel serves as an irrigation canal for the command area on its banks in the rain-scarcity zone in the Khatav taluka and it also serves as a feeder channel to the Yeralwadi minor irrigation tank. From this Yeralwadi minor irrigation tank, there is direct irrigation by gravity flow to some command area in the Khatav taluka and then for the command area in the Man taluka, the ear-marked quantity of water is released into the Man canal. This water then serves the purpose of irrigation in the rain-scarcity prone Man taluka of the Satara district.

Proposal for replacement of the Urmodi lift irrigation scheme:

The Urmodi project is a major irrigation project and it utilizes 273.27 million cubic meters of water for irrigating 43870 hectares of land. The Urmodi lift irrigation scheme is covered under this Urmodi project. This scheme is a huge lift irrigation scheme. It aims to irrigate 32000 hectares of land in the Khatav and Man talukas. This means it shall proportionately utilize 199.33 million cubic meters of water to irrigate these 32000 hectares. This again means that under this scheme, this huge quantity of water is going to be lifted up. We must give consideration to a fair estimate for the height of lifting. We know that the full reservoir level of the Urmodi dam is 696.000 meter and its height is 50.1 meter. This means that the water shall be left into the Urmodi canal up to around 650.000 level. This water shall flow through canals and as this water in the canal flows further, it loses its level to flow down and down. This means as this water passes into the Kaner canal and further into the Arphal canal and then to the Wathar-Kiroli lifting station it shall certainly go on losing its level and shall be going down in level. Now this water has to be let into the Yeralwadi minor irrigation tank. The full reservoir

level of the Yeralwadi minor irrigation tank is 698.200 meter. This means that this huge quantity of water has to be lifted through a minimum elevation of 60 meters. This means that we are going to lift about 200 million cubic meters of water through an estimated elevation of 60 meters. This shall require an energy consumption of 120 Tera Joules! This means if the pump house works 8 hours a day round the year, then we shall require 11.42 Mw power! What a heavy carbon foot print!

Therefore, it is necessary to check whether there is some source to irrigate these lands without lift irrigation. To study a possible alternative. We need understand the Krishna basin in the western Maharashtra in the districts of Satara and Sangli. In these districts, the rivers like Krishna, Venna, Koyna, Urmodi, Tarali, Mand, Warana rise and flow towards east and south. They can't flow straight east because their valley gets confined by the hills of the Mahadev range. Thus the high plateau on and beyond the Mahadev hills remains high and dry. Further, this plateau also is prone to scarcity of rainfall and thus, the people living in this area didn't get the benefits of economic development. Therefore, to distribute the available water in the Krishna valley in a judicious way, the planners of the development of the overall state decided to make the river water available to them. Therefore, the lift irrigation schemes were planned to supply river water to these high tracts of rain-scarcity prone lands. But now, when we look to the scenario of irrigation in these districts from a larger perspective, we see that some simple topographical facts have skipped the attention of the planners of these schemes. These facts tell us that in some cases, the lifting of water can be avoided and water can be distributed to the high plateau by gravity flow irrigation. Here we study the case of the Urmodi lift irrigation scheme.

The Urmodi reservoir water is left into canals and then lifted to feed the Yeralwadi tank. This way we lose the high level of the water in the dam and again lift the water to increase its water-head i.e., level. Thus, the whole scheme of lift irrigation becomes a game of losing the high water -head in the dam and regaining the same water-head through the lift irrigation scheme. Instead of going through this jargon we can give a thought to some alternative. This alternative is available in the Krishna valley. This alternative is Dhom dam. The height of Dhom dam is 50 meters and the full supply level of this dam is 747.7 meters. this shows that the level of water in the Dhom dam is way above the full reservoir level of the Yeralwadi tank (698.2 meter). This shows that the bottom gorge level of the Dhom dam ($747.7 - 50 = 697.7$ meter) is nearly equal to the full reservoir level of the Yeralwadi tank. This means the if water from the Dhom reservoir is let into an aqueduct of sufficient conveying capacity, then the need of irrigation in the Khatav and Man talukas can be easily met with. The water storage in the Dhom dam is 331 million cubic meter and therefore the need of Khatav and Man talukas – which is 273.27 million cubic meters can be easily met with. The present low lying command area of Dhom dam can be easily irrigated by the surplus water of the Urmodi reservoir. Further, it is to be mentioned here that the valleys of the river Krishna and Urmodi are so adjoining that, whereas the crow-flight distance between the Urmodi reservoir and Yeralwadi reservoir is shown as 65.3 km on the google map, the crow-flight distance between the Dhom reservoir and the Yeralwadi reservoir is shown as 87.6 km.

Conclusion:

Thus, with this out of box thinking of inter sub-basin transfer of the water from the Dhom reservoir shall benefit the society at large with three distinct benefits:

1. This shall save electrical energy on a very large scale.
2. This will save precious land under the canals in Urmodi basin as they shall be replaced with the high-level aqueduct from the Dhom reservoir and aqueducts do not require any large-scale land acquisition.
3. This will save heavy water losses through long canals.
4. This will save huge quantity of coal – a non-replenishable source of energy.
5. It will save the society from a heavy carbon foot-print and hills of ashes.

Recommendation:

On the lines followed in this research paper, the concerned agencies may take up such a study in detail and benefit the society at large with the advantages described in the conclusion above.

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Need of Biodiversity Conservation

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Biodiversity refers to the variety and variability among living organisms and ecosystem complexes in which they occur. It is the natural biological capital of the earth. The diversity of species involves genetic diversity, habitat diversity, and species diversity. India's biodiversity is one of the most significant in the world. Since the dawn of human civilization, man has depended on the biodiversity around himself. The process of extinction has become particularly fast in the recent years of human civilization due to the activities of modern man armed with the power of science and industrial product. It is a matter of prime concern that biodiversity should be conserved. Such a rich diversity needs a multifaceted approach for its conservation. The major policy instruments of diversity conservation include the creation and assignment of property rights, internalization of benefits from biodiversity conservation, education and national and international laws, regulations and conventions. A comprehensive strategy of ecosystem based development planning and management is necessary for biodiversity conservation. To make eco-development and biodiversity conservation projects self-sustaining; people's participation in their formulation and implementation is a must. To conserve the diversity the immediate task will be to devise and enforce time bound program for saving plants and animal species as well as habitats of biological resources. The national biodiversity strategy and action plan need to be implemented faithfully so as to protect and preserve biodiversity through appropriate policies and programmes. India predominantly depends on agriculture and hence policy makers should realize that conservation and sustainable utilization of biodiversity is the centre to all developmental planning.

Keywords: Biodiversity Conservation, Eco-development, Biotic Resources

Introduction:

The word 'Biodiversity' has become popular after 1992; 'Vasundhara Shikhar Parishad' in Rio de Janeiro (Brazil). Biodiversity is the biological variety and variability of life on earth. It is the natural biological capital of the earth. India's biodiversity is one of the most significant in the world. The process of biodiversity deterioration has become fast in the recent years due to so many developmental activities. Biodiversity is important in most aspects of our lives, so it should be conserved. India is one of the country which has rich biodiversity, so multifaceted approach is needed to save biodiversity. If we have to achieve sustainable development, a comprehensive strategy of ecosystem based development planning and management is necessary.

Objectives:

The present paper is undertaken with the following objectives:

- 1) To know the concept of biodiversity
- 2) To study the importance of biodiversity
- 3) To suggest solutions for biodiversity conservation

Methodology:

The present paper is divided into five parts. The first part introduces the concept of biodiversity. The second part explains the types of biodiversity. Third part gives information about importance of biodiversity. Fourth part focuses on the threats to biodiversity and its conservation. Conclusions are drawn in the fifth part. The information for the present paper is obtained through secondary sources. The secondary data is collected from various books related to environmental science, resource economics etc.

I) The Concept of Biodiversity:

Biodiversity refers to the variety and variability among living organisms and the ecosystem complexes in which they occur. It means all the variety of life which can be found on earth. It includes plants, animals, micro-organisms, communities etc.

Definitions:

1. Biodiversity refers to the amount of diversity between different plants, animals and other species in a given habitat at a particular time.
2. Gaston and Spicer (2004): 'Biodiversity is variation of life at all levels of biological organisms'

II) Types of Biodiversity:

Biodiversity is classified into different components based on the level of differences. They can be cited as:

- 1) **Genetic Diversity:** This type of diversity is expressed at the genetic level by every single in a species.
- 2) **Species Diversity:** This type of diversity is seen within a community.
- 3) **Ecological Diversity:** It is the diversity seen between the eco-system in a region.

III) Importance of Biodiversity:

All the above types of biodiversity help in keeping the balance in nature. Biodiversity is important to most aspects of our lives. Biodiversity provides number of natural services.e.g. –

- 1) **Eco system services-** Biodiversity boosts eco-system productivity such as- supply of oxygen, protection of water resources, soil conservation, absorption of pollution (CO₂), eco-system maintenance.
- 2) **Biological resources-** It includes food, nutrition, energy resources, diversity in genes, species etc.
- 3) **Economic benefits-** Biodiversity supports economic opportunities and leisure activities that contribute to overall well being and development.
- 4) **Social benefits-** It includes cultural values, research, education, and recreation etc. A huge variety of plants are used in decorating homes and other buildings and become an attraction for tourist and foreigners. It leads to create job opportunities and make profits.

IV) Threats to Biodiversity:

The loss of biodiversity can badly affects our environment and nature. Therefore, biodiversity has now become a matter of prime importance. Several types of biodiversities have now been become extinct. The rate of extinction has increasing and it directly affects our environment and creates imbalance in nature. Therefore, the importance of biodiversity has to be understood and every human being should try to preserve biodiversity. Threats to biodiversity include habitat loss and fragmentation, overuse of resources, invasive species, pollution and global climate change, unplanned development etc.

Conservation of Biodiversity:

Biodiversity is the key indicator of the health of our ecosystem. Healthy ecosystem cleans our water, purify the air, control the change in climate, recycle nutrients and provide us with food. Biodiversity conservation is important for human because our survival depends on plants and animals.

Biodiversity conservation has three main objectives:

1. To preserve the biodiversity of species
2. Sustainable utilization of species and eco-system
3. To maintain life supporting systems and essential ecological processes

Ways to Biodiversity Conservation:

Biodiversity can be conserved in the following ways:

- In-situ Conservation
- Ex-situ Conservation

In-situ Conservation:

In-situ conservation of biodiversity is the conservation of species within their natural habitat. In this method, the natural ecosystem is maintained and protected.

The in-situ conservation has several advantages. Following are the important advantages of in-situ conservation:

1. It is a convenient method of conserving biodiversity.
2. A large number of living organisms can be conserved simultaneously.
3. Since the organisms are in a natural ecosystem, they can evolve better and can easily adjust to different environmental conditions.

Ex-situ Conservation:

Ex-situ conservation of biodiversity involves the breeding and maintenance of endangered species in artificial ecosystems such as zoos, nurseries, botanical gardens, gene banks, etc. There is less competition for food, water and space among the organisms.

Ex-situ conservation has the following advantages:

1. The animals are provided with a longer time and breeding activity
2. The species bred in captivity can be reintroduced in the wild
3. Genetic techniques can be used for the preservation of endangered species

Suggestions:

1) Support local farms-

Buying things from small local farms helps in supporting agricultural efforts to conserve biodiversity.

2) Save the bees-

Bees play an important role in preserving biodiversity. They are increasingly under attack from Varro mites.

3) Plantation of local flowers, fruits and vegetables-

By planting local flowers, fruits and vegetable we can help to preserve the biodiversity of our area and support local ecosystem.

4) Respect local habitats -

Plants growing the park and nature preserves near you often play significant role in preserving the local ecosystem.

5) All renewable and non-renewable resources should be utilized efficiently and economically.

6) The reserves and protected areas should be developed very carefully and systematically.

7) There should be strict restrictions on deforestation.

8) The levels of pollution should be reduced. We should reduce the activities which creates pollution.

9) Laws regarding environment protection should be followed strictly.

Conclusion:

Biodiversity is the natural biological capital of the earth. India's biodiversity is one of the most significant in the world. The process of extinction has become fast in the recent years of human civilization. A multifaceted approach is needed to conserve such a reach biodiversity. A comprehensive strategy of ecosystem based development planning and management is necessary for biodiversity conservation. Public awareness should be created regarding importance of biodiversity conservation. Most biodiversity resources are consumed by humans so it is their primary responsibility to preserve and protect biodiversity to protect the earth. It is necessary for all the countries to come together and work for biodiversity conservation and then only we can remove poverty and deterioration of natural resources and can achieve sustainable development in true sense.

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Municipal Solid Waste Management(Msw): An Empirical Study

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Abstract:

The waste generated at household level shows an increasing trend with an increase in income and standard of living. Proper management of waste is important for building sustainable and liveable cities, but it remains a challenge for many developing countries and cities. It is observed that effective waste management is relatively expensive, usually comprising 20%–50% of municipal budgets. A large portion of waste management practices deal with municipal solid waste (MSW) which is the bulk of the waste that is created by household, industrial, and commercial activity. Health issues can also arise indirectly or directly

A waste segregation is important such as legal obligations, cost savings and protection of human health and the environment. The waste hierarchy refers to the "3 Rs"

Reduce, Reuse and Recycle, which classifies waste management strategies according to their desirability in terms of waste minimization. The solid waste management of Jaysingpur municipal council based on the budget of solid waste management along with interaction with the office bearers, workers and households is conducted to understand the status of solid waste management. This paper focuses on the solid waste management of Jaysingpur municipal council which is based on the budget of solid waste management.

Key Words : Solid waste management, waste segregation ,waste management strategies, waste minimization

Introduction

India with its 1.3 billion population generates the most waste globally and that are expected to increase substantially by 2050. Both India and China at present generating the maximum waste but India generates the highest amount of waste in the world that is more than China. The waste generated by both India and China at present is a small fraction of that by developing countries.

The waste generated at household level shows an increasing trend with an increase in income and standard of living. Proper management of waste is important for building sustainable and liveable cities, but it remains a challenge for many developing countries and cities. It is observed that effective waste management is relatively expensive, usually comprising 20%–50% of municipal budgets. A large portion of waste management practices deal with municipal solid waste (MSW) which is the bulk of the waste that is created by household, industrial, and commercial activity. Health issues can also arise indirectly or directly. It is affected directly, through the handling of said waste, and indirectly through the consumption of water, soil and food. But the burden of health effect is more serious on poor families and elderly citizens. The growth of cities with an inadequate provision of civic facilities leading to spread of endemic and pandemic diseases. It calls for efficient waste management at micro level with basic behavioral change in households where the bulk of waste is generated. This also calls for policy intervention to create awareness and behavioral change to reduce the waste and adopt positive steps to attain zero waste as ultimate goal. The establishment of a municipal authority with waste removal powers occurred as early as 1751, when Corbyn Morris in London proposed that "... as the preservation of the health of the people is of great importance, it is proposed that the cleaning of this city, should be put under one uniform public management.

Waste Management:

Waste management (or waste disposal) includes the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process. This waste can be solid, liquid, or gaseous and each type has different methods of disposal and management. Waste management deals with all types of waste, including industrial, biological, household, municipal, organic, biomedical, radioactive wastes. Waste management is intended to reduce adverse effects of waste on human health, the environment, planetary resources and aesthetics. It is observed that about a fourth of all the municipal solid terrestrial waste is

not collected and an additional fourth is mismanaged after collection, often being burned in open and uncontrolled fires – or close to one billion tons per year when combined

3 R in waste management.

The waste hierarchy refers to the "3 Rs" Reduce, Reuse and Recycle, which classifies waste management strategies according to their desirability in terms of waste minimisation. The waste hierarchy is the cornerstone of most waste minimization strategies. The aim of the waste hierarchy is to extract the maximum practical benefits from products and to generate the minimum amount of end waste. The waste hierarchy is represented as a pyramid because the basic premise is that policies should promote measures to prevent the generation of waste. The next step or preferred action is to seek alternative uses for the waste that has been generated i.e. by re-use. The next is recycling which includes composting. Following this step is material recovery and waste-to-energy. The final action is disposal, in landfills or through incineration without energy recovery. This last step is the final resort for waste which has not been prevented, diverted or recovered.

Polluter-pays principle

The polluter-pays principle mandates that the polluting party pays for the impact on the environment. With respect to waste management, this generally refers to the requirement for a waste generator to pay for appropriate disposal of the unrecoverable material. The carbon market started on 16th July 2021 in China is a bold step taken to reduce the green house effect (GHE) in energy sector is use of the polluter-pays principle.

Financial model

In most developed countries, domestic waste disposal is funded from a national or local tax which may be related to income, or property values. Commercial and industrial waste disposal is typically charged for as a commercial service, often as an integrated charge which includes disposal costs. This practice may encourage disposal contractors to opt for the cheapest disposal option such as landfill rather than the environmentally best solution such as re-use and recycling. Financing of solid waste management projects can be overwhelming for the city government, especially if the government see it as an important service they should render to the citizen. Donors and grants are a funding mechanism that is dependent on the interest of the donor organization. as much as it is a good way to develop a city's waste management infrastructure, attracting and utilizing grants is solely reliant on what the donor considers as important.

Therefore, it may be a challenge for a city government to dictate how the funds should be distributed among the various aspect of waste management. In Taiwan the capital city Taipei , the city government charges its households and industries for the volume of rubbish they produce. Waste is collected by the city council only if it is put in government issued rubbish bags. This policy has successfully reduced the amount of waste the city produces and increased the recycling rate. World Bank finances and advises on solid waste management projects using a diverse suite of products and services, including traditional loans, results-based financing, development policy financing, and technical advisory. World Bank-financed waste management projects usually address the entire lifecycle of waste right from the point of generation to collection and transportation, and finally treatment and disposal.

Classified or Segregated waste:

The scientific treatment to waste management starts with classifying the waste at origin. It is important to remember that waste segregation should be based on the type of waste and the most appropriate treatment and disposal. This also makes it easier to apply different processes to the waste, like composting, recycling and incineration. It is important to practice waste management and segregation as a community. One way to practice waste management is to ensure there is awareness. The process of waste segregation should be explained to the community. Segregated waste is also often cheaper to dispose of because it does not require as much manual sorting as mixed waste. There are a number of important reasons why waste segregation is important such as legal obligations, cost savings and protection of human health and the environment. Institutions should make it as easy as possible for their staff to correctly segregate their waste. This can include labelling, making sure there are enough accessible bins and clearly indicating why segregation is so important labeling is especially important when dealing with nuclear waste due to how much harm to human health the excess products of the

nuclear cycle can cause. When segregating waste, the amount of waste that gets landfilled reduces considerably, resulting in lower levels of air and water pollution.

In primary stage unsegregated waste is collected at the curb-side or from waste transfer stations and then sorted into recyclables and unusable waste. Such systems are capable of sorting large volumes of solid waste, salvaging recyclables, and turning the rest into bio-gas and soil conditioner.

The fantastic 3 bin system was started in San Francisco. The local government established its Mandatory Recycling and Composting Ordinance in support of its goal of "Zero waste by 2020", requiring everyone in the city to keep recyclables and compostables out of the landfill. The three streams are collected with the curbside "Fantastic 3" bin system – blue for recyclables, green for compostables, and black for landfill-bound materials – provided to residents and businesses and serviced by San Francisco's sole refuse hauler. In addition, in some areas of the world the disposal of municipal solid waste can cause environmental strain due to official not having benchmarks that help measure the environmental sustainability of certain practices. This is the separation of wet waste and dry waste. The purpose is to recycle dry waste easily and to use wet waste as compost.

Recommended colour coding of containers are:

- Yellow- for infectious waste
- Brown- for chemical and pharmaceutical waste
- Black- for general waste

Disposal methods:

There are various disposal methods for the waste management.

Landfill method:

A landfill is a site for the disposal of waste materials by burial. Landfill is the oldest form of waste treatment, although the burial of the waste is modern; historically, refuse was simply left in piles or thrown into pits. Landfills must be open and available to users every day. While the majority of its customers are municipalities.

Incineration

Incineration is a disposal method in which solid organic wastes are subjected to combustion so as to convert them into residue and gaseous products. This method is useful for disposal of both municipal solid waste and solid residue from waste water treatment. This process reduces the volumes of solid waste by 80 to 95 percent. Incineration and other high temperature waste treatment systems are sometimes described as "thermal treatment". Incinerators convert waste materials into heat, gas, steam, and ash. Incineration is carried out both on a small scale by individuals and on a large scale by industry. Incineration is a controversial method of waste disposal, due to issues such as emission of gaseous pollutants including substantial quantities of carbon dioxide.

Waste-to-energy

Waste-to-energy (WtE) or energy-from-waste (EfW) are broad terms for facilities that burn waste in a furnace or boiler to generate heat, steam or electricity. Combustion in an incinerator is not always perfect and there have been concerns about pollutants in gaseous emissions from incinerator stacks.

Recycling

Recycling is a resource recovery practice that refers to the collection and reuse of waste materials such as empty beverage containers. This process involves breaking down and reusing materials that would otherwise be gotten rid of as trash. There are numerous benefits of recycling, and with so many new technologies making even more materials recyclable, it is possible to clean up the Earth. Recycling not only benefits the environment but also positively affects the economy. The materials from which the items are made can be made into new products. Recoverable materials that are organic in nature, such as plant material, food scraps, and paper products, can be recovered through composting and digestion processes to decompose the organic matter. The resulting organic material is then recycled as mulch or compost for agricultural or

landscaping purposes. In addition, waste gas from the process (such as methane) can be captured and used for generating electricity and heat (CHP/cogeneration) maximising efficiencies.

Waste reduction

An important method of waste management is the prevention of waste material being created, also known as waste reduction. Waste Minimization is reducing the quantity of hazardous wastes achieved through a thorough application of innovative or alternative procedures.[59] Methods of avoidance include reuse of second-hand products, repairing broken items instead of buying new ones, designing products to be refillable or reusable (such as cotton instead of plastic shopping bags), encouraging consumers to avoid using disposable products (such as disposable cutlery), removing any food/liquid remains from cans and packaging.

Findings of the Study:

The solid waste management of Jaysingpur municipal council based on the budget of solid waste management along with interaction with the office bearers, workers and households is conducted to understand the status of solid waste management. The observations are presented after the brief introduction and Jaysingpur city. Jaysingpur is a city and municipal council in the Kolhapur district of Maharashtra with population of 52000. The city derives its name from Raja Jaysing, the father of Shrimant Chhatrapati Shahu Maharaj of Kolhapur, who planned and developed the architecture of the city. Shahu Maharaj laid out Jaysingpur as one of the few "chess board cities" in Maharashtra where roads meet at 90-degree angles. Jaysingpur has emerged as a satellite of Sangli city and is growing at rapid pace. The city was founded in 1916 and celebrated its centenary in September 2016. The city has one of the largest tobacco markets in the country, and processes tobacco and gutka for the surrounding region. Jaysingpur is rapidly developing as a major satellite suburb of the Sangli city and is an important centre of Kolhapur region. The city holds a strategic location between Kolhapur, Sangli, Miraj and Ichalkaranji. Jaysingpur is an important marketplace for the trading of tobacco and crops like rice, baby corn and cereals. It is also an automotive industries supply chain hub as many suppliers transport their finished components through Jaysingpur.

Solid Waste Management of Jaysingpur

The financial provision of Solid waste management is made from the grants provided through the 15th finance commission and budget is scrutinized through third part audit before getting final sanction from Kolhapur District commissioner. The salient features of the budgetary provisions for the year 21-22 are as under

- 1) The total budget for solid waste management is of Rs 4.17 cr.
- 2) It constitutes only labour charges required for collection and transportation of the solid waste. This means solid wastes are collected at household level every day.
- 3) The standard norms of solid waste of 0.3 kg per person is used to prepare the budget.
- 4) The road and gutters are kept clean by using manual sweepers.
- 5) The vehicles are hired for the purpose of transportation.
- 6) The dry solid wastes and wet solid waste are segregated at the level of collection.
- 7) An appeal is made to the people to maintain separate bins for solid and wet waste.
- 8) For the population of 52000/ the cost of solid waste collection is 4.17 cr rupees which means per capita 802 rupees are spent.
- 9) The policy of No Bin is followed in the city which means the city solid waste is collected every day at household level.

Observations from primary data:

The discussion with the officers of the municipal council and workers involved in the solid waste collection along with the households in the city shows following observations:

- 1) The budgetary provision is as per standards but the rising fuel cost makes the operations difficult.

- 2) The workers in the solid waste management are on temporary basis or contract basis and they are not beneficiary of various benefits available to permanent workers. But they hope to get a job in municipality.
- 3) The manual work of solid waste collection leads to ill health of the workers
- 4) The women workers are for street cleaning and constitute 18 percent in total workers
- 5) The processing of solid waste is not undertaken due to small size of the solid waste
- 6) The household level survey reveals that the solid waste collection and the cleaning of the gutters is done regularly.
- 7) The timing of solid waste collection is suitable
- 8) The segregation of dry waste and wet waste is done only for 2 % families
- 9) The awareness of cleanliness and the role of municipality found satisfactory.
- 10) In the case of environmental issues the respondent suggested control or ban on polluting such as tobacco processing.

Policy imperatives:

Efficient delivery of public services and infrastructure are pressing issues for municipalities in most developing countries; and in many countries, solid waste has become a top priority. Solid waste management (SWM) is costly and complex for local governments, but it is so essential to the health, environment, and quality of life of the people--in particular, the poor--that municipalities cannot afford to get it wrong. Bad waste collection practices and improper solid waste disposal contribute to local episodes of disease, regional water resource pollution, and global greenhouse gases.

The solid waste management at micro level or at municipal level needs to make sustainable through the principle of Waste to wealth along with the change in the behavior of the households. At present the cost of solid waste management is borne through grants from the central government. There is need to generate surplus by using the solid waste as input for value generation. The solid waste can generate income if it is used for energy making. Waste-to- energy (WtE) or energy-from-waste (EfW) are broad terms for facilities that burn waste in a furnace or boiler to generate heat, steam or electricity.

Secondly the zero waste at house hold level needs to be strengthen through carrot and stick policy. The households using separate bins and using effective measures to reduce waste needs to be given incentive in terms of cash prize or some concessions in property tax.

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A Study on Fungal Diversity and Soil pH of North East region of Nashik Tehsil of Nashik District, Maharashtra, (India)

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Abstract

Soil fertility play a significant role in the farming crop production, in the soil fertility edaphic factors and microbial community has an important role. The excessive application of fertilizers changes the production capability of the soil where as it makes some impact over the fungal diversity of the soil. Fertilizer management and farmers cultivation practices are important associated factors with fertility and fungal diversity of soil. In this study we did a try to explore the interrelation of farmer cultivation practices and fertilizer management with the soil fertility and fungal diversity of North eastern region of Nashik Tehsil of Nashik District, Maharashtra India. The farming practices and fertilizer management results increase in fungal diversity and soil fertility. The region characterized the deep black soil where the farmers are well known with modern fertilizers management and farming practices. **Keywords: Diversity, Edaphic factors, Fertilizer, Management, Soil fungi.**

I. Introduction:

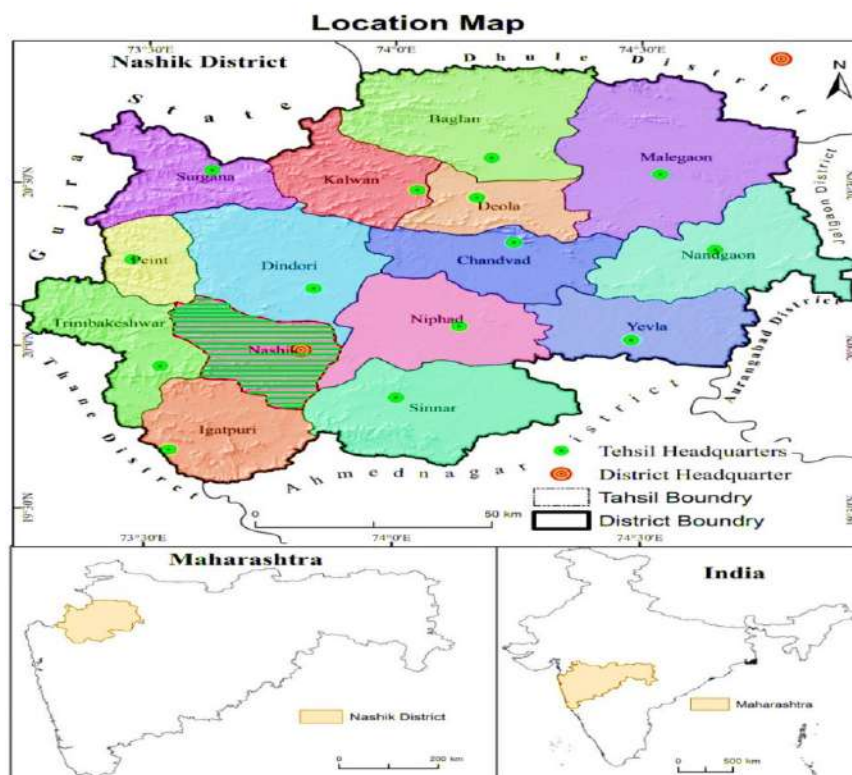
Soil fertility is associated with physical factors, microbial factors, fertilizer management and farming practices and it collectively result in production capability of soil. The fungal biodiversity is the important element of ecosystem progress and make deep impact over the soil pH (Dan Liu, 2018). fungi are the important inhabitant of soil and it have a capacity to adopt any unfavourable condition. Because of their ability to generate variety of extracellular enzymes, they can decompose any kind of organic matter and it results in carbon and nutrients (Zifcakova L. 2016). Some species of fungi have ability to possess as bio sorbent of toxic metals like zinc, cadmium, mercury, lead they absorbing then their bodies (Baldrian, P. 2003). The fungal diversity and fungal activity are regulated by biotic factors like plant and living organism and also by abiotic factors like temperature, pH, salinity, moisture etc.

The fungal communities are highly influenced by environmental factors and the anthropogenic activities. The current scenario of climate change and changing land use pattern has a crucial role in the fungal diversity transition (Lluvia Vargas-Gastélum, 2015). Arbuscular mycorrhizal fungi are very important class of supporting microorganism for agriculture soil, it helps to increase the crop production and health. The general diseases of crops are controlled by some antagonistic fungi such as *Glomus* sp. or *Trichoderma* sp. suppressing fungal pathogens (Dawidziuk, 2016). The present study is carried out on five rural localities of north eastern Nashik tehsil of Nashik District.

II. Materials and Methods

II.I. Study area:

Nashik is tehsil headquarter tehsil of Nashik District which is surrounded by Nashik, Sinner, Igeatpuri, Tryambakeshwar, Peth, Dindori and Niphad tehsil of the district. Five villages of the study region are selected for the study. Study area is a part of deccan plateau. The parent rock of soil is basalt so the black deep soil found over the study area. The region is drain by river Godavari. The geographical coordinates of study region are 19.9975° N, 73.7898° E. Location map of study region have been prepared by using Arc GIS DEM Model.



Prepared by Dr. Sharad Dhat Arc GIS DEM

II.II. Collection of Soil samples

The random sampling method has been adopted for the sample collection. Five villages of the north eastern Nashik tehsil have been selected for soil sample collection; these were. Adgaon, Vinchur Gavli, Sayyed Pimpri, Dahegaon and Devargaon from each locality 50 gm of soil sample was collected from a depth of 10-15 cms. The collected soil samples were brought to the laboratory and stored at 4°C until further use.

II.III. Methodology

The soil pH calculation has done by placing a glass electrode in a mixture of soil and deionized water, for that soil samples are collected from the study area on 10 to 15 cm depth. The collected samples are stored in normal temperature till the testing. The soil fungi were isolated by using the soil dilution plate count method (Subba Rao, 2004) on Czapek's Dox Agar. 1 gm of soil sample was suspended in 200 ml of sterile autoclaved water. 1 ml of the microbial suspension was added to sterile Petri dishes upon which the Czapek's Dox Agar medium was added by pour plate method.

III. Results and Discussion

All the five localities are agriculturally well grown sides where the horticulture and intensive agriculture have been practiced. all the localities are adjoining with the district headquarter so the large demand of vegetables and fruits have results in the intensive agriculture practices. In recent time farmers fertilizer management and farming practices makes favourable environment for the fungal diversity growth. In recent time for the development of plant crop productivity the application of cultivating soil fungal diversity has been adopted and it boost the soil quality (Bagyaraj, D. J. and Ashwin, R. (2017). in the assessment of fungal biodiversity, the structural analysis of fungal population is important to determine their function for soil and plant health and directly and indirectly effect on fungal community (Abawi, G. S. 2000). Soil health means ability of the soil to sustain biological productivity, environmental quality, and provide fertile condition to living organism in the soil (Magdalena Frac, 2018)

In the present study, a total of 37 fungal types were detected from 5 villages of Nashik tehsil namely Adgaon, Sayyed Pimpri Devergaon, Dahegaon and Vinchur Gawli.. A total of 38 fungal species belonging to 26 genera were recorded during the study from these villages. The soil microflora was observed to study the

diversity of the fungi in study area. The most common and dominant genus recorded was *Aspergillus* with 15 species. *Aspergillus niger* was the dominant species among them some are Pathogenic and it causes skin infections where species like *Aspergillus flavipes* causes allergy, hypersensitivity; Also useful and can be used as biocontrol agent. The species like *Trichoderma lignorum*, *Trichoderma viride* are helpful as biocontrol agent, biofungicide. The fungal species like *Fusarium moniliformae*, *Fusarium oxysporum*, *Fusarium rodens*, *Fusarium semitectum* are plant pathogen which causes disease on the plant. The diversity of fungi in the study region was found to be significantly high. The growth of other fungal species may have been prevented due to the toxins produced by *Aspergillus* species. Among the five localities of the study region Adgaon village have maximum fungal diversity and soil fertility.

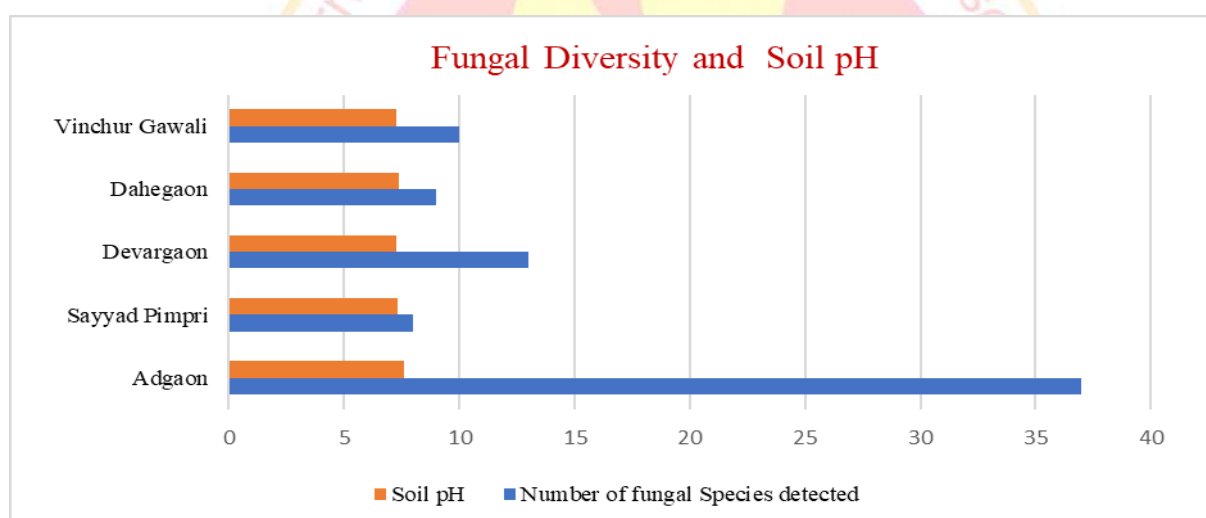
IV. Conclusion

The result of the survey indicates that the study region is characterised by agriculture and horticulture practices, black soil has been extended over the area which have high potential. The regional farmers are well known with fertilizer management. The fungal diversity and soil Fertility have positive correlation in the study region. Around 37 species of the fungi are detected among the five localities of the study region. The *Aspergillus* genus of fungi dominantly recorded over the study region. Farming practices and fertilizer management results positive growth in fungal diversity and soil health. Tehsil have very rich fungal diversity and is characterized by a larger proportion of *Aspergillus* genus of fungi. The fungal diversity of tehsil is influenced by anthropogenic activity and changing agriculture patterns.

Table 1: Occurrence of fungal species and Soil pH in North eastern Nashik Tehsil

Sr. No.	Name of the Fungi	Adgaon	Sayyad Pimpri	Devargaon	Dahegaon	Vinchur Gawali
1	<i>Absidia corymbifera</i>	+	-	-	-	-
2	<i>Alternaria alternata</i>	+	-	-	-	-
3	<i>Aspergillus carbonarius</i>	+	+	+	+	+
4	<i>Aspergillus chaveleri</i>	+	-	-	-	-
5	<i>Aspergillus flavipes</i>	+	+	+	+	-
6	<i>Aspergillus flavus</i>	+	+	+	-	-
7	<i>Aspergillus fumigatus</i>	+	+	+	-	+
8	<i>Aspergillus nidulans</i>	+	+	-	+	+
9	<i>Aspergillus niger</i>	+	+	+	+	+
10	<i>Aspergillus petrakii</i>	+	-	-	+	+
11	<i>Aspergillus repens</i>	+	+	-	-	+
12	<i>Aspergillus sclerotium</i>	+	+	-	-	+
13	<i>Aspergillus sulphureus</i>	+	-	+	+	-
14	<i>Aspergillus terreus</i>	+	-	-	-	+
15	<i>Aspergillus ustus</i>	+	+	+	-	-
16	<i>Bispora</i> sp.	+	-	+	-	+
17	<i>Cladosporium herbarum</i>	+	-	+	+	+
18	<i>Curvularia lunata</i>	+	-	+	-	-
19	<i>Fusarium moniliformae</i>	+	+	+	+	+
20	<i>Fusarium oxysporum</i>	+	+	+	+	+
21	<i>Fusarium rodens</i>	+	-	+	-	-
22	<i>Fusarium semitectum</i>	+	-	-	+	+
23	<i>Geotrichum</i> sp.	+	-	-	-	-

24	<i>Mortierella</i> sp.	+	-	-	-	-
25	<i>Mucor globosus</i>	+	-	-	-	-
26	<i>Mucor plumbeus</i>	+	-	+	+	+
27	<i>Penicillium funiculosum</i>	+	+	+	+	-
28	<i>Penicillium varians</i>	+	+	-	-	-
29	<i>Penicillium verrucosum</i>	+	-	+	-	-
30	<i>Phoma eupyrena</i>	+	+	-	-	-
31	<i>Phoma herbarum</i>	+	-	+	-	-
32	<i>Rhizoctonia bataticola</i>	+	-	-	+	-
33	<i>Rhizoctonia solani</i>	+	-	-	-	-
34	<i>Rhizopus nigricans</i>	+	-	-	-	-
35	<i>Rhizopus stolonifer</i>	+	+	+	+	+
36	<i>Stemphylium</i> sp.	+	-	-	-	+
37	<i>Trichoderma viride</i>	+	+	+	+	+
	Number of fungal Species detected	37	8	13	09	10
	Soil pH	7.58	7.32	7.28	7.38	7.26



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Regional Distribution and Intensity of Lift Irrigation Technology in Indapur Tahasil of Pune District (Maharashtra)

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Abstract:

Indian agricultural sector accounts for 18 per cent of India's gross domestic product (GDP) and provides employment to 50 per cent of countries workforce. The overall growth of the Indian economy has depended much on the performance of agriculture. It is signal largest sources of employment in India, even though it contribution. The Rangrajan Committee has been suggested in the report 2006-07 that agricultural sector should be prominent by attending irrigation and electricity facilities. Irrigation constitutes one of the most effective technical means of raising agricultural production in the rainfall is both inadequate and unpredictable, it affects badly on agricultural landuse and also productivity. The application of irrigation water by using different irrigation techniques it helps to stabilizing production under ceteris paribus condition. Indapur Tahasil located on south – eastern part of the Pune district. The region has semi-arid zone area because of rain shadow effect of the Western Ghats. Therefor the region presents heterogeneous characteristics in environmental conditions reflecting in the regional variations in agriculture. Now the region has been characterized by the adoption of new technology in agriculture transforming the agricultural landscape. In this paper, find out the regional distribution and intensity of lift irrigation technology of indapur tahasil during the study period.

The data calculated by different statistical methods for this purpose. Secondary as well as primary data has been used. Cartographic techniques have been used for presentation of the data. The dominance of lift irrigation is observed all along the river course and back water of Ujani dam. The Central part of the region has low proportion of lift irrigation is observed.

Key words – Irrigation, Lift irrigation, cropping pattern, current pattern, soil quality, soil degradation, ceteris paribus condition.

Introduction:

Indian agriculture sector accounts for 18 per cent of India's gross domestic production (GDP) and provides employment to 50 per cent of countries workforce. Irrigation is an age old art and sciences. In many old world Countries like India, Pakistan, China, Egypt, Israel, Greece and Rome are some of the ancient works. Throughout the world rainfall varies due to the variation in rainfall, large portion of world crop land require irrigation. It influences the development of human society in the world scenario. Irrigation is the artificial application of water to the soil for crop production. It has been therefore considered as one of the important technology components of progressive agriculture. The lift irrigation can be regarded as an important component of improved technology which has been diffused widely due to rural electrification. The irrigation sector in Maharashtra is one of the largest in the country. In the state the major and medium projects are owned by the government in all respects. The lift irrigation can be regarded as an important component of improved technology which has been diffused widely due to rural electrification. Indapur tahasil is one of the progressive tahasil in Pune district regarding the use of irrigation technology. Heavy capacity electric pumps ranging from 5 to 10 HP have been used to lift the water from wells and 20 to more than 500 HP are used to lift the water from river and back water of Ujani dam.

Lift irrigation is a recent form of irrigation, which differs from other traditional means of Irrigation Lake, well, canal and tank. The last five decades have witnessed the development of lift irrigation causing into deep and far reaching impact on the agricultural economy of the region. Through it requires heavy capital outlay it has been practiced on co- operative basis along the river banks. Here the researcher has attempted to analyse such irrigation technology with reference to extent of lift irrigation, schemes of lift irrigation technology, regional distribution and intensity of lift irrigation technology base on primary and secondary data. The study region manifest that the region has typical monsoon climate with three market seasons. The annual

rainfall is 450 to 550mm, but it is not evenly distributed throughout year. Indapur is a quiet hot place as it receives scanty rainfall. Therefore artificial water supply is provided in the field using various irrigation techniques and one of them is lift irrigation. Ujani dam backwater along with Nira left irrigation. Ujani dam backwater along with Nira left canal and khadakwasla canal system, Nira and Bhima Rivers are major sources of irrigation and water supply for Indapur taluka.

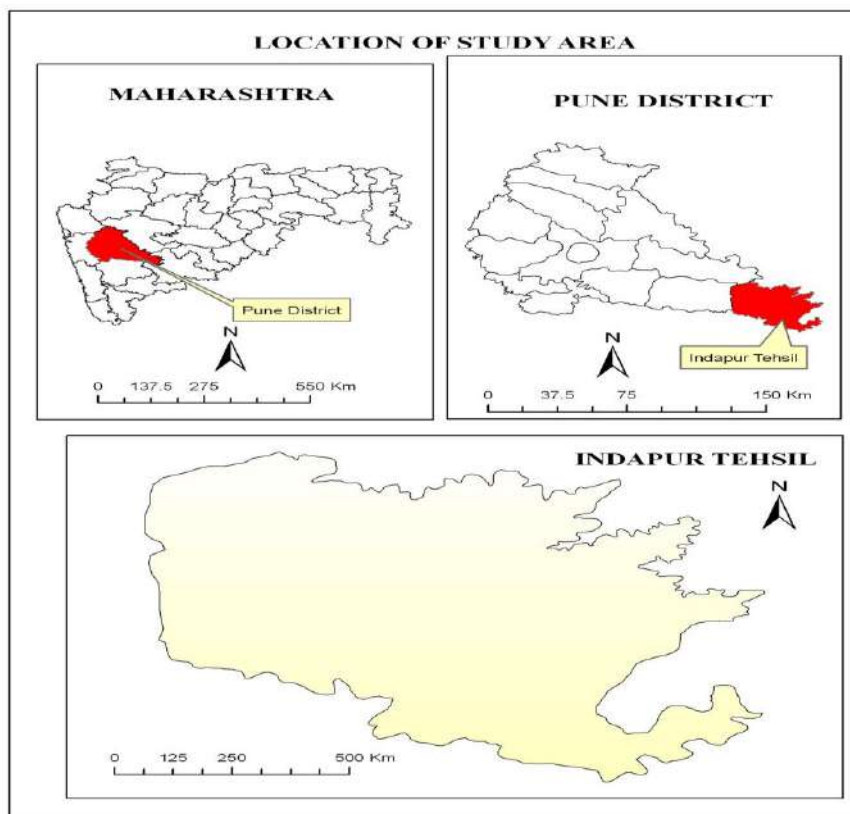


Fig.1 Location of Indapur Tehsil

Study Area:

The Indapur tehsil is one of the tehsils in Pune District of Maharashtra state. The tehsil is located between 18°07' to 18°12' north latitude and 75°02' to 75°03' East longitudes occupying 1478 km² area of South-Eastern Pune district. (fig.1) The tehsil comprises of eight revenue circles viz. Indapur, Loni Deokar, Bhigwan, Nimgaon ketki, Kati, Bawada, Anthurme and Sansar. The Indapur tehsil is surrounded by back water of Ujani dam in north side, Daund tehsil on the North West, Bhima river basin and Madha tehsil of Solapur District is on east side, South side demarcated by Nira river basin, Malshiras tehsil of Solapur and Phaltan Tahasil of Satara district. The medium black and deep black soil appears within study region. The population of the study has 424029 and the density of population is 287 persons per sq.km which varies regionally (2011 census)

Objectives:-

- 1) Study the extent of lift irrigation in the region
- 2) Study the schemes of lift irrigation technology during the study period.
- 3) Find out the regional distribution of lift irrigation schemes
- 4) Find out the intensity of lift irrigation technology.

Hypothesis:-

Regional distribution and intensity of lift irrigation techniques are closely related to the sources of water supply, tendency of farmer to accept the new agricultural techniques, purchasing capacity of the farmers, land holding capacity of farmers and Government policy, electricity supply etc.

Data Base and Methodology:-

The present study is based on primary and secondary sources of data. The primary data is collected through intensive field work. The secondary data collected through tahasil office, Circle office, Sugar factories of study area etc. Revenue Block or circle is considered as areal unit of the present work. Data generated through the help of stratified random sampling technique. The period of present investigation is considered from 2001 to 2011. The different statistical and quantitative techniques are used for processed and representation of collected data from different sources. Cartographic techniques have been used for presentation of data. The analysis and integration of multivariate and multi data may be carried out and presented using GIS technique.

Result Analysis and Discussion:

This study area reveals the about lift irrigation scheme therefore analysis of spatial distribution village to village and their changes in 2001 to 2011 as following.

A) Schemes of lift irrigation Technology:-

There are 5131 private and 13 co-operative lift irrigation schemes including small and big. The lift irrigation schemes in private and co- operative sector have average capacity ranging from 3 to 10 H.P and 20 to 700 H.P respectively. It is observed that out of total lift irrigation more than 80 present are small having an average command area of 4 hectares with average 5 H.P capacity of each.

It is interesting to note here that the big schemes are located in the command area of K.T.W. and back water of Ujani dam, due to availability of water. It is farther observed that K.T weirs and numbers of lift irrigation schemes and the length of pipe line have positive relationship. Today 18 weirs have been completed. The weirs make water available up to April in their command areas. The table shows that the region has 13 co – operative lifts of 2680 H.P irrigation 3059.31 hectares of land of 9 villages. Whereas providing water to 23422.3 hectares of in 99 villages. Thus individual lift irrigation are also playing more important role compared to co – operative lift irrigation schemes.

Lift Irrigation Schemes in Indapur Tahasil- 2011(Area in hectares)

Type	No of Lifts	Capacity in H.P	Irrigated land	Total Villages
Private	5131	32829	23422.3	99
Co-operative	13	2680	3059.31	9
Total	5144	35509	26481.61	108

Source:-i) Nira Left Bank canal office, Baramati.

ii) Division of Ujani Back water, Bhimanagar.

ii) Bhima irrigation Branch, Narshinpur, Bhimanagar.

B) Extent of lift irrigation in the Region –

The dominance of lift irrigation is observed all along the river course and back water of Ujani dam. There is high concentration at three locations i.e. north, south and East part of the region. There are 108 villages in the region taking the advantage of lift irrigation. It is above 53 per cent villages have advantage of (above 75 per cent) lift irrigation of the total irrigated area. There are about high 57 villages located in relatively levelled extensive flood plains and therefore, these are capable of taking advantages of lift irrigation schemes. (fig.2)

The moderate per cent (40 -60) is observed in the 31 villages and low proportion (below 40) in remaining 20 village. This is because these villages are located at a considerable distance and they cannot enjoy the vicinity of river courses as in the case of above villages.

C) Intensity of lift irrigation Technology

Along the Back water of Ujani dam and river course, lift irrigation has become major source of irrigation. During 2000 – 2001 to 2010 – 2011, the net area irrigated by lift increased by 35.11 per cent while the net area irrigated by all the source of irrigation was about 22.68 per cent. The net area irrigated by lift as percentage of total irrigated area went up to 27.55 from 25 per cent during the same period.

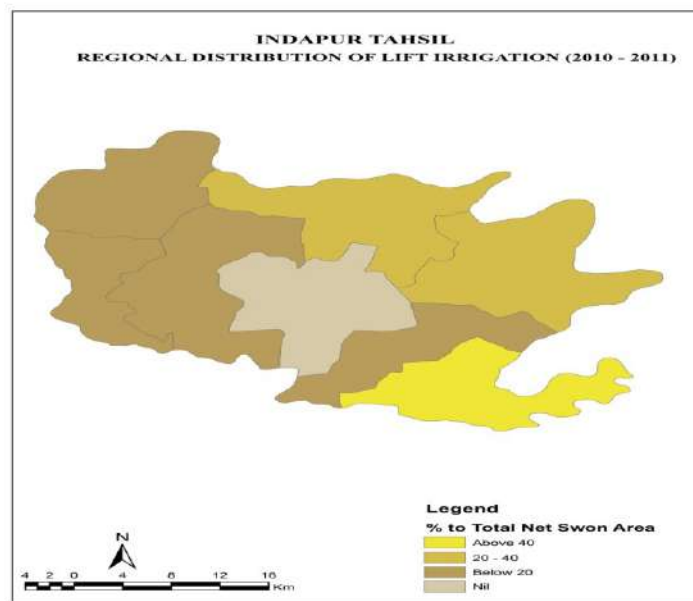


Fig.2 Regional distribution of Lift Irrigation

The ratio of the irrigated area by lift irrigation to net area sown is (fig.2) high (above 40 per cent) in Revenue circle of Bawda. Bawda Revenue circle has recorded highest proportion of (46.22 per cent). Because of these Revenue circle has on the river course of Bhima and Nira. Moderate percentage (20 to 40 per cent) is noted in the Revenue circle of Loni Deokar and Indapur Revenue circle. Loni Deokar and Indapur Revenue circle has recorded 29.37 per cent and 36.05 per cent lift intensity respectively.

It is due to the development of lift irrigation schemes on the Back water of Ujani dam which could bring additional land under irrigation. Low percentage (below 20 per cent) is observed in Revenue circle of Bhigwan, Kati, Anturane and Sansar due to unfavorable physiographical condition and more distances for the River course and Back water of dam.

The changing intensity of lift irrigation over 40 per cent observed in Bawda Revenue circle is high intensity.(fig.3) Moderate intensity (20 to 40 per cent) is observed in Indapur and Loni Deokar Revenue circle. Low intensity (below 20 percent) is observed in Bhigwan, Kati, Sansar and Anturane Revenue circle. Nimgaon Ketki Revenue circle has no found the lift irrigation due to the adverse physiographic condition and want of natural source of water.

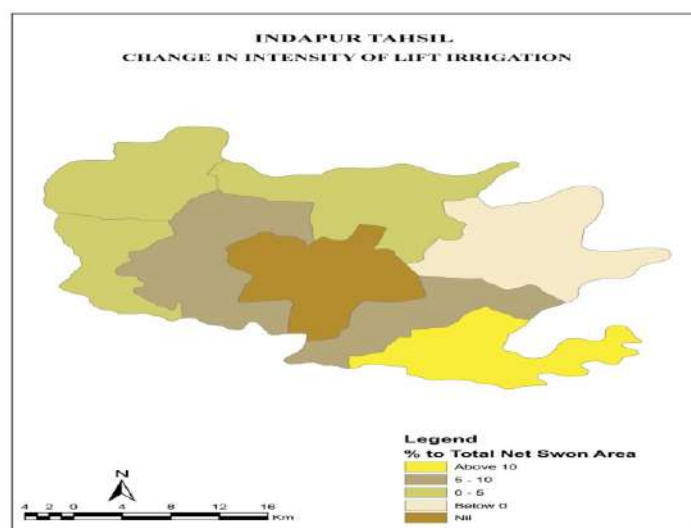


Fig.3 Changes Intensity of Lift Irrigation

Conclusion –

Irrigation technology occurs to be the stimulated factors for the development of agriculture upon which the degree of using other technologies depends largely. The Tahasil has different sources of irrigation. The lift irrigation is a typical form of irrigation technology is mainly confined along the Bhima and Nira rivers and back water of Ujani dam, out of the total irrigated area lift irrigation accounts for 27.55 per cent. Rural electrification heavy electricity subsidies and institutional financing for pump sets and constructions of K.T. weirs on rivers have played an important role in promoting the development of lift irrigation. This paper the following finding is the ratio of the irrigated to net area by lift irrigation to net area sown is high in Bawada revenue circle. Moderate percentage is noted in Loni-Deokar and Indapur revenue circle and low intensity is observed in revenue circle of Bhigwan, Kati, Anthurne and Sansar. Last ten years have witnessed O positive change in the region as a whole as for as the development of lift irrigation is taken into consideration.

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Perspectives Of Sustainable Development Of India**Prof. Dr. P. S. Kamble**

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Email: pskamble2006@gmail.com**Abstract:**

Sustainable development is a newly developed concept of development. It is originated and developed in 1980s particularly, in the international conference organised by the United Nations Organisation (UNO), which has a special department for the sustainable development policy. Now we are in the era of sustainable development than the economic development. Sustainable development is a very broader, comprehensive not only a concept, but a strategy of development. It implies the development efforts with due care of preservation, conservation, and protection of the natural resources for the number of future generations of the people, whose birth will take place. It is therefore, we should not think of only present development, but also think of future generations, so far as the availability of the natural resources is concerned. It also reveals that the concept of sustainable development is not only related to preservation of the natural resources, it has also the issues like equity, social justice, education, health, poverty removal, transport and communication means, and many others. The strategy of sustainable development has in all four aspects or dimensions such as economic, social, environmental and institutional, and each aspect has different parameters. India in the post-independence and planning era gave emphasis on the economic development achievement than the sustainable development. But in latest few years the government of India is using the term sustainable development. The thing is as the concept of sustainable development has accepted in India, then it is interesting to know, what is the state of sustainable development of India. It is against this over all background, the present study endeavours to assess the state of sustainable development in India in economic and environmental perspective only. This reveals to what extent India has achieved and attempted for its sustainable development. The study is solely relied on the secondary data with reference to the latest period of time. The study concludes that sustainable development in economic perspective is good in India, but is very much bad in social environmental perspective. This demands very extensive and intensive efforts with due honesty and sincerity for attaining the desirable level of sustainable development in India.

Key Words: Sustainable Development, Economic Development, Dimensions of Sustainable Development, Indicators of Sustainable Development, Natural Resources, Equity and Social Justice, Access to Resources

JEL Classification: Q 01, O 1, Q 20, Q 30, Q40, Q 50,

I) Introduction:

Sustainable development is a newly developed concept of development. It is originated and developed in 1980s particularly, in the international conference organised by the United Nations Organisation (UNO), which has a special department for the sustainable development policy. Now we are in the era of sustainable development than only the economic development. Sustainable development is a very broader, comprehensive not only a concept, but a strategy of development. It suggests that the development efforts with due care of preservation, conservation, protection of the natural resources for the number of future generations of the people, whose birth will take place in the coming future. This implies that, we should not think of only the present development, but also of the future generations, so far as the availability of the natural resources is concerned. The concept of sustainable development is not only related to preservation of the natural resources, it has also the issues like equity, social justice, education, health, poverty removal, transport and communication means, and many others. It has some pre requisites so far as the attainment of the sustainable development is concerned. India in the post-independence and planning era also gave emphasis on the economic development achievement than the sustainable development. But in latest few years the government of India is using the term sustainable development. The thing is as the concept of sustainable development has originated in 1980s, and also accepted in India, then essential to know what is the state of sustainable development of India, which is very much necessary to be studied. It is against this over all background, the present study endeavours to assess the state of sustainable development in India by using some indicators and parameters relating to the not all four

dimensions of the sustainable development, namely economic, social, environmental and institutional but only economic and environmental perspective with reference to the latest period. This will enable to know to what extent India has attempted for its sustainable development and achieved as well.

II) Sustainable Development In Theoretical Perspective:

The term sustainable development was brought into common use by the World Commission on Environment and Development in its seminar report "Our Common Future" (Karpagam, 1991, p179). The concept of sustainable development is a newly especially in 1980s originated and developed concept of development. It is an international level originated concept especially by the United Nations Conference, hence it is a global level concept, which is expected to be accepted by all the countries of the World. The peculiarity of the sustainable development is that, it is not only a development concept, but also a development strategy. More importantly, it is very much broader and comprehensive in nature, which also includes the concept of economic development. This necessitates discussing the theoretical issues relating to the sustainable development.

The meaning of the term sustainable development we can understand with the help of taking into consideration its definition. The concept of sustainable development is defined in both the narrower as well as broader perspectives. In narrower approach, sustainable development according to **Brundtland Report (World Commission on Environment & Development)**, 1983 is "that development which meets the needs of the present without compromising the ability of future generations to meet their own needs." This means that the development efforts of the country with due care of preservation, conservation, protection of the natural resources for the number of further generations of the people, whose birth will take place. This implies that, we should not think of only present development, but also think of future generations, so far as the availability of the natural resources is concerned. But this is not sufficient and adequate meaning of the term sustainable development, which only gives emphasis on only the natural resources. Hence its broader perspective is also necessary to take into account. In a broader perspective, sustainable development according to David Pearce is "a vector of desirable social objectives such as an increase in real income per capita, an improvement in health and nutrition, educational achievement, access to resources; a fairer distribution of income and increase in basic freedom and adds that the elements to be included in the vector are open to ethical debate." This indicates that along with care of productive resources in general and natural resources in particular, it is also of vital importance to take into account the social issues relating to the social welfare of the society as whole, which are mentioned by the Pearce in its definition. The noteworthy well known fact is that both the definitions do not describe the full meaning of the term sustainable development. It is therefore of crucial importance to get familiar with the indicators of the sustainable development useful for measuring sustainable development, and more importantly dimensions of the sustainable development which are very comprehensively discussed in details that are included in the sustainable development.

The indicators of sustainable development given by Prof. Barthwal of IIT, Kanpur (Karpagam, 1991, p187) are; 1) GDP growth rate, 2) Population Stability, 3) Human Resources Development Index, 4) Clean Air Index, 5) Energy Intensity, 6) Renewable Energy Proportion, 7) Material Intensity, 8) Water Use, 9) Soil Degradation, 10) Forest Coverage, 11) Recycling Proportions, 12) Transport Intensity. Besides these, the United Nations Department for Policy Coordination and Sustainable Development (UNDPDSD), 1997 has given the number of indicators of sustainable development, which consist of; 1) GDP Per Capita, 2) Net Investment Share in GDP, 3) Sum of Exports and Imports as a percentage of GDP, 4) Environmentally Adjusted Net Domestic product (EDP), 5) Share of Exports, 6) Annual Energy Consumption, 7) Share of Natural Resource Intensive Industries in Manufacturing Value Added, 8) Proven Mineral Reserves, 9) Proven fossil fuel energy reserves, 10) Life Time Proven Energy Reserves, 11) Intensity of Material Use, 12) Share of Manufacturing Value Added in GDP, 13) Share of Consumption of Renewable Energy Resources, 14) Net Resources Transfer to GNP, 15) Total ODA given or received as a % of GDP, 16) Environmental Protection Expenditure as a % of GDP, 17) Amount of New/Additional Funding for Sustainable Development, 18) Capital Goods Imports, 19) Foreign Direct Investments, 20) Share of Environmentally Sound Capital Goods Imports, 21) Technical Co-operation Grants. The theoretical perspective of sustainable development also covers Possible

sustainable rule comprising of Hartwick-Solow approach, Non declining natural capital stock approaches, The safe minimum standards approach, Dalys operational principles, and Other possible rules (Hanley, Shogren & White, 1997, pp425-45). The Common-Perrings model of sustainable development is also a theoretical support of the term sustainable development. The economy environmental interactions are better portrayed via the material balance model based on the first and second laws of thermodynamics (Singh & Shishodia, 2007, p44).

There are in all four dimensions of sustainable development namely economic, social, environmental and institutional. Their descriptions enable us in understanding the concept of sustainable development in a very much comprehensive manner. i) Economic dimension: it requires the societies pursue growth paths that generate optimal flow of income while maintaining their basic stock of manmade capital, human capital and natural capital, internalizing all costs including the environmental costs associated with production and consumption. ii) Social dimension implies twin principles of justice and equity to be materialised. For a development path to be sustainable, health, resources and opportunity should be equitably shared. All citizens should have access to minimum standards of security, human rights, and social benefits such as food, health, education, shelter and opportunities of self-development. Social equity implies equal opportunities to all for education and for making productive contribution to society. iii) Environmental dimension requires sustainable resource use, efficient sink function and maintenance of stock of natural capital i. e. the environment should be able to perform its three functions efficiently and uninterrupted so that ecological stability and resilience are not affected. iv) Institutional dimension refers to institutional set up necessary for realizing and attaining the sustainable development in the economy. It expects the sustainable development strategy, implementation of global agreements, number of internet subscribers, number of telephone users, expenditure on research and development and human & economic losses due to natural disasters. Sustainable development can have weak sustainability and strong sustainability based on the importance given to the natural resources, which has been propounded by the Atkinson and Pearce with the help of formulas. Environmental sustainability index is a comprehensive analysis of the environmental achievements, challenges and priorities of Indian states (Dash, 2011, p4).

III) Research Methodology:

The major objectives of the present study are; to study sustainable development in theoretical perspective, and to examine the nature and extent of sustainable development achieved by India. The present study is solely relied on the secondary data only, and it has not considered at all the primary data. The period of study covered by the present research study is the latest one, which is from 2003-04 to 2013-14. The necessary secondary data collected is from the sources Central Statistics Office (CSO) Reports, Human Development Reports, Statistics of School Education Ministry of Human Resource Development Government of India, All India Survey on Higher Education Ministry of Human Resource Development Government of India, Ministry of Health and Family Welfare Government of India, Planning Commission of India, Ministry of Power Government of India Reports, State of Indian Agriculture Ministry of Agriculture Government of India, Annual Reports Ministry of Telecommunications Government of India, Comscore 2013 Internet World Stats 2010 and Economic Survey Reports Ministry of Finance Government of India. This study has used some indicators so as to assess the nature and extent of sustainable development attempts by the Indian economy and it is achieved as well. Even though, there are in all 12 indicators of sustainable development given by Prof. Barthwal and 21 indicators of sustainable development those have been given by the United Nations Department for Policy Coordination and Sustainable Development, but those are classified in accordance with the four dimensions namely economic, social, environmental and institutional of sustainable development. Besides this, these indicators also do not touch all the aspects of sustainable development. It is therefore, this study has used those indicators which include all the four dimensions of sustainable derived from the indicators given by Prof. Barthwal and United Nations and also from the descriptions of the four dimensions of the sustainable development. All the parameters used so as to assess sustainable development of Indian economy during the latest period under consideration give due representation to all the dimensions of sustainable development. The actual parameters which this study has used are; Annual Growth Rate of Net National Income and PCI, Gross Domestic Savings

of India, Gross Capital Formation in India, Human Development Index (HDI), Gross Enrolment Ratio in Elementary Education, Gross Enrolment Ratio in Higher Education, Select Health Indicators, Level of Social Services Expenditure by Government, Multi-Dimensional Poverty Index (MPI), Environmental Protection Expenditure, Forest Coverage, Environment Friendly Energy Generation, Number of Telephone Connections, Number of Internet Users, Sustainable Development Policy. The collected secondary data is classified, scrutinized and tabulated in the light of objectives and parameters of sustainable development classified into its four dimensions namely Economic, Social, Environmental and Institutional. The tabulated data is analysed by making use of appropriate statistical techniques such as growth rate (CGR & SGR) for examining the trend in the growth of the variables under study, Coefficient of Variation (CV) for capturing extent of variations and ups and downs in some of the important variables under consideration, Mean for depicting the average position of the variables under the study, Ratio for the share of one variable in its aggregate, Percentage share for knowing the relative position of a variable in its aggregate.

IV) Results And Discussion:

Sustainable Development Of India In Economic & Environmental Perspective:

This section of the paper provides the empirical analysis of the nature and extent of sustainable development of India with the help of the parameters used in the economic and environmental perspective.

A) Economic Perspective:

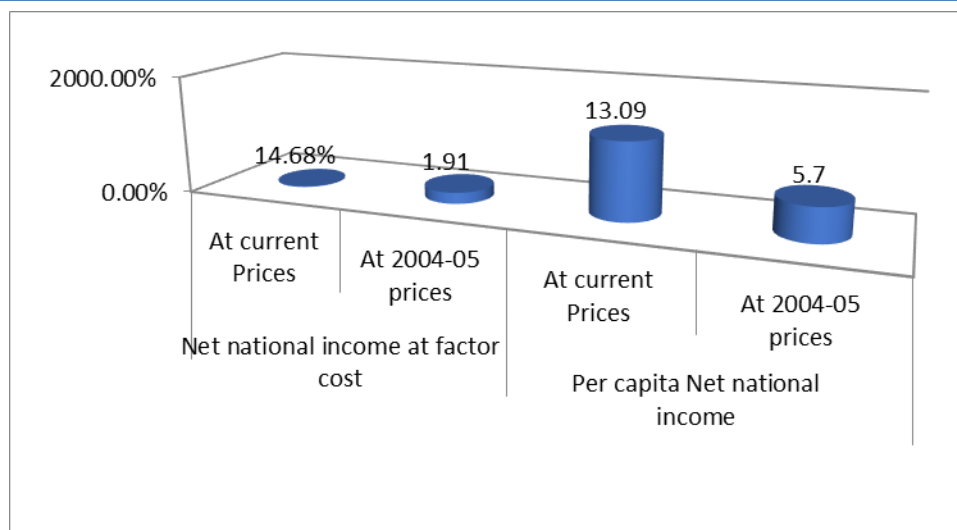
The growth in GNI and Per capita GNI is an indicator of economic dimension of the sustainable development. Its trend in India is depicted below.

Table 1 : Annual Growth Rate of Gross National Income and Net National Income (Per cent)

Year	Net national income at factor cost		Per capita Net national income	
	At current Prices	At 2004-05 prices	At current Prices	At 2004-05 prices
2004-05	12.7	6.7	10.9	5.0
2005-06	14.1	9.4	12.4	7.8
2006-07	16.7	9.4	15.0	7.9
2007-08	16.4	9.6	14.8	8.1
2008-09	15.4	6.2	13.8	4.7
2009-10	15.0	8.2	13.4	6.8
2010-11	18.4	8.2	16.8	6.8
2011-12	16.0	6.5	14.5	5.1
2012-13	11.0	3.4	9.7	2.1
2013-14	11.1	4.0	9.6	2.7
CGR	-2% pa	-9% pa	-2% pa	-10% pa
MEAN	14.68%	7.16	13.09	5.7
CV	16.62%	115.18%	18.33%	37.54%

Source : Central Statistics Office

The nominal national income as well as per capita income has shown significant decline during 2004-05 to 2013-14, but in real terms growth was comparatively and also showed a considerable decline. Thus ours was a nominal growth than the real growth, is a noteworthy thing. Both the GNI nominal as well as real have registered negative growth per annum during the period 2004-05 to 2013-14 is not a good indicator of economic development of India. But both the average growths were positive and annual growth in nominal income was significantly higher than the real national income growth during the same period. The nominal national income growth was more consistent, but real income growth had very wide fluctuations is also a noteworthy fact. The growth in nominal per capita income was higher than the real per capita income during the study period year wise, but for the total period it was negative only during 2004-5 to 2013-14, and that negativity was significantly higher for the real per capita income. But the average growth in per capita national income was good for nominal per capita income, but was lower in real terms. This reveals that India is good in nominal economic growth and unsatisfactory in real terms, is a thing of concern.



Saving has a special importance in the control of unnecessary consumption, and more importantly in capital formation, which further adds to particularly to the physical capital or assets useful for increasing rate of economic growth of the economy. This demands to examine the trends in the savings of India.

Table 2 : Gross Domestic Savings of India

(As per cent of GDP at current market prices)

Year	Gross Domestic Savings			
	Household Sector	Private corporate Sector	Public sector	Total
2003-04	23.1	4.6	1.3	29.0
2004-05	23.6	6.6	2.3	32.4
2005-06	23.5	7.5	2.4	33.4
2006-07	23.2	7.9	3.6	34.6
2007-08	22.4	9.4	5.0	36.8
2008-09	23.6	7.4	1.0	32.0
2009-10	25.2	8.4	0.2	33.7
2010-11*	23.1	8.0	2.6	33.7
2011-12*	22.8	7.3	1.2	31.3
2012-13*	21.9	7.1	1.2	30.1
CGR	-1% pa	3% pa	-9% pa	-1% pa
MEAN	23.24	7.42	2.08	32.7
CV	9.46%	16.84%	67.78%	4.31%

Source : Central Statistics Office.

*: Revised Estimates.

Gross domestic savings in India is contributed by the households, corporate bodies and the public sector in the economy. It is the households, which was a prominent contributor to the gross savings in the country. It contributed on an average by 23.24% pa, which was followed by the private corporate sector (7.42%). The contribution of the public sector was only marginal (2%) during the period under our study. Except corporate sector, both the household as well as private sector have registered negative growth only. It the household sector was more consistent in its contribution to gross savings than both the corporate sector as well as public sector. Thus India is prominently dependent on the household sector for mobilizing its gross savings, and public sector was both the meager as well as uncertain. Nonetheless, Indian economy has shown a good performance but not the better in mobilizing its gross savings, with a proportion worth of one third (33%), which can be enhanced further for increasing the level of physical or manmade capital in the economy. This adequately reveals that India is good in savings mobilization, which can be better.

It is the capital formation, which is an indicator availability and growth in the physical or manmade capital in the economy. It is therefore, it is examined the trends in capital formation in India because it is an indicator of economic dimension of the sustainable development.

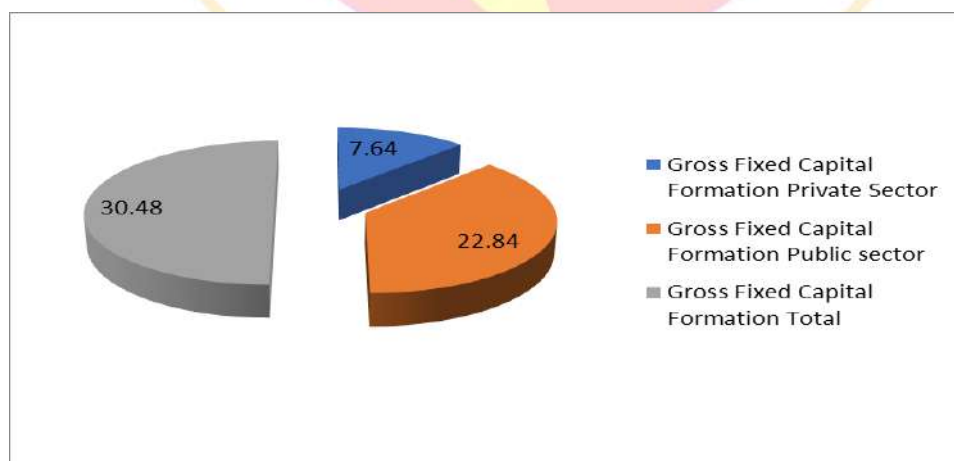
Table 3 : Gross Capital Formation in India

(As per cent of GDP at current market prices)

Year	Gross Fixed Capital Formation		
	Private Sector	Public sector	Total
2003-04	6.7	17.8	24.5
2004-05	6.9	21.8	28.7
2005-06	7.3	23.0	30.3
2006-07	7.9	23.4	31.3
2007-08	8.0	24.9	32.9
2008-09	8.5	23.8	32.3
2009-10	8.4	23.3	31.7
2010-11*	7.8	23.1	30.9
2011-12*	7.1	24.7	31.8
2012-13*	7.8	22.6	30.4
CGR	1% pa	1% pa	1% pa
MEAN	7.64	22.84	30.48
CV	7.98%	8.71%	7.87%

Source: Central Statistics Office. *: Revised Estimates.

As far as the gross capital formation in India is concerned, it was on an average 30% of GDP, is no doubt a good thing, but not satisfactory one. At the same time it can be further enhanced for increasing stocks of physical capital in the economy, which facilitates enhancement in growth as well as their preservation for the future. But its growth was marginal only during the period 2003-04 to 2012-13. It was comparatively consistent during the period under our consideration. The decomposition of gross capital formation reveals a strange picture regarding the contributions of private sector and public sector in the capital formation in India. It is the public sector which gave lion's share (23%) in total capital formation, on an average, but the private sector was marginal only (7%), so far as its contribution to the gross capital formation is concerned. The contrast is that, the savings of private sector are higher than the public sector savings, but those are not converted in capital assets, means unproductive savings. It is because of mentality of the households and consequently private sector.



B) Environmental Perspective:

Along with economic and social dimensions of sustainable development, its environmental dimension is also of vital importance. It is examined with the help of its some indicators with reference to India below. The human population from urban and rural areas is contributing organic matter to the water bodies in terms of BOD, Nitrogen (Nitrate and Ammonia), phosphorous and Faecal Coliform Bacteria besides number of other

parameters. The district/Block/Taluk wise population (urban and rural), fertiliser consumption (nitrogen and phosphorous) layer is incorporated in the Mike Basin and the catchment layer superimposed on the same is extrapolating the population for the each sub catchment in the Bhima Basin (CPCB, 2010-11, p67).

The government being the representative of the people and the supreme authority of social welfare maximisation, its role in the environmental protection through incurring expenditure is very much necessary to assess.

Table 4 : Government Expenditure on Environmental Protection (Rs in Crore)

Year	Exp. on Environmental Protection	% to Total
2004-05	5521	2.1
2005-06	6608	2.7
2006-07	6994	2.3
2007-08	9909	2.1
2008-09	11860	1.9
2009-10	13267	1.9
2010-11	15948	1.9
2011-12	16157	1.7
2012-13 (RE)	19449	2.2
2013-14(BE)	25577	1.8
CGR	17.83% pa	-3% pa
MEAN	13129	2.06
CV	48.30%	1.40%

Source: Planning Commission

A recent distinctive new trend is the growing interest of state governments in looking at renewable as an option for sustainable energy security. While the mounting problems in the conventional sector are one decisive factor in this turnaround (World Institute of Sustainable Energy, 2011-12, p1). It is observed that the government of India was not so much rigorous and sincere in the environmental preservation, protection and conservation; hence it has spent only 2% of Total expenditure as an environmental expenditure, is just meager and negligible, which cannot help much in the sustainable development in environmental perspective.

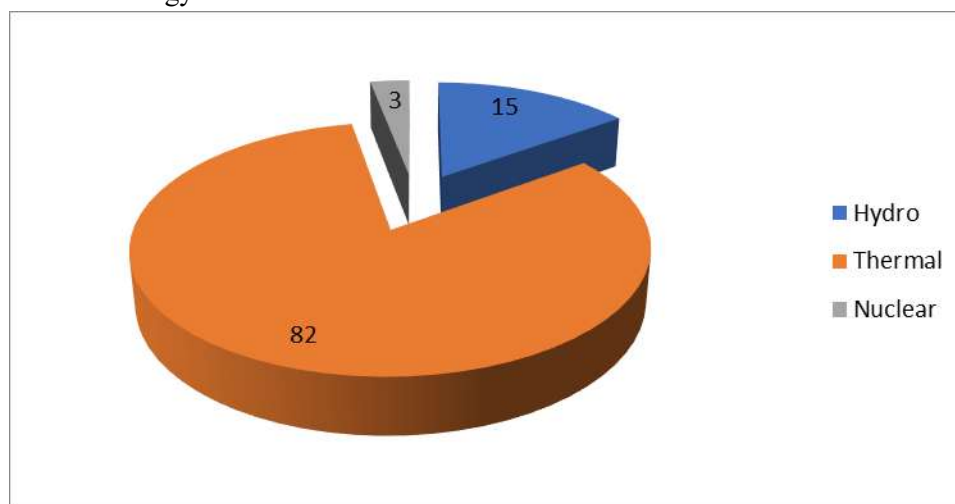
Environmental protection and preservation necessary for sustainable development with environmental aspect also can be contributed by the environment friendly energy generation in the economy. It is therefore the growth and level of environment pro energy is essential to study with reference to India.

Table 5 : Environment Friendly Energy Generated (Gross) in India (Billion KWH)

Year	Hydro	Thermal	Nuclear	Total
2004-05	84.6 (14%)	492.8 (83%)	17.0 (3%)	594
2005-06	101.5 (16)	506.0 (81)	17.3 (3)	624
2006-07	113.5 (17)	538.4 (80)	18.8 (3)	671
2007-08	120.4 (17)	585.3 (81)	16.9 (2)	723
2008-09	110.1 (15)	616.2 (83)	14.9 (2)	741
2009-10	104.1 (13)	677.1 (85)	18.6 (2)	800
2010-11	114.4 (14)	704.3 (83)	26.3 (3)	845
2011-12	130.5 (14)	759.4 (82)	33.3 (4)	923
2012-13	113.7 (13)	760.7 (84)	32.9 (3)	907
2013-14	134.8 (14)	792.5 (82)	34.2 (4)	962
CGR	3.37% pa	5.92% pa	9.64% pa	5.6% pa
MEAN	112.76 (15%)	643.27 (82%)	23.02 (3%)	779
CV	12.76%	17.26% pa	16.56%	16.56%

Source : Ministry of Power.

India's significant economic growth over the last decade has led to an inexorable rise in energy demand. Currently, India faces a challenging energy shortage. To grow at 9 per cent over the next 20 years, it is estimated that its energy capacity must increase by approximately 5.8 per cent per year. While more than 70 per cent of India's energy is generated from coal based plants, by the end of March 2012 (Sharan & Deisenrieder, 2013, p1). It is adequately observed that the electricity generation in India is not environment friendly. The thermal energy has a lion's share (82%) in the total energy generation in the country. On the contrary, the environment friendly energy comprising of hydro and nuclear constituted only 18% on an average during 2004-05 to 2013-14, is not a conducive environment for sustainable development in environmental perspective. Except nuclear energy, the growth and positive variations are found more in thermal energy than all other constituents of energy.



India is the seventh largest country in the world, with a total land area of 3,287,263 sq. km. (1,269,219 sq. miles). It measures 3,214 km (1,997 miles) from North to South and 2,993 km (1,860 miles) from East to West. It has a land frontier of 15,200 km (9,445 miles) and a coastline of 7,517 km (4,671 miles). Ever-growing population and urbanization is creeping into its forests and agricultural lands (Ministry of Environment & Forests, 2009, p10). Forests play a very important role in enhancing quality of air, rainfall and fertility of the soil also. At least one third (33%) of the total geographical area should be forest coverage area. Hence it is examined below.

Table 6 : Forest Coverage Area in India

Year	Forest Coverage Area (%)
2004-05	21
2005-06	21
2006-07	21
2007-08	21
2008-09	21
2009-10	21
2010-11	21
2011-12	21
2012-13	21.2
2013-14	24
CGR	0.77% pa
MEAN	21.32
CV	4.40%

Source: State of Indian Agriculture 2012-13

It is adequately clear that India has failed in desirable level of forest coverage in the economy necessary for environmental balance, and thereby environmental preservation, conservation and protection also, so as to enable sustainable development in environmental perspective. The forest area in India is just 21% on an average with a very mild growth of less than one percent during 2004-05 to 2013-14, and it is consistent only.

Sustainable Development Strategy in India:

Environmental issues have for long been an integral part of Indian thought and social processes. India, a large and diverse country with only 2.4 per cent of the world's land area, accounts for 7-8 per cent of the recorded plant and animal species of the world. It is estimated that India is home to about one-sixth of the entire plant species of the world and of the 12 biodiversity hotspots of the world, 2 are in India (Compendium of Environmental Statistics in India, CSO 2013). With the formulation of SDGs currently underway, a number of thematic focus areas for SDGs have been identified by the Open Working Group (OWG), which is a 30 member group tasked with the mandate of preparing a proposal on SDGs for consideration by the United Nations General Assembly. The major focus areas identified so far are: poverty eradication; food security and nutrition; health and population dynamics; education; gender equality and women empowerment; water and sanitation; energy; employment; sustainable cities and human settlements; sustainable production and consumption; and the means of implementation (Economic Survey, 2013-14, p217).

The strategy of sustainable development adopted by India is just a recent origin. More importantly, the progress in the major focus areas mentioned above in India is not very much satisfactory and appreciable, is a noteworthy but bitter fact.

V) Major Conclusions And Policy Suggestions:

The empirical analysis of the sustainable development economic and environmental perspectives during the latest period of time with reference to India reveals some important conclusions. Comparatively, India is good position in sustainable development in economic perspective, especially in National Income and Per capita National Income. But role of private sector in capital formation is very much dismal and a thing of serious concern. The huge savings of private sector are not being used for the productive investment and hence development is a noteworthy fact. But the role of the government in capital formation is appreciable is a thing of welcome. The state of sustainable development in environmental perspective is very much pessimistic and unsatisfactory, which requires due and rigorous attempts urgently and extensively. All the indicators of sustainable development in environmental perspective are very much lagging behind and unsatisfactory. This scenario may be due to sustainable development as a newly originated and developed concept of development and a strategy of development. We are very much behind in sustainable development attempts as well as its attainment in the economy. It is therefore India is very much behind and lagging in sustainable development in its two perspectives into our consideration, is adequately proved fact. Thus the government is not active, whole hearted, rigorous and honest to the extent desirable with lack of necessary involvement of the people as well.

Some of the important suggestions for materialising the sustainable development in India are; The very much active role of the government in all respects and perspectives of sustainable development is very much and urgently needed. A desirable space should be given to sustainable development in the economic policy of the government of India as well as all the states also. A comprehensive sustainable development policy with due place and weightage to all the perspectives namely economic, social, environmental and institutional as well, is urgently required in India. A significant corpus of fund for sustainable development along with necessary emphasis on environment friendly technology and energy is very much urgent for the sustainable development of India. The active participation of state governments as well as local governments in all respects is urgently needed in India. Preparation and implementation of a sustainable development plan instead of only the economic plan is the duty and responsibility of the NITI Aayog is very much desirable and expected. Instead of capitalist and rightist approach the pro environmental approach in the economic policy of India is a must for attaining sustainable development of India. A single and separate budget for sustainable development at all the three level governments in India can be more effective in activating the sustainable development of the country.

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Indian Water Sustainability: Need & Remedies**Dr. Pranali K. Patil**

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Abstract

India is one the developing countries which is predicted to face water crisis in near future. Factors promoting water scarcity in India are majorly overgrowing population; unevenly distributed water resources; rapid climate changes and environmental factors. Lack of water sustainable measures immediately can hamper India growth i.e., economical, and social.

The paper was prepared based on secondary research to understand the need and identify remedies required for water sustainability.

Understanding, valuing and managing by every individual at their level, along with technological and social research is the need of the hour for the promotion of water sustainability.

Introduction

India has 16 percent of world's population but only 2.45 percent of the world's surface area and 4 percent of the world's water resource (DTE, 2013). Various researchers has forecasted that by twenty-first century one-third of the developing countries will encounter water storage (Keller, A, Sakthivadivel, & Seckler, 2000). According to 2017 UNESCO report, 47 percent of the World's population will be living in high areas of stress. Water scarcity will threaten peace, further promoting food insecurity, hamper economic growth prospects and increase social cost. India measures for promoting water sustainability could significantly contribute to poverty-reduction (Balooni & Venkatchalam, 2016).

Water sustainability measures are need of the hour. Sustainability has been defined by Brundtland majorly as meeting the needs of the present without comprising the ability of future generations. So mainly concentrating on renewing the water resources, promotion of grey water usage, and limited usage through inventing novel devices are some of the major sustainable approach.

Need for Water Sustainability in India

Water is vital as its fundamental for life, touches every aspect of development, support healthy ecosystem and links with almost all the laid sustainable development goals. World Bank ascertains that 9 out of 10 natural disasters are water related. Lack of its proper management can promote not only water scarcity but risk food, energy, urban, and environmental system. Water crisis can risk economic progress, poverty eradication and sustainable development (WB, 2021). Lack of government planning; increasing corporate privatization; mismanagement of industrial and human waste; and corruption are the factors promoting water crisis in India (Snyder, 2017). Along with this natural reasons like rainfall variability, climate changes and regional environment too impact the promotion of water crisis.

Remedies for Indian Water Sustainability

Indian water sustainable measures need to be multidisciplinary, holistic and integrated. As India not only need to overcome water scarcity but address technical, environmental, economic, landscape aesthetic, societal and cultural issues (AquaTech, 2020). World Bank suggests that water sustainability can be promoted by understanding, valuing and managing water at all local, national and regional levels. Along with this political commitment, technological innovation and breakthroughs in service delivery are said to be implemented. The UNDP highlights that water infrastructure investment both public and private; water governance and valuing water by all is essential for surviving on the planet (Lusigi, 2021). According to the Environmental Protection Agency (EPA) consistent measures; robust and comprehensive planning; transparent projects rolled out by community participation; and improved technical, financial and managerial capacity are required to promoted water sustainability. According to IWA discovery of new technical know-how like waterless toilets, waterless car wash, etc can promote sustainable development. Further adds that promotion of surface water by construction of dams can further address irrigation and power supply issues while addressing

floods and unequal distribution of surface water challenge by diversion and navigation. Simultaneously the ground water entering, leaving and being stores is watched and maintained. Along with installation of solar power desalination and promotion reclaimed water or water reuse. Paper by Sharma in 2009 promotes the idea of peoples participation in form of CSR. Various researchers had suggested community based decentralised approach; adaptation of traditional water management systems; people's participation in public-private partnership; water literacy; involvement of NGOs and ICT water conservation; waste water management; rain water harvesting; revisiting water policies and legislations; proper water governance; and improvement of overall environment (Patil, 2016). While reseachers Balooni & Venkatchalam, in 2016 research article promotes watershed approach and correction of institutional failure. Morris, in 2019 suggests the policy makers and industrial leaders to monitor and measure their progress towards water sustainability measures undertaken. An article published by Mondal, in 2020 discussess social solutions like water conservation programs like public outreach campaigns, charging higher prices for increased water use; household solutions like water saving technology, saline water/rain water usage for toilets, weather-based irrigation controllers; agriculture solutions like crop irrigation, optimal water efficiency i.e., drip irrigation.

Water resources can be sustainably promoted by the participation of one and the all from the planning, execution, maintenance and evaluation level. Along with this local technological development affordable by all; contribution in water infrastructure by every citizen; valuing water and managing it efficiently can assist in overcoming the threat of water crisis. This requires primarily understanding the current water resources, their depletion rate, threat and measures to avoid the further depletion of the water resources.

For practical application understanding, valuing and managing water can be promoted from young age by making it part of education at all levels irrespective of the stream; promotion of technological research in minimizing water usage; and encouraging research for further analyzing the challenge and identifying the remedies both at scientific and social level. The same can be encouraged in working place, at households, irrigation and industrial sectors by promoting awareness about grey water usage, technology breakthrough invention knowledge, and subsidies for implanting the same. Along with this individual renewal of the water resources can be promoted by imposing compulsion for harvesting rain water and grey water usage. Timely review of legislation related to water resources and mismanagement; public-private partnership; and promotion of water infrastructure by analysing with the community about the local constraints are some of the additional measures required for promotion of water sustainability development.

Conclusions

The vital natural resource water is renewable and its sustainability can be achieved by bringing multiple stakeholders with various viewpoints to chalk out, execute, maintain and evaluate its measures in timely manner.

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Agriculture and Sustainable Development in India: An Overview**Dr. Vijay .B. Desai,**

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Sustainable agriculture offers a much-needed alternative to conventional input-intensive agriculture, the long-term impacts of which include degrading topsoil, declining groundwater levels and reduced biodiversity. It is vital to ensure India's nutrition security in a climate-constrained world. Sustainable agriculture is often restricted to conventional/traditional farming and creates confusion. In fact, it helps to improve soil health by integrating all possible measures so that crop productivity is maintained for a longer time. According to United Nations Development Programme, sustainable development means national food security, upgrading living standard of farmers, and conservation of the natural resources. Therefore, various traditional and modern methods of cultivation are included in sustainable agriculture. Nevertheless, unless scientific agriculture is practiced, average per capita income will not attain to a desirable level.

Keywords: Conventional, Degrading, Traditional, Practiced etc.

1. Introduction

Agriculture is the largest source of livelihood in India. Around 58 percent of those in agriculture depend on marginal and small farms of less than two hectares each. They account for the largest segment of India's agriculture economy. Currently, the agriculture ecosystem has structural, policy and field-level policy intervention constraints for India to evolve into a globally competitive, commercially compliant and large-scale farming economy.

Agriculture also has a critical role in contributing to India achieving many of the 17 Sustainable Development Goals set by the United Nations. Currently, the farmers themselves are drawing opportunities to enhance their livelihoods through aggregating themselves into farmer networks, undertaking cultivation, and adopting good agricultural practices in partnership with the private sector. This is also done by turning to the higher value and income-earning horticulture sector.

2. Objectives of the Study

1. To study the concept of sustainable Agriculture
2. To Study the sustainable Agriculture Development in India.
3. To provide suggestions for sustainable development of Agriculture in India.

3. Concept of Sustainable Agriculture

Green agriculture is the application of the sustainable development principles to agriculture: ensuring the production of food, wood and fibers while respecting the ecological, economic and social limits that ensure the durability of this production. For instance, sustainable arming minimizes the use of pesticides that can harm the health of farmers and consumers.

4. Sustainable Agriculture Development in India

Sustainable agriculture has been around a long time, but there is little or no corporate profit in it, and no money to pay lobbyists and make huge donations during election time. Perm culture or regenerative agriculture can be practiced in a carbon negative way, sequestering that carbon for thousands of years while improving the soil, but I make no money from someone when I show them how. I have nothing to sell.

While environmental soundness and resilience are paramount, farmers must experience an immediate benefit if they are going to change their practice. Only then can it be sustainable in the long term. Getting benefits from sustainable agriculture is not always quick though, as it takes time for new approaches to be adapted to different agro ecological and socio-economic conditions and to show their impacts: rebuilding organic matter dramatically improves soil fertility and moisture, but it can take two or more years for this to happen.

In order to be attractive, sustainable practices need to be technically as well as economically efficient. Intermediate technological solutions such as light machinery and affordable tools can encourage small-scale farmers to test them. New tools and practices can be better tested to the local conditions through participatory research.

Farmers know a lot, but they may not know about alternative options if they have not been introduced to them. Research and technical extension staff need additional resources to reach more farmers, and they need more training on 'non-conventional' farming methods and on innovative ways to share their knowledge. Farmer Field Schools, again, allow organizations such as FAO to transfer knowledge, for instance on integrated pest management, while ensuring that farmers' interests and learning skills are prioritized.

As far as India's concerns near 70% farmers are marginal by land holdings. So in this small fields farmers can't afford big machineries but a group of farmers can combine and do that. (Custom hiring centre have to come forward and also farmers producer group) As far as India's farm mechanization index is concern the tractor industry has crossed 7 lakhs unit per annum as per tractor manufacturers association data of 2018. I personally feels that adding need based machineries to Indian farming community will reduce the man efforts and delay and sowing and harvesting. As I can see there is huge scope of Farm mechanization India but before that have to provide irrigation facilities then only growth in farm mechanization can be obtained. As per 2018, agriculture employed 50% of the Indian work force and contributed 17-18% to country's GDP if proper irrigation and mechanization is added then contribution to GDP can reach upto 25%. 160 million hectares of cultivated land in India about 2/3 area is purely depends on monsoon so there is huge scope in irrigation as well as mechanization segment. (If irrigation facilities are not been improved in upcoming time then mechanization will get saturated).

5. Suggestions for Sustainable Agriculture Development in India

Organic farming is a method of crop and livestock production that involves much more than choosing not to use chemical pesticides, chemical fertilizers, genetically modified organisms, antibiotics and growth. Integrated Nutrient Management refers to the maintenance of soil fertility and of plant nutrient supply at an optimum level for sustaining the desired productivity through optimization of the benefits from all possible sources of organic, inorganic and biological components in an integrated manner. Integrated Nutrient Management refers to the maintenance of soil fertility and of plant nutrient supply at an optimum level for sustaining the desired productivity through optimization of the benefits from all possible sources of organic, inorganic and biological components in an integrated manner. Integrated Farming (IF) is a whole farm management system which aims to deliver more sustainable agriculture. It is a dynamic approach which can be applied to any farming system around the world.

The growing of different kinds of crops on a piece of land in a pre-planned succession is known as crop rotation. In the rotation of crops, leguminous crops like pulses, beans, peas, groundnut and Bengal gram are sown in-between the seasons of cereal crops like wheat, maize and pearl millet. The leguminous plants are grown alternately with non-leguminous plants to restore the fertility of the soil. When the cereal crops like rice, wheat, maize are grown in the soil, it uses up a lot of nitrogenous salts from the soil. If another crop of cereal is grown in the same soil, the soil becomes nitrogen deficient. So by rotation a leguminous crop is grown. These plants have the ability to fix atmospheric nitrogen to form nitrogen compounds through the help of certain bacteria present in their root. These nitrogen compounds go into the soil and make it more fertile.

Integrated Crop Management (ICM) is a common sense approach to farming. It combines the. Best of traditional methods with appropriate modern technology, balancing the economic. production of crops with positive environmental management.

6. Conclusion

The agricultural technology needs to move from production oriented to profit oriented sustainable farming. The conditions for development of sustainable agriculture are becoming more and more favorable. New opportunities are opening the eyes of farmers, development workers, researchers, and policy makers like agro related businesses, dairy farming, poultry farming cattle farming and fisheries. Now the time is to see the

potential and importance of these practices not only for their economic interest but also as the basis for further intensification and ecological sustainability

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Study of Diversity of Freshwater Molluscs from Dried water reservoirs in Taloda Tahesil District Nandurbar (MS) India.

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Abstract -

The present work was based on a survey of Molluscs species form region of Taloda tahesil. The present study is an attempt to study diversity of Freshwater molluscs from dried water reservoirs in Taloda tahesil. In Present study 10 species of freshwater molluscs belonging to 8 genera were recorded.

Key wards – Diversity, Molluscs, Freshwater mollusc

Introduction –

Mollusca is the second largest phylum of Animal kingdom. The Phylum Mollusca is a group of animal having different sizes, shapes, habits and are found in different habitats (Subba Rao 1993). Zoological survey of India (Subba Rao 1989) was done the taxonomic survey of Indian Freshwater Molluscs. Indian Gastropod Studied by many workers. Annandale (1919) study mollusca in Bombay, Ray and Mukherjee (1963) studied mollusca from Rajasthan, Tonapi (1971) studied mollusca in Poona and Kulkarni (1973) studied mollusca of Marathwada region. The present work was done to study diversity of molluscs from dried water reservoir. The molluscs found are identified and preserved for further record.

Material and Methods -

Study area – Molluscan shells were collected from dried water reservoirs in Taloda tahesil which belongs to Nandurbar district of Maharastra State of India and situated between Latitude 21.562807 and Longitude 74.213531.

Collection of Shells –

All the shells collected from all sites was brought to laboratory. Shells were cleaned by washing in water to remove mud and other material. Then shells were dried. All the shells were identified using Hand book of freshwater Molluscs of India by N. V. Subba Rao, Zoological survey of India Calcutta and Hand book on India freshwater Molluscs Ramakrishnaanirudha Dey Zoological Survey of India.

Results-

In present study 10 species of mollusca belonging to 8 genus were recorded. Out of these 9 species are of Gastropoda and only 1 is of Bivalvia. Table 1 shows collected shell diversity found in survey.

Table 1: Diversity of freshwater molluscs

Sr.No	Class	Family	Genus	Species
1	Gastropoda	Planorbidae	Indoplanorbis	exustus
2	Gastropoda	Viviparidae	Bellamya	bengalensis
3	Gastropoda	Thiaridae	Tarebia	lineata
4	Gastropoda	Thiaridae	Melanoides	tuberculata
5	Bivalvia	Corbiculidae	Corbicula	striatella
6	Gastropoda	Lymnaeidae	Lymnaea	accuminata
7	Gastropoda	Lymnaeidae	Lymnaea	luteola
8	Gastropoda	Thiaridae	Thiara	scabra
9	Gastropoda	Planorbidae	Gyrulus	labiatus
10	Gastropoda	Planorbidae	Gyrulus	convexusculus

Discussion-

Taloda is present in Nandurbar district of Maharashtra state. It is near to Satpuda mountains. The water reservoirs in this area are full of water in rainy season but become dry till end of winter. Shells of mollusk were collected in summer season between the month of April and May 21. At that time water reservoirs become dry hence no live mollusk were collected. Only shells were collected for study. Shells were found in sand of river and mud of other reservoirs. As 9 species of Gastropods found it indicate more abundance of Gastropoda than Bivalvia of which only one species was found. It is not a Quantative study hence only number of species are taken in consideration and not number of shells of each species.

Conclusion-

This is only initiative work. During my study only 10 species were recorded but it may possible more species were present in rainy season which was not found in summer survey. Hence there is a quiet need to conduct survey to study diversity of molluscs. It will may give data of many species than known today.

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Nature In Lord Of The Flies**Mr.Rahul Namdev Bhaskar**

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Kale.**Abstract:**

In the same way that , we have seen a nature's good or bad influence on the humans existence in the true sense of the world. So many writers have tried to describe a natural resources and environmental circumstance in his or her novel, poetry, essay, painting, critical works, articles, and journal and research paper also. Man has been used a lot of natural resource, wilderness resource and expanding his sustainable human life and it seemed to have an consequence on human beings .The researchers argue that Lord of the Flies is Golding's theory of man's inherited nature. The savagery and primitiveness of human nature will reveal itself when the restraints of civilization are missing, such as laws and rules necessary to keep the darker side of human nature in line. Golding confirms his theory by using allegory like characterization, setting, and action showing all these things of understanding the nature of their humanity.

Key Words: Natural component, Wild life, Human Beings and Environment, Ecosystem, Psychology, Evil things, Damage, Social anarchy.

Introduction:

In the novel Golding said in the different way, it is necessary to use the available natural resources properly and sensibly in the critical situation and they can realize impact of natural resource and environment in the human existence. Influents of the Natural resources include forest, air, water, solar energy and environmental changes and hunting life in the human life. Evil with Golding's view is an internal force, he insists on the inherent evil as there is no goodness inside humans and that humans are poorly covered by rules of society. If they lived without laws they will out that evil which affects the way of thinking and actions and changes an innocent into a savage.

Nature in Lord of the Flies:

Golding depicts the picture of so many ways included, natural resources, environmental changes, democracy and sustainable development and to the help of survival in the unknown island. Golding wrote that the pleasure he got from writing the book stemmed from being on a coral island. Hence, the elaborate description of good and harmful natural appearances on the human beings . And indeed, Golding presents a beautiful landscape, environment life, entirely untouched by humans. This is a world dominated by nature, and by the animals that live on the island. The plane crash has already caused a change to the landscape, represented by the long scar smashed into the jungle. However, as the boys take over this place, they have a further negative effect on its ecosystem. Ecocriticism emerged as a study of the relationship between literature and the natural environment. In such areas as the study of narrative and image, ecocriticism converges with its sister disciplines in the humanities, environmental anthology, environmental history, and environmental philosophy.

The Role of Environment:

The role of environment in the novel 'Lord of The Flies' play a key role in forming a person's actions. When the boys become stranded on the island, their feelings about what behavior is acceptable and normal go out the window. Environment absolutely authorizes action; people act differently at church than they would, for example, at a football game. The Lord of the Flies symbolizes the evil of human nature and the savagery inside each of us. In the last part of the story, the nature of the beast is one of that is truly uncontrollable and evil. The nature is being used as a tool of exercising violent and savagery acts, for example Simon's attachment to nature is directly opposed to his involvement in the island's society. In the Lord of The Flies, the weather is like topical of a tropical island, on which the novel is set. The weather is oppressively hot and humid, with periodic

storms. The storms are intense, causing thunder, lightning, and torrential rainfall. In the novel so many parts and characters are representing deepest symbolic in the lord of the flies.

Natural Resource and Social Dynamics:

Golding describes the abundance of butterflies in the early stages of the book: 'the air was thick with butterflies, lifting, fluttering, and settling'. By the time Jack displays a pig's head on a stick, the butterflies have been replaced in the stifling heat by the stench of decay: 'Over the island the build-up of clouds continued. A steady current of heated air rose all day from the mountain and was thrust to ten thousand feet; revolving masses of gas piled up the static until the air was ready to explode. Nothing prospered but the flies who blackened their lord and made the spilt guts look like a heap of glistening coal'.

The two fires on the island are most significant in exploring Golding's theme of environmental damages. In the second chapter, the boys light a fire which spirals quickly out of control with harmful consequences. As the flames destroy the surrounding flora and fauna, Piggy comments, wryly: "You got your small fire all right". The boys' thoughtlessness is the first act of destruction and death, but it is not the last. In the final terrifying chase of Ralph, Jack orders his group to smoke him out of the hiding place. In that scene reflect the social behavior towards the life of the wilderness.

In their desperation to catch Ralph, they set the entire island alight, without considering their survival. Ralph thinks to himself, 'the fire must be almost at the fruit trees-what would they eat tomorrow?'

These damaging blows to nature are similar to the devastating fires in the Amazon rainforest, which have been reported in the news in recent weeks. The reports state that the fires have been caused by human hand, in order to expand cattle grazing land to satisfy the growing demand for meat. Just as Jack wants the forest burned for his short-term gain, the Amazon inferno represents a similar kind of recklessness. If the rainforest continues to be destroyed, humanity's long-term survival is very much at risk. If we can utilize natural resources very carefully, so there is no danger for human begins. In *Lord of the Flies*, Golding shows how easy it is for humans to threaten nature and the earth's endurance; both on the microcosm of the island, and in the wider world destroyed by nuclear war.

The environmental crisis has stirred huge numbers of young people to take action, through school strikes and campaigning across the globe. *Lord of the Flies* in pejorative terms but here we see this same behavior from adults. As a parallel, Piggy is not listened to in the novel, and his attempts to provide scientific reason in response to the boys' actions are met with derision. Golding's main point in the book, particularly shown by the arrival of the Naval Officer at the end, is that the boys are merely mirroring exactly what the grown-ups are doing. There are still lessons to be learned from *Lord of the Flies*. Jack and his followers apply colored clay to their faces and make wicked masks. This represents the savage the savage nature of mankind-where there is utter scarcity of resource, human beings act like savages to grab them and the act of painting faces aptly symbolizes such attitude. The theoretical work on which the project is founded is distinctive within environmental education literature in drawing its conception of environmental literacy. All is extremely important and valuable to the human race to the look for natural resources and environmental issues.

Ralph's psychological and sustainable approach:

In the novel, Ralph's development is seen as a human being. His psychological development from childhood to maturity is the central focus of the novel. Ralph use of natural resource for the survival in the jungle and create ideological democracy itself through Ralph while jack represents dictators. Ralph learns a great and bad lesson. His dream world and idealism have been crushed. He remains disillusioned realist who now seen the world and its people as they are. Ralph was honestly tried to maintain all thinks and sustained use of natural resource for the survival temporaries in the island. Use of psychological mind and focus the environmental resource for the wild life included shadows and tall trees, fire, huts on the beach, use of shell and the glasses, hunting. Not only Ralph but also all the characters are very important and psychologically play the role in the novel and reflect the social life and natural relationship with human beings.

Conclusion:

In *Lord of the Flies*, William Golding is conveying the message that human beings must have rules, authority and government in order to maintain a safe environment because of natural resources are very

valuable and purchasing power for the human development. Left to their own, freedom from discipline, rules, and governmental regulations, Jack and his tribal warriors return to animal instincts, beast from water and air. Golding introduces us the relation between the boys and the island to show the relation of every character with nature and human beings. It reflects the relation between humanity and environment to show that society lacks a good political system and to show that the defects of society come also from evil nature of humans and their irresponsibility to the natural resource and environment. Each boy expresses different attitudes towards nature.

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A Study of Human Resource Development in Hingoli District, Maharashtra, India.**Dr.Vaijnath Kantiram Chavan**

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Abstract:

Human is one of the important factors of natural resources. Natural resources require qualitative human resources for the proper utilization and better management of their resources. Natural resources also affect the development of the economic condition of the specific country. This paper is based on the secondary data collected from the District Socio-Economic Review of Hingoli (2014), the population of Hingoli District. The study highlighted that, human resource development is unevenly distributed in the Hingoli District due to the uneven distribution of natural resources and also shows that, co-relation of human resource development in collaboration with natural resources.

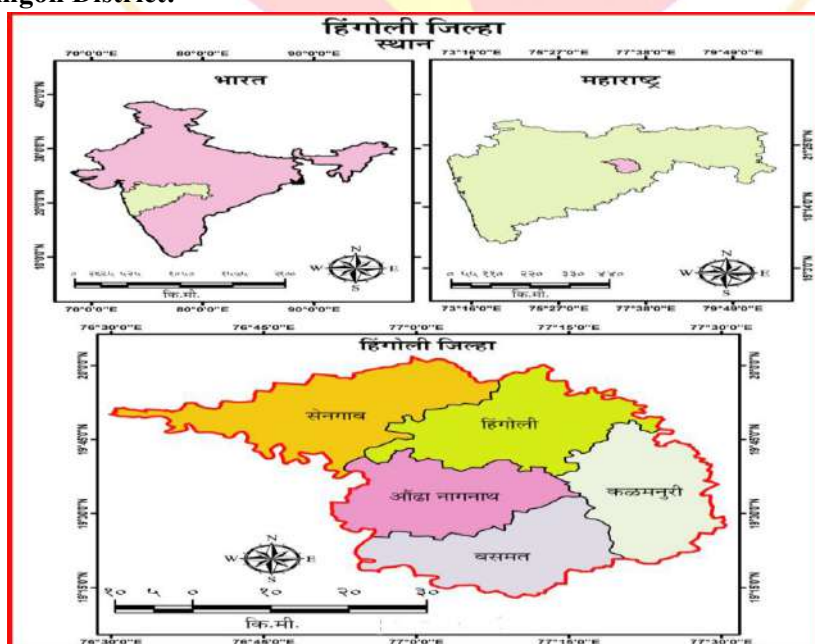
Keywords: Human Resource Development, Sum of Ranks, Co-efficient, Hingoli District.

Introduction:

Human resource is more important for the economic development as well as sustainable development. World development also implies growth and change for the betterment as soon as improvements at the regional level. There are so many indicators and it is very difficult to take all the indicators of human resource development. It is found that planning for development is generally done at the micro-level. The quality of human resources is determined by technological, social, cultural, and economic conditions. Human resource development is presented it improving productivity with quality development and achieving aims in a dynamic economic as well as social environment. This well is also enabled to get a proper human resource development plan.

Study area:-

Hingoli district is situated in Northern part of Marathwada in state of Maharashtra it is bordered by Akola and Yavatmal District on the northern side, Parbhani is the eastern side and Nanded district in the south eastern sided and lies between 19°20'N to 20°00'N and 76°20'E to 78°00'E respectively. The district of Maharashtra is one of the newest districts in the state. It comes into existence as a result of the division of Parbhani district in ist may 1999 it consists of two sub division mainly Hingoli and Basmat and five talukas, Hingoli, Kalamnuri, Sengaon, AundhaNagnath, and Basmat.

Location map of Hingoli District:

Objective:

The present paper has main objective to find the level of human resource development and some objects are fallows.

1. To highlighted the human resources in terms of quality and quantity in the study region.
2. To find out the levels of human resource development in the study region at the tahsil level.
3. To suggest the planning strategies for improving the level of human resource development the study region.

Database and Methodology:

The study is entirely based on secondary sources of data. The required essential data has been collected from the District Census Handbook, Hingoli and Socio-economic Review of Hingoli District. The data collected from different sources has been tabulated and processed through statistical techniques. Quantitative methods and techniques are used to convert the data. These methods are useful for the analysis.

In this paper ranking co-efficient is adopted for the analysis of level of human resource development in the study region. Collected data is processed in the table form and represented with Choropleth's method for representation of co-efficient index.

Discussion and Result:**Table No. 1.1: : Human an Resource Development in Hingoli District.**

Sr. No.	Tahsils	Population Density	Work participation	Sex Ratio	Literacy	Urban Population	Post Office	Education Facilities	Health Facilities	ΣR	Coefficient Index
		R1	R2	R3	R4	R5	R6	R7	R8		
1	Sengaon	5	4	5	3	5	2	4	3	31	3.87
2	Hingoli	4	3	3	1	1	3	1	1	17	2.1
3	Aundha Nagnath	3	5	2	5	4	4	5	5	33	4.12
4	Kalamnuri	2	2	4	2	3	1	3	4	21	2.62
5	Basmat	1	1	1	4	2	5	2	2	18	2.25

Source: Data is compiled by researcher on the basis of district Socio- Economic review and statistical abstract of Hingoli District 2013-2014.

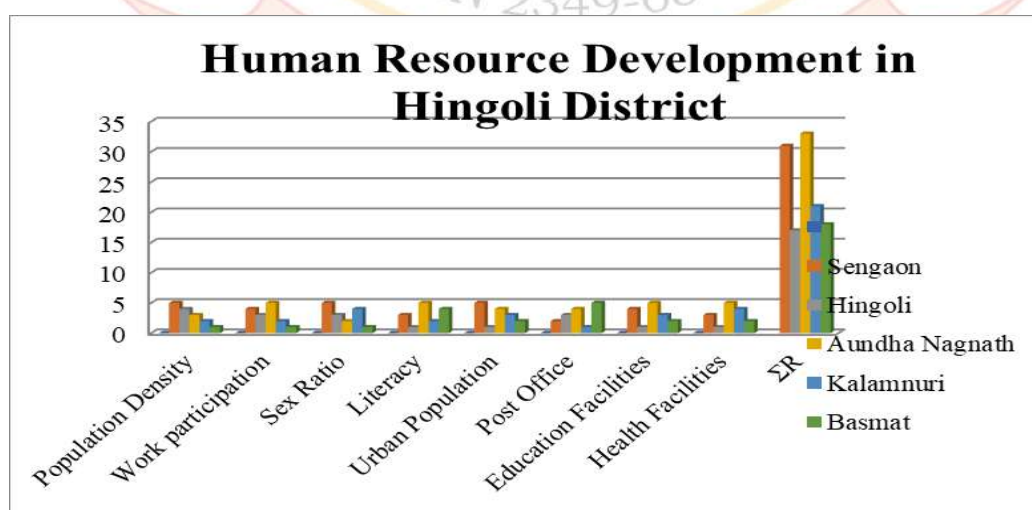
Figure 1.1: Human an Resource Development in Hingoli District.

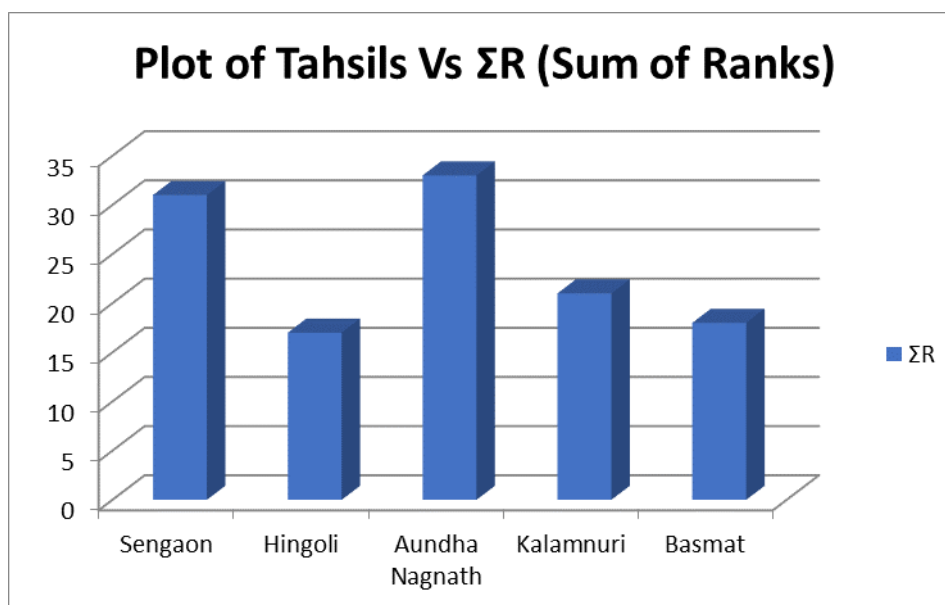
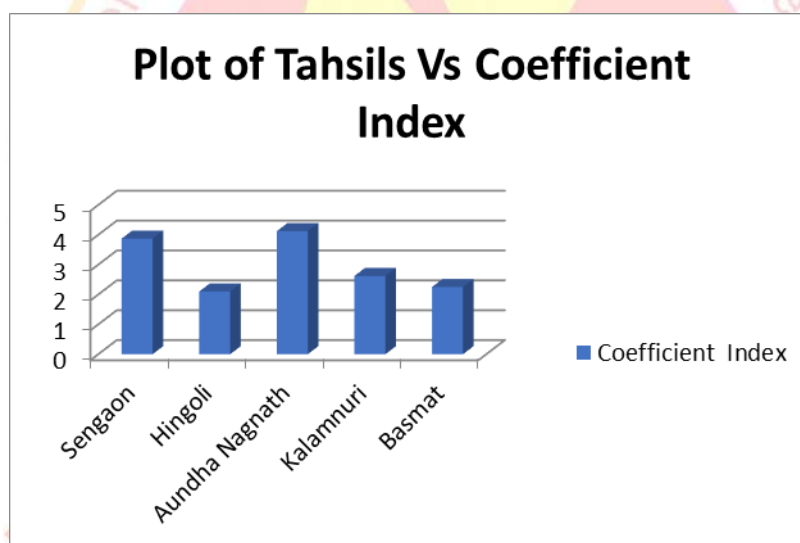
Figure 1.2: Plot of Tahsils Vs ΣR (Sum of Ranks).

Figure 1.2: Plot of Tahsils Vs Coefficient Index.



The present shows the, human resource development in Hingoli district with demographic variables such as, population density, sex-ratio, literacy, urban population etc. For the processing and analysis of the data we have also adopted for all variables to find out ranking co-efficient index method. Formula of co-efficient index as follows,

$$\text{Co-efficient Index} = \frac{\Sigma R}{N}$$

Where, ΣR = Sum of Rank

N = Number of variables

The co-efficient also shows that Hingoli District has human resource in medium form. The lower co-efficient index is 2.1 in Hingoli tahsil shows highly human resource development due to the fertile soil, development of agriculture, development of educational and other general facilities. Medium co-efficient index is 2.25 in Basmat and 2.62 in Kalmnuri tahsil. Highest co-efficient index which are 4.12 and 3.87 in

Aundhanagnath, Sengaon tahsils due to the physiologic setting of this region. In this tahsil also accurse hilly region, it shows human resource development is low.

Hingoli District can be divided in to three categories by the co-efficient index for better analysis and understanding how much level presented in Hingoli district, these categories as follows

1. Dynamic region (co-efficient index bellow 3)
2. Prospective region (co-efficient index between 3 to 4)
3. Problematic region (co-efficient above 4)

1. Dynamic Region :

The highest proportion of urban population, agriculture field is very developed advanced in quarter industrial sector and education status as well as health status in this region so development of this region is very better than other tahsils. The dynamic region occupies one tahsil i.e. Hingoli, Kalmnuri, Basmat. In this tahsil there is high concentration of agriculture set up such as sugarcane and irrigation facility, due to season in this region having high developed human resource. There is an existing sufficient educational and health facility.

2. Prospective Region:

In this region there are one tahsil i.e. Sengaon. In this region natural resources and educational facilities status are well developed, but technical and socio-economic level and utilization of natural resources is less developed. Sengaon tahsil also shows second rank in work participation and health facilities but urban population and literacy are due to this reason the human resource development.

3. Problematic Region:

In this region included one tahsils i.e. Aundhanagnath . The lack of natural resources, lack of infrastructure, lack of educational, lack of literacy and health facilities and less of economics development are the main problems shown in this region and due to this, the human resource development in this region is very less.

Suggestions:

For better than the human resource development in Hingoli district some suggestions as fallows.

1. Regional development planning should be set up for the sustainable development.
2. Introducing the awareness program about natural resources and it utilization by the government and social agenesis.
3. Integrated area program should be provided for the improvement of political, social status with educational and health condition also.

Conclusion:

Hingoli district also shows that, the human resource development is medium level due to the physical structure and the imbalance in distribution of natural resources and it proper use. The Hingoli tahsils represented with highest human resource development due to the agriculture. Lowest human resource development in Aundhanagnath tahsil due to the physiographic condition and it is remote area. In this region balanced and integrated regional development planning are most needed. Development planning should be taken for the economic socio-political status infrastructure facilities as well as educational and health facilities. Increasing education and health facilities essential for planning on the level of human resource development in the prospective as well as problematic region. Better planning for development and integrated program should be taken. If these problems will overcome and solved, this district can be developed very much.

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Management of Natural Resources - A Study with respect to Rain Water Harvesting.

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Abstract

Management of Natural Resources about some natural resources like soil, air and water and how various components are cycled over and over again in nature. The pollution of these resources because of some of our activities. We shall be looking at our natural resources like forests, wild-life, water, coal and petroleum and see what are the issues at stake in deciding how these resources are to be managed for sustainable development. We often hear or read about environmental problems. These are often global-level problems and we feel helpless to make any changes. There are international laws and regulations, and then there are our own national laws and acts for environmental protection. There are also national and international organizations working towards protecting our environment. Rain water harvesting is the need of the hour.

Keywords :- Natural Resources , Management , Rain water harvesting , Global Warming , Recycle, House , Clean.

Introduction

WHY DO WE NEED TO MANAGE OUR RESOURCES? Not just roads and buildings, but all the things we use or consume – food, clothes, books, toys, furniture, tools and vehicles – are obtained from resources on this earth. The only thing we get from outside is energy which we receive from the Sun. Even this energy is processed by living organisms and various physical and chemical processes on the earth before we make use of it. Why do we need to use our resources carefully? Because these are not unlimited and with the human population increasing at a tremendous rate due to improvement in health-care, the demand for all resources is increasing at an exponential rate. The management of natural resources requires a long-term perspective so that these will last for the generations to come and will not merely be exploited to the hilt for short term gains. This management should also ensure equitable distribution of resources so that all, and not just a handful of rich and powerful people, benefit from the development of these resources. Another factor to be considered while we exploit these natural resources is the damage we cause to the environment while these resources are either extracted or used. For example, mining causes pollution because of the large amount of slag which is discarded for every tonne of metal extracted. Hence, sustainable natural resource management demands that we plan for the safe disposal of these wastes too. The accumulation and storage of rainwater to reuse at the site and not allowing to runoff is known as rainwater harvesting. We can collect it in many places like a river, roof, etc. and redirected to well, bore well, shaft, a reservoir with percolation, aquifer, etc. We use it for watering of gardens, drinking for livestock, irrigation, domestic use with proper treatment. It is one of the oldest and simplest methods of supply of self-supply of water for households.

Rationale Of The Study

The main purpose of the study is to save the natural resource of the water by making scientific and proper rainwater harvesting on all the roofs of the country and make the awareness about this important issue of water problem to the society . Hence, sustainable natural resource management demands that we plan for the better way to preserve the rain water to make the use for various other purposes like gardening and other use .

Objectives

Following are the main objectives of this paper

- 1) To Study the methods of rainwater harvesting
- 2) To create awareness among the stakeholders about the rain water harvesting
- 3) To suggest the best method to implement rain water harvesting to village and urban population .

Rain Water Harvesting In Brief

Water Harvesting is the storing the roof water from rain in proper planning the pipeline to store and keep it in big tank for future use.. Various organizations have been working on rejuvenating ancient systems of water harvesting as an alternative to the ‘mega-projects’ like dams. The awareness about this is very important since we don’t have habit of storing the rain water in homes it goes waste and it is natural resource wastage. To avoid this we have to create awareness among all the people to make the arrangement to collect the rain water and make it use for other useful activities like gardening or reuse of the clean water including drinking purpose.

Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation, so that it seeps down and restores the ground water. Dew and fog can also be collected with nets or other tools. Rainwater harvesting differs from storm water harvesting as the runoff is collected from roofs, rather than creeks, drains, roads, or any other land surfaces. Its uses include watering gardens, livestock, irrigation, domestic use with proper treatment, and domestic heating. The harvested water can also be committed to longer-term storage or groundwater recharge.



SOURCE:- [HTTPS://WWW.GOOGLE.COM/SEARCH?Q=WATER+HARVESTING&RLZ=1](https://www.google.com/search?q=water+harvesting&rlz=1).

Rainwater Harvesting In India

Tamil Nadu was the first state to make rainwater harvesting compulsory for every building to avoid groundwater depletion. The project was launched in 2001 and has been implemented in all rural areas of Tamil Nadu. Posters all over Tamil Nadu including rural areas create awareness about harvesting rainwater. It gave excellent results within five years, and slowly every state took it as a role model. Since its implementation, Chennai had a 50% rise in water level in five years and the water quality significantly improved.

Advantages Of Rainwater Harvesting

Rainwater harvesting provides the independent water system during regional water restrictions, and in developed countries, it is usually won't to supplement the most supply. It includes water when a drought occurs, can help mitigate flooding of low-lying areas, and reduces demand on wells, which can enable groundwater levels to be sustained. It also helps with the availability of potable water, as rainwater is substantially freed from salinity and other salts.

An enormous body of work has focused on the development of life cycle assessment and its costing methodologies to assess the level of environmental affects and money that can be saved by implementing rainwater harvesting systems

Catchment Area Characteristics

Runoff depends upon the area and type of the catchment over which it falls as well as surface features. All calculations relating to the performance of rainwater catchment systems involve the use of runoff coefficient to account for losses due to spillage, leakage, infiltration, catchment surface wetting and evaporation, which will all contribute to reducing the amount of runoff.

(Runoff coefficient for any catchment is the ratio of the volume of water that runs off a surface to the volume of rainfall that falls on the surface).

Runoff Coefficients For Various Catchment Surfaces

Type of Catchment	Coefficients
Roof Catchments	
- Tiles	0.8- 0.9
- Corrugated metal sheets	0.7- 0.9
Ground surface coverings	
- Concrete	0.6- 0.8
- Brick pavement	0.5- 0.6
Untreated ground catchments	
- Soil on slopes less than 10 per cent	0.0 - 0.3
- Rocky natural catchments	0.2 - 0.5
Untreated ground catchments	
- Soil on slopes less than 10 per cent	1.0 - 0.3
- Rocky natural catchments	0.2 - 0.5

Source : Pacey, Arnold and Cullis, Adrian 1989, Rainwater Harvesting: The collection of rainfall and runoff in rural areas, Intermediate Technology Publications, London.

Based on the above factors the water harvesting potential of a site could be estimated using the formula given below.

Water harvesting potential

$$= \text{Rainfall (mm)} \times \text{Area of catchment} \times \text{Runoff coefficient}$$

source :- <http://www.rainwaterharvesting.org/urban/thepotential.htm>

Conclusion

Sustainable management of natural resources is a difficult task. In addressing this issue, we need to keep an open mind with regard to the interests of various stakeholders. We need to accept that people will act with their own best interests as the priority. But the realization that such selfish goals will lead to misery for a large number of people and a total destruction of our environment is slowly growing. Going beyond laws, rules and regulations, we need to tailor our requirements, individually and collectively, so that the benefits of development reach everyone now and for all generations to come. Rainwater harvesting is an eco-friendly technique to save water. It also increases level of ground water. Effective use of this method helps us to Save

our earth. I hope you liked this informative article on Rainwater harvesting. This paper is decent contribution in creating awareness among the stakeholders and citizens of the country.

Acknowledgement

Authors are thankful to all the members of the research committee for possible help and support in the matter. All the references are hereby acknowledges for the preparation of this paper . We are also thankful to Dr Anil Gaikwad for motivating us to select this important topic

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The Depiction of Environment in Terry Pratchett's *The Colour of Magic*

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Abstract

*The global environmental issues form a new challenge of inventiveness for literature and literary criticism. Ecocriticism is a rapidly changing set of practices that challenges the traditional approach of reading literature. The British author Terry Pratchett rejects the notion that everything is socially or linguistically constructed. He agrees with the eco-critics in their environmental point of view and interdisciplinary approach. The present research aims to investigate and analyse Terry Pratchett's environmental point of view in his novel *The Colour of Magic*. The assumption that Pratchett presents the possibility of sustainable coexistence is verified by applying theory of ecocriticism. It is found that by controlling the human dominance in the environment, sustainable coexistence between both human and nature is possible. Human greed, dissatisfaction and capitalism are the threats to sustainability.*

Keywords : Environment, Ecocriticism, Feminist Ecocriticism, Sustainable Coexistence

Introduction

Everything that is on earth is interconnected with each other; human beings who are considered to be rational animals belong to the earth and consequently culture and nature are connected. Ecocriticism studies the working of ecosystems and the effects of human interference on ecosystems. In fantasy literature, we find a variety of secondary worlds, but the British author Terry Pratchett's Discworld has close affinity with our primary world. He uses this platform for social commentary on the issues ranging from racism to war; but his environmental consciousness is also explicit.

Rationale of the study

Terry Pratchett's Discworld series begins with the first comic fantasy novel *The Colour of Magic* which was published in 1983. By presenting fantastic geography and a fascinating world in this novel Pratchett rejects the notion that everything is socially or linguistically constructed. He agrees with the eco-critics in their environmental point of view and interdisciplinary approach. So, it is important to study Pratchett's depiction of environment.

Objective of the study

The present research aims to investigate and analyse Terry Pratchett's environmental point of view in his novel *The Colour of Magic*.

Hypothesis

It is assumed that Terry Pratchett's novel *The Colour of Magic* suggests that sustainable coexistence is possible in the natural environment.

Methodology

There is no critic who can be called dominant eco-critic; further it can be said that ecocriticism itself is a diverse biosphere which does not have set of assumptions and doctrines. So, the theories presented by prominent eco-critics Timothy Clark, Peter Barry, Greg Garrard and Douglas Vakoch have been studied and applied to interpret the select text. Obviously, interpretative, analytical, evaluative and comparative methods have been used for the present research.

Analysis

The novel *The Colour of Magic* presents the imaginary world Discworld which is a flat disc carried on the backs of four giant elephants named Berilia, Tubul, Great T'Phon and Jerakeen; who astride a gigantic turtle the Great A'Tuin who is floating through space. Rincewind the failed wizard acts as a guide to Twoflower who

is an insurance salesman from the Counterweight Continent and who is the first-ever tourist to Discworld. The entire plot presents adventures faced by Rincewind, Twoflower and a cast of complex characters. By creating the fantastic environment of Discworld, Pratchett presents the interface of environment and mankind in the real world. Through various locations and incidents described in the novel, Pratchett proves that sustainable coexistence is possible. With the help of some incidents, he cautions us about how dissatisfaction and capitalist behaviour are threats to sustainability.

Pratchett presents the fantastic Big Bang hypothesis to mock at the Big Bang theory about the origin of the universe. Different religions and cultures have different traditional myths about the origin of the universe, but Pratchett intends to suggest that the truth must be sought. Moreover, he implies that man is but a tiny particle in this universe.

An old alchemist dropped a gold coin into a saucer of acid and swirled it gently to check the authenticity of the gold. After doing some calculations on a scrap of parchment, the alchemist concluded that the coin was pure gold. He used some laboratory animals like white doves, black cockerels and rats. He wrote a message on a small piece of parchment and sent it with the help of a rat. In another incident, albatross is used to deliver letters to the Patrician of Ankh-Morpork. The value of our natural resources is highlighted by the fantastic precious metal octiron found around the Circle Sea. A needle made of octiron always pointed to the Hub of the Discworld as it was sensitive to the disc's magical field, so it was used to refer directions.

Rincewind was hanging to a high branch of a tree, when he tried to rescue himself he was caught by two green hands and he was drawn into a tree. He was surprised to witness the life inside the tree. The cushions were soft; the wine was tasty and the wide room was lit with a soft yellow light. There were several rooms and a large winding staircase. A flesh green girl sat in front of Rincewind. She was a dryad named Druellae who wore a medallion around her neck. Her green eyes had no pupils. The dryad had rescued Rincewind from wolves. The tree looked narrow from outside but inside it was a multi-dimensional universe. There were he-dryads too. Both the male and female dryads were naked.

Wyrnberg, the dragonhome is a huge upside-down mountain half a mile above the green valley. Its shape is like an upturned trumpet- base of only few yards and a plateau at the top. It is a strong magical field. Liessa is the Dragonlady and Liort is the Dragonlord. Liessa's eighty-eight big and ugly dragons could sense Liessa's presence. As Liessa's mind visualizes dragons, they become completely visible. Liessa's own dragon is Laolith who communicates with Liessa's mind. Rincewind and Twoflower see the dragons flying whose bodies are semi-transparent. K!sdra the dragonrider rides the dragon Bronze Psepha. Rincewind enters the cave full with dragons. The dragons hung themselves to the huge rings in the domed roof.

Twoflower has a special attraction towards dragons. He thought about a dragon and a dragon appeared in his room. The dragon speaks with Twoflower and was ready to obey master's orders. Twoflower is surprised with this magic and the dragon explains how it happens at Wyrnberg. "In this place the frontier between thought and reality is probably a little confused. All I know is that once I was not, and then you thought me, and then I was. Therefore, of course, I am yours to command" (Pratchett 182). Twoflower flies on the back of the dragon and names it Ninereeds.

A frog was there inside the pocket of Rincewind's robe. The frog speaks with Rincewind. Suddenly, the room darkened and there was a roaring sound. The clouds of different colours appeared out of nowhere. The room was filled with warm yellow light. The magical tornado vanished, but the frog was still there. The goddess Lady rode in the frog's mind and she appeared in the room. She was the goddess who comes only when not invoked. She has a dialogue with Rincewind and Twoflower.

Pratchett criticises the greedy nature of the Patrician. According to ancient legend, the Counterweight Continent is largely made of gold. The Patrician proposes Rincewind to go to the Counterweight Continent to bring a shipload of gold. The Patrician alone wants to be rich and he does not like the idea that everyone would be rich. This is a typical capitalist behaviour.

Twoflower belongs to the Agatean Empire. This rich empire has been portrayed as Utopian state. The Emperor of the Agatean Empire writes a letter to the Patrician of Ankh-Morpork and informs that Twoflower, a citizen of Agatean empire will visit Ankh-Morpork. The Emperor requests the Patrician to take care of the

visitor and protect him. The Emperor is very idealistic and is a god to his people. Nine Turning Mirrors, the Grand Vizier has grown old while serving several emperors. In case of the empire, he does not like things out of place. He would not allow the traveller Twoflower to bring the disease of dissatisfaction to the empire.

Rincewind thinking of harnessing the lightning indicates humanity's ambitious ideas that exploit environment. Pratchett urges for responsible human behaviour with an understanding of the boundaries of the natural world. Human beings trying to colonize Mars is only an escape from the primary task of saving the planet earth for the present and future generations.

Greg Garrard finds plurality of views in ecocriticism as well as in feminism. The openness of both trends even towards the incompatible perspectives gives birth to a hybrid discipline called feminist ecocriticism that studies the manipulation of women and environment. In the novel *The Colour of Magic* Pratchett has presented incidents wherein we find female emancipation. These incidents are: Rincewind overpowered by the dryad Druellae, giant male dryads respecting Druellae, the Lady defeating all male gods, Liessa Wyrmbidder protesting against the tradition and acquiring the throne of Wyrmborg. By using the analogy of woman and nature, Pratchett suggests that women and nature are superior to the dominating capitalist forces.

Conclusions

After the ecocritical study of the novel *The Colour of Magic*, it is found that Pratchett successfully creates ecological awareness. If the human dominance in the environment is controlled, then sustainable coexistence between both human and nature is possible. Human greed, dissatisfaction and capitalism are the threats to sustainability. Pratchett's depiction of environment, natural resources and female characters in a fantastic world challenges the traditional literary theories. Finally, it can be concluded that the novel *The Colour of Magic* is a serious commentary on ecoliteracy and has a transformative purpose.

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Redefining The Concept Of Energy Use By Developing Auto Generating Self-Propelled Devices.

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Abstract.

Energy remains the biggest concern for the human race. All our cutting edge research and resultant technologies are based and powered by one or the other form of energy. Most of this energy is from fossil fuels. Fossil fuels are finite and have a pronounced carbon and ecological footprint. All our efforts are concentrated towards inventing newer and better devices to enhance the quality of our life. But the crucial aspect of the type and kind of energy needed to power these devices remain unchanged. All our efforts are concentrated on increasing the efficiency of these devices and not on rethinking the way and the manner in which we can power them. This treatise calls for a paradigm shift in the way we think of powering our devices. As the first step we should look to severely restrict the number of devices we seek to develop. We should only look to develop devices that are absolutely essential. To the extent possible these devices should operate on passive platform and/or should be a LPD (Low power device)-A device which consumes very little or no power. All the developed devices should have a well-defined cradle to cradle cycle so as to not stress the environment and defile the ecology. Our research should concentrate on developing devices which can generate their own energy and power itself by reusing and recycling its own potential energy. A brief conceptual outline of the various ways and means by which these can be realized is discussed and presented. It is also ensured that all the measures proposed are sustainable, Eco-friendly and have the least impact on the environment.

Keywords: Self-propelled devices and cradle to cradle cycle.

Introduction.

Our world today is all about devices. For every activity of ours we have one or the other type of device to assist us. Devices start off as a luxury and wind up becoming a necessity. All the applications of our cutting edge research and its resultant technologies are concentrated on developing newer and better devices to enhance the quality of our life. Acquisition of devices has become a human compulsion bordering on obsession. Devices today have graduated from being stationary to being hand held. As electronics replace mechanical interventions devices have become economical, less bulky and efficient .Large scale production has ensured that they are available, accessible and affordable. Miniaturization has also made them smarter, sleeker and user friendly.

The human mind. As various kinds and types of devices continue to be developed and seek to infiltrate the various aspects of human life one aspect stands out very clearly –the vast power and ingenuity of the human mind. It is thanks to this that humans are able to dominate this planet in spite of being the weakest species to inhabit this planet. Devices not only serve to enhance their comfort and quality of life but also empower them.

The energy conundrum. In all this euphoria about newer, better, smarter and sleeker devices one thing remains unchanged-the energy to power them. Our basic source of energy still remains fossil fuels. The bulk (almost 60%) of our energy requirements are still met by fossil fuels. Herein lays the basic problem. Renewables in the form of solar, wind, tidal, geo-thermal, bio-fuels and a whole host of allied alternatives have been touted as the panacea for all our energy issues. There are two basic drawbacks to accepting them as viable and acceptable alternative solutions.

1. These are just alternative sources and only serve to reduce our dependence on fossil fuels.
2. The backend of harnessing this energy is detrimental to the environment and ecology.

These renewable measures also do not in any way address the key issue-the consumption of energy and the embodied energy of the devices.

Energy for devices. All devices are powered by electrical energy in two ways –directly by plugging into a source or indirectly by means of storage batteries, dry cells and all other allied power packs. An intermediate solution is rechargeable power packs and batteries. The reliance on electrical energy still remains unchanged. Also what consistently remain unchanged are fossil fuels as a major source for this energy.

The energy roadmap. The primary energy path comprises of the following sequence-harnessing, processing, generation, storing, transmission, and distribution. The secondary path comprises of use and dissipation as heat energy. Heat energy is expended in both these sequences and it is this heat energy which contributes to warming the atmosphere.

The basic principles of energy. The fundamental law of the universe is that energy can neither be created nor destroyed –it can only be transferred from one form to another. Unless this dissipated energy is transformed back in to another useful form of energy the energy balance of our planet will always remain affected. Presently all this energy dissipates as heat into our atmosphere.

Kinetic and potential energy. Almost everything in this universe has two types of energy-kinetic and potential. "Kinetos" in Latin means "motion" and "ics" means "the science of". Hence the science of bodies in motion is called "Kinetics" and the energy generated in the process is termed as kinetic energy. The latent or hidden energy is termed as potential energy.it is akin to a yin and yang cycle. It is this endless cycle of conversion which keeps our universe dynamic.

Exergy and anergy. Energy has two basic components –Exergy and anergy.exergy is the actual energy used and anergy is the unutilized or waste portion of the energy. It is this anergy which is the root cause of all our environmental and ecological problems. Most of our active systems tend to generate a significant proportion of anergy.

Efficiency of a system. A system is termed as efficient if the input is equal to the output without any kind of waste being generated. It is practically impossible to generate an output without incurring some kind of a waste. Therefore interventions to be made in the design to ensure that this waste is minimized and/or reconverted back into energy to power the same system.

Newton's laws of motion. The laws of motion were first postulated by Sir. Isaac Newton in 1687 .The relationship of these laws to the generation and/or regeneration of energy is briefly surmised as follows.

The first law states that "Every body continues to be in its state of rest or motion unless it is acted upon by an external force.

The application of this law would be – Harness and capture the potential energy of a body and convert it into kinetic energy. Once this happens ensure that this kinetic energy is endlessly generated. Once the energy cycle is triggered it will be perpetual.

The second law states that "The momentum developed by a body is the product of its mass and acceleration "or $F=ma$. Wherein "m" is the mass and "a" is the acceleration. If a system can be made stationary by ensuring no change in velocity it will not develop any momentum as there will be no acceleration. Hence a stationary system would therefore be able to ensure a steady generation of energy to power the system.

The third law states that "For Every action there will be an equal and opposite reaction". If SHM (Simple Harmonic Motion) can be induced within the particles in a body the clockwise and anticlockwise movements will lead to a steady release of energy.

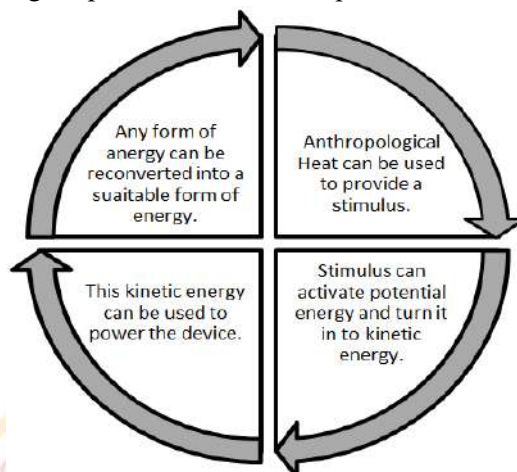
Perpetual energy stations. Perpetual energy stations based on the above principles can be installed and all devices can be initially powered by them. Once the device is powered it should keep generating its own energy for perpetuity. These energy stations can be positioned at various vantage points and can be used to power devices by Wi-Fi (wireless fidelity).Devices which receive this energy should be designed as LPD (Low power devices) i.e. devices which consume very little or no energy for their operations. Furthermore these devices should be able to recycle and reuse their anergy content so as to ensure that no waste energy is generated and their efficiency is nearly 1(one).

The anatomy of a device. We use a plethora of devices in our day to day life. These are very exciting creations and play a huge role in ensuring and maximizing conveniences in our day to day life. There are two components which ensure functioning of a device.

- They basically need a stimulus to get started
- They require some kind of energy for operation.

At the moment both these parameters are provided for by electrical energy in two ways –directly by a plugged in charger and/or indirectly by a battery or a power pack.

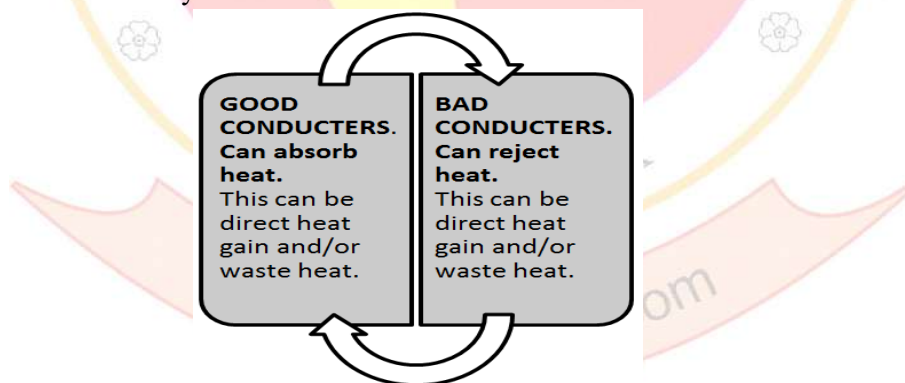
Powering a device by anthropological heat. Anthropological heat can be harnessed for providing a stimulus. This stimulus can in turn activate the potential energy and transform it into kinetic energy. This kinetic energy can in turn be used to power the device. Any form of energy can be reconverted into a suitable form of energy to ensure that the device is perpetually powered. Anthropological heat can also be harnessed by conduction and/or radiation. Cutting edge research in this direction will reduce the need for power sources and energy. If the energy aspect is controlled and/or limited it will contribute to reducing the GWP (Global Warming Potential) of the device and also aid in controlling air pollution. This concept is schematically illustrated in Flowchart no.1.



Flowchart 1- A conceptual depiction of energy cycle simulation.

Source. : The Author.

Powering a device by thermocouple. The universe is all about heat and absence of heat. Some recurring examples are day and night, summers and winters and gradual change in seasons. Thermocouples are devices which are a combination of good conductors and bad conductors. The potential difference generated can be used to incubate energy. Devices can be equipped with thermal sensitive sensors externally. The heat source can be direct heat gain in the form of solar energy and /or anthropological heat and/or animal heat and/or waste heat and/or from any other allied sources. The internal faces can be equipped with heat rejecting devices or bad conductors. The potential difference thus generated can be used to incubate the necessary energy to power the device. This concept is schematically illustrated in Flowchart no.2.



Flowchart 2-A schematic illustration of incubation of energy based on the principle of potential difference.

Source. : The Author.

Robot. A robot is the culmination of all the devices. Today the science of robotics has advanced to a level where it is likely to replace almost all human activities. But in spite of all the advances it is not a self-powered device and depends on an external source for energy. This energy is usually electrical energy which in turn is obtained chiefly from fossil fuels. Future research needs to concentrate on robots which should have the following chief attributes

- They should be designed as LPD (Low power devices) –Devices which use very little or no energy.
- They should be self-powered.

- They should be able to reconvert all their energy into a useful form of energy.

Cradle to cradle cycle. Devices comprise of two main components

- The material which is used to construct the devices.
- The energy which is used to power the device.

It should be ensured that

- The material which is used to construct the device is perfectly bio-degradable and/or endlessly recyclable and reusable.
- The device is self-powered and can function independently without reliance on any external source.

The environmental and ecological footprint. There are three major components to a device

- Materials for construction of a device.
- Components (mechanical and/or electronics) for operation.
- Energy for powering the device.

The basic problems with all devices is

- Obsolescing of existing devices due to newer and better technologies. This contributes to “E-waste” or electronic waste and generally tends to make its way to landfill sites. The safe disposal of this waste is a major challenge.
- The materials needed to make these devices have a high embodied energy and a pronounced carbon and ecological footprint and defile the environment right through all the three stages of its existence – production, operation and after use. It also involves the use of any and every type of material known and/or available.
- Whether the components are mechanical and/or electronic a certain quantum of energy is used and energy or waste energy usually in the form of heat is always generated. This heat released from the device adds to the warming of the atmosphere.

The way forward. A device can be defined as an interface which has been incubated and evolved for a particular purpose. The human race has become fixated, obsessed and completely dependent on various types and kinds of devices for their day to day functioning. The ratio of the number of devices to the number of humans is also very high. This obsession with devices comes with a pronounced tangible and intangible cost and could become the cause of annihilation of the human race.

The human race needs to take the following steps with immediate effect.

- Stop production of all devices.
- Only produce devices which are absolutely essential, necessary and vital.
- Ensure that the device can be endlessly recycled and reused in terms of both materials and operations.
- Ensure that it can be easily upgraded.
- Ensure that it can be easily bio-degraded after its useful life is over.
- Ensure that it is self-powered and not dependent on a readymade external source for energy.

The framework of this research.

The absence of an idea to find a solution is termed as a problem. Human ingenuity and capabilities are unfortunately scalar quantities-plenty of magnitude but with no defined, definite, or perceived directions. Also short term gains take precedence over long term benefits. The sole intention of this paper is ideating. It seeks to incubate concepts which could be the possible and probable solutions for the future. At the end of the day research is all about breaking free from prevalent dogmas, existing strangleholds, and exploring new horizons. To quote the genius Albert Einstein “we cannot solve problems by using the same thinking which we used when we created them”. This concept paper endeavors to open up new vistas and opportunities for future research by pushing the envelope. The vast power and ingenuity of the human mind is perfectly capable of realizing these concepts.

Conclusion.

Everything in this world is made from earth and it goes back to the earth. Devices disturb the earth during its making, harm the environment during its operations and defile the earth after its useful life is over. We need to understand, appreciate and acknowledge the basic fact that the earth does not belong to us –we belong to the earth. We need to factor in the environmental and ecological cost in all our inventions and interventions. Environmental issues do not respect, acknowledge and honor man-made boundaries. They are neither local, regional nor national-They are global. Unless some definitive action is taken by the human race the sixth extinction will be anthropological one.

Note. : There are no specific citations and references. The entire paper has been formulated based on extensive experience, exhaustive reading, interpretations, and interpolations. The references quoted here are some material which inspired the author to think differently.

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Gandhian Philosophy as the Foundation of Ecologism: An Analysis**Dr. Suchita Renuka Prasad Suragihalli**Assistant Professor
Shahaji Law College, Kolhapur**Abstract**

Mahatma Gandhi has been credited with significant contributions to Indian society. His practice of Satyagraha and non-violence during the independence struggle of India was pathbreaking. By the second half of the twentieth century the world started exploring other areas of his philosophy. This paper explores Gandhi's pivotal contribution in the form of his environmentalism. Both, Environmentalism and Ecologism have been considered as Western ideas. This paper is an attempt to establish that the philosophy of ecologism originated from Gandhian views. It also compares the principles of ecologism to Gandhian philosophy to augment the argument.

Keywords: Gandhi, ecologism, pivotal, origin, augment

Mahatma Gandhi is most prominently associated and spoken of in connection to his unparalleled contribution during India's freedom struggle. To really understand Gandhi, one has to realise that this is just a part of what he advocated and believed in. The Gandhian philosophy incorporates every sphere of man's life, from social aspects to health, community life to economic status. In contemporary times, Gandhi is being discussed in connection to environmental issues. Gandhi's views regarding developmental policies, use of resources, consumerism etc. have become relevant now more than ever before. Gandhian ideas are holistic in character and have to be understood as such to really assimilate his philosophy.

The dawn of the 1950s saw several environmental issues and movements developing in the world. As a result, many different views regarding environmentalism have also arisen. Further, it developed into two broad schools, environmentalism and ecologism. Naturally, it has been assumed that the philosophy of environmentalism and ecologism has western origin. The rationale of this study is to establish that the origin of Ecologism needs to be traced in the philosophy of Gandhi and also that it is not western as is widely believed and accepted. With a view to achieve this objective, in this article, Gandhian views have been elaborated on and the western environmentalism and ecologism has been compared to Gandhian philosophy. The presentation will lead us to the conclusion that it is Mahatma Gandhi who is the real pioneer of Ecologism. This article is divided into the following parts:

- 1) Gandhian views regarding Modern Civilisation
- 2) Gandhi's Alternative Model of Development
- 3) Gandhian Environmentalism and Ecologism of the West: a comparison
- 4) Conclusion
- 5) References

The author has referred to the writings of several thinkers including Mahatma Gandhi and Arne Naess as primary source and others in the form of secondary source. Analytical and comparative method has been employed while writing the article.

Gandhian Views Regarding Modern Civilisation

Gandhian environmentalism originates in his views, critique to be precise, regarding modern civilisation. He justifies his criticism with the cause-effect way of explanation regarding the world scenario during his times. The Mahatma not only criticised but also appreciated the good in modern civilisation, for instance a sense of rule of law, liberty and equality, civic responsibility, awareness about sanitation etc.

Critique of Modern Civilisation

Gandhi puts forth his views regarding modern civilisation in his booklet, 'Hind Swaraj' which has been referred to as 'Rule of Dharma' by Vijayam (2009: 5). According to Gandhi, 'Civilisation is the mode of conduct which points out to man the path of duty (Parel, 1997: xxvii).' But, Gandhi is of the opinion that, modern civilisation advocates the 'khudaro' culture - of destruction, exploitation and suppression. Gandhi says

‘violence oozes from its every pore’. Gandhi believed that ‘modern civilisation is a cult of violence and materialism (George 2001: 21). He held that it has resulted in the horrific practice of colonialism. The European nations plundered their colonies and oppressed the indigenous populace there.

Industrialisation & Technology

Industrialisation, according to Gandhi is the most destructive element of modern civilisation. It led to larger technology, mass production and search for new markets. But as pointed out by Gandhian J. C. Kumarappa, “There can be no industrialisation without predation (Guha, 1997: 159)”, typically, industrialisation resulted in the violence, exploitation and plundering of the weaker nations. Many believed Gandhi opposed machines, to which he reacted thus: ‘My opposition to machinery is much misunderstood. I am not opposed to machinery as such. I am opposed to machinery which displaces labour and leaves it idle (Harijan 1946: 310)’. For Gandhi, ‘The supreme consideration is man. The machine should not tend to make atrophied the limbs of man (Young India 1924: 378)’.

Exploitation of Nature & her bounties

Bhiku Parekh says, according to Gandhi, ‘Modern civilisation was involved in egregious amount of violence against nature, which was largely seen as man’s propensity to do with it what he liked’ (Parekh, 1989: 27). He believed that nature had her own set of laws of functioning. She was benevolent, tolerant, but modern civilisation was abusing her. One day she will have no alternative but to retaliate. Gandhi sensed that man’s life would be worth living only if he learned to co-exist with nature. The present events in the world are a reflection of such exploitation of man of mother nature.

Unlimited Wants

Gandhi warned, “A time is coming when those who are in mad rush today of multiplying their wants, will retrace their steps and say; what have we done? (Quoted in Khoshoo & Moolakkattu, 2009: 51)” According to Gandhi, “Modern civilisation was propelled by two inter-related principles of greed and want (Parekh, 1989: 22)”. He felt the greed to have ‘more’ has resulted in damaging nature irreparably. He cautioned that blind imitation of the West would result in a kind of theft from fellow beings. Gandhi, thus, passionately advocates the containment of wants. An idea that also has a moral ground as he makes a difference between needs and wants. He concluded that needs have to be fulfilled whereas wants are not needs, and will be ever growing and eternal.

Gandhi’s Alternative Model of Development

Gandhi was convinced that if India chose to imitate the modern civilisation in the west it will lead to her fall. That is precisely why he advocated a blue print of India’s transformation which would be fundamental, all-inclusive and immediate. He introduced the philosophy of Gram Swaraj which incorporated the practice of decentralization, village and cottage industries, khadi and non-violence, swadeshi, sanitation, naturopathy etc. with this intention. This alternative model of development is Gandhian environmentalism as it based on co-existence with nature, is non-predatory, non-exploitative of man as well as nature and does not plunder nature for its satisfaction.

Decentralisation

The modern state according to Gandhi was centralized and coercive. Thus Gandhi, aimed for decentralization which would remove exploitation by the powerful, may it be state or people. Decentralisation for Gandhi, was not only to be political but financial as well. He framed the idea of small scale and cottage industries. The industries will use simple technology & produce local handicrafts and cater to the needs of local people. This system ensures that decentralisation creates opportunities for everyone without a shade of exploitation and creation of classes.

Khadi

The khadi industry, Gandhi believed, would reinforce the Indian society with self-esteem and confidence. Gandhi opined,

“Khadi touches life of every single individual, makes him feel a glow with the possession of power that had within himself and makes him proud of his identity with every drop of the ocean of Indian humanity (Tendulkar, 1999: 20).”

Firstly, it would provide employment in the rural region and tackle the issue of people flocking to cities. Secondly, it would create self-respect and worthiness, which had taken a beating due to treatment meted out by the rulers. Thirdly, it was a leveler, as it brought everyone on the same level. Fourthly, it eliminates the inequality in society. Lastly, it advocates the practice of non-violence.

Swadeshi

The first thing the colonial rulers did was destroy the domestic industry. This resulted in exploitation of the poor nations and unwarranted dependency. Thus, Gandhi advocates Swadeshi. ‘Gandhi gave a new meaning to it and claimed that Swadeshi meant self-dependent economy (Chousalkar, 2014: 116)’. According to Gandhi, Swadeshi is not to cut off our relations with everyone, rather it is, “that spirit in us which restricts us to use of service of our immediate surroundings to the exclusion of more remote” (Gandhi, 2001:114). Swadeshi is a broad concept with social self-sufficiency and self-reliance at its base.

Containment of Wants

Gandhi professes such a lifestyle for mankind which will be based on simplicity and contentedness as opposed to modern civilisation which is based on greed and want. He feels people need to understand the difference between wants and needs. The alternative model is based on pointing out this difference to man. Some misunderstood it as an advocacy of a frugal life of self-imposed poverty. But Gandhi was sure that such a life was ideal in nature as the cardinal principles were simplicity, slowness and smallness. The principles of decentralisation, small industries, simple technology, swadeshi, as put forth by Gandhi would naturally lead to a life based on needs and not wants.

Other than this Gandhi also incorporated sanitation, basic education, prohibition, manual labour as a part of his alternative model of development. Each notion had its role to play in the Gandhian scheme of things.

Ecologism

In the second half of the twentieth century, several environmental movements took place as the effects of man’s predatory policies started showing its results. People started questioning governmental policies and demanded solutions from them. At this juncture revealing writings like Rachel Carson’s ‘Silent Spring’ and Murray Bookchin’s ‘Our Synthetic Environment’ paved the way for environmental thought to develop. Consequently, two schools of environmentalism developed. One was reformative, usually referred to as environmentalism and was also shallow in its approach. It took the stand of making superficial changes like controlling pollution, afforestation etc. The other had a deeper agenda and advocated fundamental changes in the way man led his life. This was referred to as Ecologism.

The first school was called Shallow ecology and the second Deep Ecology. According to Michael Nelson,

“The shallow worldview ... is merely an extension of European and North American anthropocentrism—its reasons for conserving wilderness and preserving biodiversity are invariably tied to human welfare, and it prizes nonhuman nature mainly for its use-value (Encyclopedia of Environmental Ethics and Philosophy, 2008: 206).”

While Deep ecology, according to its father, Arne Naess is, “Ecologically responsible policies are concerned only in part with pollution and resource depletion. There are deeper concerns which touch upon principles of diversity, complexity, autonomy, decentralization, symbiosis, egalitarianism, and classlessness” (Naess, 2008).

This brings us to a comparison between Gandhian and western environmentalism. Shallow ecology has nothing that can be compared with Gandhian philosophy, as they are fundamentally too diverse. But the other school of Deep ecology bears a ‘deep’ resemblance to Gandhian environmentalism. Deep Ecology as advocated

by Arne Naess, is based on eight basic principles. This eight-point ideology was developed by Arne Naess and George Sessions as they were camping in the Death Valley in California. It is these principles that reflect Gandhian environmentalism.

Comparison of Gandhian Environmentalism and Ecologism

The first principle of ecologism is that everything on this planet, living or non-living, has an intrinsic value, independent of its value to human life. In his writings, Gandhi had expressed that man is part of nature and she functions according to her own set of rules. His faith in Advaita had developed in him a cosmocentric view. According to Bhikhu Parekh, "Gandhi challenges the anthropocentric view that man enjoys absolute ontological superiority to and the consequent right of unrestrained domination over the non-human world" (Parekh 1989: 196-197).

Next, according to ecologism, richness of life forms are values in themselves. This is extremely close to Gandhi's criticism of modern civilisation with its utilitarian philosophy. Ecologists lament that the materialistic attitude to dominate and plunder has been justified on these grounds. David Pepper lament, 'Our spiritual, emotional, artistic, loving and cooperative sides are neglected.... We lack any deeper moral standards' (Pepper, 1996: 13-14). They, therefore, advocate simple living. The third principle expresses that man can make use of the richness in nature to satisfy his most 'vital' needs. Gandhi too has advocated, very passionately, a life based on needs rather than wants. He has spoken often about the insatiable character of wants. He urged people to understand this and tread carefully. He expressed, "Nature has enough for the need of all, but not enough for the greed of one."

The fourth principle expresses how man's interference in the non-human world is excessive. This Gandhi has spoken of this when he advocated his alternative model of development. It is in association with the exploitation and overuse of resources by humans to satisfy their wants. He has warned mankind that resources are finite and unbridled exploitation of it will lead to man repenting his actions. Fifthly, Naess has said that flourishing of human life and cultures is compatible with substantial decrease in population. Gandhi has expressed that man's life must be need based. This in turn will limit his dependence on nature and her resources. He also advocated Brahmacharya for the purification and strengthening of the mind as well as the body.

The sixth principle says that fundamental changes in economic and technological policies are required to change the situation now. It was way back in the first decade of the twentieth century that Gandhi had warned the world regarding the developmental policies of modern civilisation. He referred to these policies as 'khudaro', as they were violent, exploitative and destructive. A drastic change in these policies were recommended urgently by him then. Seventhly, ecologism advocates that the quality of life mattered more than its standard. Gandhi advocated non-violence, peace, simpleness. He felt man need to be in touch with his land, people and his surroundings. Thus, he advocated a frugal, need based life which would allow man to do all this as he will not be caught in the heart wrenching and cut throat competition of modern civilisation. The eighth principle urges those who have faith in the above principles to implement them. Gandhi preached only that which he practiced. There are many incidents in his life where he has confessed to developing certain abilities first and then preaching to the masses to imbibe them.

After having compared Gandhian philosophy and ecologism, we can safely come to the conclusion that Gandhian principles form the base of ecologism. In fact, Arne Naess has accepted the impact of Gandhian philosophy on him. It is the reality that Gandhi was a farsighted human being who deserves to be called 'the environmentalist before environmentalism'. He had to face the backlash of many including his political mentor for his views. But today we are at point in time when Gandhian environmentalism is the only way forward. Gandhi, therefore, is the real Pioneer of Ecologism.

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Sustainable Development: A Necessity of the Contemporary World**Dr. Mahesh Jaiwantrao Patil,**

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Abstract:

The concept of sustainable development (SD) has gone under various developmental phases since its introduction in contemporary world. The historical development of the concept has seen the participation of various organizations and institutions on the implementation of its principles and objectives of SD. This concept of SD experienced different criticism and interpretations over the time. Still, it is difficult to define it. The definition of SD has become one of the most cited definitions in the literature. In the 21st century, there is a discussion about sustainable development in political, administrative, politician, policymakers, bureaucrats, the common man, and in academic circle.

During the last few decades, the contemporary world has observed a remarkable upsurge of concern about the sustainability of economic development over the long run. Considerable effort has been invested by the contemporary world in the design of an analytical framework. It can be used to think about policies and programmers that promote sustainable growth at all level. The concept of Sustainable Development has implied several methodological challenges to define what it means.

Keywords: Sustainable Development, Environmental Degradation, Global climate change, Inclusive Development, Globalization, Sustainability Challenges.

Research Method:

A qualitative and library-based research method used to analyze the historical development of Sustainable Development concept and how the Sustainable Development concept is developed.

A) Data Collection-

The following sources of data used in writing this research paper.

1) Secondary Sources:

(A) Relevant reference books and research articles.

Note on Reference:

The researcher has used the 'in-text' method for citation, mentioning the surname of the author, year of publication and page number at the end of the sentence. At the end of the research paper, full bibliographical reference was given in the following manner: Author, Year of publication, Title of the work in (Italicized), Place of publication, and Publisher.

Introduction:

Overall development of humanity, from top to bottom level that includes rural and urban area, over the last decades has led to the increasingly unfavorable climate changes, natural disasters, wars and political and socio-economic instability. Action of humans has negatively impacted on the environment at all level. As a result, it will be dangerous to survival of the Earth for the future generations. These conditions have indicated changes in the behavior aiming at towards more rational and efficient management of all resources. Such responsible will ensure the long-term exploitation of natural resources.

Origin of Concept:

The term SD began to gain wide acceptance in the late 1980s, after the publication of (The World Commission on Environment and Development Brundtland Commission) 'The Brundtland Report'. As a result of a United Nations-convened commission created to propose "A global agenda for change" in the concept and practices of development. The Brundtland report suggested to the contemporary world that there is a need to re-

thinking our ways of governing and living. The concept of SD emerged around seventh and eighth decades of twenty century.

Definition of Sustainable Development:

- 1) Bruntland Commission defines SD as “Development that meets the needs of the present without compromising the need of future generations to meet their own needs” (Bruntland Commission:1987:08).
- 2) Brice Lalonde (Former Minister of the Environment in France), defines SD as “It refers to how the economy should enable us to live better lives while improving our environment at globalised world”(Strange & Bayley: 2008:31).

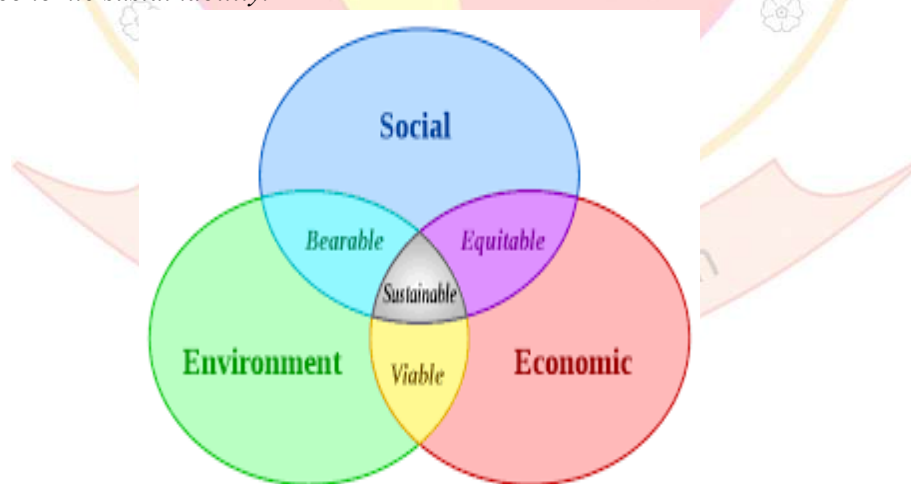
Meaning of Sustainable Development:

It is safe to state that there is not a single, commonly accepted meaning or concept of SD, how to measure it, or even less on how it should be promoted. It is based on the concept of development that includes socio-economic development in line with ecological constraints. The concept states that there is a need of redistribution of resources to ensure the quality of life for all. The concept is stand for future generations. It concerns about the possibility of long-term usage of resources to ensure the necessary quality of life for future generations. SD meets the needs of the present world without compromising the ability of future generations at any cost to meet their own needs. SD is the principle which stands for meeting human development goals. It has the ability to provide the ecosystem services and natural resources.

The concept of SD must be understood in terms of human needs, rights and responsibility towards the environment. It implies the fulfillment of several conditions such as preserving the overall balance, respect for the environmental laws, and preventing the exploitation of natural resources. Reduced production of waste and energy consumption must also be implemented at all level.

In nutshell, SD means the use and exploitation of today's resources in such a manner that these resources will be available for use by future generations. In true words, ‘consumption today with to- morrow in mind’.

The main theme of the concept of SD derives from the *Triple bottom line (TBL) concept*, which means the balance between three pillars of sustainability. These three pillars are environmental *sustainability*, *social sustainability*, and *economic sustainability*.



Source of Image: Concept of sustainable development: <https://www.google.com>, last accessed on 15/07/2021

- *Environmental Sustainability:* It focuses on maintaining the quality and level of the environment which is necessary for economic developmental activity and quality of life of people. It is responsible interaction with the environment. It avoids degradation of natural resources. It also allows for long-term environmental quality.

The practice of environmental sustainability assists us to maintaining the good quality and healthy environmental life. When we look at the natural environment, we see that it has a remarkable ability to refresh itself and sustain its capability. When nature is alone, it has a wonderful capacity to care for itself. When men use many of the natural resources provided by the environment. Human actions can reduce natural resources, and without the application of environmental sustainability, long-term capability can be compromised.

- *Social Sustainability:* It strives to ensure human rights and equality among all. It preserves of cultural identity, respect for cultural diversity, race and religion. It is one of the three disciplines of sustainability. It is a important community's wellbeing and longevity. It is largely neglected in mainstream SD debates. Priority has been given to environmental and economic sustainability. Because economic sustainability provides planning, housing and investment, whereas environmental sustainability has focused on renewable resources, encouraging pro-environmental behaviour in households and low carbon communities.

A community is composed of male and female (people). Communities must be socially sustainable. It cannot be created simply through the physical drawing of the community. Physical design cannot ensure that communities families and individuals. It will lead environmentally sustainable lifestyles.

- *Economic Sustainability:* It is necessary to maintain the natural, social and human capital required for income and living standards. It is the ability of an economy system to support a defined level of economic production effectively and indefinitely. It makes use of the well-known requisite for economic growth, extends the (produced) capital, and capital maintenance.

Complete SD is achieved only after the maintaining a balance between all these pillars. The important thing is that required condition is not easy to achieve. In the process of achieving decided goals of SD, in each pillar of sustainability must respect the interests of other pillars.

Challenges of the Concept of Sustainable Development:

The Contemporary World is facing challenges in all three dimensions of sustainable development i.e. economic, social, and environmental. More than 1.5 billion people across the world are still living under the extreme poverty line. There is an issue of income. There is an inequality of income within and among many countries. Unsustainable consumption and production of materials patterns have resulted in huge social and economic costs. It may endanger life on the planet on the Earth.

The main challenges to SD are global in character. It includes poverty, climate change, humanitarian aid, unemployment, building strong institutions of governance, inclusive societies, building peaceful, and supporting the rule of law.

Achieving decided goals of SD will require global actions to deliver on the legitimate aspiration towards further economic and social progress. It requires growth and employment, and strengthening environmental protection.

Conclusion:

SD must provide a solution of basic human needs. It should incorporate environmental development and protection, ensuring social self-determination and cultural diversity, achieving equality, and maintaining ecological integrity at all level. Although the concept of SD has undergone certain changes during the past decades. Its fundamental principles and goals have contributed to a more conscious behavior adapted to the limitations of the environment.

Many international organizations have been involved in implementation of the concept all over the World. It found positive implementation locally, but it did not produce important results on a global level. Because, there are various environmental problems. The concept of SD focuses on a complex global situation, such as population growth, hunger and poverty, wars and political instability, and further degradation of the environment. Many countries are not even close to SD the gap between developed and underdeveloped countries have deepened.

Fundamental constraints of the implementation of the concept of SD are the degree of socio-economic development that many countries have not yet achieved, associated with a lack of technology and financial resources and, but also the multiplicity of economic and political goals on a global level.

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A Study on Environmental Changes and Agricultural Production in Haryana**Mamta (Research Scholar)**

Department of Geography

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Email: mamtakadian15@gmail.com**Abstract**

The present study is an attempt to represent the impact of environmental change on the production of agriculture in the state of Haryana (India). Due to climate change temperature increases, rainfall reduction in the arid plains, production reduction and increases in the monsoon areas and accelerates the glacial melt. Climate change highly affects the agriculture as compared to any other sector in Haryana as well as all over the country. Secondary data has been used from various sources i.e. statistical abstracts of Haryana, Department of economic and statistical analysis, Haryana etc. After the study, it was found that there is a significant impact of climate change on agricultural production in Haryana.

Key Words: Environmental change, Agricultural production, Climate change, Rainfall, Temperature, Crops

Introduction

Environmental change and agriculture are interconnected and affect each other directly or indirectly. Major changes can be observed in the environment via temperature, rainfall, sea level, level of Carbon-dioxide, ozone concentrations etc. On one hand climate change affects agriculture unevenly all over the world while on another hand agriculture contributes towards climate change through the emission of greenhouse gas and by the conversion of non-agricultural land such as forests into agricultural land. The European Union Scientific Advice Mechanism (2020) estimated that 37% of total greenhouse gases are emitted by the food system. In the agricultural sector, climate change has formed a lot of challenges and will continue to do so. Climate change has induced the increase in temperature, rainfall, drought, flood, water logging are adding the pressure on agriculture and food systems. It is accumulating the problems like water scarcity, pollution and soil degradation etc.

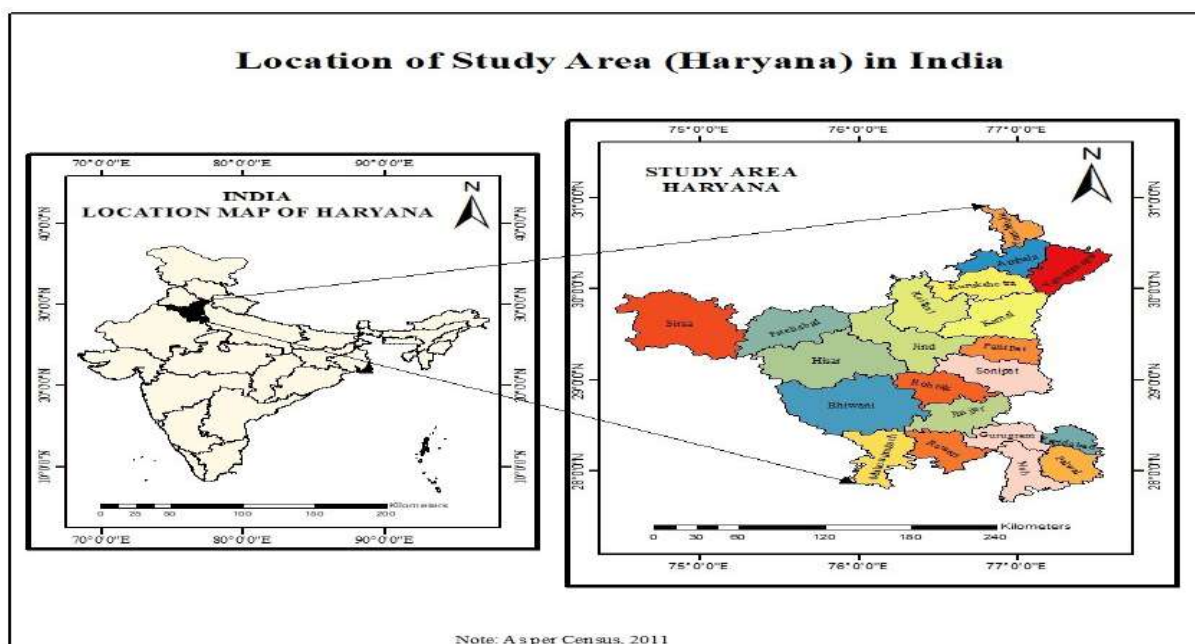
Agriculture represents the most fundamental relationship that exists between society and the physical environment. It is also one of the most significant ways in which society has brought about environmental change. Agriculture contributes a significant share of the greenhouse gas (GHG) emissions that are causing climate change – 17% directly through agricultural activities and an additional 7-14% through changes in land use. It is therefore both part of the problem – and potentially an important part of the solution. Agriculture is the major occupation in India where about 58% population is engaged in agricultural activities.

Objectives

- The main objective of the study is to observe the environmental changes and agricultural production in Haryana.

Study Area

The present research paper belongs to the state of Haryana whose latitudinal extension is from 27°39'N to 30°5'05"N while longitudinal extension is from 74°27'08"E to 77°36'05"E.



Map-1

It is a land locked state surrounded by Delhi, Punjab, Himachal Pradesh, Uttar Pradesh, and Rajasthan. It lies in the northern and western part of India (Map-1) and covers 1.37 percent area of total landmass of the country with 44212 sq. km (17070 sq. ml). The altitude of Haryana varies between 700 to 3600 feet (200 meters to 1200 meters) above the mean sea level. According to the census 2011, there were 21 districts in Haryana but due to formation of a new district now there are 22 districts in 2021.

Database and Methodology

For the present study the data has been collected from secondary sources. Main sources of secondary data used for this research paper are following

- Department of economic and statistical analysis, Haryana
- Statistical abstracts of Haryana
- Indian Meteorological department

Results and Discussion

After analyzing the data, following results have been found:

Table-1
Haryana: Area under Major Crops (1966-2014)

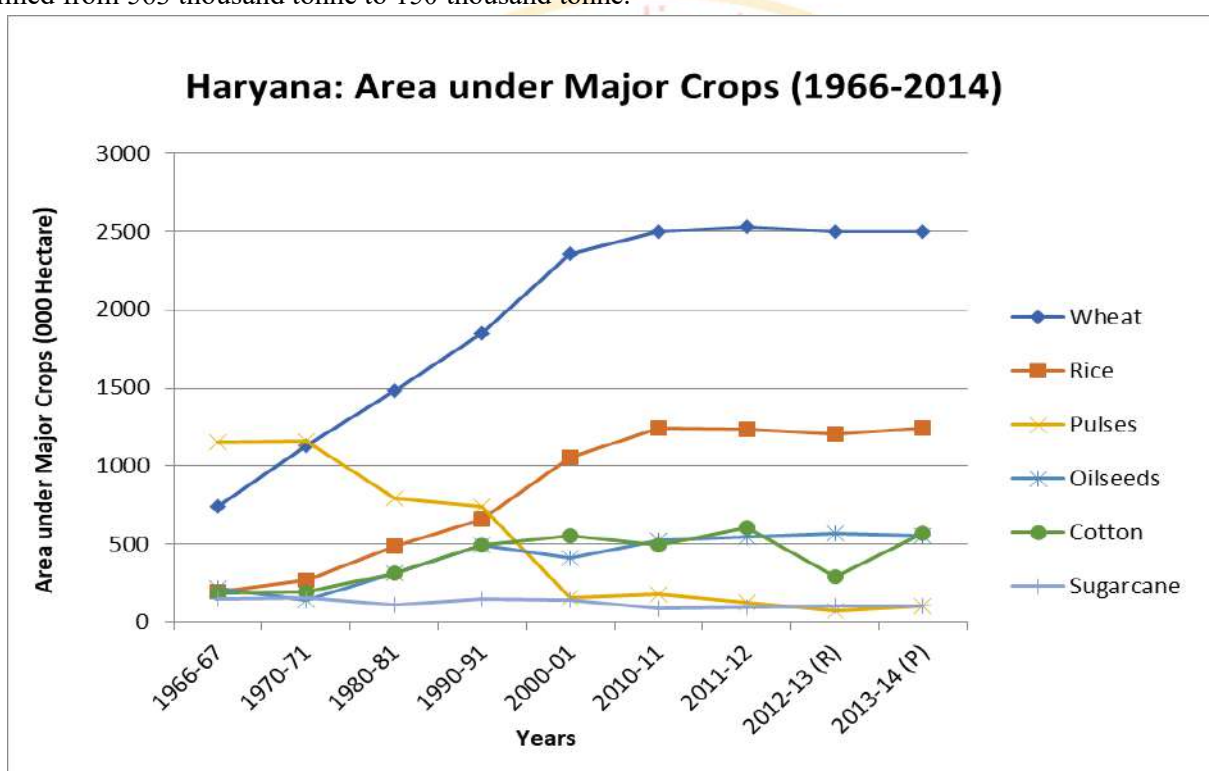
Years	Area (000 Hectare)					
	Wheat	Rice	Pulses	Oilseeds	Cotton	Sugarcane
1966-67	743	192	1150	212	183	150
1970-71	1129	269	1159	143	193	156
1980-81	1479	484	795	311	316	113
1990-91	1850	661	742	489	491	148
2000-01	2355	1054	157	414	555	143
2010-11	2504	1243	176	521	493	85
2011-12	2531	1234	123	546	602	95
2012-13 (R)	2497	1206	75	568	293	101
2013-14 (P)	2499	1245	105	549	564	102

Source: <http://esaharyana.gov.in/Portals/0/Booklet-on-Haryana-Economy-2015.pdf>

Note: (R) - Revised
(P) – Provisional

In the present study, wheat, rice, pulses, oilseeds, cotton, sugarcane has been studied. The highest growth has been noticed from 1966-67 to 2013-14 in the area of wheat which was 743 thousand hectare in 1966-67 and enhanced to 2499 thousand hectare in 2013-14 (see table-1). As the area increase so the production also increased from 1059 thousand tonne to 11800 thousand tonne (see table-2/Graph-2). The area of rice reached from 192 thousand hectare to 1245 thousand hectare (table-1/Graph-1) and the production of rice increased from 223 thousand tonne to 3998 thousand tonne (table-2/Graph-2). The production of oilseeds reached from 92 thousand tonne to 899 thousand tonne. Cotton production increased from 288 thousand bales to 2017 thousand bales from 1966-67 to 2013-14.

It was analyzed that the production of major crops increased except pulses. The main reason behind the reduction was that the cropped area of these crops also reduced. In 1966-67 pulses were grown on 1150 thousand hectare but it was only 105 thousand hectare in 2013-14 and due to this the production of pulses declined from 563 thousand tonne to 150 thousand tonne.



Graph-1

Source: Table-1

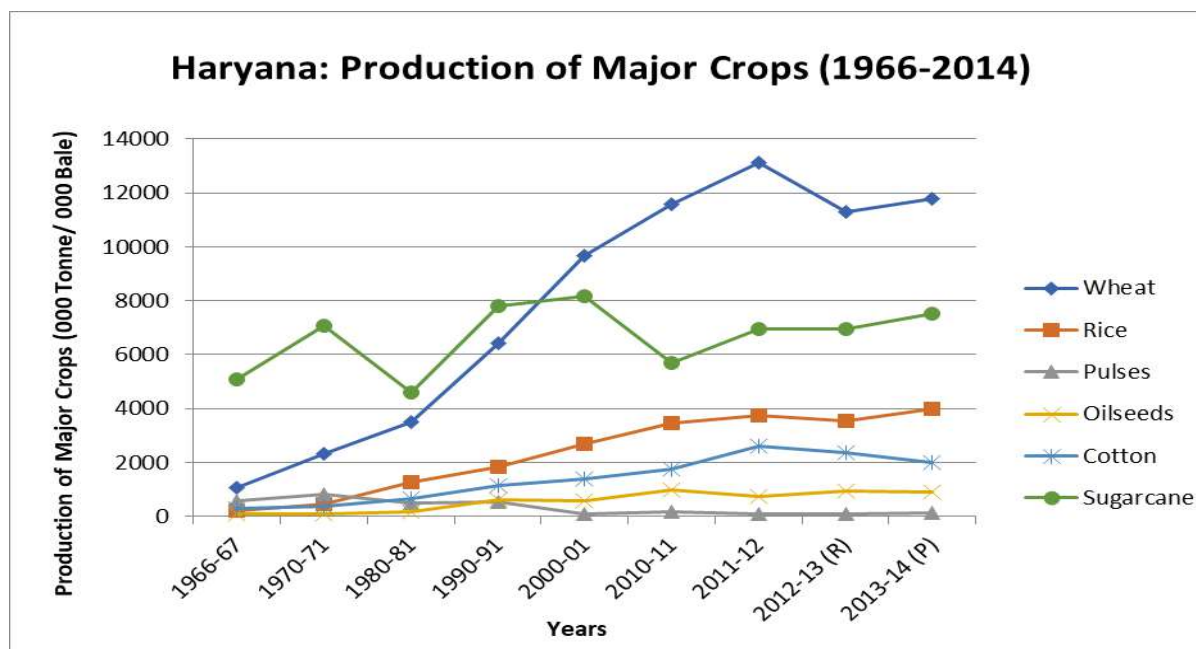
Table-2
Haryana: Production of Major Crops (1966-2014)

Years	Production (000 Tonne) / for Cotton (000 Bales of 170 Kg. each)					
	Wheat	Rice	Pulses	Oilseeds	Cotton	Sugarcane
1966-67	1059	223	563	92	288	5100
1970-71	2342	460	832	99	373	7070
1980-81	3490	1259	503	188	643	4600
1990-91	6436	1834	542	638	1155	7800
2000-01	9669	2695	100	563	1383	8170
2010-11	11578	3465	153	965	1747	5707

2011-12	13119	3757	107	755	2621	6959
2012-13 (R)	11275	3523	78	954	2378	6950
2013-14 (P)	11800	3998	150	899	2017	7499

Source: <http://esaharyana.gov.in/Portals/0/Booklet-on-Haryana-Economy-2015.pdf>

Note: (R) - Revised
(P) – Provisional



Graph-2

Source: Table- 2

Table-3
Rainfall and Temperature variation in Haryana (2000-2012)

Years	Average Annual Rainfall (mm)	Maximum Annual Temperature Variation
2000	516	35.1
2001	547	31.2
2002	487	37
2003	687	36.6
2004	535	38
2005	596	35.2
2006	438	36.3
2007	390	35.3
2008	637	43
2009	337.5	43.5
2010	598.1	44.4
2011	433	41.4
2012	216.1	42.8

Source: Indian Meteorological department

During 2000-2012, the maximum annual rainfall has been recorded 687 mm in year 2003 and after that it declined and noted down the minimum rainfall 216.1 mm in year 2012. It shows that the climate change is affecting the rainfall and the reduction in rainfall is responsible for the low agricultural production in Haryana. The maximum temperature was observed in 2010 which was 44.4° C while the minimum has been recorded in

31.2° C in 2001. The continuously fluctuations in temperature is an alarming sign for agriculture because all crops need appropriate temperature and rainfall.

Conclusion and Suggestions

The climate change adversely affects the agriculture of Haryana which mainly depends on rainfall. Due to change in climate there is increase in uncertainties in rainfall (heavy rainfall on inappropriate time/ low rainfall in appropriate time). During heavy rainfall crops ruined due to more availability of water while during draught crops dried up due to less availability of water and high temperature and there is no policy or agenda to overcome this problem. To overcome the impact of climate change on agriculture some suggestions are introduced.

- To overcome the loss from environmental change on agriculture, crop insurance is necessary
- Such type of seeds to be introduced to the farmers that cannot be much affected by the environmental change
- Farmers should be warned at early time about the weather conditions so that they can choose the alternative way to protect the crops from environmental change
- To focus on such crops those are less sensitive to environmental change
- Agricultural production contributes a lot to green house gases' emission and that is a major reason of climate change. So we have to reduce it by not using chemicals, by using manures instead of fertilizers and adapting organic farming

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Impact of Natural Environment in Shakespeare's Plays: A Selective Survey

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Abstract

Natural environment plays an important role in Shakespeare's plays. Shakespeare recognizes the limits nature imposes on human exploitation, the necessity of conserving the bio-integrity of ecosystems for human and non-human benefit and the earth's absolute power to overrule human attempts at domination. His environmental awareness is reflected in his depiction of natural world and use of ecological settings and landscapes in some of his plays where he manages to put to the fore a complex, changing, and interactive relationship between man and nature. King Lear, Hamlet, Romeo and Juliet, As You Like It, A Midsummer Night's Dream, The Winter's Tale and The Tempest etc. are embedded with a remarkable amount of environmental reference that explicitly displays some degree of ecological sensitivity. Shakespeare's plays offer us warnings of the follies of human excess, greed and power, but he also shows us opportunities for salvation. Thus, truly he is our eco-contemporary and can be related to our environmental literacy as in many of his plays we find the early modern environmental shifts.

Keywords: Nature, environment, man, Shakespeare, plays.

Through its varied representations of nature, literature has enabled us to reshape and broaden our sense of a sustainable environment. Moreover, by problematizing and discussing environmental issues it has urged us to revisit our cultural values and assumptions about nature and its conservation. Therefore, literary studies with relation to environmental representation in texts can be instructive and upgrade our awareness of the natural world. The reading or understanding of literature with an environmental perception is important as apart from scientific research and publications the environmental humanities which also include literary scholarship and representation can create a society of ecologically sensitive and caring human beings. In this regard, Shakespeare in whose lifetime forestry was in crisis can be considered a major *exemplum* from the literary past.

Indeed natural environment plays an important role in Shakespeare's plays. The weather was a particularly important topic in Shakespeare's lifetime due to the devastating crop failures that were characteristic of the harsh climate of the Little Ice Age (the cool period between the fourteenth and the eighteenth centuries). The harvest failures, famine and disease mentioned by Titania in *A Midsummer Night's Dream* were all too real. He wrote when early capitalism, globalized trade, and colonialism were beginning to extend western and masculine ideals of conquering nature around the world. Responding imaginatively to these developments, Shakespeare recognizes the limits nature imposes on human exploitation, the necessity of conserving the bio-integrity of ecosystems for human and non-human benefit and the earth's absolute power to overrule human attempts at domination. His environmental awareness is reflected in his depiction of natural world and use of ecological settings and landscapes in some of his plays where climate acts as an agent of fate.

In *King Lear* that conveys the 'eco-phobia' of an audience traumatized by 'bad harvests' and 'cold weather' and the play proves particularly vivid in its foregrounding of environmental unpredictability and in its dramatization of a fear of nature. Shakespeare here presents the influence of weather upon man and of man upon weather in an acute awareness of the environmental problems posed by man's behaviour. In this play thunder, water and wind, the agents of truth in Shakespearean plays wake up Lear and at last make him a self-conscious, clear-sighted man. Lear's final moments, when he breathes his last while searching for Cordelia's breath, eventually dramatize the centrality of moving air—the Greek *pneuma*, which means both 'wind' and 'breath'—in the creation of a coherent, yet ever-shifting, self.

The wind is both a generative and a destructive force, depending on man's ability to adapt and evolve. Climate, here, bridges the gap between man and nature. It becomes an actor and is no longer a simple excuse for powerful stage effects. It is a force to be reckoned with, a major element of the world's balance.

Ultimately, if climate owes nothing to supernatural causes, it proves an experimental, technical and a sensual experience at the same time. Lear's exclamation, "Blow, winds, and crack your cheeks!" (III.ii.1) is nothing but the assertion that the weather is presented in an anthropomorphic way in *King Lear*.

While thunder had natural causes in early meteorology - Aristotle claimed that it arose from a 'collision' between dry and moist exhalations - the wrath of God was often invoked to account for the occurrence of natural calamities. In Shakespeare's play, there is no God behind the storm. Thunder is the voice of a harsh nature endowed with human features. Thunder acts as a consciousness-raiser, which leads Lear to a new understanding of the reality around him. He is literally enlightened by the flashes of lightning when the sun had always blinded him. So, it seems that Shakespeare refuses and refutes any idea of divine intervention: far from being supernatural, as is sometimes apparently the case in *The Tempest*, a play of indefinite setting. (Vaughn 73)

Reading Shakespeare's supernatural play, *The Tempest* we cannot help but become aware of man and man's fate on the island. *The Tempest* is set in an environment which is ecologically most attractive but is dangerously vulnerable to human manipulation and exploitation. Parabolically, the storm and its violent effects on humans and nature may be regarded as a graphic representation of the kind of fears and anxieties that we today face through the destruction of the environment. If one were to reread this storm episode analogically by relating it to our own time, one would tend to see an allegorical affinity between Prospero's manipulation of the forces of nature for a destructive purpose and our abuse of nuclear power, which poses an apocalyptic threat to the life and environment on Earth. Man's harmony with his natural environment is constantly being undermined and could be lost irretrievably. The mysterious and supernatural nature of the island is reinforced by the "subtleties o' the isle" (Sherwood, 67) these subtleties being Prospero's magic, nature, and the environmental conditions of the island. Much of what we learn about the ecological aspects of the island is from descriptions by the characters: 'this most desolate isle' (Ariel, III. ii. 80), 'this bare island' (Prospero, Epilogue, 8), and 'this fearful country'. (Gonzalo, V. i. 106)

Wolfgang Clemen is right when he writes in *The Development of Shakespeare's Imagery*, the natural scenes of action have a deeper meaning and that "the enchanted island which becomes vivid through such a wealth of single features and of concrete touches is more than merely a well-chosen locality." (182) The natural scenes in *The Tempest* represent an environment which acts upon men as they act upon it. Prospero, the enchanter of the island conjures up the storm which sets all subsequent events in action in which he, by supernatural means controls nature. Clemen rightly notes that this not only applies to the storm itself...but it also holds good of the majority of the plants and animals mentioned. The negative capability we find in *The Tempest* allows us to read the play in context to our current era and reflect upon our own interactions with nature.

The interactions between man and nature are a delicate and intricate balance. Just as we do not know fully the consequences of our actions upon the environment or how it will react in response, we do know that we need to leave something of nature behind, and allow the environment which we have damaged to heal. Prospero was aware of this, and we must be also. There is still time for us to drown our own books and allow our indulgences to set us free.

Up to a certain point, these calamities must have been familiar to Shakespeare's audience, as had already been the case with *A Midsummer Night's Dream* where he manages to put to the fore a complex, changing, and interactive relationship between man and nature. *A Midsummer Night's Dream* almost immediately starts with a reference to the moon, "how slow / This old moon wanes," (I.i.3-4), and what is described as a "cold fruitless moon" (I.i.73) by Duke Theseus that influences the weather on earth (the sublunary world) and in the play one of the main tasks of the moon Goddess consists in "decking with liquid pearls the bladed grass" (I.i.211) i.e. in spreading humidity in Athens and its green surroundings. In this play the weather is clearly disturbed by human behaviour - human, because Titania and Oberon are constantly belittled and treated as mortals. On the contrary, in *Romeo and Juliet*, weather dictates the mood and the fate of the characters, and the dog days described in the play signal the forthcoming end of the eponymous lovers.

Despite the environmental pressures of the age, Shakespeare offers us pastoral and Eden-like ideals. His woodlands are as much places of merry misrule as they are a location for nature's untamable force. *As You Like It* is embedded with a remarkable amount of environmental reference that explicitly displays some degree of ecological sensitivity. It's striking to find the exiled Duke who greets the hardships of forest living with joy by finding 'tongues in trees, books in the running brooks, sermons in stones, and good in everything'. (II.i.1-17) The Forest of Arden, in which the action of the play is set, in fact becomes an ambivalent epitome of the natural world; it is not only idealized and romanticized in pastoral terms but also depicted as a kind of wilderness manipulated and exploited by human beings. Hence, it becomes a metaphorical amalgamation of the pastoral, on the one hand, as a stylized and literary environment and the wild on the other as a biotic formation of the physical environment.

All this concern with the ecological and environmental nature of the Forest of Arden reaches a climax at the end of the play when the ecologically oversensitive Jacques who, like the old shepherd Corin is portrayed as ecologically the most sensitive character in the play protests that ecologically it is unacceptable "to fright the animals and to kill them up / In their assign'd and native dwelling-place" (II.i.62-63) and decides not to return to the court together with the Duke Senior and the others, but to continue to live in the forest as an anchorite. (V.iv.192, 194-95) Obviously, from an environmental point of view, Jacques's ultimate adoption of an ascetic way of life in the natural setting of the Forest of Arden can be regarded as a graphic indication of Shakespeare's own ecological sensitivity somewhat unusual for his time. The ecological sensitivity displayed by Jacques and parodied by Rosalind as such can also be seen in the environmental attitudes of the other urbanites in the play.

In *The Winter's Tale* Shakespeare presents through a pastoral setting a similar kind of dichotomy which involves another juxtaposition of the country and the court in terms of moral values and excellence. Through the story of Perdita virtuous naturalness is set against courtly artificiality. Perdita who has grown up as a pastoral beauty 'of most rare note' (IV.ii.43) in a physically unpolluted and unspoiled environment has been tutored by nature whereby she has become the moral embodiment of a naturalness which is unpolluted by corrupt courtly artificiality. Hence, her immaculate physical beauty metaphorically manifests her moral perfection which is revealed through her humility, chastity, hospitality, generosity, self-restraint, inborn nobility, and prudence.

Although in Ophelia's catalogue of flowers in *Hamlet* Shakespeare uses the flowers as a metaphorical reference in order to illustrate from Ophelia's point of view certain human characteristics such as faithfulness, infidelity, repentance or frustrated love his choice of them certainly indicates some careful observation of the natural world and a closely sensitive relationship with it. Also the depiction of Ophelia's suicide by drowning herself in the water of a stream is given through the description of a setting which is ecologically attractive but has a treacherous layout. But here Shakespeare seems to have intended to play down the horror of Ophelia's tragic death and turns the scene into a pleasance where Ophelia with her garland of flowers and her touching song becomes part of nature and ultimately attains peace and comfort in it through death.

Last but not the least Shakespeare reflects modern ecological awareness partly by referencing the period's unusually volatile weather, caused by hemispheric cooling. Titania's allusions to drowning rains and killing ice in *A Midsummer Night's Dream* (II.i.82-114) voice Elizabethans' perplexity at these seasonal disorders. Today her account speaks to global-warming calamities that are making improbable weather commonplace, and challenging us to rethink what is climatically real or normal.

Thus, Shakespeare's plays offer us warnings of the follies of human excess, greed and power, but he also shows us opportunities for salvation. Characters tend to change when they spend time in forests; relationships heal and families are brought back together. There is no iota of doubt that Shakespeare is truly our eco-contemporary who can be related to our environmental literacy as in many of his plays we find the early modern environmental shifts.

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Rural Development in India for Sustainable Future

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Abstract

Agenda 2030 relies on seventeen sustainable development goals and 169 targets supported by the United Nations as a global effort to manage current challenges related to poverty, climate, environmental population, prosperity, peace, geographical inequality and justice. They have been adopted by member states at the UN General Assembly summit in September 2015. India is a signatory to this summit and is strongly committed to the 2030 agenda. But it is very challenging for India to achieve this goal.

India is a country of innumerable contradictions. On one hand the industries, businesses and urban areas are thriving and are fanning our economic growth engine considerably (except recent pandemic condition) but on the other hand the position on the agricultural front in the rural areas is exactly opposite. The share of agriculture in GDP is being dragging down continuously but dependence of the population is still considerably high. In fact, agricultural development should be the priority to achieve the goal of sustainable development in India, where about 2/3rd of the population still lives in rural India with agriculture as its livelihood. The objective of this research paper is to study the challenges of sustainable rural development in India. Further it aims to know the importance of agriculture in sustainable rural development. This paper attempts to tackle and explore the issues of sustainable development in rural India. It also tries to give long term solutions to solve the issues regarding to rural sustainability in India.

Keywords: sustainable development goals (SDGs), rural development, social equity, marginal farmers, urban-rural linkages, socio-economic equity.

Introduction

Agricultural development should be the priority in India to achieve the goal of sustainable development where about 2/3rd of the population still lives in rural India with agriculture as its livelihood. In India, Agricultural sector has made considerable progress in some regions in the last few decades with its large resources of land, water, and sunlight. But this progress is not sufficient nor sustainable. Additionally, due to regional disparity the progress is not equally distributed throughout the country.

Even today, 28% of rural population is still living below poverty line (Ministry of Social Justice and Empowerment Government of India-2018) and is the focus of rural development programs. Rural development aims at the quality of life that is the key factor of sustainable growth in the effectiveness of the agricultural production to achieve enhance production and productivity in rural areas. There must be balance in social, economic and ecological development. Main target of sustainable rural development is to improve the ecological environment so that it may lead to growth and happiness. This also encourages community participation in the process of development.

Objectives

1. To understand the need for sustainable rural development in India.
2. To understand the existing approaches and strategies that encourage Rural Development.
3. To learn about the challenges of Rural Development in India.
4. To suggest long term solutions for Sustainable Rural Development in India.

Research Methodology

The present research paper is fully based on secondary data which is collected from various sources such as various reference books on research, articles, periodicals, journals, reports, magazines and internet websites.

Sustainable development

“Sustainable development is the development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs”.

Sustainable rural development- There are no universally accepted approaches to rural development. It is a choice influenced by time, space and culture. The term rural development indicates overall development of rural areas to improve the quality of life of rural people. In this sense, it is a comprehensive and multidimensional concept, and encompasses the development of agriculture and allied activities, village and cottage industries and crafts, socio economic infrastructure, community services and facilities and human resources in rural areas. So, there are various types of approaches to rural development like Sectoral Approach, Area Development Approach, Integrated Development Approach, Growth Centre Approach and Community-driven development (CDD) Approach. India adopted both the centralized and the decentralized planning models in the process of planned economic development (Chapter III. Rural Development Approaches and Strategies in India, n.d.).

Sustainable agriculture, in terms of food security, rural employment and environmentally sustainable technologies such as soil conservation, sustainable natural resource management and biodiversity protection, are essential for holistic rural development. It is essential that the public, private and civil sectors must work together coherently and efficiently for sustainable rural development by improving agricultural sector of the country.

Key Themes in Sustainable Rural Development are:

- Community Participation
- Health and Hygiene
- Water and Sanitation
- Poverty Reduction and Disease Control
- Food Security and Agriculture
- Greater survival prospects for mothers and their infants
- Education and Equal Opportunities for Women
- Conservation and the protection of natural resources and the environment
- Economic Growth and Infrastructure Development
- Policy and Administration
- Science and Technology

The major objectives of the rural development programs are:

- To bring about improvement in the ecological environment.
- To bring about a spatial balance in social and economic development.
- To bring about a greater socio-economic equity.
- To achieve enhanced production and productivity in the rural areas.
- To develop broad based community participation in the process of development.

Initiatives taken by government for Sustainable Rural Development

Every government after the Independence of the country has committed itself to rural development. So, we can say that rural development is a process of transformation from traditionally oriented rural culture towards an acceptance and reliance on science and technology or we can say that rural development as an improvement in the living standard of the masses of low-income population residing in rural areas and making the process of self-sustaining. Rural development can be defined in several ways but for all practical purposes it means helping the poor people living in the villages in their economic development. Various programs have undertaken by the Government of India for the rural development to improve the areas like agriculture technology, education, infrastructure. Several poverty alleviations programs have been launched by the central

government such as IRDP, MREP, TRYSEM, RLEGP, JGSY, Antyodaya Programme, DDP, DWCRA, PMRY, JPRGY, SGSY, etc for the rural poor compromising small and marginal farmers, landless laborers and rural artisans. Right from independence, Government of India has worked through policies and its implementation. Government is also taking efforts and initiatives in the field of technology and infrastructure with very ambitious programs such as Bharath Nirmana Program, Pradhan Mantri Gram Sadak Yojana, National Social Assistance Program, Total Sanitation Campaign, etc.

As discussed above Government of India is taking many steps towards rural development. However, there are many ambiguities, drawbacks in this process. The financial and managerial resources for the implementation of rural development programmes are not sufficient. It is frequently observed that the objectives of one programme contradict with the objectives of others. There is no perfect mechanism for rectifying them. Hence many programmes fail in fulfilling their objectives. In many cases, instruments of rural development are not properly selected, and their levels are not consistent with the objectives they seek to achieve.

Activities Under Process by the Government in Various Areas

1. Integrated Watershed Management Programme
2. Desert Development Programme
3. Drought Prone Areas Programme
4. Integrated Wastelands Development Programme
5. Watershed Development Programmes
6. Rural Development Activities in North-eastern Region.
7. District Rural Development Agency (DRDA) Administration
8. Provision of Urban Amenities in Rural Areas (PURA)
9. Agriculture and Rural Development

Challenges of Sustainable Rural Development in India

- Poor agricultural productivity in India is related to the low use of improved seed, inadequate irrigation, use of inappropriate fertilizer and lack of incentives for farmers in the absence of remunerative markets.
- Climate changes, land fragmentation, natural resource depletion, corruption, political instability and conflict areas will further endanger rural development.
- A linear economy based on “take-make-dispose” model feed by consumerism society is harmful for the environment and long-term sustainability of urban and rural areas. We should be aware of the importance of shifting economic model from linear to an ambitious circular economy framework (https://ec.europa.eu/environment/circular-economy/index_en.htm) based on the 3Rs principles such as “reduce-reuse-recycle.”
- Poor infrastructure and poverty are the main pointers for underdevelopment and environmental degradation. Rural areas must have access to basic public utilities to ensure a good quality of life in areas without significant geographical restrictions. But in most parts in India there is no proper access to the villages.
- Huge rural-urban gaps regarding population access to amenities such as sanitation, electricity, waste management services and drinking water.
- The lack or poor coverage of public utilities across rural regions leads to environmental degradation via air-water-soil link. These are essential services to maintain a standard of public health and to protect the natural environment against daily disturbances caused by human needs and economic activities. Improvement of public services via water, waste management, clean energy, sanitation facilities, digital technologies and road networks will provide the base to build a sustainable development community.
- Most countries in Central Asia are facing a growing urban-rural divide due to a capital city-centric growth model, economic nationalism and water resource disputes. India is also facing this problem.

Strategies and Measures for Sustainable Rural Development

The effective rural developments strategies that must be followed are

1. The Provision of support to the farmer Groups and the associations in order to build their capacity and supporting the farmer unions.
2. By adopting the localized way of distributing the agricultural products.
3. The water management for agricultural production by the utilisation of sprinklers and drips.
4. Involvement of private sector companies for processing and marketing.
5. By proper and effective communication and quality maintenance.
6. Enhancing and improving rural micro finance services and provision for subsidisation for crops.
7. Strategies for the provision of utilisation of technology by farmers.

Sustainable rural development is essential to social, environmental and economic viability of nations. It is essential for poverty eradication since global poverty is mostly in rural areas. The illustration of poverty goes beyond the urban-rural divide, it has subregional and regional contexts. It is therefore critical, and there is great value to be gained, by coordinating rural development initiatives that contribute to sustainable livelihoods through efforts at the global, regional, national and local levels. Strategies to deal with rural development should take into consideration the potentials and remoteness in rural areas and provide targeted differentiated approaches.

- Instead of big agribusiness players, long-term growth policies should be reoriented to favour marginal and small farmers to maintain food security and social equity in rural regions. New urban-rural relations, in terms of organic food production, stimulate nearby farmers to develop non-farming activities such as recreational activities, forest restoration, environmental conservation, tourism or urban-rural migration and to adopt the best management practices.
- The farmers from the remote rural areas of the country have to sell their products in local market or to the intermediaries at low prices. This situation is specific to regions where the dispersion of villages, poor road networks, and the urban concentration of services are hurdles in the development of direct linkages between local rural producers and urban customers. The country needs to raise its rural economy from cheap raw material providers contributed to exports towards manufactured products and services such as food industry, organic farming, renewable energy, agritourism, etc.
- The farmers in remote villages could be able to access price and market information to coordinate input/output resources through digital technologies. These can include transport and logistics, finance, and production techniques which could help to improve agriculture and eventually the rural regions.
- Rural areas can become more sustainable with better urban-rural linkages through improvement of water harvesting, cultivating drought-resistant crops, ecological restoration, combined with better local governance, financial instruments, integrated resource management, sound public services, etc.
- Isolated rural areas have poor coverage of electric grids, high costs of fuel transportation, unsuitable roads, etc. Hence it is beneficial for them to rely on renewable energy sources which are easily available.
- In this context, “Smart Village” is a promising initiative to provide energy access to remote villages as a catalyst development route for other related sectors such as clean water, sanitation, education, healthcare, and gender equity and support the local markets and democratic engagement as specified by SDGs.
- In poor rural areas of the country where energy source is based on wood or dried cattle dung, the bioenergy systems at household level could be a solution in achieving several SDGs with societal and environmental benefits despite of major challenges in implementing such projects at large scale associated with severe poverty, poor education, lack of awareness, social and cultural barriers, etc. Training activities and environmental awareness should fight such barriers.
- Religious tourism, rural tourism, ecotourism and agritourism are complementary economic activities that could further promote rural entrepreneurship while decreasing rural population dependency on main economic sector.

- Rural population should be made capable of absorbing the shocks such as economic disturbances, policy changes, natural events, and insecurity, and successfully managing such risks increases the flexibility of a rural population. Sustainable development based on three basic pillars that are social, environmental and economic could not be achieved without proper education of the rural population.
- The literacy rate is directly proportional to development; thus, full access of educational services should be provided to villages. This will act as a starting point to achieve Sustainable Development Goals in India.

Conclusions

To achieve sustainable rural development in India is a big task. We are far from achieving this goal. The government has taken many efforts since independence for the same through policies and various development program implementation. The government is taking steps towards sustainable rural development but is not sufficient and not in the right direction. To achieve the goal of sustainable rural development across India, proper attention must be paid to the quality-of-life improvement, sustainable agriculture, rural resilience, reduced inequalities and political desire. Rural areas should receive the same attention and opportunities from decision-makers, academicians, and professionals regarding sustainable development policies and investments in infrastructure projects. The suggested strategies would give a proper push to overcome challenges of rural development hence making rural India sustainable in the future.

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Analysis of Vegetation Dynamics Based on Ndvi By Using Time Series Landsat Imagery of Konkan Coast

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Abstract –

The Normalized Difference Vegetation Index (NDVI) is the most widely used satellite-consequent index of vegetation health and density. Since climate is one of the most imperative factors affecting vegetation condition, satellite-derived vegetation indexes have been often used to evaluate climatic and environmental changes at local and universal scale. The proposed study attempted to investigate the temporal vegetation dynamics in the Western Ghat using historical NDVI time-series. **Approach:** For this aim, Time series data obtained from scientific agency of United States named The United State of Geological Survey. The Landsat- 5 & 8 (30m resolution) image of study area has been acquired for the period of 10 year in the month of January-February and October-November with minimum cloud cover. The USGS's Landsat dataset was freely available and gives global coverage over an extensive time period. First of all, the selected NDVI base data had been preprocessing with Level-1 product is Atmospheric or Geometric Corrections with FLAASH Module in Envy 5.3 and with Level-2 product Layer Stacking in ERDAS IMAGINE 2011 software. Computations of NDVI of 2008 to 2018 carried by using mean NDVI surface and standard deviation surface. Several routines had been developed for purpose of applying suitable statistical analysis techniques to the historical information in the database in order to identify the long-term trend components of generated NDVI time-series and extract vegetation dynamics. Specific tests had been then considered in order to define the validity of results. **Results:** The existence of clear regional trends of NDVI, both declining and inclining had been showed, which helped to highlight areas subject, respectively to fall or raise in vegetation greenness. **Conclusion:** As the relationship between the NDVI and vegetation productivity was well established, these estimated long-term trend components may be also, with much more concern, related to historical and ongoing land degradation or improvement processes.

Keywords: NDVI, vegetation health, land degradation, Time series.

Introduction -

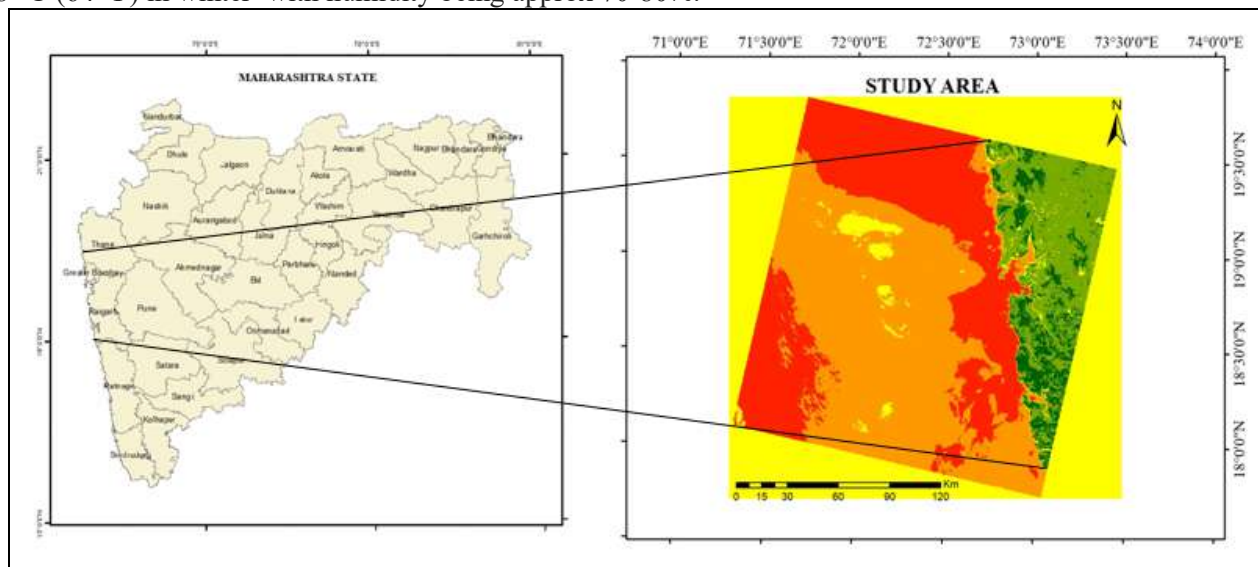
Vegetation is an indication of presence of healthy environment and presence of adequate water resources. We cannot imagine environment without it. Vegetation associates with soil, water and atmosphere. Plants have their existence due to presence of chlorophyll concentration in the leaves. Plants get primary direct light from sun and generate food. Vegetation plays major role in the life cycle and it is directly related to human life and in turn, the human activities also influence their density. Climate is now a global issue (Lioubimtseva and Henebry 2009). Climate changes affect the water resources distribution, which are influenced with changes in precipitation. Rapid change of climate greatly impacts natural ecosystem (water bodies). Many studies suggest that vegetation coverage assist mitigate of soil erosion, drought studies, Landscape disturbances, agricultural activities and need early sign. Seasonal change play key role to study and analyze the vegetation response and climate change, which can improve the quality of environment. Remote sensing has provided data to evaluate environment change research during the past decades and it is helping regional or global base research which is a better option as long term analysis. In remote sensing, the differential response of the vegetation components to the electromagnetic radiations means used to identify their presence as well as the intensity of the vegetation. There are various such techniques which are in use for monitoring health of vegetation. Normalized Difference Vegetation Index (NDVI) is the spectral index i.e., used for detecting the vegetation changes with time. NDVI quantifies vegetation by measuring the difference between near-infrared reflectance (which vegetation strongly reflects) and red light (which vegetation absorbs).

Significance Of The Study-

Time series data analysis for vegetation health assessment has been used to assess changes in biodiversity, to classify vegetation, to examine climate trends, to estimate water content of soils remotely, to monitoring a drought.

Study Area-

The study region, **Konkan**, also known as the **Konkan Coast** or **Kokan**, Sahyadri in the east, the Arabian Sea in the west, the Mayura River in the north is a rugged section of the western coastline of India which lies between latitudes 19°18'39" North and longitudes 73°42'5.23" East. (The largest city on the Konkan coast is Mumbai, the state capital of Maharashtra. It lies within the Konkan division. Mumbai's climate can be best described as moderately hot with high level of humidity. Its coastal nature and tropical location ensures temperatures won't fluctuate much throughout the year. The mean average is 27.2 °C and average precipitation is 242.2 cm (95.35 inches). The mean maximum average temperatures is about 32 °C (90 °F) in summer and 30 °C (86 °F) in winter, while the average minimums are 25 °C (77 °F) in summer and 18 °C (64 °F) in winter with humidity being approx 70-80%.

**Objective-**

- To Analyze Health of Vegetation based on Spectral Index-NDVI over Decadal Period (2008-2018)

Data Source-

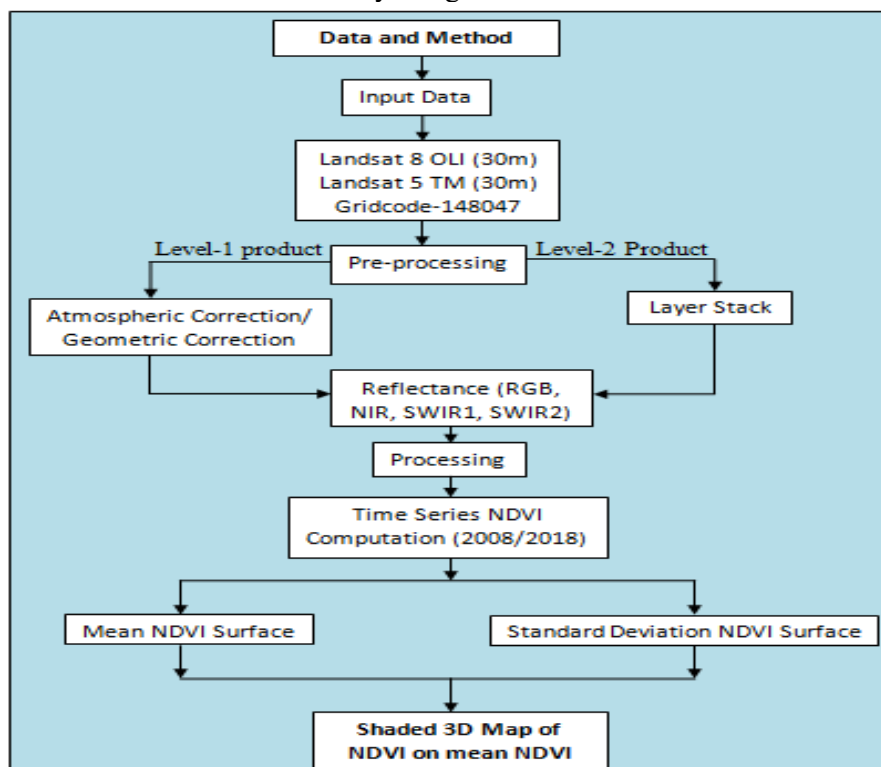
Time series data obtained from scientific agency of United States named The United State of Geological Survey. The Landsat- 5 & 8 (30m resolution) image of study area has been acquired for the period of 2008 to 2018 in the month of January-February and October-November with minimum cloud cover.

Image	Path/Row	Acquisition Date	Band
Landsat 5 (TM)	148/47	27-Apr-2008	1,2,3,4,5,7
	148/47	20-Oct-2008	1,2,3,4,5,7
	148/47	29-Mar-2009	1,2,3,4,5,7
	148/47	24-Nov-2009	1,2,3,4,5,7
	148/47	1-Apr-2010	1,2,3,4,5,7
	148/47	26-Oct-2010	1,2,3,4,5,7
	148/47	30-Jan-2011	1,2,3,4,5,7
	148/47	14-Nov-2011	1,2,3,4,5,7
Landsat 8 (OLI)	148/47	6-Nov-2014	2,3,4,5,6,7
	148/47	10-Feb-2015	2,3,4,5,6,7
	148/47	28-Oct-2015	2,3,4,5,6,7
	148/47	28-Jan-2016	2,3,4,5,6,7
	148/47	27-Nov-2016	2,3,4,5,6,7
	148/47	15-Feb-2017	2,3,4,5,6,7

	148/47	30-Nov-2017	2,3,4,5,6,7
	148/47	18-Feb-2018	2,3,4,5,6,7
	148/47	17-Nov-2018	2,3,4,5,6,7

Methodology-

NDVI time series analysis of 2008 to 2018 was carried out using USGS Landsat 8 and Landsat 5 (30m resolution) data. Preprocessing with Level-1 product is Atmospheric or Geometric Corrections with FLAASH Module in Enviro 5.3 and with Level-2 product Layer Stacking in ERDAS IMAGINE 2011 software. Computations of NDVI of 2008 to 2018 carried by using mean NDVI surface and standard deviation surface.



Result And Discussion-

The current paper aimed at evaluating the use of remotely sensed data to follow the multiyear analysis of vegetation dynamics with the help of NDVI by using Landsat series open satellite data over the time period of 10 years (2008 to 2018). Through this report we observe that class first and second are stable variables possible for bare soil and waste land areas or urban features and class 4 and 5 shows highest change in dense forest area is mostly based on climate. It shows 0.159 to 0.21 for class 4 and class 5 shows 0.21 to 0.48. But near the “Thane creek” area vegetation not much reflected than the other dense vegetation areas.

Fig: Dynamic Change in the mean NDVI of Konkan Coast over a period of 10 year

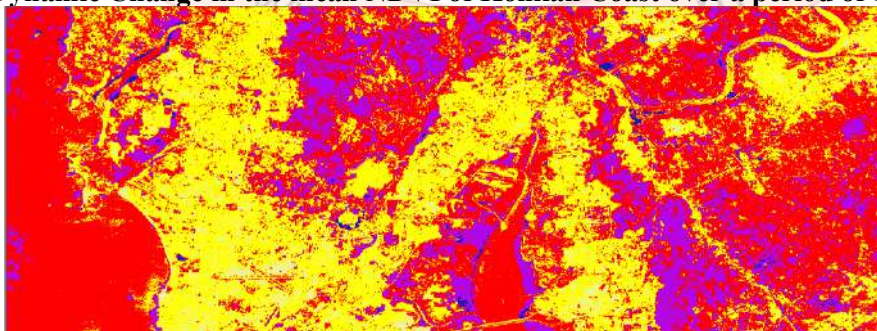


Fig : Mean NDVI image from overall 17 Scene

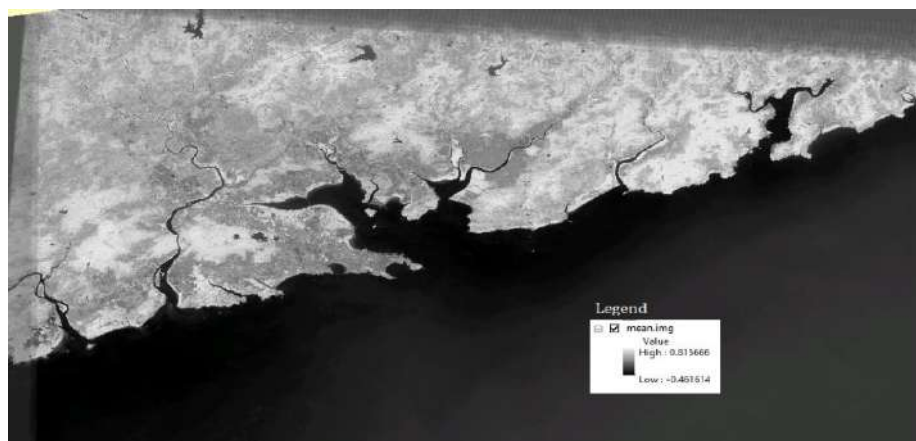


Fig : 3D Shaded relief map of NDVI standard deviation over the entire time period on mean NDVI base surface.

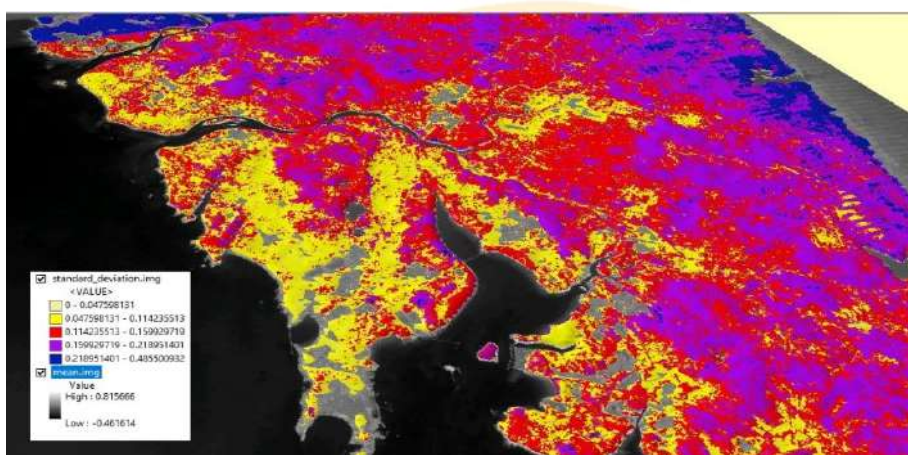
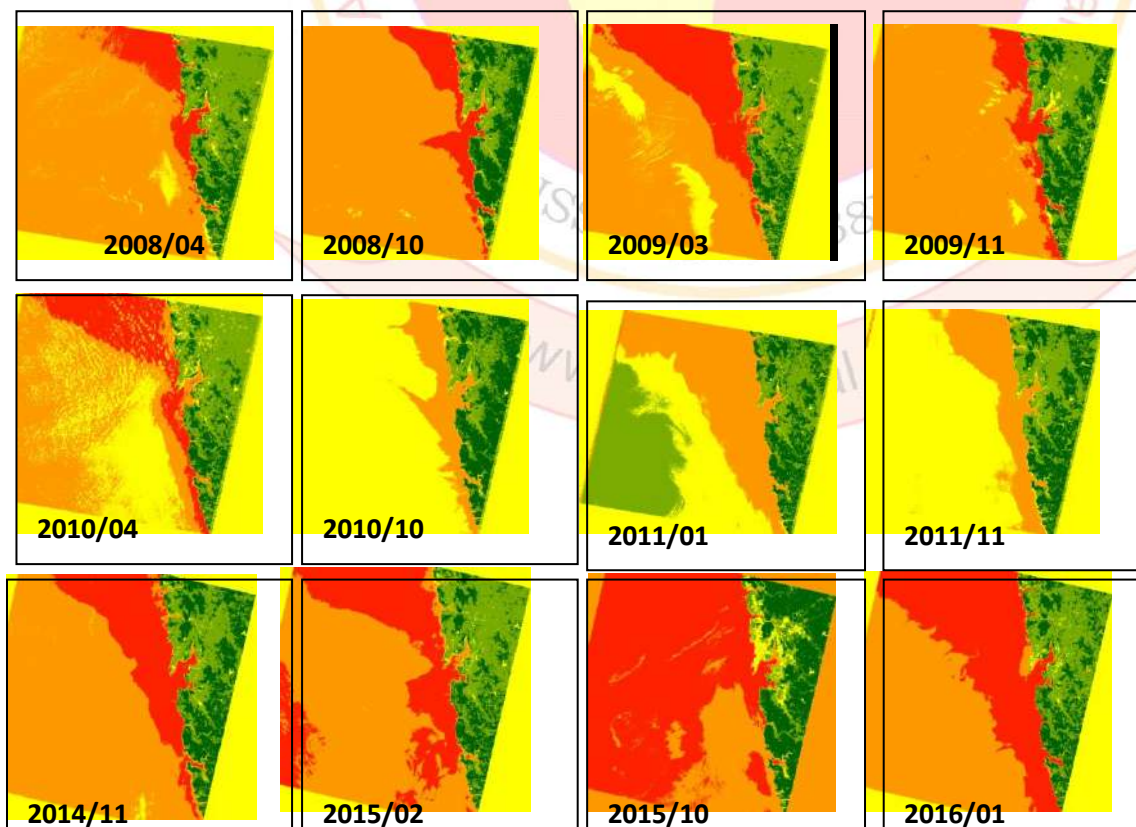
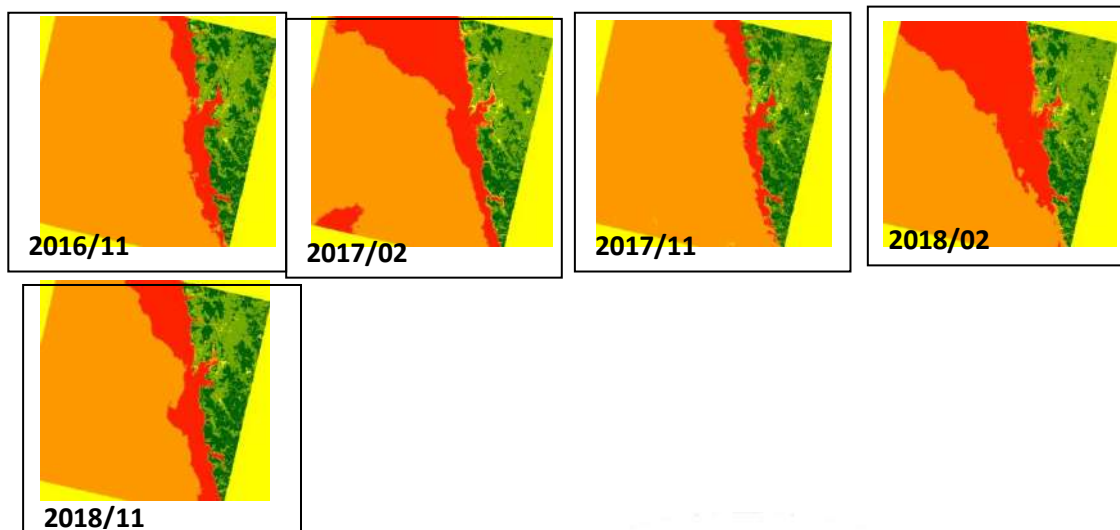


Fig: Dynamic Change in the NDVI of the Vegetation in Entire Time Period.



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Introduction:-

Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment. So that these needs can be met not only in the present, but also for generations to come. The term was used by the Brundtland commission which coined what has become the most often-quoted definition of sustainable development. Sustainable development (SD), “Meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Sustainable development is a way of thinking by which we can secure our present and future generation. In simple sustainable development means ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’

Objectives:-

- i) To study the Nature and concept of sustainable development
- ii) To explain the Natural resources and sustainable development.

Research Methodology:-

The paper is written on mainly secondary data such as relevant books, journals and internet

What is Sustainable Development?

Sustainable development is a way of thinking by which we can secure our present and future generation. In simple sustainable development means ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’

Sustainable development is an organizing principle for human life on a finite planet. It posits a desirable future state for human societies in which living conditions and resource-use meet human needs without undermining the sustainability of natural system and the environment, so that future generations may also have their needs met. Sustainable development ties together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity.

The United Nations world Commission on Environment and Development (WCED) in its 1987 report Our Common Future defines sustainable development,

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

Sustainability Science is the study of the concept of sustainable development and environmental science. There is an additional focus on the present generations ‘responsibility to improve and maintain the future generations’ life by restoring the previous ecosystem and resisting contributing to further ecosystem degradation.

The term was used by the Brundtland commission which coined what has become the most often-quoted definition of sustainable development. Sustainable development (SD), **“Meets the needs of the present without compromising the ability of future generations to meet their own needs”**. The Brundthland Report goes on to say that sustainable development also contains within it two key concepts:

1. The concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given

2. The idea of limitations imposed by the state of technology and social organizing on the environment's ability to meet present and future needs.

The economy of India is the twelfth largest economy in the world by nominal value and the fourth largest by purchasing power parity. In 21st century, India is an emerging economic power with vast human and natural resources and huge knowledge base. Economists predict that by 2020, India will be among the leading economies of the world. We liberalized our economy and make our market global such as think locally and act globally. Our static economy changed viable, Various changes taken place. Every day there is a change so that the world markets become competitive. Revolutionary changes taken place such as close economy to open economy, regulated economy to deregulated economy

Three Constituents of Sustainable Development

- Economic Sustainability
- Environmental Sustainability
- Socio-Political Sustainability

Natural Resources:-

There are two types of natural resources 1. Renewable 2. Non renewable. Humans, animals and other living organism have relied on natural resources for survival since the beginning of time. The conservation of natural resources is important as the world population continues to grow. Natural Resources include water, Soil, Timber, Salt, Oil, Natural Gas, Coal, Iron Bauxite, Helium, Copper etc.

1. Renewable natural resources:- Renewable natural resources are those that can be replaced naturally in our lifetime and used repeatedly. For example freshwater, timber, oxygen and solar energy etc.
2. Non- Renewable natural resources:- A resources that cannot be replaced in our lifetime such as metal ores, fossil fuels, earth minerals and in some certain situations ground water
1. Water:- 70% of the Earth is covered in water and only 2% of that is freshwater. Initiative to educate and regulate the use of water should be taken. Water is an important resources

Requirement of water of different sectors (Demand in billion cubic meter)

Sector	Year - 2000	Year -2025	Year-2050
Domestic use	42	73	102
Irrigation	541	910	1072
Industrial	08	22	63
Energy	02	15	130
Other	41	72	80
Total	634	1092	1447

(Source: Central water commission Basic planning Director Govt. of India)

Table shows that demand of water is increasing day by day

2. Air:- Clean air is important for all the plants, animals, humans to survive on this planet. So it is necessary to take measures to reduce air pollution.
3. Soil:- Soil is composed of various particles and nutrients. It helps plants to grow.
4. Iron :- It is made from silica and is used to build strong weapons, transportation and buildings
5. Forests:- As the population increases the demand for housing and construction projects also increases. Forests provide clean air and preserve the ecology of the world.
6. Coal:- This has the largest reserves left of all the fossil fuels, but as China and other developing countries continue to increase their appetite for coal, demand could finally outstrip supply. As it is we have enough coal to meet 188 years of the global production.
7. Natural Gas:- A similar picture to oil exists for natural gas, with enough gas in proven reserves to meet 58.6 years of global production at the end of 2010.

Natural Resources & Sustainable development:-

The goal of sustainable development is to provide resources for the use of present populations without compromising the availability of those resources for future generations and without causing environmental damage that challenges the survival of other species and natural ecosystems. Sustainability is the practice of using natural resources responsibly. So they can be support both present and future. A renewable resource can be used again and again, so is more sustainable e.g. Water, wind, wood, sun and wave energy. A non renewable resources will eventually run out so it is not sustainable in the long run e.g. Fossil fuels such as gas, oil and coal.

Sustainable management of natural resources is important because it helps to use resources wisely without unnecessary use and without sacrificing on future generations needs. Reuse is better than recycling, since it takes both energy and resources to recycle materials. Sustainable use of resources takes place if our consumption rate will remain indefinitely without affecting the environment. We can achieve this by using renewable resources such as wind and solar energy. Sustainable management of natural resources is important because it helps to use resources wisely without unnecessary use and without sacrificing on future generation needs.

Since resources are largely limited and finite, humans must employ techniques that allow efficient and lasting use of the available resources in the environment. Sustainable development then becomes a tool to help guarantee the continuing and long lasting use of resources.

Contribution to sustainable development of resources:-

We can contribute to sustainable development of resources as under

1. Reduce the material intensity of goods and services.
2. Reduce the energy intensity of goods and services.
3. Reduce the toxic dispersion.
4. Enhance material recyclability.
5. Maximize sustainable use of renewable resources.
6. Extend product durability and increase the service intensity of goods and services

Conclusion:-

Sustainable management of natural resources is important because it helps to use resources wisely without unnecessary use and without sacrificing on future generations needs. Reuse is better than recycling, since it takes both energy and resources to recycle materials. Sustainable development is a vision and a way of thinking and acting so that we can secure the resources and environment for our future generation.

We have to decide whether development means affluence or whether development means peace, prosperity and happiness. Our future depends not on what will happen to us, but on what we decide to become, and on the will to create it.

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मराठीतील निसर्ग कविता

डॉ. सज्जेराव पद्माकर

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मराठी वाङ्मयाच्या यशस्वितेचा विचार करता या साहित्यातील अनेकविध कंगोरे दृष्टीक्षेपात येतात. अगदी प्राचीन काळापासून या मराठी वाङ्मयाने यशाची अनेक दालने आपल्या स्वतःच्या अंगभूत वैशिष्ट्यांनी समृद्ध केली आहेत हे सर्वांना ज्ञात आहे. भाषेतील माधुर्य, तिची सहजता हेच तिचे सौंदर्य व याच तिच्या वैशिष्ट्यांमुळेच अनेक समृद्ध भाषांपैकी एक भाषा झाली आहे. या मराठी वाङ्मयाच्या सुरुवातीच्या कालखंडामध्ये ज्या साहित्य प्रकारातून वाङ्मय निर्मिती झाली तो म्हणजे कविता मराठीतील सर्व माहिती, उपदेश, तत्त्वज्ञान, मार्गदर्शन हे पद्यमयरूपातच सांगितल्या जात होते. पुढं तर साहित्याच्या विविध कला प्रकारांचा विकास होत गेला. त्यामध्ये कथा, कादंबरी, नाटक, चरित्र, आत्मचरित्र, प्रवास वर्णन, लघु निबंध, व्यक्ती लेख इत्यादी वाङ्मयप्रकार निर्माण झाल्याचे दिसून येते. मात्र मराठी वाङ्मय विस्तार पावले ते सर्वप्रथम काव्याच्या रूपानेच हे मात्र मान्य करावेच लागते.

मराठी कवितेच्या या विकास प्रवासात अनेक प्रकारच्या विषयांची मांडणी करण्यात आली आहे. तथापि या विविधांगी विषय मांडणीमुळे सुद्धा कविता विस्तृत आणि यशस्वी झाली आहे. प्रत्येक साहित्याचा केंद्रबिंदू हा माणूसच राहिलेला आहे. आणि त्याच्या सभोवतालच्या अनुभवविश्व आता प्रत्येक साहित्याचा विषय झालेला आहे आणि म्हणून अनेक विषयांपैकी या सृष्टी मध्ये ज्या निसर्गाला अत्यंत महत्त्वाचे स्थान आहे अशा निसर्ग कवितेचा विषय न होईल तरच नवल?

आपल्या लहानपणापासूनच निसर्गाशी निगडित असणाऱ्या कविता मात्र प्रत्यक्ष-अप्रत्यक्षपणे त्यातील आशय हा तुमच्या-माझ्या जीवनाचा म्हणजेच मानवी जीवनाचा भाग झाल्याचे दिसून येते. मग त्यामध्ये 'नाच रे मोरा आंब्याच्या वनात, अरे खोप्यामधी खोपा, सुगरणीचा चांगला, हिरवे हिरवे गार गालिचे, हरित तृणाच्या मखमालीचे, गार गार वारा, अंगावर शहारा, गारवा... अंगावर भिर-भिर करी पारवा..... इत्यादी. अनेक कविता निसर्ग आणि माणूस यांच्यातील परस्परसंबंधांचे शब्द चित्र आणि त्यामधूनच भावना, विचार आणि तत्त्वज्ञान अभिव्यक्त करताना दिसतात. कमळ मराठी कविता निसर्ग यांचे नाते अनन्य साधारण आहे.

जगाचा पोशिंदा म्हणून ज्याच्याकडे बघितले जाते असा माणूस मधील शेतकरी. या शेतकऱ्याचे आणि निसर्गाचे नाते जास्त प्रमाणात जुळते म्हणजे इतर सर्व माणसांच्या तुलनेत शेतकरी हा निसर्गाच्या जास्त सान्निध्यात असणारा व ते एकमेकांचा परस्पर भाग असणारा असा प्रकार दिसून येतो त्याचे वर्णन करताना ना. धो. महानोर म्हणतात-

'या शेताने लळा लाविला असा असा की,
सुख दुःखाला परस्परांशी हसलो-रडलो,
आता तर हा जीवन अवघा असा जखडला,
मी त्याच्या हिरव्या बोलीचा शब्द जाहलो.' १

शेतकरी आणि निसर्ग यांच्यातील अतूटपणा (नात्याचा) कवी या ओळीतून स्पष्ट करताना स्वतः हिरव्या बोलीचा शब्द झालो. हे सांगून स्वतः चही या निसर्गाशी असणारा घट्ट नातं सहज बोलून जातो. हे यावरून दिसून येते. या शेतकरी आणि निसर्गाच्या नात्याचं वर्णन करताना पुन्हापुन्हा वर्णन येते ते पावसाचं, कारण शेती आणि पाऊस या दोन गोष्टी शेतकरी आणि निसर्ग त्यांच्या नात्यातील सातत्य टिकवून ठेवतो. शेतकरी हा गरीब माणूस तो कुणाचंही वाईट चिंतीत नाही त्याला खोटे बोलणे, फसवेगिरी अथवा विचित्र वागणे जमत नाही आणि म्हणून त्याच्या या गोष्टीचा गैरफायदा व्यवस्था आणि परिस्थिती घेत असते. त्यामुळे तो उध्वस्त होत चाललेला आहे मात्र त्याकडे कोणाचेही लक्ष नाही. दासू वैद्य एका कवितेत म्हणतात -

'लांब टाळ-मृदुंगाच्या गजरात,
पंढरपुराकडे निघालेली दिंडी
आणि इथ काळ्या शेतात
मरून पडलेला हिरवा पांडुरंग' २

या चार ओळीतील शेवटची शेतकऱ्यांसाठी वापरलेली बोलकी प्रतिमा शेतकऱ्यांचं उध्वस्त झालेलं आयुष्य आपल्या डोळ्यासमोर आणताना दिसते. तरीही माणूस नावाचा प्राणी हा आशावादी आहे त्यामुळे शेतकरी सुद्धा जास्त आशावादी आहे. कारण त्यांचे संपूर्ण जीवन म्हणजेच शेती संबंधी हे निसर्गावर अवलंबून असल्याने तो निसर्गाविषयी जास्त आशावादी असतो. ललित अधाने हा त्याचा आशावाद व्यक्त करताना म्हणतात.

'केव्हातरी पुन्हा एक
नवा पाऊस पडेल

हिरव पिवळरान
मोत्यान भरेल'३

माणसाच्या आयुष्यात कोणतीही गोष्ट प्रमाणात असावी लागते त्यामुळे प्रमाणापेक्षा जास्त काहीही हे त्रासदायक असते. शेतीच्या बाबतीतही तसंच आहे. पिकाला प्रमाणातच पाऊस लागतो अन्यथा पीक पिकत नाही मात्र तरीही शेतकरी आशावादी आहे हे वरील ओळींवरून समजते.

“प्रेम” हा माणसांचा स्थायी स्वभाव विशेष आहे. तसा तो प्रत्येक सजीव प्राण्याचा आहे. मात्र माणवेतर प्राण्यांना तो व्यक्त करण्यासाठी माणसाला जशी भाषा आहे तशी नाही. मात्र, प्रेम व्यक्त करणे हा सजीवांचा विशेष आहे. अशा या प्रेमाचं वर्णन सुद्धा निसर्ग प्रतिमा मधून येताना दिसते. मोतीरामकटारे म्हणतात.

‘झाडे करीत नाहीत उध्वस्त
पाखरांची घरटी म्हणून
पाखरांना ही झाडांची
ओढ असते
तुझ्या माझ्यासारखी’४

प्रियकर प्रेयसीच्या विलक्षण ओढीचे चित्रण निसर्गातील झाडांची आणि पाखरांचे वर्णन करून कवी प्रेम भावनेचे उत्कृष्ट दर्शन घडविताना दिसतो. माणूस नावाचा प्राणी हा आपल्या जीवनाचा प्रवास हा सभोवतालच्या अनेक घटना - प्रसंग, निसर्ग, वस्तू, पदार्थ इत्यादींच्या सहाय्याने गतिमान करीत असतो याचे कारण म्हणजे त्याच्याकडे असणारी बुद्धिकौशल्य. याच्या जीवावरच तो आपले सुसह्य करण्याचा प्रयत्न करीत असतो. निसर्गामध्ये स्त्री आणि पुरुष असे दोन भिन्न लिंगी व्यक्तिमत्त्व असलेली दिसतात. या दोघांचा जीवनानुभव काही प्रमाणात भिन्न असलेला दिसतो. पुरुष प्रधान संस्कृतीने तिच्यावर बरेच अन्याय केलेले आहेत व अजूनही बऱ्याच कमी-अधिक स्वरूपात ते सुरूच आहेत हे आजचे वास्तव सांगताना दिसते. अशा स्त्रियांचे दुःख सुद्धा कवितेचा विषय झालेला आहे. कवयित्री निरीजा म्हणते.

‘जपून ठेवलेल्या
कस्तुरी देहावरून
नांगर फिरला
त्याच्या राकट हाताचा
तेव्हा

आभाळ कळवळून कोसळले’५

सौंदर्याचे प्रतीक म्हणूनच स्त्री कडे पाहिले जाते. तिचा माणूस म्हणून कधीच विचार केला जात नाही. तिच्या इच्छा आकांक्षाचा तर लांबच विषय राहतो. म्हणून ती आपल्या भावनांचं विडंबन 'आभाळ कळवळून कोसळले' अशा शब्दातून व्यक्त करताना दिसते. गरीबी हा दुसरा विशेष माणसाच्या आयुष्यात अनेक वर्षे प्रवास करताना दिसतो. तथापि गरीब आणि श्रीमंत हा भेद अनेक कालखंडापासून चालत आलेला आहे. त्याच्या जीवनाची सुद्धा स्वतंत्र अशी वैशिष्ट्ये आहेत. मात्र गरिबी फार वाईट, तिथेच संकट, समस्या, दुःख आपलं घर करून राहतात. अशा दारिद्र्य याचं वर्णन सुद्धा निसर्गातील प्रतिमांच्या सहाय्याने कवितेत येताना दिसते. अविनाश बनसोडे आपल्या कवितेत लिहितात.

‘हे पावसा
तू जसा सर्वांना तसा मला सुद्धा प्रिय आहेस
पण असा दिवसा अचानक कोसळू नकोस
माझा खोपटावर असा बेरहमपणे ढासळू नकोस’६

मुसळधार पावसामध्ये झोपडीतला जगणं त्यालाच माहित असते ज्याने झोपडीत राहण्याचा अनुभव घेतलेला आहे. कवीने आपल्या कवितेत पावसामुळे उध्वस्त झालेलं आपले झोपडीतलं आयुष्य या कवितेतून फार मार्मिकपणे मांडलेले आहे. पाऊस भले सर्वांना आवडणारा असला तरी महापुरा मध्ये वाहून जाणाऱ्या संसाराचे काय? हा प्रश्न सर्वांनाच सतावतो व हेच वर्णन कवी बनसोडे आपल्या कवितेतून मांडताना दिसतात.

स्वातंत्र्योत्तर कालखंडात लेखन व्यवस्थेमध्ये जीवनानुभवांचे अनेक कंगोरे दृश्यमान होताना दिसतात. कारणही तसेच घडले. शिक्षणाचे सार्वत्रिकीकरण व त्यामुळे निर्माण झालेले आत्मभान, झालेली आत्मजागृती व त्यातूनच मग विविधांगी अनुभवांचे प्रकटीकरण झालेले दिसून येते, दलित ग्रामीणवादी साहित्यप्रवाहांची निर्मितीही यातूनच झालेली आहे. याच दलित साहित्यातील आंबेडकरवादी कवी यशवंत मनोहर यांची कविता मन सुन्न करून टाकते.

‘कालचा पाऊस आमच्या गावात
आलाच नाही
सदरहू पीक आम्ही आसवांवर
काढले आहे.’७

निसर्गसुद्धा कधी कधी त्याच्या लहरीप्रमाणे वागतो आहे की काय असे वाटते. कारण पावसाचाच विचार केला तर तो एका ठिकाणी बरंच वाहून जाईल असा बरसतो तर काही ठिकाणी त्याचा दर्शन सुद्धा दुर्लभ असतं. दुष्काळी भागात पाऊस नाही मग आम्ही शेती पिकवावी कशी? या विदारक अवस्थेचे चित्रण कवी यशवंत मनोहर वरील कवितेतून अभिव्यक्त करताना दिसतात.

थोडक्यात या निसर्गातील एक सजीव घटक म्हणून माणसाकडे बघितले जाते त्यामुळे माणसाने आपल्या बुद्धीच्या जोरावर अनेक प्रगतीची शिखरे गाठली आहेत. त्याच्या सर्व कृती -उक्तीचं प्रकटीकरण करण्याचं माध्यम म्हणजे साहित्य आहे. या साहित्यातून त्याने निसर्ग आणि आपल्या नात्याचा एक अनुबंध शब्दबद्ध केल्याचे दिसते.

निष्कर्ष-

- १) निसर्ग हा मानवी जीवन प्रवाहित करणारा आहे.
- २) माणूस आणि निसर्ग यांचे अतूट नाते आहे.
- ३) वाडमयाच्या सर्व प्रकारातून निसर्ग वर्णन येते.
- ४) मानवी जीवन हे निसर्ग प्रतिभांमधून अधिक अधिक प्रभावीपणे प्रवाहितहोताना दिसते.
- ५) सुख,दुःख, समस्या,मानवी मन ,भावना,विचार,प्रेम इत्यादी विषय निसर्गातील प्रतिभांद्वारे मराठी कवितेतून आलेले आहेत.

संदर्भ-

- १) रानातल्या कविता - ना.धो.महानोर
- २) तूर्तास - दासू वैद्य
- ३) कुणबी बाप - ललित अधाने
- ४) हिरवे ऋतू उतरून - मोतीरामकटारे
- ५) काही उन्हातले काही वनव्यातले - अविनाश बनसोडे
- ६) उत्थान गुंफा - यशवंत मनोहर



नवी मुंबईचे शिल्पकार-- वसंतराव नाईक

डॉ. शर्मिला अशोक साबळे

सहाय्यक प्राध्यापक, इतिहास विभाग राजर्षी शाहू कला व वाणिज्य महाविद्यालय, रूकडी.
तालुका - हातकणंगले, जिल्हा- कोल्हापूर

वसंतराव नाईक हे महाराष्ट्राचे प्रदीर्घ काळ मुख्यमंत्री होते. मुख्यमंत्रीपदी असताना त्यांनी अनेक धाडसी निर्णय घेतले. अनेक धाडसी योजना राबविल्या. त्यांनी महाराष्ट्राच्या जडणघडणीमध्ये फार मोठे योगदान दिले. सव्वाअकरा वर्षांतील त्यांचे कर्तृत्व तर अफाटच आहे. महाराष्ट्राच्या गेल्या पन्नास वर्षांत या बांधणीमध्ये यशवंतराव चव्हाण यांनी पाया घालून दिलेली आणि दिशा ठरवून दिलेली महाराष्ट्राची चौफेर बांधणी वसंतराव नाईक यांच्या काळात सर्वाधिक झालेली आहे. किंबहुना 1960 ते 1975 हा अवध्या पंधरा वर्षांच्या काळात शेती, धरणे, वीज, रस्ते, शिक्षण, ग्रामीण विद्युतीकरण, कृषी विद्यापीठ, नवी मुंबई, नवीन औरंगाबादची निर्मिती हे सगळे मोठे प्रकल्प अवध्या 90 हजार कोटी रुपयात महाराष्ट्रात उभे राहिले आणि त्याचे जवळपास सर्व श्रेय वसंतराव नाईक यांना आहे. महाराष्ट्राचा सर्वांगीण विकास व्हावा यासाठी त्यांच्या कार्यकाळात अनेक योजना कार्यान्वित करण्यात आल्या. प्रस्तुत शोध निबंधामध्ये 'नवी मुंबई योजना' यावर प्रकाश टाकला आहे. नवी मुंबई निर्मिती मध्ये वसंतराव नाईक यांचे योगदान मोलाचे आहे. खऱ्या अर्थाने ते नव्या मुंबईचे शिल्पकार आहेत.

नवी मुंबई योजना - 1971

महाराष्ट्रा पुढे वसंतराव नाईक सरकारने ज्या योजना मांडल्या त्यातील नवी मुंबई योजना प्रकल्प ही एक होय. परंतु बँकबे रिक्लेमेशन या योजनेप्रमाणे नवी मुंबई या योजनेबद्दल ही टीकेचे मोहोळ उठले. मुख्यमंत्रिपदावर आल्याबरोबर साली 1964 वसंतराव नाईक यांनी बँकबे रिक्लेमेशन योजना कार्यावाहीसाठी घेतली. ही योजना कितीही आवश्यक असली तरी या योजनेने टीकेचे मोहोळ उठवले. बँकबे रिक्लेमेशन ही योजना वादग्रस्त ठरली. वसंतराव नाईक यांनी फक्त श्रीमंत लोकांच्या हितासाठी योजना सुरु केली, हा विरोधकांचा आरोप होता. या योजनेस तज्ञांचा विरोध होता. या योजनेखाली 18 लक्ष चौरस जागा ही व्यापारी उद्योगा करता आणि 28 लक्ष चौरस जागा ही रेसिडेन्शियल परंपरेसाठी ठेवण्यात आली. परंतु येथे राहण्यासाठी ज्या इमारती बांधल्या जातील त्यातील फ्लॅटचे सरासरी भाडे 900 रुपये महिना राहणार असल्यामुळे तेथे होणाऱ्या कचऱ्यातून नोकरी करणारा सामान्य माणूस बाहेर राहणार होता. परिणामतः त्याच्या जाण्या येण्यामुळे वाहतुकीचा ताण पडणार आणि त्यामुळे पूर्वीच्या वाहतुकीची कर्पसिटी दुप्पट करावी लागणार होती. एकूणच ही योजना फायद्याच्या दृष्टीने वसंतराव नाईक यांनी सुरु केली होती.

मुंबई बँकबे रिक्लेमेशन या योजनेला मुंबई महापालिका, मुंबई वाचवा समिती, मुंबई प्रदेश काँग्रेस समिती व इतरांनी उपस्थित केलेल्या वाढती लोकसंख्या, सर्व हा भारतातून तिथे रोज येणाऱ्या लोकांचे वाढते प्रमाण आणि ते नजीकच्या काळात नव्हे तर कधीच कमी होणार नसल्याचे भाकीत ओळखून त्यांनी या योजनांच्या आराखड्याला शासनाची मान्यता दिली होती. आज की योजना ब्रह्मन् मुंबईच्या विकासाच्या दृष्टीने अतिशय उपयुक्त ठरलेली दिसून येत आहे. विरोधकांना व हरकतींना शासनाने जुमानले नाही. अशा प्रकारे बँकबे रिक्लेमेशन योजना स्थगित करण्यासाठी विरोधी पक्षाने मोठ्या प्रमाणात विरोध केला होता परंतु वसंतराव नाईक यांनी ही योजना राबवली. या योजनांमुळे विशेषतः ग्रामीण भागातील जनतेकडे शासनाला लक्ष पुरविता आले व खेडोपाड्यात वीज व दळणवळणाची साधने उपलब्ध करून देता आली. अशा प्रकारे मुंबईचा विकास होण्यासाठी दुसरी एक नवी योजना वसंतराव नाईक यांनी राबविली, ती म्हणजे नवी मुंबई ची योजना होय.

महाराष्ट्रा पुढे ज्या महत्वाच्या आणि बिकट समस्या होत्या त्यापैकी मुंबईची अतोनात वाढणारी गर्दी ही महाराष्ट्र सरकारची मोठी डोकेदुखी होती. साऱ्या भारतातून नोकरांच्या शोधात मुंबईकडे लोकांची रीघ लागली होती. रोज शंभर लोक मुंबईमध्ये वसाहत करण्या करता येत होते व वाढत्या गर्दीमुळे पाणीपुरवठा, आरोग्य, राहण्याची जागा, रहदारीची गर्दी, झोपडपट्ट्या असे अनेक प्रश्न निर्माण झाले. त्यांना तोंड देण्यासाठी आणि मुंबईची गर्दी कमी करण्यासाठी नव्या मुंबईची कल्पना पुढे आली. वसंतराव नाईक यांनी या योजनेचा नेटाने पुरस्कार केला. ती कार्यान्वित करण्यासाठी शासनातर्फे पावले उचलली. या योजनेत उद्योगधंद्यांचे विकेंद्रीकरण करून प्रत्येकी अडीच लाखाहून कमी वस्तीची स्वयंपूर्ण नागरी केंद्रे स्थापन करून मुंबई समुद्रा पलिकडील टापूंचा विकास करणे व त्याद्वारे मुंबईच्या वाढत्या लोकसंख्येस आळा घालणे हे हेतू समोर ठेवून या उद्देशाने वसंतराव नाईक यांनी मार्च 18, ला 1970 'सिडको' (इंडस्ट्रियल डेव्हलपमेंट कॉर्पोरेशन) या नावाच्या कंपनीची स्थापना केली. प्रथम 86 गावांमधील व नंतर (प्रकल्प खालील क्षेत्र वाढल्यामुळे) 95 गावांमधील सर्व खाजगी मालकीची जमीन ताब्यात

घेण्यासाठी अधिसूचित करण्यात आली. या योजनेच्या प्रत्यक्ष आराखड्याचे काम ऑक्टोबर 1971 लाहातीघेण्यात आले होते.² या योजनेला महाराष्ट्रात प्रखर विरोध झाला होता.

नवी मुंबई योजना पुढील प्रमाणे-

मुंबईचा अनेक समस्यांचा विचार करून त्यावर मार्ग सुचविण्यासाठी मेट्रोपॉलिटन जून, 1968 मध्ये स्थापन करण्यात आले. मुख्य उद्देश प्रति मुंबई किंवा नवी मुंबई स्थापन करणे हा होता. दिनांक 17/ 6 /1970 रोजी मेट्रोपॉलिटन बोर्डाने सुचवलेल्या मुंबईची योजना कार्यान्वित करण्यासाठी सिडकोची स्थापना झाली. मेट्रोपॉलिटन बोर्डाचे अध्यक्ष श्री राजवाडे होते. या बोर्डाने हा अहवाल तयार केला. या योजनेसंबंधी लहान पुस्तिका प्रसिद्ध करण्यात आल्या होत्या. त्यामध्ये "महाराष्ट्राचे नवे महासागर""कहाणी आटपाट नगराची" या पुस्तकांचा समावेश होता.

स्थानिक लोकांच्या जमिनी जातील. त्यांना उपजिविकेचे साधन राहणार नाही. शासनाची योजना चुकीची आहे. या योजनेमुळे जनतेचे हित होण्याऐवजी नुकसानच होणार आहे. नव्या मुंबईत होऊ घातलेले मुंबईच्या तोडीचे नावा-शेवा बंदर आहे. तळोजा व ठाणा-बेलापूर भागात चालू असलेल्या उद्योगधंद्यांच्या वाढीमुळे लोकवस्ती वाढत जाणार आहे. त्यांनी मुंबई जवळ हा भाग अधिकच सरखेल, त्याचे नागरिकांवर अतीवाईट परिणाम होतच राहतील. माणसे घरे, व्यापार उद्योग, वाहतूक, झोपड्या, शाळा-कॉलेजे इत्यादीचे जाळे झपाट्याने तयार होत जाईल. त्यावर योग्य नियंत्रण राहणार नाही बेबंद वाढेल आणि सध्याच्या गोंधळात भर पडेल मुंबईच्या समस्याही अधिक वाढतील आणि सध्याच्या मुंबईच्या समस्याही अधिक वाढतील. अशा प्रकारचे अनेक आक्षेप नव्या मुंबईवरून घेण्यात आले. महाराष्ट्रात व विधानसभेतही विरोधी पक्षाने या योजनेला जोराचा विरोध केला.³ विरोधी पक्षाच्या विरोधाला उत्तर देताना वसंतराव नाईक 11 जुलै, 1972 ला विधानसभेत म्हणाले होते की, "नवी मुंबई योजना कोणा मंत्र्याच्या डोक्यातून निघालेली नाहीतर तज्ञांनी बोलावलेली योजना आहे. नव्या मुंबई मुळे मागास विभागाचा विकास थांबवून नुकसान होईल अशी कल्पना करणे योग्य ठरणार नाही. नवीन शहरासाठी त्यांची जमीन घेतली जाईल. त्यांना योग्य तो मोबदला दिला जाईल. मुंबई शेजारीच नवीन बंदर निर्माण होत असल्यामुळे त्या ठिकाणच्या विभागाचा नियोजित विकास करण्यात येईल. त्यामुळे मुंबईवरील गर्दीचा ताणही कमी होईल."⁴

अशा परिस्थितीत नव्या मुंबईची, मुंबईच्या हिताच्या दृष्टीने महाराष्ट्राला अत्यंत आवश्यकता असल्याचे वसंतराव नाईक यांनी सांगितले होते. लोकांनी विरोधासाठी विरोध करू नये यासाठी वसंतराव नाईक यांनी विरोधकांना आपली भूमिका पटवून देण्याचा आटोकाट प्रयत्न केला व या योजनेचा पाठपुरावा केला.

नव्या मुंबईची विकास योजना-

सिडकोने नवी मुंबईच्या विकासाच्या योजनेचा मसुदा तयार करून तो दिनांक 11, ऑक्टोबर रोजी जनतेच्या सूचना व आक्षेप 1974 मिळवण्याकरता वसंतराव नाईक यांनी प्रयत्न केला होता सूचना व आक्षेप आठवण्याची मदत सुरुवातीला 60 दिवसांची ठेवण्यात आली होती. नंतर त्यामध्ये आणखी 60 दिवसांची मुदत वाढवण्यात आली. या अवधीत आलेल्या सूचना व आक्षेपांचा विचार करून सिडको आपला अंतिम अहवाल शासनाकडे मंजुरीसाठी सादर करणार होती.

या योजने प्रमाणे नव्या मुंबईची लोकसंख्या इसवी सन 1991 पर्यंत 20 लाखांपर्यंत जाईल असा अंदाज होता. प्रारूप विकास योजनेप्रमाणे नव्या मुंबईची रचना प्रत्येकी सुमारे 50 हजार ते एक लाख लोकवस्ती असलेला नगर केंद्रांमध्ये असेल, प्रत्येक नगर केंद्र, शाळा, दुकाने, रुग्णालय वगैरे बाबतीत स्वयंपूर्ण असेल. ही नगर केंद्रीय सार्वजनिक वाहतूक द्वारे गुंफली जातील. त्यात सुरुवातीला आरक्षित मार्गावर बस वाहतूक असेल. कालांतराने वाहतुकी या गरजेप्रमाणे आवश्यकता भासल्यास रेल्वेचे योजना केली जाईल. वाघवली बेटाच्या सभोवती वर्तुळाकार वलयात प्रामुख्याने व्यापारी केंद्रे असतील⁵ अशी ही योजना होती.

अशा प्रकारे "नवी मुंबई" योजनेला प्रचंड विरोध असूनही वसंतराव नाईक यांनी ही योजना अमलात आणली त्यामुळे मुंबईचा विकास घडून आला.

समारोप-

मुंबईची भरमसाठ झालेली वाढ, प्रचंड गर्दी, अपुरे आणि अरुंद रस्ते, घरांची समस्या या सर्व बाबींचा विचार करून वसंतराव नाईक यांनी मुंबईला पर्याय म्हणून नवी मुंबई बसवण्याचा महत्वाकांक्षी निर्णय घेतला. त्यासाठी सिडको या नव्या आस्थापनेची निर्मिती केली. आज नवी मुंबईत अत्याधुनिक सुविधांनी परिपूर्ण असे नियोजन बद्ध शहर ओळखले जाते. 50 वर्षांपूर्वी वसंतराव नाईक यांच्या दूरदृष्टीतून या शहराची निर्मिती आकारास आली. स्वप्न पहाणं सोप असतं पण ते प्रत्यक्षात उतरवणं महाकठीण! मात्र वसंतराव नाईकांनी हे नवे शहर बसवण्याचे अवघड स्वप्न प्रत्यक्षात उतरवून दाखवले. त्या काळात अत्याधुनिक यंत्रसामग्री नव्हती. तरी देखील त्यांनी वाशी येथील खाडीवर चा महाकाय पूल बांधण्याचा चंग बांधला आणि तो पूर्णत्वास नेला. पुलामुळे मोठे परिवर्तन घडून आले. लोक हळू राहावयास जाऊ

लागले.आज नवी मुंबई हे प्रतिष्ठित शहर आहे. रेल्वे वाहतूक, मूलभूत सुविधा,मुबलक पाणी, मोठमोठे मॉल्स यांची रेलचेल आहे. मागील 50 वर्षात या शहराचा विकास आणि विस्तार वेगाने होतोच आहे.वसंतराव नाईकांच्या दुष्टपणाचे ते प्रतीक आहे. खऱ्या अर्थाने नव्या मुंबईचे ते शिल्पकार आहेत. आज नवी मुंबई विमानतळाला वसंतराव नाईक यांचे नाव द्या अशी मागणी वाढत आहे आणि ती रास्तच आहे.

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महाराष्ट्रातील कृषी विकास व शासकीय धोरण

प्रा.प्रदीप सावंत

भूगोल विभाग प्रमुख

सरदार बाबासाहेब माने महाविद्यालय, रहमतपूर, जि.सातारा

प्रस्तावना:

महाराष्ट्रातील ग्रामीण अर्थव्यवस्थेची कृषी अर्थव्यवस्था म्हणून सर्वत्र ओळख आहे. महाराष्ट्रातील ६२% लोक शेती व त्यावर आधारीत तत्सम उद्योगावर आधारीत आपली उपजिवीका करतात. बदलत्या परिस्थितीमध्ये देखील शेती हा मुख्य गाभा आहे. त्यामुळे शेती क्षेत्राच्या विकासाशिवाय पर्याय नाही. कृषी उत्पादनात वाढ करण्यासाठी शेतीच्या आधुनिकीकरणावर भर देऊन व्यापारी शेतीकडे वळावे लागेल त्या दृष्टीने फळ शेती, फुलशेती, भाजीपाला शेती, अशा शेतीवर संस्थात्मक व तांत्रिक सुधारणावर भर देण्यात आला.

देशाचा कृषी विकास दर ठरविण्यासाठी राज्य व केंद्रिय स्तरांवर जाणीव पूर्वक प्रयत्न केले जात आहेत. महाराष्ट्र राज्यामध्ये कृषी संदर्भात विविध योजना शेतकऱ्यांपर्यंत पोहोचविणे गरजेचे आहे. फळ उत्पादनाच्या विकासाकरीता फळबाग लागवड ते विक्री व्यवस्था या संदर्भातील शासकीय धोरणांची सुधारणा व्यापकपणे अस्तीत्वात न आल्यामुळे फळ उत्पादनाच्या विकासाकरीता नवनवीन योजनांचे अध्ययन करण्याचा प्रयत्न केला जात आहे.

सध्याच्या बाजारपेठेचा विचार करीता शेतीमाल विक्रीमध्ये विक्रेत्यांची मोठी साखळी आहे. नाशवंत शेती मालामध्ये ग्राहकाला मोजाव्या लागणाऱ्या किंमतीमध्ये शेतकऱ्यांना मिळणारा नफा अत्यंत कमी असतो. शेतीमालासंबंधी असणाऱ्या मानांकनाची अंमलबजावणी होत नाही. बाजारव्यवस्था, बाजारभाव, या संदर्भात शेतकऱ्यांना योग्य माहिती मिळत नाही. एका बाजूला उत्पादन वाढत असले तरी प्रतवारी, साठवणूक, शीतगृहे, प्रक्रिया इ. साठी पायाभूत सोयींचा अभाव आहे. सध्याच्या बाजार व्यवस्थेत गुंतवणूक कमी आहे. हे सर्व लक्षात घेता नव्याने बाजारपेठेचा अभ्यास करून विविध सुविधांची उभारणी करावी लागणार नाही. त्यादृष्टीने महाराष्ट्र स्पर्धात्मक कृषी विकास प्रकल्पाची आखणी करण्यात येत आहे.

शेती उत्पादन व उत्पादकता:

कोरडवाहू शेतातील अन्नधान्याची उत्पादकता राष्ट्रीय सरासरीपेक्षा कमी अशी महाराष्ट्र राज्याची स्थिती आहे. लागवडीखालील निव्वळ क्षेत्राच्या बाबतीत महाराष्ट्राचा भारतात दुसरा क्रमांक आहे. महाराष्ट्रातील सर्व पिकांची हेक्टरी उत्पादकता राष्ट्रीय सरासरीपेक्षा कमी आहे. येथील शेती मुख्यतः मोसमी पावसावर अवलंबून आहे. विदर्भ व मराठवाड्यातील फार मोठे क्षेत्र कमी पाऊस व पर्जन्य छायेच्या प्रदेशात आहे. एकूण लागवडीच्या क्षेत्रापैकी १३% क्षेत्र ओलीताखाली आहे. आज ते १६% पर्यंत वाढलेले आहे. त्यामुळे शेती उत्पादकतेत घट होत आहे. एकूण उत्पादन व हेक्टरी उत्पादकता यात राज्यात दरवर्षी मोठा चढ उतार दिसून येतो. शेतीमध्ये संस्थात्मक व तांत्रिक सुधारणा करून ५० वर्षांमध्ये उत्पादन वाढीसाठी प्रयत्न केले जात आहेत. प्रत्यक्षात मात्र यामुळे शेतीची उत्पादकता वाढलेली नाही. राज्यातील हवामान, जमीनीचा कस, पावसाची शक्यता हे सर्व विचारात घेऊन अधिक उत्पादनासाठी प्रयत्न होणे गरजेचे आहे.

शेत पिकांच्या उत्पादनावरून शेतीचे ऊसमळा, भातशेती, पशुधनप्रधान शेती, मत्स्यशेती इ. निरनिराळे प्रकार अस्तीत्वात आलेले आहेत. तसेच सिंचनाच्या उपलब्धतेनुसार बागायती शेती, जिराईत शेती असेही प्रकार पडतात. खतांच्या वापरानुसार सेंद्रिय शेती, रासायनिक शेती असेही प्रकार पडतात.

स्थूलमानाने नैसर्गिक व आर्थिक घटकामुळे शेतीच्या प्रकारात बदल होतात. शेती हा खुप महत्वाचा भाग आहे. भारतातील नैसर्गिक/प्राकृतिक घटक वर्षाला बदलत नाहीत. त्यांच्यातील बदलणारा महत्वाचा घटक म्हणजे हवामान, जमीन, पर्जन्य, भूपृष्ठरचना इ. एखादया भागात कोणते पिक घ्यावे हे त्याभागातील वातावरणावर अवलंबून असते. कमी पावसाच्या प्रदेशात जर सिंचनासाठी पाणी उपलब्ध झाले तर बागायती पिके कपाशी, तीळ, ऊस यासारखी दिर्घ मुदतीची पिके उत्तमरित्या उत्पादन देऊन जातात. भातशेती उष्ण कटिबंधातील फळबाग शेती कोकणात शक्य आहे. कारण तेथील हवामान भात, नाचणी, आंबे, नारळ, काजू, सुपारी, मसाल्याची पिके, यांच्या उत्पादनाला पोषक असते. शेती व पिकांचा प्रकार हे जमीन आणि भूचरणा यावर अवलंबून असतात. पण घटकांना जर पर्जन्याचीही जोड मिळाली तर त्याचे परीणाम अधिक उठावदार दिसतात. खोल, सुपीक, सपाट जमीन असेल तसेच पाऊस भरपूर चांगला विभागून पडणारा असेल तर शेतीची भरभराट झालेली दिसून येईल.

कृषी विकासाची व्यूहरचना -

स्वातंत्र्यप्राप्तीनंतर शेतीमध्ये उत्पादन वाढविणे आणि पर्यायाने उत्पादकतेत वाढ करणे या दृष्टीने जमीन सुधारणा विषयक, शेती विषयक नवीन व्यूहरचना, हरितक्रांती, कोरडवाहू शेतीचा विकास नविन तंत्रज्ञानाचा वापर करून उत्पादनात वाढ करण्याच्या दृष्टीने दिर्घकालीन उपाय योजना करणे आवश्यक आहे याचाच एक महत्वपूर्ण भाग म्हणजे

१) पशुपालन व दुग्धो उत्पादन २) मत्स्य पालन ३) फलोत्पादन या योजनांना महत्व आहे.

नवीन व्यूहरचनेमध्ये फळ उत्पादनावर भर दिल्यास शेतकऱ्याच्या उत्पन्नात व आर्थिक स्थितीत बदल होऊ शकतो गेल्या दोन दशकापासून फळ उत्पादनाची शेती विकासाची व्यूहरचना अंमलात आणल्याचे दिसून येते.

पशुपालन व दुग्धोत्पादन -

पशुपालन हा शेती साठी महत्वाचा असलेला पुरक व्यवसाय आहे. पशुपालन व्यवसायाच्या माध्यमातून शेळी पालन, कोंबडीपालन, मेंढीपालन, इमूपालन, बदक पालन, वराह पालन, टर्की पालन, अशा वेगवेगळ्या पशुपालनाच्या माध्यमातून मांस, अंडी, तसेच पूरक दुग्धोत्पादन, लोकर उत्पादन, असे भरघोस उत्पादन शेती पूरक घटकांच्या माध्यमात पशुपालन व्यवसायाची जोड महत्वाची आहे.

पशुपालन व शेती हे एकमेकांना पूरक आहेत. खर पाहिले तर पशुपालनाशिवाय शेत जमीनीची सुपीकता टिकवीता येत नाही. रासायनिक खतांनी शेतजमीनी नापीक होत चालल्या आहेत. हेक्टरी उत्पादन दिवसें दिवस कमी होत आहे. तसेच पिकांमध्ये रासायनिक पदार्थ जे मानव प्राण्यांना धोकादायक आहेत ते वाढत आहे. तसेच वनस्पतीची रोग प्रतीकारक शक्ती कमी होत आहे त्यामुळे वेगवेगळ्या प्रकारचे (तणनाशके, किडनाशके, बुरशी, जीवाणू विषाणूरोधक रसायने) यांचा वापर वाढला आहे.

भारतातील वेगवेगळ्या प्रदेशात अनेक जातीचे चार पायांचे पशु आहेत, यामध्ये रवंथ करणारे पशु उदा. गायी, म्हशी, शेळ्या, मेंढ्या, उंट तसेच १ ते २ पोट कपे असलेले गाढव, डुक्कर, मिथुन, याक, इ. समावेश होतो या पशुपालनापासून मिळणारे मल, मुत्र, हाडे, पोटातील अन्न या सर्वांचा उपयोग सेंद्रिय खते म्हणजेच वनस्पतीचे अन्न म्हणून होतो.

वनस्पती, झाडे झुडपे, रोपे इ. पासून मिळणारा पालापाचोळा हा सहजासहजी कुजून जात नाही. त्याच्यापासून चांगले कसदार खत मिळवायचे असलेस त्याच्या बरोबर काही जैविक पदार्थ असले पाहिजेत. जीवाणू, काही बुरशीजन्य एकपेशीय जीव हे जैविक पदार्थ पशुंच्या मलमुत्रात भरपूर प्रमाणात असतात असे घटक/जीव पालापाचोळा चांगले कुजवीतात. पशुंच्या मलमूत्राचा दुहेरी उपयोग आहे. यापासून (गोबर गॅस) तयार करता येतो. वायु मिळाल्यानंतर जो काही चोथा मिळतो तो कंपोस्ट खत तयार करायला उपयोगी पडतो. प्रत्येक पशुच्या मलमुत्रात नत्र, पालाश, स्फूर्द कमी जास्त प्रमाणात असतात. मलमूत्रात असणाऱ्या विविध जीवाणूमुळे ते जैविक खत म्हणून ही वापरता येते. म्हणूनच शेत जमीनीतून येणाऱ्या, मानवाला न पचणाऱ्या वनस्पतीजन्य बाबी पशुंच्या पोटांत गेल्यावर त्यावर प्रक्रिया होते. तयार झालेले पदार्थ पुन्हा निसर्गाकडे जातात त्याची विल्हेवाट लागते व वातावरण शुद्ध ठेवण्यास मदत होते. तसेच हवेतील दुषीत वायु वनस्पती शोषून घेऊन ग्लोबल वॉर्मिंग कमी करण्यास हातभार लावतात.

दुग्धोत्पादन-

शेती व्यवसायामध्ये दुग्ध व्यवसाय हा पूर्वी पासून चालत आलेला महत्वाचा व्यवसाय आहे. दुग्ध व्यवसायासाठी प्रामुख्याने संकरित गाई, गावठी दुधाळ गाई, दुधाळ म्हशी पाळल्या जातात. प्रचलित पद्धतीनेसुद्धा व्यवसाय करण्यापेक्षा आधुनिक पद्धतीने व तंत्राने व्यापारी दृष्ट्या हा व्यवसाय केला असता निश्चितपणे शाश्वत धंदा असून आर्थिक दृष्ट्या चांगला परवडतो.

आहाराच्या दृष्टीने प्रत्येकाला प्रतीदीन ३०० मी. ली. दुधाची गरज भासते. वाढत्या लोकसंख्येला दुधाचे उत्पादन वाढणे अत्यंत गरजेचे आहे. आपल्या गाईपासून ४५% तर म्हशीपासून ५२ % दुध मिळते. परंतु सध्यातरी उलट चित्र दिसते.

दुधामध्ये पाणी , कर्बोदके, स्निधांश, क्षार, जीवनसत्व भरपूर प्रमाणात असल्याने दुध हे पुर्नान्न आहे. १ ली. पासून १००० किलो कॅलरीज मिळतात. दुधापासून अनेक विविध स्निग्ध पदार्थ तयार करता येतात. अशा या फायदेशीर धंद्यासाठी काही आवश्यक बाबी असाव्या लागतात.

• फलोत्पादन धोरण -

महाराष्ट्र राज्याच्या निर्मितीपासून आजपर्यंत फळ उत्पादनाची महाराष्ट्रातील स्थिती थोडक्यात स्पष्ट करीत आहे. फळ उत्पादनाकडे निश्चित व शाश्वत उत्पादन देणारे क्षेत्र म्हणून पाहीले जाते. महाराष्ट्रामध्ये फळबाग लागवडीला चालना देण्यासाठी फलोत्पादन विभागाची स्थापना केली.

देशामध्ये महाराष्ट्र राज्य कृषी क्षेत्रात अग्रगण्य आहे. राज्यातील जमीन, हवामान, पाऊसमान इ.मध्ये वैविध्यता आहे. हवामानावर आधारित कृषी हवामान विभाग राज्यात अग्रेसर आहे. राज्यातील वैविध्यपूर्ण हवामानामुळे वेगवेगळ्या प्रकारची फळे, भाजीपाला, फुले, औषधी वनस्पती, मसाला पिके इ. लागवड केली जाते.

देशातील इतर राज्यांच्या तुलनेत महाराष्ट्रातील शेतकरी सुधारीत तंत्रज्ञानाचा अवलंब करण्यात प्रगती पथावर आहे. त्यामुळे फलोत्पादनाच्या बाबतीत राज्याने देशपातळीवर इतर राज्यांच्या तुलनेत क्रांतीकारक प्रगती केली आहे. राज्यामध्ये १९०९ मध्ये कृषी विभागाची स्थापना झाल्यापासून फलोत्पादन विभाग हा कृषी विभागातील महत्वाचा भाग म्हणून गणला जातो. राज्यात सकल उत्पादनामध्ये फलोत्पादनाचा वाटा निश्चितच महत्वाचा राहिलेला आहे. सन १९८२ मध्ये फलोत्पादन विभाग कृषी विभागातून वेगळा करून फलोत्पादन संचालनायाची स्थापना करण्यात आली. त्या कालावधीमध्ये फलोत्पादन विभागामार्फत फळे, भाजीपाला व फुल पिकांची क्षेत्र व उत्पादन वाढीच्या दृष्टीकोनातून वेगवेगळ्या योजना राबविण्यास सुरुवात झाली.

सन १९९१-९२ मध्ये महाराष्ट्र शासनाने रोजगार हमी योजने अंतर्गत फळबाग लागवड योजना सुरु केल्यामुळे फलोत्पादन क्षेत्र विस्तारास चांगली चालना मिळाली. १९९८ मध्ये कृषी विभागाची पुर्नरचना होऊन एक खिडकी अंतर्गत सर्व विभाग एकत्र करण्यात आले. त्यावेळेपासून फलोत्पादन हा कृषी विभागाचा एक अविभाज्य भाग झाला आहे. .

योजनेची प्रगती-

राष्ट्रीय फलोत्पादन अंतर्गत सन २००५-०६ पासून ते २०१४-१५ पर्यंत १४२४.४० कोटी अनुदान प्राप्त झाले. तसेच राष्ट्रीय फलोत्पादन व औषधी वनस्पती मंडळाच्या योजनांवर सुरुवातीपासून ते मार्च २०१५ अखेर एकूण १२८१.६७ कोटी खर्च झाला. सन २०१५-१६ साली केंद्र शासनाने रु. २०५ कोटी रकमेच्या वार्षिक कृती आराखड्यास मंजूरी दिली.

सन १९९०-९१ रोजगार हमी योजने अंतर्गत फळबाग लागवडीचा कार्यक्रम सुरु करण्यात आला. ही योजना सुरु करण्यापूर्वी राज्यामध्ये २.४२ लाख हेक्टर क्षेत्र फळपिकांखाली होते. रोजगार हमी योजनेअंतर्गत फळबाग लागवड या क्रांतीकारी योजनेमुळे राज्यातील शेतकऱ्यांनी मोठ्या प्रमाणावर फळबाग लागवडीचा कार्यक्रम राबविला. त्यामुळे सन २०१४-१५ अखेर राज्यात १८.४७ लाख हेक्टर क्षेत्र फळबाग लागवडी खाली आहे. हे क्षेत्र एकूण क्षेत्राच्या ८.१४ % आहे.

फळपिकांचे नाव	क्षेत्र हेक्टर	फळपिकांचे नाव	क्षेत्र हेक्टर
आंबा	५२७१४७	डार्लीब	३३२८०
काजू	१७१९७१	पेरु	३२२५
बोर	७३६८५	अंजिर	३२२५
सिताफळ	५४०८४	कागदी लिंबू	४९७४४४
आवळा	२८१९८	सुपारी	९३१
चिंच	२३२६८	जोजोबा	१२०
फणस	१४५१	बाबु	४२०७
कोकम	२९६	जाट्रोफा	१३३९७
जांभूळ	९२९	पानपिंपरी	६७२
कवट	२०	रबर	१२५
चारोळी	२६	तेलताड	५
नारळ	२६३२५	मसाल पिके	१८०२
संत्रा	१६८९७९	औषधी वनस्पती	२०५

मोसंबी	१४६१३३	एकूण इतर पिके	२०५३३
चिक्कू	८५५९५		
एकूण			१६२५२७८
रो.ह यो सुरु होण्यापूर्वीचे फळ पिकांखाली - एकूण क्षेत्र			२४२०००
एकूण एकंदर			१८८७२७८

रोजगार हमी योजने व्यतिरिक्त राज्यामध्ये महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी योजना, राष्ट्रीय फलोत्पादन अभियान तसेच राष्ट्रीय बागवाणी बोर्ड इ. अंतर्गत सुरक्षा फळबाग विकासाचा कार्यक्रम मोठ्या प्रमाणावर घेण्यात आला. त्यामधून राज्यातील सर्वच विभागातील शेतकऱ्यांनी लाभ घेतलेला दिसून येतो.

• सुक्ष्म सिंचनाचे योगदान –

राज्यातील सिंचन क्षमता देशातील इतर राज्यांच्या तुलनेत अत्यंत कमी आहे. त्याचा विचार करून फळे व भाजीपाला पिकासाठी राज्यात सुक्ष्म सिंचनाचा वापर मोठ्या प्रमाणावर झालेला आहे. महत्वाच्या फळपिकांखालील व भाजीपाला पिकाखालील सुक्ष्म सिंचनामध्ये केलेली प्रगती पुढीलप्रमाणे सन १९८६ ते २०१५ अखेर -

सुक्ष्म सिंचनाखाली आलेले पिक निहाय क्षेत्र (हेक्टरमध्ये)

अ.न.	फळ पिकांचे नाव	आतापर्यंत सुक्ष्म सिंचनाखाली आलेले क्षेत्र	%
१	केळी	१४९३८२	१०.९४
२	डाळिंब	१२४०४४	९.०८
३	लिंबूवर्गीय	११७६६०	८.६१
४	द्राक्ष	१०८९५२	७.९८
५	भाजीपाला	१००५६४	७.३६
६	पपई	१३७६९	१.०१
७	आंबा	१९१२४	१.४०
८	फुले	१०१४६	०.७४
९	बोर	८२२४	०.६०
१०	नारळ	४५३९	०.३३
११	चिक्कू	४११४	०.३
१२	सिताफळ	३०८३	०.२३
१३	पेरू	२७११	०.२०
१४	अंजिर	९६२	०.१४
१५	आवळा	५८२	०.१२
१६	चिंच	८७१	०.०६
१७	काजू	६७३	०.०५
१८	सुपारी	३९०	०.०३
	एकूण	६६९७९०	४९.१८

• संरक्षित शेती तंत्रज्ञानाचे फलोत्पादन विकासात योगदान –

फलोत्पादन क्षेत्रात संरक्षित शेती तंत्रज्ञानाचा अवलंब केल्यामुळे फुल पिके व भाजीपाला पिकांचे अधिक उच्चदर्जाचे उत्पादन व उत्पादकता मिळत असल्याने शेतकऱ्यांच्या उत्पन्नात वाढ होत आहे. राष्ट्रीय फलोत्पादन अभियानांतर्गत फुलपिके, भाजीपाला व रोपवाटीकासाठी शेतकरी हरीतगूह, शेडनेट हाऊस, प्लॅस्टीक टनेल या आधुनिक तंत्रज्ञानाचा वापर करून उच्चदर्जाचे उत्पादन मिळविण्याकरीता शेतकऱ्यांना अर्थसहाय्य दिले जाते.

शासकिय धोरण –

कृषी क्षेत्राचा विकास इतर क्षेत्राच्या विकासाप्रमाणेच केंद्र व राज्य शासनाच्या धोरणावर म्हणजेच शासकिय धोरणावर अवलंबून आहे. इ. स. १९५२ मध्ये प्रा. टिनबर्जन यांनी शासकिय धोरणाचे महत्त्व पुढीलप्रमाणे आर्थिक धोरण व नीती म्हणजे शासकिय धोरण. हे धोरण सामान्यांची काळजी घेणे त्यांचे हितसंबंध जोपासने या अनुषंगाने असते. .

कृषी विषय शासकिय धोरण म्हटले की, ते समांतर पातळीवर संपूर्ण अर्थव्यवस्थेसाठी राबविण्यात येते. सामान्यांच्या आवश्यकतेनुसार विविध उत्पादनातील वाढीला अनुसरून विविध अभियान स्वतंत्रपणे व्यष्टी पातळीवर राबविण्यात येते. लोकांच्या मागणीनुसार ज्या सुधारणा धोरणांमध्ये केल्या जातात त्या व्यष्टी पातळीवर असतात. फळ उत्पादनाबाबतचे शासकीय धोरण शेतीच्या एका प्रश्नाच्या संदर्भातील व्यष्टी धोरण आहे. असे म्हटल्यास वावगे ठरणार नाही. कृषी विकासामध्ये नियोजनासारख्या मार्गाचा स्वीकार करून कृषी विकासासाठी गुंतवणूक केली आहे. कृषी विकासाचे प्रामुख्याने दोन टप्पे पडतात. अ) स्वातंत्र्य प्राप्तीनंतर १९५१ ते १९९०-९१ पर्यंतचा पहिला टप्पा ब) १९९०-९१ नंतरच्या आर्थिक सुधारणांचा दुसरा टप्पा

नवीन शासकीय धोरणाची आवश्यकता –

इ.स. १९९१ मध्ये शासनाने जे नवीन आर्थिक धोरण राबविण्यास सुरुवात केली त्यामध्ये कृषी विषयक सुधारणा जवळपास नगण्य आहे. कर, खाजगीकरण, उदारीकरण यावर जास्त भर दिला. इ.स. २००४ मध्ये सं.पु.आ. सरकारने राष्ट्रीय कृषी आयोगाची डॉ. एम एस स्वामीनाथन यांच्या अध्यक्षतेखाली नियुक्ती केली गेली. आयोगाने पाच सुत्री कार्यक्रम लागू करण्याची शिफारस केली आहे. ती पुढील प्रमाणे १) भूमी स्वास्थ्य सुधार कार्यक्रम २) जल संवर्धन योजना ३) कृषी सुधार योजना ४) कृषी विज्ञान केंद्राद्वारे पीक उत्पादन संशोधन आणि कृषी विविधीकरण ५) किंमत फैलाव शक्य होईल तितका कमी करणे

कृषी धोरणाचा बहुतांशी भाग आर्थिक सर्वेक्षणातून घेतला जातो. पहिला महत्वाचा टप्पा इ.स. १९९०-९१ हा होता. त्यावेळी स्विकारलेल्या जागतीक मुक्त व्यापाराच्या धोरणाच्या मर्यादित अनेक बंधने शिथील करण्यात आली. त्याचा परिणाम १९९५-९६ पर्यंत दिसू लागला त्यानुसार १९९५-९६ मध्ये केंद्र शासनाने आर्थिक सर्वेक्षणात नोंदवले गेले. ०

राष्ट्रीय कृषी धोरण २००० मध्ये फळ उत्पादकांना केंद्रस्थानी ठेवून तंत्रज्ञानावर आधारित धोरण विकसित करण्यासाठी आधारभूत संरचना संसाधने, ग्रामीण संस्था बाजारपेठेचा विस्तार, करार शेती, उत्पादक बाजारपेठ कायदा, विक्री व साखळी या संदर्भातील फळ उत्पादनाची गुणवत्ता दर्जा, स्पर्धा, उत्पादकता वाढविण्याच्या दृष्टीने नवीन धोरण निश्चित केले गेले.

महाराष्ट्र शासनाने कृषी समस्यांचे निर्धारण करण्याकरीता केंद्र शासनाच्या धर्तीवर १६ कार्यक्रम राबविण्याचे निश्चित केले आहेत. तसेच केंद्र सरकारने कृषी विकास योजनेमध्ये समाविष्ट केलेल्या राष्ट्रीय अन्नसुरक्षा मिशन (NSFM) व राष्ट्रीय फलोत्पादन योजना (NHM) या सारख्या अनेक महत्त्वाकांक्षी योजना शासन राबवित आहे. कृषी विस्तार कार्यक्रमांतर्गत निर्धारित केलेल्या उद्दिष्टांची पूर्तता करण्याकरीता कृषी विकास आराखडयांतर्गत केंद्र व राज्यशासन पुरस्कृत चार प्रमुख कार्यक्रमांतर्गत शेतकऱ्यांसाठी शासकिय अर्थसहाय्य व अन्न विविध योजना यासारख्या ३०१ योजना समाविष्ट आहेत.

कृषी विस्तार कार्यक्रमांतर्गत केंद्र पुरस्कृत विकास कार्यक्रम अंतर्गत महाराष्ट्र कृषी आणि फलोत्पादन माहिती व तंत्रज्ञान अभियान २००८-०९ पासून राबविले आहे. योजनानिहाय व घटकनिहाय कार्यक्रमांमध्ये माहिती, कृषी तंत्रज्ञान प्रसाराकरीता राज्यांतर्गत व राज्याबाहेर शेतकऱ्यांचे अभ्यास दौरे, मृदा सर्वेक्षण व मृदा चाचणी सुविधा, कृषी विभागामार्फत देण्यात येणारे पुरस्कार, कृषी यांत्रिकीकरण कृषी क्षेत्रातील स्वयं रोजगार प्रशिक्षण कार्यक्रम, शेतकरी मासीक योजना, कृषीमाल निर्यातीकरीता फायटोसॅनिटरी प्रमाणपत्र देण्याची सुविधा, स्वयंरोजगार निर्मिती प्रकल्प योजना, फळ, फुले, भाजीपाला विक्री सहाय्य बाजार योजना याचेही नियोजन केले जाते.

वर्तमान काळाच्या संदर्भात देशासमोर बरीच आव्हाने उभी ठाकली आहेत. ही आव्हाने लक्षात घेता गरिबी निर्मुलनाकरीता शेती क्षेत्र एक शक्तीशाली साधन म्हणून जागतिक अधिकोशाने म्हटले आहे. शेतकऱ्यांकडे उपलब्ध असलेल्या जमीनीतून अधिकाधिक उत्पादन कसे घ्यावे यासाठी एक उपाय म्हणून फळशेतीकडे लक्ष देऊन व्यापारी शेतीच्या अनुषंगाने कृषी धोरणाचे विवेचन. महाराष्ट्र राज्यात १९८१ साली फलोत्पादन विभाग सुरू झाला. या विभागाकडून फळ लागवडीसाठी शेतकऱ्यांना एकात्मिक ग्रामीण विकास योजनेप्रमाणे अनुदान मिळण्याची तरतुद आहे. .

फळबागांच्या विकासासाठी महाराष्ट्र शासनाच्या वतीने मे १९९० मध्ये अनेक नव्या योजना, अनुदाने व सवलती जाहीर केल्या. दरवर्षी १०० कोटी रुपये कर्जपूर्वठा शेतकऱ्यांना केला जातो. हळूहळू ही रक्कम वाढत आहे. २९ लक्ष हेक्टर पडीक जमीनीचा उपयोग

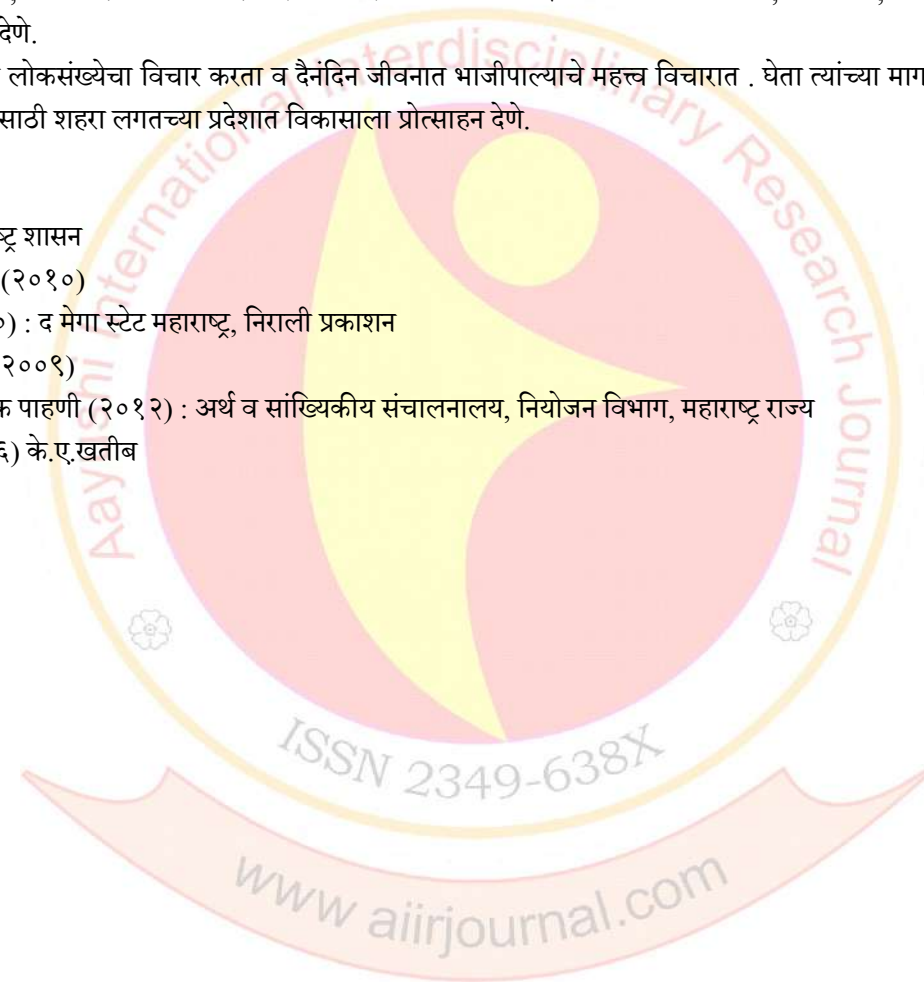
फळबाग विकासासाठी व्हावा यासाठी प्रयत्न सुरू आहेत. ११व्या योजनेत फळबाग विकासासाठी ३०० कोटी रू. खर्च अपेक्षित आहे. राज्यशासन शेतकऱ्यांना फळरोपवाटीका, फळझाडे वाढविण्यासाठी अनुदान देणे या माध्यमातून फलोत्पादन विकासाला चालना दिली जाते. फलोत्पादन विकासाची सांगड १९९०-९१ पासून रोजगार हमी योजनेशी घालण्यात आली. याचा लाभ महाराष्ट्रातील अनेक शेतकरी घेत आहेत.

निष्कर्ष :

- १) महाराष्ट्राचा सुवर्ण महोत्सव साजरा झाला परंतु अद्यापही ८४% जमीन पावसावरच अवलंबून आहे. अनियमित व अपूरा पाऊस यामुळे अन्नधान्य व इतर पिकांचे उत्पादन अत्यंत कमी आहे. त्यामुळे फळशेती हा योग्य पर्याय आहे.
- २) फळे, फुले, भाजीपाला व मसाला पिके यांचे क्षेत्र, उत्पादन व उत्पादनाबाबत सद्यस्थितीत असलेल्या क्षेत्राचे व्यवस्थापन/प्रक्रिया, विपणन व निर्यातीकरीता मुल्यवर्धीत साखळी सुविधा निर्माण करणे.
- ३) विभागनिहाय, जिल्हानिहाय फळे व भाजीपाला उत्पादक शेतकऱ्यांचे गट निर्माण झालेले आहेत. सदर गटांची माहिती संकलित करून त्यांना निर्यातीबाबत प्रशिक्षण देणे तसेच निर्यातीच्या सुविधा उपलब्ध करून देणे.
- ४) राज्यातील फळे, फुले, भाजीपाला भविष्यातील गरज विचारात घेऊन पडीक क्षेत्र विकासांतर्गत आंबा, सिताफळ, आवळा या फळ लागवडीला चालना देणे.
- ५) भविष्यातील वाढत्या लोकसंख्येचा विचार करता व दैनंदिन जीवनात भाजीपाल्याचे महत्त्व विचारात घेता त्यांच्या मागणीत नियमीत वाढ होणार आहे. यासाठी शहरा लगतच्या प्रदेशात विकासाला प्रोत्साहन देणे.

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‘बनगरवाडी’कादंबरीतील ‘लोकजीवन’ आणि ‘निसर्ग’परस्पर संबंध

डॉ.प्रकाश आप्पासो हुलेनवर

मराठी विभागप्रमुख,

विश्वासराव नाईककला,वाणिज्य आणि बाबा नाईक विज्ञान महाविद्यालय,शिराळा

प्रास्ताविक :

माणूस सभोवतालच्या नैसर्गिक पर्यावरणाचे घडत असतो.पृथ्वीवरील सर्व घडामोडी या निसर्गावर अवलंबून असतात. पृथ्वीवर मानव निर्मित आपत्ती आणि नैसर्गिक आपत्ती येत असतात.आजही अनेक खेडी,वाड्यावस्त्यांवरील माणसांचे प्रश्न तंत्रज्ञानासंबंधी नाहीत तर नैसर्गिक आपत्ती आणि माणूस, प्राणी यांच्या जगण्यासंबंधीचेप्रश्न आहेत. निसर्गाच्या बदलाचे परिणाम शेतकऱ्याला, मजूराला,सामान्य माणसाला आणि जनावरांना अधिक सोसावे लागतात. दुष्काळी पड्यातील एकूणच जीवनमान हलाक्याचे असल्याचे आढळून येते. अशा कष्टकरी,शेतकरी,मेंढपाळायचे आणि प्राण्यांचे चित्रण व्यंकटेश माडगूळकर यांच्या ‘बगरवाडी’कादंबरीत आले आहे.निसर्गाचे चांगले वाईट परिणाम खेड्यातील समाजावर कसे होतात याचे चित्रण ‘बगरवाडी’ या कादंबरीत आले आहे. या लेखात निसर्ग आणि माणूस याचे परस्पर संबंधाचे चित्रण कसे आले आहे हे पाहणार आहोत.

शोधनिबंधाचा उद्देश : प्रस्तुत शोधनिबंधामध्ये ‘बनगरवाडी’ कादंबरीतील लोकजीवन आणि निसर्ग याचा सहसंबंध स्पष्ट करण्याचा प्रयत्न केला आहे.

‘बनगरवाडी’तील लोकजीवन :

‘बनगरवाडी’ कादंबरीत माणदेश प्रदेशातील निसर्गाचे,जनावरांचे,लोकांच्या वृत्ती प्रवृत्तीचे आणि लोकांच्या राहणीमानाचेबारकावे टिपली आहेत.येथील लोकांचा आपल्या वाडीवस्तीवर अधिक जीव आहे. येथील राहणीमान पाहता कुडाची घरे,शेकरलेली छपरे, एखादे माळवद वजा घर ही त्यांचे राहण्याची व्यवस्था आहे.येथील शेती, जनावरे, झाडाझुडपांवर लोकांचा खूप जीव आहे. जगण्यावागण्याचे एकमेव ठिकाण म्हणजे त्यांची ‘वाडी’ आणि सभोवतालचा परिसर म्हणजे त्यांचे व्यापलेले एवढेच त्यांचे जीवन आहे. माणदेश हा दुष्काळी प्रदेश असला तरीही आपल्या पांढरीतून आपणास बाहेर जायला लागू नये, असे प्रत्येकाला मनातून वाटत असते.

‘बनगरवाडी’तील लोक,प्रदेश,घरेदारे याचे वर्णन करताना माडगूळकर लिहितात, “आजूबाजूला सपाट मोकळा माळ, बाजरीची तांबडी राने,आणि मध्येच गबाळे पडावे तशी पडलेली तीस-पस्तीस घरे, अशी बनगरवाडी होती. बहुतेक घरच्या भिंती मातीच्या होत्या आणि छपरे खपलीच्या काडाने शाकारलेली होती.” (बनगरवाडी,पृ. ३) यातून धनगर समाजाचे राहणीमानआणि जीवनमान अत्यंत साधेआणि सरळ दिसते. सकाळी झोपेतून उठल्यापासून ते रात्री जमिनीवर अंग टाकेपर्यंत शेती,जनावरे,भाकरी- तुकडा एवढेच काय ते जीवन असणारा येथील समाज आहे.धनगर समाज आणि त्यांची मेंढरे लिंबाच्या, बाभळीच्या, तरवाडांचा, नेपताडी आशा विविध झाडांच्या आश्रयाने राहणारा हा समाज आहे. मोकळ्या वावरात आणवाणी वावरणाऱ्या या लोकांना शहरातल्यासारखी मातीची किंवा धुळीची अलर्जी होत नाही. उलट रस्त्यावरची धूळ पायाला चटके देते किंवा कधी, कधी पायाला गार वाटते हा त्यांचा अनुभव आहे.

पाऊस पडल्यानंतर सर्वत्र पेरणीची लगबग सुरू होते. एकच बैलअसल्याने दुसऱ्या बाजूला शेकुची बायको स्वताःला जुंपून घेते आणि शेतात पेरणी करतात.कष्ट करायला स्त्री कुठेही कमी पडत नाही.सण-उत्सव:दसरा आलाम्हाणजे शिलंगण्याला बाजरीची नवी कणसेही लोकांनीसोने म्हणून सर्वांना देत.शेतकरी पीक हेच त्यांचे सोने म्हणून वापरतात. येथील निसर्ग आणि मानवी संस्कार या वर्तनातून समाजाचे आणि प्रदेशाचे वेगळेपण लक्षात येते.तसेचलोकांच्या आहारचा विचार करतो तेव्हा,“हिरव्या भाजीच्या पाल्याशी,कांद्याशी चिमूटभर चटणीशीकिंवा मिठाशी.दिवसभर कष्ट करून ते फक्त भाकरी खातात.”(पृ.22) लोकांचे जेवण आणि जीवन अगदी साधे आहे. समाजात ‘कारभारी’यांच्या सारख्या काही व्यक्ति समाजाला योग्य दिशा देण्याचे आदर्शवत कार्य करतात. अशा लोकांमुळेच समाजात एकोपा निर्माण होतो. मुलांना शाळेत पाठविण्यास नकार देणाऱ्या व्यक्तीला कारभारी दोन शब्दात उत्तर देतात, " पोटांन मरू लागली तर माझ्या घरी ये. जोंधळे घालीन तुला पयलीभर." (पृ.४२) असेमुलांना शिक्षण नाकरणाऱ्या बनगराला सडेतोड उत्तर मिळते.यात्यांच्या संवादातून कारभारी हे समाजातील पोक्त व्यक्ति सामाजिक भान आणिसकारात्मक विचार जपते आहे. समाजातील वृत्ती, प्रवृत्तीचे चित्रण यातून लक्षात येते.‘बनगरवाडी’तील ‘राजाराम विठ्ठल सौंदणीकर’ या मास्तरांचे क्षेत्रही शाळेपुरते मर्यादित राहत नाही. सौंदणीकर’ मास्तरगावातल्या अनेक लोकांना वेगळ्या पद्धतीची मदत करतो. पत्र लिहिणे, कोणाचा अर्ज देणे, पोस्टात पत्र टाकणे,नवरा बायकोचे भांडण मिटवणे, न्यायदानकरणे इत्यादी कामे त्यांना पाहावे लागतात. वाडीतील लोकांना लग्नखर्च करण्यास परवडत नाही, म्हणून या समाजातएकाच मुहूर्तावर वर्षातील सर्व लग्न लावण्याची पद्धत आहे.त्यामुळे दहा, वीस लग्न उभी राहतात, लोकांचा खर्च वाचतो.अशा अनेक कारणांमुळे समाजातही एकोपा टिकून

राहतो. माणसांचे राहणीमान, वेश, घरे, जाती-जमाती, बलुतेदार-आलुतेदार, त्यांची कामे, शेत, जमीन, पीके आणि गावकऱ्यांच्या श्रद्धा-अंधश्रद्धा इत्यादीतून बगरवाडीतील समाजाचे दर्शन घडते.

बनगरवाडीतील निसर्ग :

माणदेश हा मुख्यतः कमी पाऊस पडणारा प्रदेश आहे. सगळीकडे माळरान आणि पावसाच्या जिवावरची शेती, झाडं-झुडपं आणि एकूणच जीवनच कोरडं असलेले हा पट्टा आहे. येथील निसर्ग घनदाट गर्दझाडीचा नाही तर कुठेतरी एखादे झाड अशी येथील स्थिती आहे. परंतु माणसाला कडकडून भूक लागायी आणि शिळापाका तुकडा मिळाला तर जो आनंद व्हावा; तसा येथील लोकांना एखाद्या झाडाच्यासावलीचा आधार वाटतो. मेंढपाळ शेळ्या- मेंढ्याना बाभळी चारण्यासाठी आणि रानावनात जाणाऱ्या - येणाऱ्या लोकांच्या विसाव्याचे ठिकाण म्हणून झाडाझुडपांकडे पाहतात. या माळरानात क्वचित कुठे नेपटी, बोराटीची झुडपे दिसतात. या प्रदेशात पाऊस झाला तर आबाधितअबाध असते आणि दुष्काळ पडला तर माणसांची आणि जनावरांची वाताहत होते असा हा प्रदेश आहे. 'बगरवाडी'तील निसर्ग हा माती- फुफाट्याचा, कमी पावसाचा आणि अविश्वासाचा आहे. कधीही दगा देणारा निसर्ग प्रदेश हे या प्रदेशाचे वैशिष्ट्य म्हणावे लागते. एवढेच नाही तर येथील झाडेझुडपे, दगडगोटे, पशुपक्षी, सूर्य, ऊन, वारा, ही निसर्गाची विविधरूपे माणसांचे आयुष्य राखट, दणकट, कणखर करतात. येथील माणसाचा सहवास मुंग्या, टोळ, बेडके, भुंगे, घोरपडी, गवताचे बी, जनावरांच्या पायाचे ठसे, पक्षांनी पायांनाई काढलेले नक्षी, शेतीच्या भागाला विविध नावे, नेपटी, बोराटीची, बाभाळ मुरमुटीची खुरटलेली झुडपे आणि धुळीने भरलेली वाट, दगडांना उंचावलेली, कुठे रुंद तर कुठे अरुंद अशी गाडीवाट हे माणसाच्या श्वासातील निसर्गाचे आणि या प्रदेशाचे वेगळेपण आढळून येते.

परंतु जेव्हा गावात पाऊस पडतो तेव्हाचे वाडीतील आनंदाचे वर्णन करताना माडगूळकर लिहितात, "जिकडे तिकडे गवत उगवते या गवताचे, अंगणात माळरानावर, छपरावर जिथे उगवून येते तिथे गवतू बोलू लागते. सर्वत्र झगझगीत पोपटी रंग दिसू लागतो. हे निसर्ग चक्र पाहतो तेव्हा असे लक्षात येते की, पाऊस पडल्यावर बेडक्या उड्या मारू लागतात, कावळे त्यावर झडप घालतात, पंख असलेले किडे इत्यादी चिमण्या कावळ्यांची अन्न होते. रामोशी रानात ससा, घोरपडी ची शिकार करतो, लांडगे मेंढ्याला घेऊन जातात, ढेकळे विरघळून जमिनीत पाणी पिऊन घेतात, पीक तयार झाल्यावर पिकामधले दाणे खायला ही पक्षी येतात, चिमण्या, कावळे, बगळे सगळीकडे आढळणारी पक्षी मान देशात येतात" (२७) यावरून माणूस आणि निसर्ग एकमेकांवर कसे अवलंबून आहेत हे आपल्या लक्षात येते. बगरवाडीच्या निसर्ग आणि समाजा बदल रामचंद्र काळुंखे म्हणतात, "वाडीच्या रूढी, धारणा, सण, उत्सव, व्यवसाय, समाजव्यवस्था, निसर्गावलंबी जीवनाचे दर्शन रसरंगंधस्पर्शनाद अशा संवेदनाच्या बहुविध पातळ्यांवर होते." १ असे निसर्ग आणि माणूस यांच्यामधील अद्वितीय असे एक नाते जडले जाते.

हिरवे हिरवे खाऊन मेंढरे गुबगुबीत होतात. त्यांच्या अंगावर चरबी वाढते. अडी-अडचणीला धनगर बाजारात मेंढरे विकू लागला. अशावेळी मेंढ्यांना भाव चांगला येतो. चार पैसे मिळतात. निसर्गाचे हे वरदान अनेकांना उत्साह व आनंद देणारे ठरले. संपूर्णमानवी- प्राणी साखळीनिसर्गावर अवलंबून आहेत. पावसाच्या येण्याचे चहूकडे हिरवेगार होते. कोंबड्या व जनावरे पाहून रामोशाच्या तोंडाला पाणी सुटले. बऱ्याच दिवसातून रामोशांचा झोपडीतून शिजल्या या मासाचा वास घुमू लागला. गावात तालीम बांधण्यासाठी वर्गणी गोळा केली जाते. घरटी दहा-वीस रुपये ज्यांच्याकडे पैसे नाही त्यांनी रोजगार द्यावा असं ठरतं. आपल्या रानातील झाड देण्यासाठी एकाने होकार देतात सगळ्यांनी होकार दिला. तालिम बांधण्यासाठी समाजातील लोक गाड्या, बैल देण्याचे कबूल झाले आणि या सर्वांतून समाजातील एकोपा टिकून राहिल्याचे दिसून येते.

'बनगरवाडी'ने सुकाळ पाहिलेला होता तसा दुष्काळी स्थितीत काय हाल झाले हेही पाहिले आहे. दुष्काळामुळे शेतकऱ्यावर भयावह स्थिती आली, याचे वर्णन करताना लेखक लिहितो, "अनेक नक्षत्र मागून नक्षत्र गेली तरी बनगरवाडीत पाण्याचा टिपूस पडला नाही. झाडे-झुडपे वाळून गेली. विहिरीचे पाणी आटले, चिमणीला प्यायला सुद्धा पाणी उरले नाही. जनावरे रोड झाली. त्यांच्या भकाळ्या दिसू लागल्या. चिमण्या, कावळे, होले दिसेनासे झाले. लोकांच्या डोळ्यात भूक दिसू लागली. अन्न मिळवण्यासाठी सगळे धडपडू लागले, मान देशाच्या पाचवीला पूजलेल्या दुष्काळात माणसे उपास-तापास काढू लागली. शक्य होते तोवर त्यांनी विकत आणून वैरणी टाकल्या. तोंडाचा घास काढून कळना कोंडा त्याने त्यांना चारला पण मग निभेना." (पृ. 123) पावसाच्या जीवावर असणाऱ्यांच्या पदरी निराशा आली. महेश खरात या दुष्काळाबद्दल म्हणतात, "बगरवाडीत दुष्काळामुळे उद्ध्वस्त झालेल्या वाडीचे विदारक दर्शन व्यंकटेश माडगूळकरांनी ज्या ताकदीने घडविले आहे त्याला तोडनाही. धनगरांच्या स्वभावांचे, रीतीभातीचे, जीवन जगण्याच्या साध्याभोळ्या माणसाचे दर्शन घडले आहे." २ या समाजातील अनेकाना दुष्काळाचे चटके बसले. जगण्या रामोशी भुकेपाई दारूची नशा करू लागला. महद येथे गेलेल्या पुरुषांनाही भांगलणीची कामे करावी लागली. धोतर पोटावर बांधून जगण्या रामोशी तीन दिवस भांगलला आणि शेवटी उपाशीपोटीच मेली. शेकू उपाशी मरणाच्या बैलाला विकण्याचा विचार करतो परंतु बैलाला खाटकाने सात रुपयाला मागितल्याने त्याची सुरी घेऊन मरण्यापरीस आपल्या दारात मेलेला काय वाईट, असे भावनिक होऊन तो आपला बैल दावणीला बांधतो.

मुळात माणसापेक्षा जनावरावर प्रेम करणारा हा शेतकरी वर्ग जनावरांच्या पोटाला नसल्याने तडपडतो. त्यांच्यावर पायलीभर बाजरीसाठी चार चार मेंढरे विकण्याची वेळ आली. आनंदा जगण्यासाठी गांव सोडून बाहेर पडतो. जिथे पाणी असेल तिथं काम करू आणि

जगलो वाचलो तर माधारी येऊअसे म्हणतो.कवाडे बंद करून रामोशांची सगळी माणसे गावाबाहेरजातात. अन्नाचा शोध घेऊ लागली. मेंढरावरच अवलंबून असणारे धनगरांचे जीवन विस्कळीत झाले. मेंढरे उपासाने, आजाराने, रोगाने मरू लागली, तेव्हा मेंढक्याची खूप वाईट स्थिती झाली . गावात लिंबाच्या टोकावर बसणारे बगळे नाहीसे झाले. बनगरवाडीत पाऊस न झाल्याने होत्याचे नव्हते झाले. नैसर्गिक सुकाळ व दुष्काळ या आपत्तीमुळे ग्रामीण माणसांची आणि जनावरांची बिकट स्थितीचे वास्तव दर्शन येथील प्रदेशासह अधोरेखित झाले आहे. निसर्गावर सर्व जीवन अवलंबून असणाऱ्या येथील लोकांना वणवण करावी लागते.

निसर्गचक्र आणि माणूस :

निसर्ग,माणूस आणि प्राणी यातील सहसंबंध कादंबरीतील काही प्रसंगावरून लक्षात येतात. वाडीतील नव्याने मेंढरे करणाऱ्या व्यक्तीला स्वतः मेंढी विकत घेऊन मेंढराची सुरुवात करावी लागत नाही. “मेंढरे करणारी व्यक्ति खोबऱ्याची एक वाटी आणि त्यावर थोडा भंडारा घालून चांगल्या मेंढक्याकडे जातो आणि ती खोबऱ्याची वाटी देऊन त्याला म्हणतो की, “मी बेणं करतोय” मग तो मेंढका आपल्या खंडातील शेलके मेंढरू काढून ते मागणाऱ्याला मोफत देतो. असे दहापंधरा मेंढरे मिळून सुरुवात केली जाते. आणि दोन-तीन वर्षात बियाणे मागणारा दुसऱ्याला बियाणी देऊ शकतो. मात्र बियाणे म्हणून आणलेली मेंढरे विकायची नाहीत, कापायची नाहीत, हा नियम पाळला जातो”.(पृ.32)निसर्गाचा समतोल राखण्यासाठी अशिक्षित समाजबांधव कशाप्रकारे प्राण्याचे संवर्धन करतात याचे उत्तम उदाहरण म्हणून याकडे पाहता येते.

मानवा प्रमाणे प्राण्यांचे निसर्गचक्रसुद्धा लक्षात घेण्यासारखे आहे.निसर्गावाढी मध्ये प्राणी सुद्धा नकळत निसर्ग समतोल साधत असतात याचे वर्णन करताना माडगूळर म्हणतात, “मेंढराचा कळप सारखा हलत राही. नाना जातींच्या गवताचे बी त्यांच्या लोकरीला चिकटून इकडून तिकडे प्रवास करी.जागोजागी पडे. पुढच्या वर्षी मेंढरांना खाण्याजोगे गवत त्यातून जन्म घेई.”(पृ.20)पशुपक्षांमध्येही निसर्गसंवर्धनाचे अप्रत्यक्ष कार्य कसे चालते. माणदेशातील निसर्गावर अवलंबून असणार येथील समाजाला त्यांच्या आयुष्यात झाडाझुडपांचे, निसर्गाचे महत्व अनन्यसाधारण आहे. केवळ माणूसच नाही तर मेंढरे, कुत्रे, मेंढके निसर्ग व भौगोलिक परिस्थितीनुसारच जीवनमान जगावे लागते आहे.प्राणीसुद्धा निसर्गाचाच एक भाग कसा असतो ही येथे लक्षात घेता येते.

समारोप:

माणूस सभोवतालच्या पर्यावरणासह घडत असतो.त्याचे घडणे, बिघडणे या सर्व घडामोडी निसर्गावर अवलंबून असतात. निसर्गाच्या बदलाचे परिणाम सामान्य माणसाला, शेतकऱ्याला, मजूराला आणि जनावरे सांभाळून त्याच्यावर उपजीविका करणाऱ्याला अधिक सोसावे लागतात. व्यंकटेश माडगूळकर यांच्या ‘बनगरवाडी’ या कादंबरीतील निसर्ग आणि माणूस याचे परस्पर संबंधाचे चित्रण नेटकेपणाने आले आहे . खेड्यापाड्यातील माणसांनाच खऱ्या अर्थाने निसर्गाचे महत्व कळते आणि अधिक जाणवते. मानवी जगण्याचा त्यांच्या सुख- दुःखाकडे केंद्रबिंदु निसर्ग आहे. निसर्गाचे चांगले वाईट परिणाम खेड्यातील लोकांवर होतात. माणदेश हा मुख्यतः कमी पाऊस पडणारा प्रदेश आहे.येथे पाऊस झाला तर आबाधीअबाध असते आणि दुष्काळ पडला तर माणसांची आणि जनावरांची वाताहत होते. दुष्काळामुळे लोकांची बिकट स्थितीचे वास्तवदर्शन येथील प्रदेशासह अधोरेखित झाले आहे. निसर्गाचा समतोल राखण्यासाठी अशिक्षित समाजबांधव प्राण्याचे संवर्धन करतात तसेच ; मानवाप्रमाणे प्राण्यांचे निसर्गचक्र सुद्धा लक्षात घेण्यासारखे आहे. निसर्ग,माणूस आणि प्राणी यातील सहसंबंध वरीलप्रमाणे लक्षात येतात.

निष्कर्ष:

1. कृषी संस्कृतीच संपूर्ण निसर्गावर अवलंबून आहे.
2. ‘बनगरवाडी’ कादंबरीत मानव आणि निसर्गासारख्या मूलभूत गोष्टीवर प्रकाश टाकला आहे.
3. आर्थिक, सामाजिक, सांस्कृतिक पर्यावरणाचा विचार करताना निसर्ग हाच या सर्वघकाचा केंद्रबिंदू आहेअसे आढळून येते.
4. कोरोनामुळे लॉकडाऊन जसा केला जातो तसा पर्यावरण सुधारण्यासाठी निदान वर्षातून पंधरा दिवस लॉकडाऊन केला पाहिजे.
5. त्यामुळे नैसर्गिक आपत्तीमुळे शेतकऱ्यांवर व मजुरावर उपासमारीची वेळ येते.
6. निसर्गच माणसाची उन्नती व अवनती करू शकतो इतके सामर्थ्य निसर्गात आहे.
7. समाजनिसर्गासाक्षर होण्याची गरज आहे.

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वातावरणातील बदल आणि भारतीय शेती : एक चिकित्सा**डॉ.संजीव कोळपे**

(सहयोगी प्राध्यापक) (भूगोल विभाग) कला, वाणिज्य व विज्ञान महाविद्यालय. गंगाखेड.

सारांश :

शेती हा मानवाचा प्राचीन व मुलभूत व्यवसाय आहे. प्राचीन काळापासून आजपर्यंत शेतीचे स्थान अनन्यसाधारण आहे. शेती विकासाचा विचार करतांना मानवाने आपले जीवन सुरवातीच्या काळात कठीण परिस्थितीत जगले आहे. जगातील बहुसंख्य लोकांचा प्रमुख व्यवसाय शेती आहे. पृथ्वीच्या एकूण भौगोलिक क्षेत्राच्या बराचसा भाग शेतीखाली आहे. या व्यवसायापासून मानवाला विविध प्रकारची साधनसंपत्ती मिळते. अन्न, वस्त्र, निवारा या मुलभूत गरजांपासून ते अनेक लहान मोठ्या वस्तुनिर्माण उद्योगधंद्यात शेती उत्पादनाचा उपयोग होतो. प्राचीन काळातील कृषी व आधुनिक काळातील कृषी यामध्ये खूप मोठा बदल झाला आहे. प्राचीन काळात शेतीकडे उदरनिर्वाहाचे साधन म्हणून पाहिले जात असे पण आजच्या काळात शेतीकडे उदरनिर्वाहाचे नव्हे तर उत्पादनाचे साधन म्हणून बघितले जात आहे. शेतीच्या माध्यमातून निर्माण होणाऱ्या उत्पन्नाचा थेट परिणाम देशाच्या अर्थव्यवस्थेवर होत आहे. भारतीय अर्थव्यवस्था ही शेती प्रधान आहे. आपल्या देशाची ६५ टक्के लोकसंख्या शेती व्यवसायावर अवलंबून आहे. कृषी हा भारतीय अर्थव्यवस्थेचा कणा समला जातो. राष्ट्रीय उत्पन्नात व रोजगार निर्मितीत शेतीची भूमिका महत्त्वपूर्ण आहे. तसेच वाढत्या लोकसंख्येच्या वाढत्या अन्नधान्याच्या गरजा पूर्ण करण्याचे काम शेतीच करते. देशातील निरनिराळ्या प्रदेशातही शेती व्यवसायात भिन्नता आढळते. कारण शेती ही त्या त्या प्रदेशातील निरनिराळ्या घटकांवर अवलंबून असते. पण अलिकडे निसर्गाच्या लहरीपणामुळे शेती व्यवसाय फायदेशीर ठरत नाही. शेतीवर वातावरणातील बदलाचे परिणाम होत असलेले आपणास दिसत आहेत. मानवाने आपल्या बुद्धी कौशल्याचा उपयोग करून शेती व्यवसायावर प्रभुत्व मिळवण्याचा प्रयत्न केला तरी नैसर्गिक घटक शेतीचा एकमेव आधार आहे. शेतीवर निसर्गाबरोबर अनेक घटकही परिणाम करणारे आहेत. शेती व्यवसायावर प्राकृतिक, सामाजिक, सांस्कृतिक, धार्मिक, आर्थिक व राजकीय अशा विविध घटकांचा प्रभाव पडतो.

प्रस्तावना :

या लेखाचा उद्देश 'जगबुडी होतेय' म्हणून ओरडण्याचा अथवा घाबरण्याचा नसून जे काही खरेच होत आहे त्याची जाणीव करून देणे एवढाच आहे. बदलत्या पर्यावरणाचे परिणाम हे शेवटी श्रीमंतापेक्षा गरीबांना आणि प्रगत राष्ट्रांपेक्षा विकसनशील आणि अविकसित राष्ट्रांना भोगावे लागणार आहेत. वातावरणात बदल अर्थात ष्वसपउंजम बींदहमण हा सध्याचा परवलीचा शब्द झाला आहे. प्रगत राष्ट्रांमध्ये यावरून बरीच चर्चा चालू आहे. युरोपियन राष्ट्रे यात पुढे आहेत. पण अमेरिका मात्र २००१ साली जेव्हा जॉर्ज डब्ल्यू बुश अमेरिकेचे राष्ट्राध्यक्ष झाले तेव्हा तर त्यांनी, 'असे काही नाहीच' असे म्हणून सुरवात केली. आता ते, 'असे काही तरी आहे' इथपर्यंत म्हणायला लागले आहेत पण त्यांना या विषयावरील जागतिक निर्णय घेताना आणि कृती निश्चित करताना भारत आणि चीन यांना देखील सहभागी करून घ्यायचे आहे. भारत व चीन म्हणतात की आम्ही विकसनशील राष्ट्रे असल्यामुळे विकसित होण्यासाठी उर्जा लागणारच (जी वातावरण बदलाचे एक मुख्य कारण आहे), तेव्हा प्रगत राष्ट्रांनी त्यात जास्त पुढाकार घेऊन पाऊल उचलावीत.

उद्दिष्टे :

- १) वातावरणातील बदलाचा आढावा घेणे.
- २) शेती संकल्पनेचा इतिहास अभ्यासणे.
- ३) शेतीवर परिणाम करणाऱ्या हवामान शास्त्रीय व प्राकृतिक घटकांचा अभ्यास करणे.
- ४) शेती विषयीच्या प्रश्नांचा आढावा घेणे.
- ५) शेती विकासासाठी उपाय सुचविणे.

संशोधन पद्धती :

प्रस्तुत शोध निबंधासाठी दुय्यम स्रोताचा उपयोग करण्यात आला आहे. त्यामध्ये संदर्भ ग्रंथ, संशोधन पत्रिका, मासिके, वर्तमानपत्रे, पुस्तके, इंटरनेट यांचा उपयोग करण्यात आला आहे.

‘वातावरण बदल’ म्हणजे नक्की काय? :

पृथ्वीच्या सभोवताली वातावरणाचे जे वेगवेगळे थर असतात त्यामुळे पृथ्वीवर जीवसृष्टीसाठी अनुकूल असे तापमान तयार झाले. सूर्याची किरणे जमिनीवर येतात आणि काही अंशी परावर्तित होऊन परत अवकाशात जातात. पण १८ व १९ व्या शतकातील औद्योगिक क्रांती आणि नंतरचा भ्रमसाट विकासाचा वेग, यामुळे जगातील विशेषतः सुरवातीस विकसित जगातील उर्जेचा वापर, गाड्या आणि पर्यायाने इंधन, कचऱ्याचे प्रमाण, जमीनीचा भ्रमसाट वापर वाढत गेला. त्यामुळे मुख्यतः कार्बन डायऑक्साईड आणि मिथेन हे वायू वातावरणात वाढू लागले. पण तो वातावरणात झपाट्याने वाढायला लागल्यामुळे त्याचे आवरण ज्याला 'ग्रीन हाऊस इफेक्ट' असे संबोधतात. ते तयार झाले त्या आवरणाचा परिणाम म्हणून जी सूर्यकिरणे सहज परावर्तित होऊन अंतराळात जाऊ शकत होती ती या आवरणांना छेदता येऊ न शकल्यामुळे वातावरणात राहू लागली. त्याचा परिणाम म्हणून तापमान वृद्धी होऊ लागली. गेल्या दशकात वातावरणातील तापमान सरासरीपेक्षा सातत्याने अधिक होऊ लागले. त्याच बरोबर असेही लक्षात येऊ लागले की हा बदल म्हणजे 'तापमान वृद्धी' या एकाच पद्धतीत मोडणारा नाही. कारण टोकाचे वातावरणीय बदल कधी कधी एकाच ठिकाणी जाणवू लागले. गोठवणारा कडाका किंवा उन्हाची होळी!

वातावरण बदलाचे परिणाम : वातावरण बदलाचे बरेच दृश्य—अदृश्य परिणाम :

१. वातावरणातील बदलामुळे हिमनग वितळू लागले आहेत. परिणामी एकीकडे समुद्रातील पाणी वाढून समुद्राची पातळी वाढू लागली आहे आणि किनारपट्टी कमी होऊ लागली आहे तर इतर काही ठिकाणी नद्यांना पूर येणे वाढू लागले आहे.
२. सुपीक जमिनीत पाणी वाढून तिची शेतीची क्षमता कमी होवू लागली आहे.
३. समुद्रातील तळातील पाण्याचे सरासरी तापमान वाढल्यामुळे चक्रीवादळांच्या जोराचे प्रमाण वाढू लागले आहे. त्याचा शेती व पिकांवर परिणाम होत आहे. वरील परिणाम हे जागतिक पातळीवर होत आहेत पण त्यातील कदाचित दोन धृवांरील बर्फ वितळण्याचा भाग सोडल्यास त्याचे सामाजिक, राजकीय, संरक्षण आणि आर्थिक परिणामांना भारतास आणि भारतीयांस सामोरे जावे लागणार आहे. उदा. बांगलादेशात त्रिभूज प्रदेश आहेत. वातावरणातील बदलामुळे त्यातील भूभाग गंगेच्या वाढत्या पाण्याने कमी होत आहे. दुसरीकडे समुद्राच्या वाढत्या पाण्याने जमिनी खारी आणि नापीक होत आहेत.

भारतीय शेती एक चिकित्सा :

१. **शेतीचे उत्पत्तीस्थान :** जगात शेतीचा शोध साधारणतः १०,००० वर्षांपूर्वी प्रथम मध्यपूर्वेतील आताचे इस्त्राईल, पॅलेस्टाईन, जॉर्डन, लेबनॉन, सिरीया, तुर्कस्थान, कुवेत व इराक या देशांमधील लगतच्या प्रदेशांचा मिळून जो अर्धचंद्राकृती आकार होतो त्या सुपीक प्रदेशात लागला. मध्यपूर्वेतील या प्रदेशाकडून शेतीचा प्रसार हळूहळू उत्तर आफ्रिकेतील इजिप्त, भूमध्यसागरीय प्रदेशातील देश, आशिया खंडातील इतर देश आणि युरोपमध्ये झाला. मध्यपूर्वेतील शोधानंतर भारतात ही शेतीपद्धती जवळपास ३५०० वर्षांनंतर पोचली असे मानले जाते. म्हणजे भारतीय शेतीला किमान ६५०० वर्षांचा इतिहास आहे असे समजण्यास हरकत नाही. **निकोलाय व्हॅव्हिलॉव्ह** या रशियन वनस्पती शास्त्रज्ञानुसार जगात पिकांची जी मुख्य आठ स्वतंत्र उगमस्थाने आहेत त्यात भारत, म्यानमार हा प्रदेश (भारताचा पश्चिमोत्तर भाग सोडून) देखील एक आहे. या प्रदेशात ज्यांची लागवड केली जात होती अशा ज्या ११७ वनस्पतींची व्हॅव्हिलॉव्हने नोंद केली त्यात तांदूळ, तूर, मूग, उडीद, चणा, चवळी, ही तृणवर्गीय कडधान्ये; वांगे, मुळा, काकडी यासारख्या भाज्या; आंबा, चिंच, संत्री, लिंबू यासारखी फळवर्गीय पिके व याशिवाय ऊस, कापूस, तीळ, करडई, ज्यूट ताग, काळे मिरे, दालचिनी यासारखी विविध प्रकारची महत्वाची पिके आहेत.
२. **भारतीय पुरातन शेतीचे स्वरूप :** भारतीय शेतीचे १) स्थानिक परिस्थितीशी सुसंगत अशा काटक बियाणांचा वापर. २) मतीचे स्वास्थ टिकवून ठेवणे. ३) शेतीतील जैवविविधता असे तीन मुख्य आधार होते. या मजबूत पायावरच भारतीय शेती गेली साडेसहा हजार वर्षे टिकून राहिली. शेतीतील शाश्वतता टिकून राहण्यासाठी इतर नैसर्गिक संसाधनांचे जसे पाणी, माती व जंगले यांचे जतन करणे गरजेचे आहे. यांची ग्रामस्थांना जाणीव होती. जंगलांचा शेती उत्पादनासाठी असलेला संबंध माहित असल्यामुळे 'ग्रामवनाची' निगा राखण्याची जबाबदारीही गावकऱ्यांची असायची. तसेच राज्यकर्त्यांकडून शेतकऱ्यांना दुष्काळी वर्षात बियाणे पुरविण्याची आणि गरीब गरजू जनतेला दुष्काळी कामे काढून अन्न पुरविण्याची पद्धत होती. म्हणूनच इंग्रजांची राजवट सुरु होण्याआधीच्या जवळपास दोन हजार वर्षांच्या

काळात २२ मोठे दुष्काळ देशात येऊन गेले तरी फार मोठ्या प्रमाणात मनुष्यहानी झाल्याच्या नोंदी आपल्या इतिहासात दिसत नाहीत.

३. **इंग्रजांच्या काळातील भारतीय शेती :** भारतावर इंग्रज सत्तेचा अंमल होण्यापूर्वीच्या काळापर्यंत येथील खेडी शेती व्यवस्थापनाच्या बाबतीत स्वायत्त होती. इंग्रज राजवटीत मात्र शेतकऱ्यांच्या स्वायत्ततेवर बंधने आली. प्रथम ग्रामस्थांचा त्यांच्या गावातील जंगलावरच्या स्थानिक व्यवस्थापनाचा अधिकार हिरावून घेण्यात आला. जमिनीवरील शेतसारा, जो आधी पिकांच्या उत्पादनाच्या जवळपास पाच टक्के असे, तो भरमसाट म्हणजे कधी कधी तर ५० टक्क्यांपेक्षाही जास्त वाढविण्यात आला. पीक येवो वा न येवो हा एवढा मोठा शेतसारा सरकारला देणे शेतकऱ्यांना अनिवार्य झाले. इंग्रजांच्या या धोरणाची परिणती शेतकऱ्यांचे कंबरडे मोडण्यात व अन्नधान्याचे दुर्भिक्ष होण्यात झाली. इंग्रजांच्या राजवटीत या चुकीच्या धोरणामुळे जमीनदारांचा व सावकारांचा नवा वर्ग तयार झाला आणि शेतकऱ्यांच्या लुटीला सुरवात झाली.
४. **हरितक्रांतीचा काळ :** भारताला स्वातंत्र्य मिळाल्यानंतर राज्यकर्त्यापुढे शेतीधोरण विषयक वेगळ्या प्रकारची आव्हाने होती. या पार्श्वभूमीवर सुरवातीच्या काळात धरण बांधणीला प्रोत्साहन देऊन व त्यातून सिंचनाच्या सोयी वाढवून, शेती शिक्षणाचा पाया विस्तृत करून, कृषी खात्याद्वारे गावांमध्ये शेती सुधारणेसाठी विस्तार कार्यक्रमाची मदत घेऊन, ग्रामीण भागात सेंद्रीय खत निर्मितीला प्रेरणा देऊन धान्य उत्पादन वाढविण्याचे प्रयत्न झाले. यावर उपाय म्हणून मागील शतकाच्या ६० व्या दशकाच्या मध्यात देशाला अन्नधान्य निर्मितीत स्वयंपूर्ण करण्यासाठी 'हरितक्रांतीच्या' तंत्रज्ञानाचा अवलंब करण्याचे धोरण केंद्र सरकारतर्फे स्वीकारण्यात आले. 'हरितक्रांतीच्या' तंत्रज्ञानामध्ये जास्त उत्पादन देणारी उन्नत बियाणे, रासायनिक खते व रासायनिक कीटकनाशके अशा 'त्रिसूत्रीचा' समावेश होता. जास्त उत्पादन देणाऱ्या वाणाला पोषकद्रव्यांचा सहज पुरवठा व्हावा म्हणून नत्र, स्फुरद व पालाश हे पुरविणाऱ्या रासायनिक खतांचा उपयोग अनिवार्य झाला. एकंदरीत या तंत्रज्ञानामुळे शेतीसाठी लागणाऱ्या बहुतांश निविष्टा बाजारातून विकत घेणे आवश्यक झाल्यामुळे शेतीचे एकप्रकारे बाजारीकरण झाले. 'हरितक्रांतीची' सुरवात प्रथम गहू व त्यानंतर तांदूळ या दोन महत्वाच्या धान्य पिकांपासून झाली. नंतर इतरही पिकांच्या बाबतीत या तंत्रज्ञानाचा अवलंब झाला. हरितक्रांतीनंतरच्या काळात आलेल्या दुष्काळ व पूर यासारख्या नैसर्गिक आपत्तीच्या परिस्थितीवर देखील देशातील राखीव अन्नसाठ्यामुळे आपण मात करू शकलो.
५. **जनुकीय संस्कारित अन्नाचे नवे पर्व :** जनुकीय अभियांत्रिकीद्वारा निर्मित बियाणांच्या वापराचा. या तंत्रज्ञानाचा विचार करतांना एक महत्वाची बाब म्हणजे हे तंत्रज्ञान अजूनही अचूक नाही. म्हणजे एका प्रजातीतील सजीवातून विशिष्ट जनुक दुसऱ्या प्रजातीतील सजीवाच्या जनुकीय रचनेत स्थानांतरित करतांना त्या जनुकासोबत इतरही जनुक अथवा जनुके जाण्याचा संभव आहे. ही नको असलेली जनुके तिथे जाऊन त्या सजीवाच्या जनुकीय रचनेत बदल करून काय उत्पात घडवून आणतील याचा अंदाज बांधणे आज तरी अवघड आहे. ज्या सजीवाच्या जनुकीय रचनेत हे नवे जनुक प्रस्थापित केले जाते तेथूनही त्या जनुकाचे परंपरागीकरणाच्या क्रियेद्वारा त्या प्रजातीच्या इतर वाणांमध्ये किंवा त्याच प्रजातीकुलाच्या इतर प्रजातीमध्ये स्थानांतरण होऊ शकते. अशा रीतीने निसर्गातील इतरही वाणे अथवा प्रजाती प्रदूषित होऊ शकतात व जैवविविधतेला धोका होऊ शकतो. महत्वाचे म्हणजे हे सर्व बदल अपरिवर्तनीय आहेत. म्हणजे जे घडून गेले त्याला पुन्हा मूळ पदावर आणणे शक्य नाही.
६. **भारतीय शेतीसमोरील आव्हाने :** १. भारतातील शेतकरी समुदायापैकी ९३ टक्के शेतकरी ४ हेक्टर जमीनधारणेच्या आतले आहेत. यापैकी साधारण ७६ टक्के शेतकऱ्यांकडे २ हेक्टरपेक्षा कमी जमीन असून यापैकीही ५४ टक्के शेतकरी केवळ १ हेक्टर जमिनीचेच मालक आहेत. एकूण आपल्या देशातील शेतकऱ्यांकडील शेतजमिनीची फार कमी धारणाशक्ती हीच एक मोठी समस्या असून यातील बहुतांश शेतकरी गरीब व साधनवंचित आहेत. भारतातील लागवडीखालील शेतीपैकी जवळपास ६५ टक्के जमीन कोरडवाहू असून ती मान्सूनमधील पावसाच्या लहरीपणावर अवलंबून आहे. २. संकरित बियाणे शेतकऱ्यांना दरवर्षी विकत घ्यावी लागत असल्यामुळे बियाणांच्या संदर्भात शेतकरी पुर्णपणे परावलंबी झाले आहेत. ३. आताची शेतीउत्पादन व्यवस्था शेतकऱ्यांच्या कौटुंबिक गरजांच्या पूर्तीपेक्षा बाजाराला हव्या असलेल्या गरजा पूर्ण करण्यावर भर देते. म्हणूनच या व्यवस्थेतील पीकपद्धत शेतकरी कुटुंब, त्या घरची गुरे व शेतजमीन यांच्या सुपोषणाचा विचार करून पिकांची निवड करण्यापेक्षा बाजारात मागणी असलेल्या नगदी पिकांच्या लागवडीचा प्राधान्याने विचार करते. ४. गेल्या ५० वर्षांतील शेतीपद्धतीमध्ये माती व पाण्याच्या व्यवस्थापनाकडे अक्षम्य दुर्लक्ष झाले. ५. गेल्या

अर्धदशकात स्वीकारलेल्या तंत्रज्ञानाचा तत्कालिक लाभ झाला. म्हणजे काही काळ कृषी उत्पादन वाढत गेले. परंतु त्या पातळीवर ते दीर्घ काळ टिकून राहिले नाही. ६. पारंपरिक पद्धतीने केली जाणारी सेंद्रीय शेती ही देखील शाश्वत शेतीपद्धती असली तरी ती आजच्या काळाचे उत्तर होऊ शकत नाही. कारण पुरातन काळी कसण्यासाठी उपलब्ध असलेल्या जमिनीचे लोकसंख्येच्या तुलनेतील प्रमाण जास्त होते. ७. वेगवेगळ्या भौगोलिक परिस्थितीशी जुळवून घेण्याची सर्व जीवमात्रांची नैसर्गिक प्रवृत्ती असते. त्यामुळे एखाद्या प्रजातीचे विविध वाण निसर्गात निर्माण झालेले आपल्याला दिसतात. या वाणांची आपापली वैशिष्ट्ये आहेत. त्यातील काही गुणधर्म तर फार महत्त्वाचे आहेत, जसे दुष्काळात पाण्याचा ताण सहन करणे, रोगाला सहसा बळी न पडणे इत्यादी.

भारतीय शेती विकासावर परिणाम करणारे घटक :

१. **हवामान** : हवामानातील तापमान, पर्जन्य, आर्द्रता, आकाशाची स्थिती, वारा, सुर्यप्रकाश इ. घटक समाविष्ट होतात. तापमान आणि पर्जन्यावर शेती उत्पादने निश्चित होतात. हवामानाचा शेतीच्या विकासावर परिणाम होतो असे नाही तर पिकांच्या प्रकारावर व त्याच्या उत्पादनावर ही प्रभाव पडतो.
२. **प्राकृतिक रचना** : पर्वत, पठारे, मैदाने यात पृथ्वीची प्राकृतिक रचना विभागली आहे. शेतीसाठी सपाट व मंद उताराचे प्रदेश, नद्यांची खोरी, त्रिभूज प्रदेश उपयुक्त ठरतात. या जमीनीची मशागत करणे सोपे जाते. पाण्याचा निचरा चांगला होतो. जमिनीची धुप होत नाही. तर पर्वताच्या उतारावर पायऱ्यापायऱ्याची शेती केली जाते.
३. **जमीन** : पिकाचे उत्पादन व प्रकार हे जमिनीच्या प्राकृतिक व रासायनिक गुणधर्मावर अवलंबून असतात. जमिनीचा रंग, पोत, खोली, जाडी हे प्राकृतिक गुणधर्मात तर जमिनीतील खनिज द्रव्ये, मृदाजल, विघटनशील द्रव्य यांचा रासायनिक गुणधर्मात समावेश होतो. जमिनीत खनिजे व क्षार असतात. सडलेल्या, कुजलेल्या वनस्पती व त्याचा पालापाचोळा, प्राण्यांचे मृतावशेष यामुळे जमिनीत सेंद्रीय द्रव्याचे प्रमाण वाढून ती सुपीक होत. तीची उत्पादन क्षमता वाढते.
४. **जीव घटक** : जमिनीतील काही बॅक्टेरिया, जीवाणू, गांडूळ या सारखे घटक जमीन भूसभूषीत करतात तर काही जीवाणू, विषाणू, कृमी, किटक, रोगजंतु, मुंग्या, वाळवी टोळधाड पिकांची फळे, फुले, पाने, मुळे खाऊन फस्त करतात.
५. **आर्थिक घटक** : उत्पादन व प्रक्रिया खर्च, वाहतूक, मजूर, बाजारपेठा, भांडवल, सरकारचे धोरण, व्यापार इ. घटक यात महत्वपूर्ण ठरतात.
६. **सरकारचे शेती विषयक धोरण** : शेतमालाला हमी भाव देणे, शास्त्रीय पद्धतीने शेती करण्याचा प्रचार व प्रसार करणे, नवनवीन तंत्रज्ञान उपलब्ध करून त्याची माहिती शेतकऱ्यांना देणे, शेती संशोधन कार्याला प्रोत्साहन देणे, साठेबाजी, भ्रष्टाचार, काळाबाजार रोखणे, भांडवल उपलब्ध करून देणे, नियोजन व व्यवस्थापन सहकार्य करणे इ.

भारतीय शेतीचा विकास—न सुटलेले प्रश्न : १) शेतमालाच्या किंमतीमध्ये मोठ्या प्रमाणावर चढ उतार होणे! २) भारत सरकारच्या शेतमाल किंमतीच्या धोरणामध्ये राज्यामध्ये होणारी वेगवेगळी अंमलबजावणी. ३) शेतकऱ्यांची प्राप्ती मंदगतीने वाढणे. ४) ज्या साधनांचा शेती उत्पादनामध्ये काटकसरीने वापर होणे अत्यावश्यक आहे अशा साधन संपत्तीचा भरमसाट वापर आणि नासाडी होते आहे. ५) विविध प्रकारच्या पिकांचे दर हेक्टरी कमी उत्पादन. ६) सामान्य शेतकऱ्याला इच्छा असूनसुद्धा शेती सोडून देणे जवळ जवळ अशक्य. शेतकरी शेतीमध्ये त्याच्या इच्छेविरुद्ध अडकून पडणे. ४० टक्के शेतकरी शेती सोडण्यास तयार आहेत. परंतु त्यांना पर्याय नाही. उपाय सुचवितांना प्रश्न क्र. १, २, व ३ किंमतीशी संबंधित असल्यामुळे त्यांचा एकत्रित विचार करू! सध्या, आपला माल विकताना शेतकऱ्यांवर अनेक बंधने आहेत. प्रश्न क्र. ४ संबंधी सरकारी धोरणे बदलणे आवश्यक आहे. प्रश्न क्र. ५ आपल्या शेतीची दरहेक्टरी उत्पादकता कमी राहण्याचे प्रमुख कारण म्हणजे आपले संशोधनाकडे झालेले आणि होत असलेले दुर्लक्ष होय. १९६५—६६ च्या हरितक्रांतीनंतर आपले सगळे लक्ष गहू, तांदूळ या दोघांकडेच आहे.

शेती किफायतशीर होण्यासाठी उपाययोजना : १. शेतांशी जोडले जाणारे बारमाही रस्ते निर्माण करणे. २. ग्रामपंचायत कार्यालयात कृषिसुविधा माहिती केंद्र सरकारच्या योजना, त्यांच्या अटी, प्रणाली इत्यादींची माहिती देणे. ३. शेतीसंबंधी शिक्षण रेडिओ, टी.व्ही. याद्वारा स्त्रिया, पुरुष यांना शेतमालाच्या प्रक्रिया उद्योगांसंबंधी माहिती द्यावी. ४. वातावरणातील बदलानुसार शेती उत्पादने घेण्यास शेतकऱ्यांना प्रोत्साहीत

करणे. ५. सेंद्रिय शेती करण्यासाठी प्रवृत्त करणे. किटक व तण नाशके वापरावर मर्यादा आणणे. ६. जमिनीचा पोत सुधारून तिची उत्पादकता वाढविणे. ७. शेत तळी, बंधारे, जलयुक्त शिवार योजना, पाणी आडवा पाणी जिरवा यासारख्या योजना राबविणे. ८. शेतीसाठी स्वस्त व मुबलक वीज उपलब्ध करून देणे. ९. शेतीसाठी भांडवलाची उभारणी करून देण्यास मदत करणे. १०. शेती मालाला हमी भाव, बाजारपेठ उपलब्ध करून देणे.

निष्कर्ष :

भारतातील शेती किफायतशीर करावयाची असेल व ग्रामीण भागातून शहरांकडे अनियोजित व अनियंत्रित स्थलांतर टाळावयाचे असेल तर ग्रामीण भागातील जीवनात लोकांना प्रगती व उत्साह वाटला पाहिजे. ते मुख्य उद्दिष्ट ठरवून शासकीय गुंतवणूक, शिक्षण, तंत्रशिक्षण ह्यांचा विकास ग्रामीण सिंचन व ऊर्जा विकास, ग्रामोद्योग, वनाधारित उद्योग व कृषिप्रक्रिया उद्योग, कृषि उत्पादनाचे साठवण, टिकविण्याच्या विपणनाच्या, व्यवस्थापनाच्या प्रक्रियांचे प्रशिक्षण, कृषिमालाचे वास्तविक किफायतशीर मूल्य निर्धारण करणे व ते मूल्य शेतकऱ्यांना खिशात पडेल ह्यासाठी कृषि विभागाने झटने, सगळ्या प्रक्रिया, तंत्रज्ञान, संशोधन यामध्ये शेतमजूर व शेतकऱ्यांना उचित सहभाग देणे, लहान शेती असलेल्यांना मोठ्या शेतीतील खर्चातील बचती पदरी पाडून घेण्यासाठी २० ते २५ शेतकऱ्यांना गटशेतीसाठी विशेष आर्थिक अनुदाने इत्यादींचा अवलंब केला गेला पाहिजे. हवामान बदलाची अचूक माहिती देणाऱ्या यंत्राची निर्मिती केली पाहिजे. महात्मा गांधींनी स्वातंत्र्य पूर्वकाळात सांगितले होते की, 'ज्या देशाची शेती प्रगत तो देश प्रगत, ज्या देशातील शेतकरी सुखी, तो देश सुखी' त्याच अनुषंगाने शासनाने शेती क्षेत्रात वेगाने सुधारणा करावी. तरच शेती विकास साध्य होईल.

संदर्भ :

- १) कृषी भूगोल : डॉ.विठ्ठल घारपुरे
- २) भारताचा भूगोल : डॉ. सुनिता शिंदे
- ३) कृषी भूगोल : डॉ.अरुण कुंभारे
- ४) कृषी विकासाचे अर्थशास्त्र : डॉ.पोवळे
- ५) नैसर्गिक शेती, पुणे, १९९१: भुजबळ भी.गो.
- ६) WWW.Gooole.com
- ७) सुलभ शेती : शास्त्र आणि व्यवसाय, १९५९: कुलकर्णी,दिगंबर
- ८) भारतातील शेती, नागपूर, १९६६: कुमार,एल.एस.एस

अनुसूचित जाति के छात्रों के पिता की व्यावसायिक और शैक्षिक स्थिति का अध्ययन

डॉ. साळवे संदिप गोरख

M.A.,B.ED.,M.ED.,PH.D.,PDF-ECONOMICS

भारतीय सामाजिक विज्ञान अनुसंधान परिषद नई दिल्ली.

सारांश:

प्रस्तुत शोध पत्र में अनुसूचित जाति के छात्रों के पिता की व्यावसायिक और शैक्षिक स्थिति का अध्ययन किया गया है। अनुसूचित जाति के छात्रों के पिता के व्यवसाय में मुख्य रूप से खेती, भूमिहीन खेतिहर मजदूर, मजदुरी, सरकारी नौकरी, निजी नौकरी आदी करको का अध्ययन किया गया है। पिता शिक्षा के तहत असाक्षर, प्राथमिक, माध्यमिक, स्नातक, स्नातकोत्तर, पीएचडी आदी करको का अध्ययन किया गया है।

अध्ययन का औचित्य/तर्क

अनुसूचित जाति के अधिकांश छात्र उच्च शिक्षा से वंचित हैं। उच्च शिक्षा प्राप्त करनेवाले अनुसूचित जाति के छात्रों को विभिन्न समस्याओं का सामना करना पड़ता है। इसका मुख्य कारण पिता की निम्न व्यावसायिक एवं शैक्षणिक स्थिति है। अनुसूचित जाति के छात्रों के पिता की व्यावसायिक और शैक्षणिक समझने की इच्छा से प्रस्तुत विषय का चयन किया गया। प्रस्तुत शोध कार्य में अनुसूचित जाति के छात्रों के पिता की शैक्षिक और व्यावसायिक स्थिति के तहत विभिन्न करको का अध्ययन किया गया है, इसलिए प्रस्तुत विषय महत्वपूर्ण है। अनुसूचित जाति के छात्रों की पिता की शैक्षणिक और व्यावसायिक स्थिति में सुधार करने के लिए एक निश्चित शैक्षिक और व्यावसायिक नीति तैयार करने के लिए प्रस्तुत अनुसंधान सरकार के लिए उपयोगी होगा।

अनुसंधान का उद्देश्य

- १) अनुसूचित जाति के छात्रों के पिता की शैक्षिक स्थिति का अध्ययन करना।
- २) अनुसूचित जाति के छात्रों के पिता की व्यावसायिक स्थिति का अध्ययन करना।

अनुसंधान प्रश्न/परिकल्पना

- १) अधिकांश अनुसूचित जाति के छात्रों के पिता असाक्षर हैं।
- २) अधिकांश अनुसूचित जाति के छात्रों के पिता भूमिहीन खेतिहर मजदूर हैं और वे मजदुरी का काम करते हैं।

अनुसंधान पद्धति : प्रस्तुत अनुसंधान वर्तमान काल से संबंधित है इसलिए वर्तमान अनुसंधान पूर्ण के लिए सर्वेक्षण पद्धति का उपयोग किया गया है।

तथ्य संकलन : तथ्य संकलन हेतु क्षेत्रीय स्रोत की प्रभावशाली इस प्रविधि का उपयोग किया गया है।

अनुसंधान की सीमाएं/दायरा : प्रस्तुत अनुसंधान कार्य अनुसूचित जाति के छात्रों के पिता की शैक्षिक और व्यावसायिक स्थिति तक ही सीमित है।

निर्देशन का चुनाव : अनुसूचित जाति के १० छात्रों का सांक्षेप नमूना चयन विधि का उपयोग करके निर्देशन का चयन किया गया है।

विश्लेषण

तालिका १ – लड़कों और लड़कियों की संख्या

अ.क्रमांक	छात्र	संख्या	प्रतिशत
१	लड़के	०७	७०%
२	लड़कियां	०३	३०%
३	कुल	१०	१००%

आधार- फिल्ड वर्क

उपरोक्त तालिका के आकड़ों से पता चलता है कि कुल छात्रों में से ७०% संख्या लड़कों की है और ३०% संख्या लड़कियों की है कुल छात्रों में से लड़कों का प्रतिशत अधिकांश है।

तालिका २ – छात्रों की शिक्षा का स्तर

अ. क्रमांक	शिक्षा स्तर	छात्र संख्या	प्रतिशत
१	यु.जी	०६	६०%
२	पी.जी	०३	३०%
३	एम.फील	०१	१०%
४	पीएचडी	००	००%
५	पीडीएफ	००	००%
६	कुल	१०	१००%

आधार- फिल्ड वर्क

उपरोक्त तालिका के आकड़े दर्शाते हैं कि कुल छात्रों में से ६०% स्नातक हैं। और ३०% छात्र स्नातकोत्तर हैं। जब कि १०% छात्र एम.फील धारक हैं। कुल छात्रों में से स्नातक छात्रों का प्रतिशत अन्य छात्रों के प्रतिशत से अधिकांश है।

तालिका- ३ छात्रों के पिता की शैक्षिक स्थिति

अ.क्रमांक	शिक्षा का स्तर	संख्या	प्रतिशत
१	असाक्षर	०२	२०%
२	प्राथमिक	०१	१०%
३	माध्यमिक	०३	३०%
४	उच्च माध्यमिक	०३	३०%
५	स्नातक	००	००%
६	स्नातकोत्तर	०१	१०%
७	पीएचडी	००	००%
८	कुल	१०	१००%

आधार- फिल्ड वर्क

उपरोक्त तालिका के आकड़े दर्शाते हैं कि, कुल उत्तरदाताओं में से २०% उत्तरदाताओं के पिता असाक्षर हैं। १०% छात्रों के पिता ने प्राथमिक शिक्षा पूरी की है। जबकि ३०% छात्रों के पिता ने क्रमशः माध्यमिक और उच्च माध्यमिक शिक्षा पूरी की है।

तालिका- ४ छात्रों के पिता की व्यावसायिक स्थिति

अ. क्रमांक	व्यवसाय	संख्या	प्रतिशत
१	खेती	०६	६०%
२	भूमिहीन खेतिहर मजदूर	०१	१०%
३	मजदूरी	०२	२०%
४	सरकारी नौकरी	०१	१०%
५	निजी नौकरी	००	००%
६	कुल	१०	१००%

आधार- फिल्ड वर्क

उपरोक्त तालिका के आकड़ों से पता चलता है कि, ६०% छात्रों के पिता खुद कि खेती में काम करते हैं। जब कि २०% छात्रों के पिता मजदूरी का काम करते हैं, और १०% छात्रों के पिता भूमिहीन खेतिहर मजदूर हैं।

निष्कर्ष

- १) कुल उत्तरदाताओं में से ७०% लड़के हैं और ३०% लड़कियां हैं।
- २) कुल उत्तरदाताओं में से २०% उत्तरदाताओं के पिता असाक्षर हैं।
- ३) कुल उत्तरदाताओं में से केवल १०% उत्तरदाताओं के पिता ने स्नातकोत्तर डिग्री संपादित की है।
- ३) कुल उत्तरदाताओं में से केवल १०% उत्तरदाताओं के पिता सरकारी नौकरी करते हैं।

४) कुल उत्तरदाताओं में २०% उत्तरदाताओं के पिता मजदूरी के काम करते हैं, और १०% उत्तरदाताओं के पिता भूमिहीन खेतिहर मजदूर हैं।

सुझाव/ शिफारीश

- १) अनुसूचित जातियों कि आर्थिक स्थिति में सुधार करने के लिए सरकार उन्हें मुफ्त में कृषी वितरित करे।
- २) अनुसूचित जाति के लोगों को कार्य कि समुचित सुविधा प्रदान कि जाए।

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मध्ययुगीन मराठी साहित्यातील निसर्गतत्त्व

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प्रास्ताविक

'नैसर्गिक संसाधने आणि शाश्वत विकास' हे सूत्र समजून घेताना एक महत्त्वाचा प्रश्न पुढे येतो, तो म्हणजे निसर्ग अगोदरचा की माणूस? वस्तुतः निसर्गाचे अस्तित्व माणसाच्या अगोदरचे आहे. पृथ्वीच्या सभोवती आणि पोटात असलेल्या अनेक घटकांमधून निसर्ग निर्माण झाला आहे.

पृथ्वीवरील सूर्यप्रकाश, हवा, पाणी, अग्नी, वायू, जमीन यांमधून जीवसृष्टी निर्माण झाली. त्यातील माणूस हाही एक जीव आहे. ज्यामुळे आपण जन्मलो त्या तत्त्वाविषयी अनेक विचारवंत, शास्त्रज्ञ, संशोधक, अभ्यासक विचार मांडत आहेत. त्यात साहित्यिकही मागे नाहीत. मध्ययुगातील मराठी साहित्य निसर्गतत्त्वाकडे कोणत्या भूमिकेतून पाहता होते, हे शोधणे आवश्यक ठरते. त्यापूर्वी निसर्गतत्त्व म्हणजे काय, याचा शोध घ्यावा लागतो.

निसर्गतत्त्व म्हणजे काय ?

निसर्गातील विविध घटकांमधून अनेक सजीव - निर्जीवांना जावे लागते. त्या घटकांचा त्यांच्यावर प्रभाव पडलेला असतो. निसर्गातील ज्या घटकांचा सजीव वा निर्जीव प्राण्यांवर परिणाम होतो त्यास निसर्गतत्त्व असे म्हणता येते. या तत्त्वांनाच पूर्वी पंच महाभूते असे म्हटले जात होते. पृथ्वी, आप (पाणी), तेज (अग्नी, उष्णता, प्रकाश), वायू आणि आकाश ह्या पंच महाभूतातून मानवी शरीर बनल्याचे सांगितले गेले.

गौतम बुद्धांनी त्यातील आकाश हा घटक नाकारला. त्यांच्या मते, 'माणसाच्या अस्तित्वाचे चार घटक आहेत : पृथ्वी, आप, तेज, वायू. प्रश्न असा आहे की, मनुष्यदेह मृत झाल्यावर त्याच्या या चार भौतिक घटकांचे काय होते? मृत शरीराबरोबर तेही मृत होतात काय? काही लोक म्हणतात, 'होय'. भगवान बुद्ध म्हणतो, 'नाही', ते घटक पदार्थ आकाशात तरंगणाऱ्या समूहाला (मास) मिळतात...' (आंबेडकर: २००६, पृ. २५४) म्हणजे मानवाचे वा इतर कोणत्याही जीवाचे अस्तित्व हे निसर्गातील जमीन, माती, पाणी, हवा, अग्नी, विविध क्षार, तेल अशा किती तरी घटकांवर अवलंबून असते. निसर्गातील या घटकांना, पदार्थांना अथवा महाभूतांना आपण निसर्गतत्त्व म्हणू शकतो.

निसर्गतत्त्वांचा आणि मानवाचा घनिष्ठ संबंध आहे. अग्नीदेवता, वरूणदेवता, जलदेवता, वायुदेवता ह्या अद्यमानवाने निर्माण केल्या त्या निसर्गातील शक्तींना समोर ठेवून. ही तत्त्वे जोपर्यंत आहेत तोपर्यंत ही जीवसृष्टी आहे. ती संपली की माणूसही संपणार. अजाणतेपणाने का असेना परंतु माणूस निसर्गाला आपला सखा-सोबती मानतो. वस्तुतः निसर्ग हा मानवाच्या शरीर आणि जीवाचा अविभाज्य भाग आहे. या निसर्गतत्त्वाला साहित्यिकांनी आपल्या साहित्यात मांडले आहे. मध्ययुगीन मराठी साहित्यातील निसर्गतत्त्व कसे आहे याचा शोध घेतला पाहिजे.

मध्ययुगीन मराठी साहित्य

कोणत्याही साहित्याचा आरंभ हा मौखिक रूपात झालेला आहे. माणूस बोलायला लागला आणि वाङ्मय निर्माण झाले. वेदपूर्व काळापासून ते लिखित साहित्य उपलब्ध होईपर्यंतचे साहित्य हे लोकसाहित्य म्हणून गणले जाते. लोकगीत आणि लोककथा यांमधूनही निसर्गतत्त्व आढळते. शिलालेख, ताडपत्र, ताम्रपट यांवरही चंद्र, सूर्य, प्राणी, झाडी, डोंगर, हवा पाणी यांची चित्रे आढळत आहेत. "... (शामन) हा आपल्या कळपाला टोळीला, निसर्गपूजा, पशूपक्षी पूजा, जीवितरक्षण याविषयी मार्गदर्शन करीत हे त्यांचे मार्गदर्शन मौखिक गीतातून चाले." (पाटील : १९९८, पृ. ७०)

बाराव्या शतकात महानुभाव आणि वारकरी संप्रदायाचा उदय झाला. पुढे पंडिती साहित्य आले. पुढे आलेल्या शाहिरी साहित्यातही निसर्गतत्त्वांना स्थान मिळाले. बखरकारांनी राजे आणि राजवटींविषयी लिहिताना ऊन, वारा, पाऊस, नदी अशा किती तरी घटकांना बखरीतून मांडले. १८१८ मध्ये इंग्रजी राजवट आली आणि समाजजीवनात अमुलाग्र बदल झाला. धर्म, अध्यात्म

आणि ईश्वरभक्ती या प्रेरणेने लिहिलेल्या साहित्याला नवे वळण मिळाले. त्यामुळे आरंभापासून ते १८१८ पर्यंतच्या साहित्याला मध्ययुगीन साहित्य म्हणून ओळखले जाते. या साहित्यातील निसर्गतत्त्व कशा रूपात आले आहे ते लक्षात घेता येईल.

मध्ययुगीन मराठी साहित्यातील निसर्गतत्त्व

मध्ययुगीन मराठी साहित्य हे मौखिक साहित्य म्हणजेच लोकसाहित्याचा आधाराने विकसित होत आले आहे. मध्ययुगीन मराठी साहित्यातील अतिशय महत्त्वाचा गद्यग्रंथ म्हणजे 'लीळाचरित्र'. चक्रधरस्वामींचे जीवन-विचार म्हाझंभटाने मांडले. त्या माध्यमातून निसर्गतत्त्वातील अनेक बाबी शब्दबद्ध झाल्या आहेत. 'एक होता कावळा. एक होती चिमणी. चिमणीचे घर मेणाचे. कावळ्याचे घर शेणाचे. पाऊस येतो. कावळ्याचे घर वाहून जाते. चिमणीचे वाचते...'. ही कथा एका लहान मुलीला चक्रधरांनी सांगितली आहे. चिमणीच्या मेणाच्या घराप्रमाणे शास्वत विकास साधला पाहिजे, अन्यथा कावळ्यासारखी मानवाची अवस्था होऊ शकते, हा बोध ही कथा देते.

निसर्गातील चराचराचे सहजीवन किती मनःपूर्वक सांभाळले पाहिजे, याविषयीची एक लीळा आढळते. एका दिवशी चक्रधर स्वामी एका झाडाखाली बसले होते. एक ससा त्यांच्या दिशेने पळत येत होता. मागे दोन कुत्रे लागले होते. ससा जवळ येताच त्यांनी मांडी उचलली आणि ससा मांडीखाली बसला. शिकारी येऊन ससा मागतात. शरण आलेल्यास मरण देऊ नये असे म्हणून ससा मागणाऱ्यांना चक्रधर म्हणतात, " हां गा : एं रानीवनीं असति : तृण खाति : नदीवाहाळाची उदकें पीति : यांते तुम्ही कां गा मारा? एं तुमचे काइ करीति?" (उपासे, कळके: २००५, पृ. ४७) अहिंसेचा पुरस्कार करताना सजीव घटकांकडेही चक्रधरांचे लक्ष होते, हे या लीळेवरून लक्षात येते.

महानुभाव पंथातील केशिराजबास यांनी नागदेवाचार्यांच्या परवानगीने 'सूत्रपाठ' आणि 'दृष्टांतपाठ' (शके १२९०) हे दोन ग्रंथ निर्माण केले. दृष्टांतपाठात कृषीजीवन आणि पर्यावरण आले आहे. ते विचार या अर्थाने येत नसले तरी जीवनव्यवहाराचा एक भाग म्हणून आले आहे.

'चंदनाचीया जवळिका सुगंधता सुशीतळता ए: परि आणिकाते वेधीजे हें न ए' (पाटील : २०२०, पृ. २४) चंदनाचे झाड जिथे असते तिथल्या जवळपासच्या झाडांनाही चंदनाचा सुगंध आणि शीतलता येत असते, हे निसर्गातील वास्तव केशिराजबासांनी कथन केले आहे. 'कव्हणी एक हीरियांची खाणि खणति: खणताखणतां खांब राखति:' (तत्रैव, पृ. ४६) या दृष्टांतातही जमिनीच्या पोटातील हिरा या खनिज संपत्तीचे उदाहरण त्यांनी दिले आहे.

'तनधैलें वावर असे: ते आंतु बाहीरि तनें दाटले असें: तथा धालें असें: मग नांगरीजे: दुनिजे: कांसीया फेडीजति: मग पेरीजे: कुंभचासी तथा आतौनि पीके: ना तैसेचि पेरीजे तरि न पीके' (तत्रैव, पृ. ४९) या दृष्टांतात जमिनीत पीक चांगले यावे यासाठी तण काढून पेरावे लागते, हे कृषिकर्तव्य आले आहे.

संत ज्ञानेश्वरांनी लिहिलेल्या 'ज्ञानेश्वरी' या ग्रंथातही निसर्गतत्त्वे आढळतात. पहिल्या अध्यायातील पंचविसाव्या ओवीत ते म्हणतात, " जैसे मूळसिंचनी सहजे। शाखापल्लव संतोषति।" (कुलकर्णी : १९९३, पृ. ३) झाडाच्या मुळांना पाणी घातले की फांद्यांना आपोआप पालवी फुटत जाते. पाणी हे तत्त्व किती उपयुक्त आहे हे संतांनी जाणले होते. चाळीसाव्या ओवीतही याची प्रचीती येते. " कां सुक्षेत्रिं बीज पातले। तें आपुलिया परी विस्तारलें। तैसें भारती सुरवाडलें " (तत्रैव, पृ. १०) पेरलेले बी वाढण्यासाठी सुपीक जमीन हवी असते. ती मिळाली की बी आपोआप वाढून मोठे होते. महाभारत हा ग्रंथही तसा सुपीक आहे.

संत नामदेव यांच्या अभंगात आलेला निसर्ग हा उपयुक्ततेच्या तत्त्वातून येतो. 'रक्त चंदनाची घेतलीसे उटी' (नामदेव गाथा: २०१७, पृ. ४०) ही ओळ चंदनाची उपयुक्तता स्पष्ट करते. 'तू आकाश मी शामिका।', 'तू समुद्र मी चंद्रिका।', 'तू नदी मी थडी।', 'मी कुडी तू आत्मा।' (तत्रैव, पृ. ६०५) 'प्रळयाचे काळी ब्रह्मांड जळालो। कोण त्यांत उरलें सांगा मजा।', (तत्रैव, पृ. ७८४), 'नीर समुद्र तो कोणा।', 'रत्न समुद्र तो कोणा।', 'नाभी रत्नाकर देखा।' (तत्रैव, पृ. ७८५) या ओळी जीवन जगताना आकाश, समुद्र, नदी, पाणी, प्रलय यांना कसे समोरे जावे लागते, याचा प्रत्यय देतात.

संत चोखामेळा यांनीही आपल्या अभंगातही निसर्गतत्त्वातील अनेक घटक सामावून घेतले आहेत. 'ऊस डोंगा परी रस नोहे डोंगा।' 'नदी डोंगी पर जळ नव्हे डोंगे।' (चोखामेळा: १९९८, पृ. १६१) या ओळी नदी आणि पाणी यातले निसर्गतत्त्व व्यक्त करतात. 'जन्मला देह पोशिला सुखाचा। काय भरंवसा याचा आहे।' (पृ. १५९), 'फुलाचे अंगी सुवास असे। फूल वाळलीया सुवास नसे।' (पृ. १६०) या ओळी निसर्गातील जीवांचे मरण व्यक्त करतात.

पुढील काळात संत तुकाराम यांनी लिहिलेले अनेक अभंग हे निसर्गतत्वांना वाहिलेले आहेत. 'गंगा नव्हे जळावृक्ष नव्हे वड पिंपळा समुद्र नव्हे पै गा। पाषाण म्हणो नये लिंगा।' (अभंगाची गाथा:२०२१,पृ.१११), 'फळ देंठीहून झडे। मग मागुते न जोडे।' (पृ.३९९), 'फळ पिके देठी। निमित्य वारियाची भेटी।' 'तोडलिया बळे वाया जाती काची फळे।' (पृ.४००), 'वृक्षवल्ली आम्हा सोयरी वनचरे। पक्षी ही सुस्वरे आळविती।' (पृ.५२१), 'भूमि अवधी शुध्द जाणा। अमंगळ हे वासना। (पृ.६४६), 'प्रजन्ये पडावे आपुल्या स्वभावे। आपुल्याला दैवे पिके भूमि।' (पृ.४३०) या संबंध ओळी निसर्गातील जीवांचे चलन वलन उघड करतात. त्यातील पाणी, भूमी, वृक्ष, फळ, वनचरे, पक्षी यांच्याबरोबर माणसाचे असलेले सहोदरपण स्पष्ट करतात.

पंडिती साहित्य हे पुराणांवर आधारलेले असल्यामुळे निसर्गघटकांचा पुरेपूर वापर त्यांनी अनेक रचनांमधून केला आहे. दासोपंत, मुक्तेश्वर, वामन पंडित, श्रीधर, मोरोपंत, रघुनाथ पंडित अशा अनेक पंडित कविंनी संस्कृतप्रचूर मराठी रचनांमधून निसर्गातील अनेक प्रतिमा उपयोगात आणल्या. त्याची स्वतंत्र नोंद घ्यावी लागते.

मराठी शाहिरींनी लावणी आणि पोवाड्यांमधून निसर्गाची अनेक रूपं रसिक-वाचकांपुढे सादर केली आहेत. रामजोशी, अनंत फंदी, सगनभाऊ, परशुराम, प्रभाकर, होनाजी बाळा यांनी रंजनप्रधान आणि विचारप्रधान काव्य रचली आहेत.

पोवाडा हा मध्ययुगीन मराठी साहित्यातील एक प्रकार आहे. वीरांच्या पराक्रमाचे वर्णन करणे हा पोवाड्याचा मुख्य उद्देश असतो. त्यामुळे मध्ययुगीन मराठी पोवाड्यातून निसर्गतत्त्व फारसे आढळत नाही. लढाईचे वर्णन करताना कुठे तरी निसर्गप्रतिमा डोकावतात. शाहीर प्रभाकर यांनी ' खर्ड्याच्या लढाईचा पोवाडा ' रचला. त्यातील एका चौकात पुढील ओळ येते. ' काय फलटणच्या फैरा झडती। पर्जन्यपरि गोळ्या पडती।। शिरकमळे कुटुंकवत उडती। छिन्न भिन्न किती होऊन रडती।। कितीक पाण्याविण तडफडती। (केळकर : २०८,पृ.१८९) गोळ्यांना पाऊस कोसळतो अशी उपमा दिली आहे. पाणी न मिळाल्याने तडफडणारे सैनिक चित्रित केले आहेत. यापेक्षा बखर वाङ्मयातून मात्र मोठ्या प्रमाणात निसर्ग आढळतो.

सतराव्या शतकात रामचंद्रपंत अमात्य यांनी ' आज्ञापत्र ' हा ग्रंथ लिहिला. छत्रपती शिवाजी महाराजांनी स्थापन केलेले राज्य आणि त्यांची ध्येयधोरणे पुढील राजांना कळावीत या भूमिकेतून हे लेखन करवून घेतले आहे. आपला प्रदेश आणि तिथली नैसर्गिक साधनसंपत्ती यांचे रक्षण करणे किती आवश्यक आहे याचा विचार ' आज्ञापत्र ' या गद्यग्रंथात आढळतो. ' सेवक अथवा वृत्तिवंत यास हरएक कार्यप्रयोजनामुळे भूमि इनाम करून देणे हा परम अन्याय. '(खोले:२००८,पृ. ७४)असा स्पष्ट आदेश शिवरायांनी दिला होता.

राज्यातील गडांचे रक्षण करण्यासाठी कलारग्याची झाडे लावून वाढवावीत. त्याची एक काठीसुध्दा तोडू देऊ नये. पाणी आहे की नाही हे पाहून गड बांधावा. पाणी नसेल तर तळे, टाक्या बांधाव्यात. गडावरचे झरे युध्दातील आवाजामुळे नाहीसे होऊ शकतात, याचा विचार करून, ' गडाचें पाणी बहुत जतन राखावे.' (तत्रैव,पृ.८२) रयतेने लावलेली झाडे, त्यास हात लावू नये. रयतेने ती लेकरांसारखी जतन केलेली असतात. शिवाय, " या वृक्षांच्या अभावे हानिही होत्ये. " (तत्रैव, पृ.८८) असा स्पष्ट इशारा शिवराय देतात. यावरून राज्यातील नैसर्गिक साधनसंपत्ती कशी जतन करावी या बाबतीत आलेला विचार आजही उपयुक्त ठरतो. 'सभासदाची बखर', 'भाऊसाहेबाची बखर' अशा अनेक बखरीतील युध्दवर्णनात बखरकारांनी निसर्गातील अनेक घटक वापरले आहेत. 'अम्नीचा लोळ', 'पावसाचा वर्षाव', 'धरणी कंप' असे शब्द वापरून निसर्गतत्त्व साकार केले आहे.

समारोप

एकंदरीत मध्ययुगीन मराठी साहित्यात आढळणारे निसर्गतत्त्व हे त्या त्या साहित्यिकांनी मुद्दामहून चित्रित केलेले नाही. निसर्गातील विविध घटकांबरोबरीने वाटचाल करणे हा जीवन जगण्याचाच एक भाग बनलेला होता. त्यामुळे आपली अनुभूती मांडताना निसर्ग प्रतिमा येणे हे साहजिक होते. सुख-दुःखाच्या अनेक प्रसंगांत सावरण्यासाठी केलेले मार्गदर्शन हे निसर्गातील उदाहरणे देऊन केले जात होते.

लोककथा आणि लोकगीतांमधून प्रकट झालेले लोकमानस निसर्गातील विविध शक्तींना समोर ठेवून आले आहे. लीळाचरित्र आणि दृष्टांतपाठ यांमधील दृष्टांत हे पाऊस,पाणी,वारा,अग्नी, माती अशा निसर्गतत्वांना अनुलक्षून आले आहेत.

संतांनी आपल्या रचनांमध्ये निसर्गाला दिलेले स्थान लक्षणीय स्वरूपाचे आहे. त्यात निसर्गाची काळजी आहे, निसर्गावरचे प्रेम आहे.

निसर्गतत्वाशिवाय माणूस असू शकत नाही. त्याचे सुख-दुःख हे निसर्गाशी बांधून आले आहे याची स्पष्ट जाणीव या काळातील साहित्यात व्यक्त झाली आहे.

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इतिहास विभाग

तुळजाराम चतुरचंद कॉलेज, बारामती

नैसर्गिक साधन संपत्तीची साधने व जैविक साधन संपत्तीद्वारे मानवाच्या गरजा पूर्ण होतात त्यामुळे अशा प्रकारच्या विविध साधनांमुळे देशाचा राज्याचा विकास घडून येतो मात्र साधन संपत्ती बाबत विचार केल्यास हि साधन संपत्ती सर्वत्र सारखी आढळत नाही मानवी आर्थिक जीवनाचा पाया म्हणजे साधन संपत्ती होय. असेच म्हणावे लागेल कारण ज्या देशात साधन संपत्तीची उपलब्धता तो देश आधुनिक /प्रगत तर ज्या देशात नैसर्गिक साधनांची कमी प्रमाणात उपलब्धता तो देश अप्रगत किंवा मागास समजला जातो त्यावरून त्या देशाची आर्थिक परिस्थिती हि समजते त्यामुळे कोणत्याही देशातील साधन संपत्ती महत्वाची आहे. या साधन संपत्तीत हवा, पाणी, वनस्पती, खनिजे, मृदा, सौरऊर्जा यांचा समावेश होतो. प्रत्येक देशातील साधन संपत्ती हि लोकांच्या विविध गरजा पूर्ण करण्यासाठी उपयोगी पडते. यामधूनच देशाचा आर्थिक व औद्योगिक विकास केला जातो म्हणूनच प्रत्येक राष्ट्र साधन संपत्तीसाठी प्रयत्नशील असतात साधनसंपत्तीच्या माध्यमातून औद्योगिकरण होते त्यासाठी नैसर्गिक साधन संपत्तीचा उपयोग केला जातो त्यामधून त्याचा क्षय होऊन न्हास होत आहे त्यामुळे प्रत्यक्ष शोधाचा लागत आहे जर सतत असाच साधन संपत्तीचा वापर होत गेला तर एकवेळ अशी येईल कि हि साधन संपत्ती नष्ट पावतील म्हणून राष्ट्रांनी त्याच्या वापरावर बंधन आणले पाहिजे व काटकसरीने त्याचा वापर केला पाहिजे यालाच साधन संपत्तीचे संवर्धन म्हणतात. साधन संपत्तीच्या बाबतीत भारताचा विचार केल्यास भारतात अत्यंत मर्यादित साधन संपत्ती आहे व तिचा वापर करणारी जनता मोठ्या प्रमाणात आहे यामुळे साधन संपत्तीवर ताण येत आहे त्यामुळे तिचा नियोजनपूर्वक वापर केला तरच तिचे संवर्धन करू शकू.

उद्देश :

१. नैसर्गिक संसाधनाचे संरक्षण करणे कसे महत्वाचे आहे याचा आढावा घेणे.
२. नैसर्गिक संसाधनाच्या स्तोत्रांची चर्चा करणे.
३. नैसर्गिक संसाधने राष्ट्रांच्या दृष्टीने कशी महत्वाची ठरतात हे पाहणे.
४. नैसर्गिक संसाधने कशी न्हास पावत आहेत याच्याकडे लक्ष वेधणे.
५. नैसर्गिक संसाधनाच्या संरक्षणाच्या उपाय विशद करणे.

गृहीतके :

१. नैसर्गिक संसाधनाचे संरक्षण करणे महत्वाचे आहे.
२. नैसर्गिक संसाधने आज पुरेशी उपलब्ध होतात परंतु कालांतराने त्यांचा न्हास होणार आहे.
३. नैसर्गिक संसाधने राष्ट्रांच्या दृष्टीने महत्वाची आहेत.
४. औद्योगिकरणासाठी नैसर्गिक संसाधनांचा उपयोग केला जात आहे.

संशोधन पद्धती :

सादर शोध निबंध शास्त्रीय, वर्णनात्मक व विश्लेषणात्मक पद्धतीने मांडला आहे तसेच या शोध निबंधांसाठी दर्जेदार वृत्तपत्राच्या बातम्यांचा आधार घेतला आहे. तसेच विषयाच्या अनुषंगाने उपलब्ध झालेली संदर्भ साधने, ग्रंथ, इंग्रजी भाषेतील ग्रंथ याचा उपयोग केला आहे.

साधन संपत्तीचे संवर्धन

साधन संपत्तीमध्ये जमीन, नैसर्गिक वनस्पती, प्राणी, खनिजे, हवा, यांचा प्रामुख्याने समावेश होतो त्यामुळे अशा संसाधन साधनांचे जतन व संरक्षण करणे महत्वाचे आहे आहे म्हणून त्याचे संवर्धन कशाप्रकारे करता येईल याचा आढावा घेणे क्रम प्राप्त आहे.

जमीन :

जमीन हि महत्वाची साधन संपत्ती आहे. कारण मानवाच्या अनेक गरजा भागविते गेली कित्येक वर्षांपासून शेती केली जात आहे मात्र ती अयोग्य पद्धतीने केली जात आहे. त्यामध्ये नैसर्गिकाची अयोग्य पद्धत रासायनिक खते आणि कीट. ७ नाशकांचा

बेसुमार वापर त्यामुळे जमिनी होत चालल्या आहेत एकाच पीक सारखे घेण्यामुळे तिच्यातील विशिष्ट घटकद्रव्य आहेत नैसर्गिक कारणांमुळे जमिनीची धूप घडून येते परंतु त्याही पेक्षा जास्त मानवी चुकांमुळे धूप घडून येते पाण्याच्या अतिवापरामुळे जमीन क्षारपड बनत आहे. म्हणून जमीन संधारणाची गरज आहे. जमीन संधारणाचे काही उपाय पुढील प्रमाणे करता येतील

१. उताराच्या आडव्या दिशेने मशागत करावी अति उतार असल्यास पायऱ्या पायऱ्या करावी
२. शेत जमिनीचे बांध उंच करावेत
३. शेताच्या बांधावर उंच वाढणारी झाडे लावावीत.
४. शेतामध्ये आलटून पालटून पिके घ्यावीत
५. काही दिवस जमीन पडीक ठेवावी
६. पाण्याचा आणि खतांचा आवश्यक तेवढाच वापर करावा
७. शेतात शेणखत किंवा गांडूळ खत कंपोस्ट व सोनखत वापरावे.

नैसर्गिक वनस्पती :

कोणत्याही प्रदेशाचे नैसर्गिक पर्यावरणीय संतुलन टिकवायचे असेल तर त्या प्रदेशाच्या ३५% भूभागावर वनाच्छादन असावे लागते परंतु भारतात हे प्रमाण २५ ते २६% आढळते कारण विविध उपयोगासाठी बेसुमारपणे जंगल तोड केली जात आहे. त्यामुळे पर्यावरणाचे संतुलन ढासळत आहे. भारताप्रमाणेच वनस्पतीच्या बाबतीत जगात हि अशीच स्थिती आहे. त्यामुळे वनस्पतीच्या संधारणाची आवश्यकता आहे त्यासाठी उपाययोजना करणे गरजेचे आहे त्या पुढील प्रमाणे करता येतील .

१. पडीक अथवा मोकळ्या जागेवर वृक्षारोपण करणे.
२. वृक्षतोड करावयाची असेल तर टप्प्या टप्प्याने करून नवीन वृक्ष लागवड करावी..
३. रस्त्याच्या दुतर्फा झाडे लावावीत
४. इंधनासाठीच्या वापरासाठी लाकडांऐवजी इतर साधनांचा वापर करावा.
५. वनस्पतीचे वृक्ष लागवडीचे महत्व लोकशिक्षणातून सांगावे.

प्राणी संपदा :

प्राणीसंपदे मध्ये पाळीव प्राणी, वन्य प्राणी, पक्षी, आणि जलचर येतात त्यांच्या पासून दूध अंडी मांस हाडे कातडी चरबी शिंगे हस्तिदंत मोरपिसे मिळतात यांना मागणी मोठ्या प्रमाणात आहे. त्यामुळे त्यांची चोरून शिकार केली जाते तर काही हौस म्हणून शिकार करतात परिणामी काही प्राणी नामशेष होऊ लागले आहेत. त्यामुळे प्राणिसंपदा वाचवायची असेल तर पशु पक्षांचे संवर्धन झाले पाहिजे त्यासाठी खालील प्रमाणे पावले उचलावी लागतील.

१. वन्य पशु पक्षांच्या शिकारीवर बंदी.
२. चोरून शिकार करणाऱ्यास जबर शिक्षा किंवा दंड ठोठावणे.
३. औषधासाठी किंवा इतर उपयोगासाठी पशुपक्षांच्या मांसाचा, हाडाचा वापर करण्यावर बंदी आणावी.
४. दुर्मिळ प्राण्यांकरिता मुक्त अभयारण्य उभारून जंगले राखीव ठेवावीत.
५. नामशेष होणाऱ्या जलचरांसाठी आरक्षित जलक्षेत्र निर्माण करावीत.

खनिजे :

पृथ्वीचा १/४ पृष्ठभाग वेगवेगळ्या खनिजांनी व्यापला आहे. हि खनिजे शक्ती साधन म्हणून औद्योगिकरणामध्ये संपूर्ण जग वापरत असल्यामुळे एक प्रकारे औद्योगिकविश्व निर्माण झाले आहे. परंतु हि खनिजे कधीतरी संपणार असल्यामुळे व त्याची निर्मिती मानवास करता येत नसल्याने त्याचे संवर्धन करणे आवश्यक आहे. त्यासाठी खालील प्रयत्न होणे आवश्यक आहे.

१. शक्ती व ऊर्जा मिळविण्यासाठी दगडी कोळसा व खनिज तेल वापरण्या ऐवजी सौरऊर्जा व जलविद्युत यांचा वापर करावा.
२. खनिज साठ्यांच्या वापराबाबत धोरण ठरवावे लागेल
३. खनिजे वाया जाऊ नयेत म्हणून ती काढताना उच्च प्रतीच्या तंत्रज्ञानाचा वापर करावा.

हवा :

हवासुद्धा साधन संपत्ती आहे. हवेशिवाय मानव किंवा प्राणी जगू शकत नाही परंतु निसर्गातील शुद्ध हवा मानवनिर्मित औद्योगिकरणामुळे आहे. त्यामुळे हवेच्या संवर्धनाची आवश्यकता वाटू लागली आहे. तिचे संवर्धन पुढी, प्रमाणे करता येईल.

१. प्रत्येक नागरिकाने आपल्या गावात , शहरात प्रदूषण होणार नाही याची काळजी घेतली पाहिजे.

२. शहरातील वाढणारी गर्दी कमी केली पाहिजे.
३. उद्योगधंदे व कारखान्याची उभारणी गावापासून दूर करावी.
४. पडीक जमिनीवर वृक्षारोपण केले पाहिजे जेणेकरून हवा शुद्ध होईल

निष्कर्ष:

नैसर्गिक संसाधनाचे संरक्षण विश्वाच्या दृष्टीने महत्वाचे आहे आज जरी नैसर्गिक संसाधनाची उपलब्धता असली तरी भविष्यात हि उपलब्धता राहीलच असे नाही. संपूर्ण जगभर ऊर्जा स्रोत म्हणून नैसर्गिक संसाधनांचा ऊर्जा म्हणून वापर केला जातो. या ऊर्जेच्या माध्यमातून कारखान्यांमधील यंत्रे फिरून उत्पादन निर्मिती होते यामधूनच औद्योगिकीकरणस चालना मिळते. जास्तीत जास्त वापर केला जातो आणि खनिज संपत्तीचा क्षय होतो हे निदर्शनास आले आहे खनिजांप्रमाणेच जमीन, प्राणी, पाणी, हवा, अशा नैसर्गिक साधनांचा विविध कारणांसाठी मानव अति उपयोग करीत आहे त्याचे दुष्परिणाम दिसायला लागले आहेत कालचे कोकणातील व विदर्भातील पाच तासांच्या पावसाचे उदाहरण घेतले तर लक्षात येईल की, मानवाने नैसर्गिक संसाधनांवर घाला घातल्यामुळे वित्त व मनुष्य हानी घडून आली अशाप्रकाराला आळा घालावयाचा असेल तर नैसर्गिक संसाधनांचे संरक्षण करणे गरजेचे आहे प्रस्तुत शोध निबंधात कशाप्रकारे संवर्धन करावे याचा उहापोह केला आहे.

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कला, वाणिज्य आणि विज्ञान महाविद्यालय, कोवाड, ता. चंदगड, जि : कोल्हापूर

प्रस्तावना :

आर्थिक विकास व पर्यावरण यांचा निकटचा असल्याचे पहायला मिळते. पर्यावरणाचा न्हास आणि आर्थिक विकास प्रक्रिया यांच्या मधील संबंधाची उकल होत गेली त्याप्रमाणे पर्यावरण सहाय्यातून मैत्रीपूर्ण आर्थिक विकासावर भर दिला गेला. पर्यावरण संरक्षण मानवाचे कल्याणकारी जीवन एकमेकांच्या विरोधात नाही तर एकमेकास पुरक आहे याची जाणीव होऊ लागली म्हणून चिरस्थायी विकासाची संकल्पना पर्यावरणाच्या संरक्षणाच्या दृष्टीकोनातून मांडण्यात आली पर्यावरण सहयोगी घटकातून मानवाने या जीवनपद्धतीचा स्विकार करून आर्थिक विकास साध्य करण्याचा प्रयत्न केला.

शाश्वत विकास :

१९८७ मध्ये संयुक्त राष्ट्रसंघाने (UNO) जागतीक पर्यावरण आणि विकास आयोगाची स्थापना केली. पृथ्वीवरील पर्यावरणीय समस्या लक्षात घेऊन त्या समस्यावर उपाय योजण्यासाठी आणि पृथ्वीवरील संसाधने पुढच्या/भविष्यकालीन पिढ्यांसाठी राखून त्याचा उपयोग चालू पिढ्यांसाठी कसा करता येईल यासाठी उपाय योजना शोधण्यासाठी या आयोगाची स्थापना करण्यात आली. या आयोगाचे अध्यक्ष नार्वे या देशाचे पंतप्रधान ब्रुण्डलँड ह्या होत्या. त्यामुळे ह्या आयोगाला ब्रुण्डलँड (Brundland Commission) असे म्हणतात. त्यांनी आपल्या अहवालात शाश्वत विकास (Sustainable Development) ही संकल्पना मांडली.

शाश्वत विकासाचा अर्थ :

शाश्वत विकास ही बहु आयामी संकल्पना असून दीर्घकाळ टिकून राहणारा विकास त्यात अभिप्रेत आहे. “शाश्वत विकास म्हणजे आपल्या वर्तमानातील गरजा पूर्ण करताना आपल्या पुढील पिढ्यांच्या त्यांच्या गरजा पूर्ण करण्याच्या क्षमतेला बाधा येऊ न देता साध्य केलेला विकास होय”. शाश्वत विकासाबाबत सर्वच बाबींची माहिती सर्वांना असतेच असे नाही.

शाश्वत विकास म्हणजे पृथ्वीवरील संसाधनांचा उपयोग करून आपला विकास करताना पुढील पिढ्यांच्या विकासासाठी संसाधनांचा पर्यायी काळजीपूर्वक वापर करणे होय. शाश्वत विकास या शब्दात नैसर्गिक आणि मानवनिर्मित साधनांचा जपून आणि योग्य प्रमाणात वापर करणे असा आहे. जागतीकीकरण आणि औद्योगिकरणामुळे नैसर्गिक संसाधने आज मोठ्या प्रमाणात आणि अनियंत्रीतपणे वापरली जात आहेत. त्यांचा मोठ्या प्रमाणात अपव्यय होत असल्याचे दिसून येत आहे. तेव्हा दीर्घकाळ विकासासाठी पृथ्वीवरील साधन सामग्रीचा योग्य आणि पर्याप्त वापर करून उद्योग, उर्जा, शेती, जंगले, मत्स्य, वसतूक, पर्यटन पायाभूत सुविधा या सर्व आर्थिक क्षेत्रामध्ये दीर्घकाळासाठी शाश्वत उत्पादन आणि वापर होणे आवश्यक आहे. पर्यावरणाचा न्हास होऊ न देता लोकांच्या मूलभूत गरजा भागविणे आणि जीवनमान सुधारणे यावर शाश्वत विकासाच्या धोरणामध्ये भर देण्यात आला आहे. भविष्यातील पिढ्यांना त्यांच्या गरजापूर्ण करताना कोणत्याही प्रकारची तडजोड न करता त्यांच्या गरजा आणि आकांक्षा पूर्ण करणारा विकास. सोप्या भाषेत असे म्हणता येईल की, शाश्वत विकास म्हणजे राष्ट्रांची साधन संपत्ती न संपवता सामाजिक आणि आर्थिक विकास साधणे होय.

अभ्यासाची उद्दिष्टे –

- १] शाश्वत विकासासाठी पर्यावरणाचा अभ्यास करणे
- २] शाश्वत विकास आणि पर्यावरण संबंधाचा अभ्यास करणे
- ३] शाश्वत विकासासाठी उपाययोजनांचा अभ्यास करणे

अभ्यास पद्धती -

प्रस्तुत अभ्यासासाठी दुय्यम साधन सामग्रीचा वापर केला असून यामध्ये संदर्भ ग्रंथ, शोधनिबंध, मासिके आणि इंटरनेटचा अभ्यास करून सविस्तर अभ्यास केला आहे.

शाश्वत आर्थिक विकासाची उद्दिष्टे –

- १] विकासाचे पुनरुज्जीवन करणे
- २] विकासाचा दर्जा सुधारणे
- ३] तंत्रज्ञानाचा वापर
- ४] संसाधनांचे रक्षण आणि संवर्धन
- ५] सर्व प्रकारच्या गरीबीचे निर्मूलन करणे
- ६] भूक संपवणे, अन्न सुरक्षा पोषण आहार, उपलब्ध करून देणे आणि शाश्वत शेतीला प्राधान्य देणे.
- ७] आरोग्यपूर्ण आयुष्य सुनिश्चित करणे
- ८] सर्व समावेशक व गुणवत्तापूर्ण शिक्षण उपलब्ध करून देणे
- ९] लिंग भावाधिष्ठीत समानता महिला आणि मुलींचे सक्षमीकरण साधणे
- १०] पाण्याची व स्वच्छतेच्या संसाधनांची उपलब्धता सुनिश्चित करणे.

शाश्वत विकासाबाबत अंतराष्ट्रीय परिषदेत चर्चा करताना लोकसंख्या आणि स्त्रियांचे अधिकार यावर विचार करण्यात आला. पर्यावरण विषयक बाबींच्या निर्णय प्रक्रियेत स्त्रियांचा सहभाग अधिक असावा. 'आई' या सामाजिक भूमिकेद्वारे पर्यावरण रक्षणांची विशिष्ट कौशल्य स्त्रियांमध्ये असतात. असे संयुक्त राष्ट्रसंघाचे मत आहे.

शाश्वत विकास साध्य करण्याकरिता लोकसंख्या, पर्यावरण नैसर्गिक साधने आणि विकास यांच्यातील परस्पर संबंधाचे परिणाम समजावून घेणे आवश्यक आहे. आर्थिक कार्यक्रम आणि पृथ्वीवरील साधन संपत्तीची घट सातत्याने होत आहे. त्याचबरोबर वाढती लोकसंख्या या घटकाने सुद्धा शास्त्रज्ञासमोर आणि अर्थतज्ञासमोर एक नवीन आव्हान उभे केले आहे. शाश्वत विकासाच्या मूळ संकल्पनेवरून हे लक्षात येते की, निर्मिती आणि वापर या मानवी कृतीमुळे उपलब्ध नैसर्गिक साधन संपत्तीवर परिणाम होतो. मानवी कृतीची व्यापकता ही लोकसंख्येवर अवलंबून आहे. त्यामुळे 'लोकसंख्या आणि पर्यावरण' याबाबतचा विचार महत्वाचा आहे.

लोकसंख्या, दारिद्र्य आणि विकास :

गरीबी हे लोकसंख्या वाढीचे कारण आहे की परिणाम आहे याबाबत तज्ज्ञांमध्ये मतभिन्नता आहे. परंतु दारिद्र्य आणि झपाट्याने वाढणारी लोकसंख्या यांचा निकटचा संबंध असल्याचे अभ्यासावरून दिसून येते. लोकसंख्या वाढीचा दर वार्षिक २ टक्यापेक्षा अधिक असल्यास अधिक जन्मदर आणि अधिक प्रमाणात तरुण वयातील लोकसंख्या असलेल्या गरीब देशात उत्पन्न वाढीचे सर्व प्रयत्न फोल ठरतात. गरीबराष्ट्रांमध्ये झपाट्याने वाढणाऱ्या लोकसंख्येमुळे परिस्थिती अधिक बिकट होते.

काही अर्थतज्ञ असे म्हणतात की, जन्मणाऱ्या प्रत्येक बालकास, दोन हात तसेच एक तोंड असते. म्हणजे लोकसंख्या वाढीमुळे जसा आर्थिक स्थितीस हातभार लागतो त्याचप्रमाणे आर्थिक स्थिती मंदावण्याची शक्यता असते. विकसनशील देशांमध्ये वाढत्या लोकसंख्येमुळे बेकारीचे प्रमाण अधिक असते. वाढत्या लोकसंख्येस सामावून घेण्याकरिता विकसनशील राष्ट्रांना दरवर्षी ३० दशलक्ष नोकऱ्यांची निर्मिती करणे आवश्यक आहे. तरच रोजगार मिळून बेकारी कमी होण्यास मदत होईल.

विकसनशील देशात सर्वत्र सामावलेली गरीबी विकासाच्या प्रयत्नांना खिळ घालतच आहे. गरीबीबरोबर निरक्षरता, अनारोग्य, स्त्रियांचा खालावलेला दर्जा आणि पर्यावरणातील धोके सामावलेले दिसतात. गरीबी आणि आर्थिक संधीची नसलेली उपलब्धता यामुळे उपलब्ध असलेल्या नैसर्गिक साधन संपत्तीचे शोषण होण्यास उत्तेजन मिळते आणि पर्यावरणाचा न्हास होतो.

लोकसंख्या, पर्यावरण, आणि शाश्वत विकास :

गेल्या काही वर्षांमध्ये झपाट्याने वाढत असलेली लोकसंख्या उपलब्ध नैसर्गिक साधन संपत्तीचा अयोग्य पद्धतीने वापर आणि शोषण आणि मानव आणि पर्यावरण यांच्यातील संबंधावरून आवश्यक माहितीची उणीव या सर्व गोष्टी/बाबी नैसर्गिक पर्यावरणाच्या न्हासाकरीता कारणीभूत ठरल्या असून यामुळे पर्यावरण विषयक संकट निर्माण झाले आहे.

अलिकडच्या काळात लोकसंख्या आणि पर्यावरण यांच्या संबंधाबाबत नव्याने विचार होत असला तरीही बऱ्याचशा मुद्याबद्दल अद्यापही शास्त्रीय माहिती उपलब्ध नाही. लोकसंख्या वाढीवर, लोकसंख्येची रचना आणि प्रमाण यांचा नैसर्गिक आणि साधनसामग्रीच्या वापरावर नेमका कसा परिणाम होतो याबाबत पूर्ण माहिती उपलब्ध नाही.

तांत्रिकदृष्ट्या असा विचार कसा येईल. रहा देशात ताळेबंदच्या अधिक लाभामुळे त्यांच्या गरजापूर्ण होण्याच्या दृष्टीने अधिक साधन संपत्तीची आवश्यकता लागेल आणि पर्यावरणाची मोठ्या प्रमाणात हानि होईल. देशातील लोकांच्या गरजांच्या

प्रमाणात व साधन संपत्तीच्या वापरानुसार कांही देशांच्या पर्यावरणावर अधिक ताण पडतो. तर कांही देशांच्या पर्यावरणावर कमी ताण पडतो. विकसित देशाची लोकसंख्या जगाच्या लोकसंख्येत कमी असूनही उपलब्ध साधन संपत्तीचा वापर मोठ्या प्रमाणात होतो. त्यामुळे त्यांच्याकडूनही प्रदूषणकारी घटक मोठ्या प्रमाणात निर्माण होत आहेत. त्यामुळे जागतीक तापमानात वाढ होऊन पर्यावरणाचा समतोल सातत्याने बिघडत आहे. त्यामुळे जगासमोर अनेक संकटे निर्माण होत आहेत.

साधनसंपत्तीच्या बाबतीत कांही अर्थ तज्ञांचे असे मत आहे की, मुक्त बाजारपेठ आपली भूमिका चोख बजावते. साधन संपत्तीची कमतरता आसल्यास किंमती आपोआप बढतील. असे झाल्यास पूननिर्माण नवीन तंत्रज्ञान, संवर्धन यासारखे उपाय करून साधन संपत्तीच्या न्हासास प्रतिबंध करण्यात येईल. मात्र पर्यावरण शास्त्रज्ञ यांच्य या मताशी सहमत नाहीत. वाढत्या महागाईने साधन संपत्तीच्या न्हासास काही प्रमाणात आळा बसू शकेल परंतू पर्जन्य, वने, सागर आणि पृथ्वीचे वातावरण या नैसर्गिक देणग्या आपणास मुक्त बाजारपेठमध्ये उपलब्ध होऊ शकणार नाहीत ही बाब लक्षात घेणे आवश्यक आहे असे त्यांचे मत आहे. ते असे प्रतिपादन करतात की २१ व्या शतकातील प्रदुषणावरील नियंत्रण आणि नैसर्गिक संवर्धन यावर लोकसंख्यावाढ आली साधन संपत्तीचा वापर याच बाबी मात करतील.

सन १९९३ साली ५८ देशात संपन्न झालेल्या राष्ट्रीय विधान परिषदानी लोकसंख्या वाढ पर्यावरणाचा न्हास आणि गरीबी या एकमेकाशी निगडित समस्याबाबत चिंता व्यक्त करून या परिषदानी असा विश्वास व्यक्त केला की जगाची लोकसंख्या स्थिर झाल्याशिवाय जागतीक पातळीवर पर्यावरण विषयक समस्या सोडविण्यात यश मिळणार नाही. लोकसंख्या वाढीला आळा घालणे याबरोबरच त्यानी आपले उत्पादन आणि वापर याची फेर रचना करणे गरजेचे आहे की, ज्यामुळे पर्यावरणावरील ताण कमी होऊ शकेल. चांगल्या जीवनासाठी लोकांच्या आकांक्षा आणि पृथ्वीवरील साधन संपत्तीचे रक्षण या दोन्ही बाबीमध्ये समतोल साधण्याची आवश्यकता आहे.

मानवाने निसर्गाचा पुरेपुर उपयोग घेतला. त्यातून पर्यावरणाचे विविध प्रश्न निर्माण झाले. २० व्या शतकाच्या उत्तरार्धाच्या शेवटी माणसाला आपली चूक उमजली आणि वाढलेल्या सुविधा आणि सुखसोई न सोडता शाश्वत जीवनशैली शोधत मानव फिरू लागला. चांगल्या जीवनमानासाठी साधन संपत्तीचा योग्य वापर करणे गरजेचे असून दुष्काळ, महापूर, कुपोषण, दहशतवाद, दारिद्र्य, युद्ध, संघर्ष, प्रदुषण, आणि भूकंप इत्यादी नैसर्गिक आपत्तीवर नियंत्रण ठेवणारे योग्य पर्याय सापडत नसल्याचे दिसते.

मानव आणि त्याच्या सभोवतालच्या पर्यावरणाचे एकात्मिकरण असते. म्हणजे एकाचे कल्याण दुसऱ्यावर अवलंबून असते. उत्पन्न आणि आर्थिक विकासाच्या गतीखेरीज पर्यावरणाचे संरक्षण होऊ शकणार नाही तर पर्यावरण संरक्षणाविना हळू-हळू क्षीण होईल. मानवी वंशाला पर्यावरणीय न्हासापासून होणारा धोका हा आण्विक मनुष्य हानि सारखाच मोठा असणार म्हणून औद्योगिकरण किंवा विकास कोणीही थांबवू शकणार नाही. त्यासाठी शाश्वत विकास हा एक महत्वाचा मार्ग असून त्यातूनच आर्थिक शाश्वतता निर्माण होईल. पिण्याचे पाणी आरोग्य स्वच्छता ऊर्जा, अन्न सुरक्षा, जैव विविधता, लोकसंख्या औद्योगिक तंत्रज्ञान या मूलभूत बाबींवर शाश्वत विकासासाठी भर देणे महत्वाचे आहे.

लोकांच्या आर्थिक प्रगती/समृद्धीसाठी भारतासारख्या कृषी प्रधान देशात आधुनिक तंत्रज्ञानाचा उपयोग करून रासायनिक खते, औषधांचा अति उपयोग केल्यामुळे तसेच पाण्याचा अतिवापर या सर्व गोष्टीमुळे जमिनीचे प्रदूषणही मोठ्या प्रमाणात होताना दिसते आहे. परंतू भारताच्या आर्थिक विकासात शेती हा महत्वाचा घटक आहे. म्हणून आर्थिक विकास व पर्यावरण यांचा समन्वय साधून शाश्वत विकास करणे गरजेचे आहे.

उपाय योजना :

- १] वाढत्या लोकसंख्येच्या मूलभूत गरजा भागविण्यासाठी चांगल्या पर्यावरणाची आवश्यकता आहे त्यामुळे पर्यावरणाची हानी टाळणे.
- २] शाश्वत विकासाकरीता समग्र धोरणाची आवश्यकता आहे.
- ३] धोरणाची आखणी ही मानवी दृष्टीकोनातून झाली पाहिजे.
- ४] दारिद्र्याचे निर्मूलन होणे गरजेचे आहे.
- ५] साधन संपत्तीचा अधिक प्रमाणात होणारा वापर कमी केली पाहिजे.
- ६] लोकसंख्या वाढीवर आळा घालणे गरजेचे आहे.
- ७] शेतीचे आधुनिकीकरण होणे गरजेचे आहे. इत्यादी

सारांश :

२१ व्या शतकात धोरणात्मक निर्णय घेणाऱ्यांनी पर्यावरणविषयक विविध बाबी, लोकसंख्याविषयक विविध व्यापक बाबी सर्वांगीण शाश्वत विकास आणि आनुषंगिक सामाजिक बाबींचा एकात्मिक पध्दतीने विचार करणे आवश्यक आहे.

संदर्भ ग्रंथ :

- १] सवदी कोळेकर- प्राकृतिक व प्रायोगिक भूगोल, निराळी प्रकाशन पूणे
- २] सहकारी महाराष्ट्र जूलै २०१२
- ३] योजना – सप्टेंबर २००६
- ४] भारतीय अर्थव्यवस्था – भोसले-काटे
- ५] योजना – मार्च २०१९
- ६] www.environmentalpollution.com
- 7] <http://www.sustainabledevelopment.com>



पर्यावरणीय बदलांचा कृषीक्षेत्रावर होणारा प्रभाव

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सारांश:

आपल्या जीवनात पर्यावरण खूप महत्वाचे आहे, मनुष्य एक क्षण सुद्धा त्याविना जगू शकत नाही. ही हिरवीगार झाडे हे आपल्या जीवनाचे अभिवादन आहेत. पर्यावरण शिवाय मानवी जीवनाची कल्पनाही करता येत नाही. पाणी, हवा, अग्नि, आकाश हे सर्व घटक आपणास मिळालेली प्रकृतीची देण आहे. मानवजीवन प्राचीन काळापासूनच पर्यावरणावर आधारित आहे. हळूहळू वेळ बदलला आणि माणसाने आपल्या आयुष्यात नव नवीन शोध लावले, वैधानिक विकास साधला, शहरीकरण झाले, भौतिक सुख सुविधा प्राप्त झाल्या पण हे करतांना कुठेतरी पर्यावरणाशी छेडखानी झाल्याचे आढळते. त्यामुळे पर्यावरणात दिवसेंदिवस बदल होत आहे आणि त्या पर्यावरण परिवर्तनाचा परिणाम कृषी उत्पादनावर म्हणजेच एकंदरीत मानवी जीवनावर होत असल्याचे आढळत आहे. प्रस्तुत शोधनिबंधात पर्यावरणीय बदलांचा कृषीक्षेत्रावर कसा प्रभाव पडला आहे यावर चर्चा करण्यात आलेली आहे.

सूचक शब्द – पर्यावरण, शेती, जल, मृदा

उद्देश्य:

- पर्यावरणात होणारे बदल अभ्यासणे.
- पर्यावरण बदलांमुळे शेतीवर होणारे परिणाम अभ्यासणे.
- पर्यावरण बदलांमुळे जीवनावर होणारे परिणाम अभ्यासणे.
- पर्यावरण वाचविण्यासाठी उपाय यावर चर्चा करणे

गृहीतके:

- पर्यावरणात सतत बदल होत आहे.
- पर्यावरण बदलांमुळे शेतीवर जास्त परिणाम होत आहे.
- पर्यावरण बदल हे मानवामुळे झाले आहे.
- मानवीय प्रयत्नांनी पर्यावरण समतोल साधला जाऊ शकतो.

प्रस्तावना:

पर्यावरण हा शब्द दोन शब्दांनी बनलेला आहे, ज्यामध्ये परी म्हणजे आसपास, आणि वरण म्हणजे वेढलेले. म्हणजे आपल्या सभोवताल जे काही आहे ते जिवंत असो किंवा निर्जीव असो, सर्व आपल्या वातावरणाशी जोडलेले आहे. जमीन आणि पाणी हे मनुष्याला प्रकृतीने दिलेली दोन मौल्यवान संसाधने आहेत, जी माणूस प्राचीन काळापासून शेतीसाठी वापरत आहे, परंतु सध्या त्यांचा इतका निष्काळजीपणाने वापर केला जात आहे की त्यांचे संतुलन बिघडले आहे. दुसरीकडे हवामान बदल संभाव्य प्रतिकूल परिणामामुळे शेतीसाठी एक आव्हान म्हणून पाहिले जाते. वाढती लोकसंख्या, भौतिक सुविधांचे औद्योगिकीकरण आणि वाढती वाहतूक संसाधने, तसेच जंगले आणि शेती यांचे क्षेत्र निरंतर कमी होत आहे. या कारणामुळे वातावरणातील रासायनिक वायूंचे प्रमाण निरंतर वाढत आहे, ज्यामुळे नैसर्गिक स्रोतांचे शोषण होत आहे. हवामानातील बदल आणि सरासरी तापमानातील वाढीचा परिणाम क्षेत्रीय हवामान, नद्यांचा प्रवाह, त्यातील पाण्याची उपलब्धता आणि भूजल पातळी, पावसाचे कालावधी आणि वितरण, बारमाही हवामानातील पाणी, दुष्काळ, मातीची सुपीकता इत्यादींवर परिणाम होत आहे. वातावरणामधील या सर्व बदलांचा शेतीच्या पाण्याच्या उपलब्धतेवर आणि मातीच्या आरोग्यावर आणि उत्पादनात विपरीत परिणाम होत आहे.. म्हणूनच भू आणि पाणी व्यवस्थापन अत्यंत महत्वाचे बनण्याबरोबरच या नैसर्गिक स्रोतांचे संवर्धन आणि योग्य वापर हे एक मोठे आव्हान बनले आहे.

भारतातील शेतीचा एक मोठा भाग हंगामी पावसावर अवलंबून आहे, बदलत्या हवामानामुळे, शेतीला नुकसान होत आहे, फळांच्या उत्पादनातील या चढ-उताराचे कारण म्हणजे खूपच कमी किंवा जास्त पाऊस, जास्त आर्द्रता, असामान्य तापमान त्यामुळे रोग आणि कीटक प्रकट होतात. अति पाऊस, कोरडे आणि गारपीट ही मुख्य गोष्ट अशी आहे की गेल्या काही वर्षांपासून हवामान चक्राने अत्यधिक पाऊस, यासारख्या धक्कादायक घटनांची मालिका सुरू केली आहे, हे आपल्यासाठी आणि शेतीसाठी एक समस्या बनली आहे. तापमान वाढीसारख्या हवामानातील बदलांमुळे शेतीची हानी, पूर आणि दुष्काळ इत्यादीमुळे त्रस्त झालेला शेतकरी आणि त्यामुळे उत्पादनातील कमतरता हा प्रश्न भेडसावत आहे. खरीप पिकाच्या पेरणी दरम्यान कोरडे होणे व या खराब हवामानामुळे पावसामुळे रबी पिकावरही कहर निर्माण झाला आहे. भारतातील हवामान बदलाचा मोठा परिणाम म्हणून पूर्वांना पाहिले जाऊ शकते. देशाच्या मोठ्या भागाला पुराचा धोका आहे. परंतु गेल्या दोन दशकांपासून पुराचे स्वरूप, प्रवृत्ती आणि वारंवारतेत व्यापक बदल होत आहेत. अशा बदलांमुळे शेती, आरोग्य, रोजीरोटी इत्यादींवर विपरित परिणाम झाला आहे आणि जीवन व मालमत्तेचे नुकसान, उत्पादकता वगैरेच्या क्रमवारीत घट झाली आहे. हे असे नाही की पूर ही देशासाठी नवीन गोष्ट आहे, परंतु हवामानातील बदलामुळे या नैसर्गिक प्रक्रियेची तीव्रता आणि स्वरूप बदलले आहे आणि पुराची तीव्रता आपत्तीच्या रूपात दिसून येते आहे. विशेषतः यामध्ये जलद आणि द्रुत पूर, दीर्घ काळापासून पाणी साचणे आणि बराच काळ पाणी साचणे ही समस्या चव्हाट्यावर येत आहे. एकंदरीत पर्यावरणीय कालचक्रात बदल होत आहे.

पर्यावरणीय बदल:

- पावसाच्या अनुक्रमातील बदल होत आहे.
- पूर तीव्र वेगाने येऊ लागला आहे.
- छोट्या नद्या देखील पूर वाढविण्यासाठी उपयुक्त ठरत आहेत.
- मोठमोठे तलाव इत्यादींची संख्या कमी होत असल्यामुळे पाणी साठविण्यासाठी पर्याप्त जागा उपलब्ध होत नाही.
- जलवायू प्रदूषण वाढत आहे.
- मातीची उत्पादन क्षमता कमी होत आहे.
- वायू प्रदूषण वाढत आहे.
- तापमान वृद्धी होत आहे.

अशा बदलांचा कृषी, आरोग्य आणि उपजीविकेवर विपरित परिणाम झाला आहे. हवामान बदलाने पूर आपत्तीत बदलला आहे. काही भागात पूर दरवर्षीच येतो, परंतु सर्वसाधारणपणे ३ ते ४ वर्षात पूर्वांची वारंवारता वाढली असून त्यामुळे जिवाचे व संपत्तीचे बरेच नुकसान होत आहे.

उपाय-योजना:

पर्यावरणाचे रक्षण करण्याचे दोन मार्ग आहेत - नैसर्गिक संसाधनांचे रक्षण करणे किंवा पर्यावरणाचे किमान नुकसान होऊ शकेल अशा प्रकारे जगणे. पर्यावरणाचा अर्थ हवा, पाणी आणि जमीन आणि मनुष्यांशी त्याचा परस्पर संबंध आहे. या बाबींमध्ये झाडे, माती, जीवाश्म इंधन, खनिजे इत्यादींचा समावेश आहे. खालील उपाय राबविल्यास पर्यावरण टिकवून ठेवण्यास मदत होऊ शकेल.

माती व्यवस्थापन:

भूमी व्यवस्थापनाचा अर्थ म्हणजे जमीनची सुपीकता वाढविणे. मातीच्या धूपमुळे, शेताच्या वरच्या पृष्ठभागाची सुपीक माती वाहून जाते, ज्यामुळे जमिनीची सुपीकता कमी होते. जमीन व्यवस्थापनासाठी आपण पुढील उपाययोजना केल्या पाहिजेत.

- संपूर्ण शेतात पावसाच्या पाण्याचे समान वितरण आणि शेतात जास्त काळ राहण्यासाठी शेतात समतल करून कुंपण घालणे.
- गवत आणि बुश सारख्या फायदेशीर वनस्पती वाढवा, ज्यामुळे मातीची धूप थांबेल.
- उतार असलेल्या जमिनीत नांगरणे, पेरणी, खुरपणी इत्यादी सर्व शेतीविषयक कामे उताराच्या उलट दिशेने करावी.

- उतार खूप जास्त असल्यास क्रमानुसार शेती करावी.
- सिंचनाच्या प्रगत तंत्रज्ञानाचा वापर करावा, ज्यामध्ये पाण्याच्या वापराची कार्यक्षमता वाढविली जाऊ शकते.
- हवामान बदलामुळे मातीची सुपीकताही कमी होण्याचा अंदाज वर्तविला जात आहे. वातावरणीय तापमानात वाढ होण्यामुळे सेंद्रिय पदार्थांचे विघटन वेगाने होते आणि मातीमधील सेंद्रिय कार्बनची पातळी सतत कमी होते, ज्यामुळे मातीच्या आरोग्यावर आणि उत्पादकतेवर विपरीत परिणाम होतो. मातीत पोषक तत्वांचा समतोल राखल्यास त्याच्या सुपीक शक्तीमध्ये सतत वाढ होते.

संतुलित खतांचा वापर:

खत वाढीचा मूळ उद्देश म्हणजे जमिनीत अनुकूल पौष्टिक परिस्थिती राखणे आणि रोपे योग्य प्रमाणात वाढविणे. शेतीचे उत्पन्न वाढविण्यासाठी खतांचा समतोल वापर होणे अत्यंत गरजेचे आहे. सर्वसाधारणपणे पोषकद्रव्ये, मातीचे स्वरूप, हवामान आणि पीकांचे स्वरूप लक्षात घेऊन खत वापराची योग्य वेळ देणे चांगले आहे.

पाणी व्यवस्थापन:

डोंगराळ भागात कार्यक्षम पाणी व्यवस्थापनासाठी रेन वॉटर हार्वेस्टिंग, नैसर्गिक जलसंपत्ती वाढविणे, हवामानातील आर्द्रता वाचविणे आणि उपलब्ध पाण्याचा कार्यक्षम वापर आवश्यक आहे.

पावसाच्या पाण्याची साठवण:

पर्वतीय भागात पर्जन्य जल हे एकमेव प्राथमिक जल स्रोत आहे. डोंगराळ भागात पावसाच्या पाण्याचा एक मोठा भाग उतारांमुळे पृष्ठभागाच्या वाहिन्या स्वरूपात वाहून जातो. पीक उत्पादन सुधारण्यासाठी पावसाचे पाणी व्यवस्थापन ही एक मोठी समस्या आहे. या पार्श्वभूमीवर रेन वॉटर हार्वेस्टिंगला अत्यंत महत्त्व आहे. म्हणूनच हे आवश्यक आहे की आपण पृष्ठभागाच्या पाण्यामुळे होणारा पाण्याचा प्रवाह थांबविला पाहिजे आणि पाण्याचा प्रत्येक थेंब साठवून ठेवला पाहिजे आणि शेतातील पाणी शेतात राहिल आणि गावाचे पाणी खेड्यातच राहिले पाहिजे. इमारतीच्या छतावरील, सपाट किंवा असमान भागातून मिळविलेले पावसाचे पाणी जे वाया गेलेले आहे, ते काढणीद्वारे वापरता येते. फेरो-सिमंट टँक, विहिरी, खड्डे, पाझर तलाव, चेक-डेम, गौबियन स्ट्रक्चर्स इत्यादी विविध तंत्रे पावसाच्या पाण्याची साठवण आणि भूजल पुनर्भरण यासाठी यशस्वीरित्या वापरल्या जाऊ शकतात. छोट्या शेतकऱ्यांना कमी किमतीच्या प्लास्टिकच्या चादरींनी तलाव झाकणे सोपे आहे आणि त्यासाठी कोणत्याही विशेष व्यवस्था आणि संसाधनांची आवश्यकता नाही. पर्वतीय भागात जिथे शेतीविषयक संसाधनांची कमतरता आहे तसेच जमीन लहान व तुकडे आहे तेथे पावसाचे पाणी साठवण्यासाठी लहान आणि कमी किमतीचे तलाव अत्यंत व्यावहारिक आणि व्यवहार्य आहेत.

नैसर्गिक संसाधने वाढविणे:

डोंगराळ भागात पाण्याचे झरे टाकण्याचे पाण्याचे महत्त्वपूर्ण स्रोत आहेत. परंतु खाणकाम, रस्ते बांधकाम, जंगलतोड इत्यादी मानवी विकासाच्या कारणांमुळे हे स्रोत कोरडे होत आहेत किंवा हंगामी होत आहेत. म्हणून जास्तीत जास्त वृक्षारोपण करण्यास प्रोत्साहित करणे आणि जंगलतोड करणे आणि अंदाधुंद उत्खनन थांबविणे आवश्यक झाले आहे. पारंपारिक जलसंपत्ती (तलाव, विहिरी, चष्मा) यांचे प्रदूषण होण्यापासून संरक्षण करणे आणि त् स्वच्छ करणे, बांधणे व वेळोवेळी दुरुस्ती करणे यावरही लक्ष देणे आवश्यक आहे.

ओलावा टिकविणे:

शेतातील पाणी शेतातच जतन केले पाहिजे. यासाठी बाष्पीभवन, खोल गटार व वाहून जाणाऱ्या पाण्याचे नुकसान रोखण्यासाठी किंवा कमी करण्यासाठी विविध तंत्रांचा अवलंब केला जाऊ शकतो. महत्त्वपूर्ण तंत्रांचा तपशील खालीलप्रमाणे आहे.

➤ **मलचिंग:** यामध्ये मातीचा पृष्ठभाग कोणत्याही प्रकारच्या नैसर्गिक आणि कृत्रिम जसे की गवत, पिकाचे अवशेष, पाने, प्लास्टिकची चादर इत्यादी साहित्याने झाकावी लागते. मलचिंग बाष्पीभवन कमी करते, आर्द्रता वाचवते आणि पावसाचे पाणी जास्तीत जास्त प्रमाणात मातीत झिरपण्यास मदत होते. भरपूर प्रमाणात सिंचनाचे पाणी ओलांडून वाचवले जाते. त्यामुळे खरीप पिकाची कापणी झाल्यानंतर शेतातील ओलावा टिकून राहतो जो रबी पिकासाठी उपयुक्त आहे.

➤ **शेण आणि हिरव्या खताचा वापर:** या खतांमुळे जमिनीतील पाणी साठवण्याची क्षमता वाढते आणि मुळांच्या खाली पाण्याचे नुकसान कमी होते.

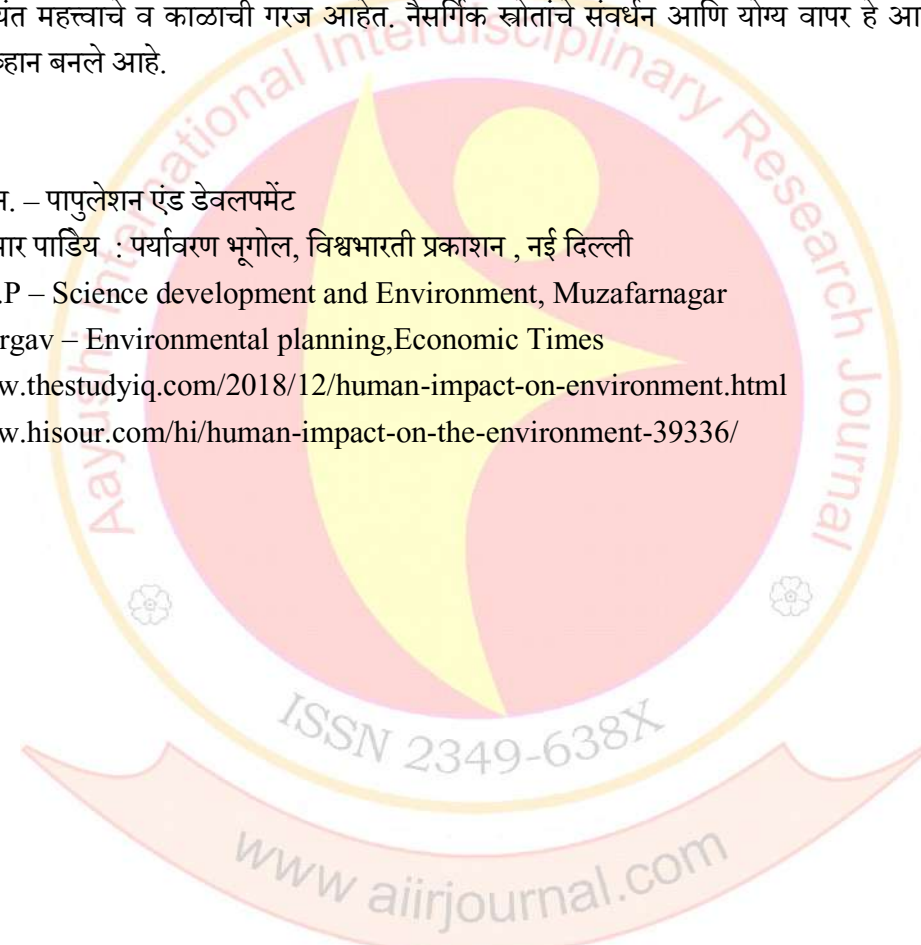
- **तण व कुरण:** तण लागणानंतर होणाऱ्या त्रासामुळे अनावश्यक पाण्याचे नुकसान कमी होते आणि जमिनीत ओलावा राहतो.
- **शेतात समतल करणे:** उताराच्या उलट दिशेने शेतात नांगरणी केल्यामुळे प्रवाहास अडथळा निर्माण होतो आणि जमिनीत पाणी शोषण्यासाठी जास्त वेळ मिळतो. उतार असलेल्या पृष्ठभागावर टेरेस फील्ड तयार करा आणि त्याचा उतार आतून ठेवायचा त्यामुळे जल शोषनात अधिक वाढ प्राप्त होते.

समारोप

भारत आणि इतर विकसनशील देशांमध्ये दारिद्र्य, दाट लोकसंख्येच्या तुलनेत संसाधनांचा अभाव आणि शेती, पशुसंवर्धन आणि इतर सगळ्या गोष्टींवर हवामान बदलाचा सर्वाधिक परिणाम होतो. वातावरणामधील या सर्व बदलांचा शेतीच्या पाण्याच्या उपलब्धतेवर आणि मातीच्या आरोग्यावर आणि उत्पादनात विपरीत परिणाम होतो. सर्वसाधारण अर्थाने, हे सर्व जैविक आणि अजैविक घटक, तथ्य, प्रक्रिया आणि आपल्या जीवनावर परिणाम घडविणाऱ्या घटनांनी बनलेले एक घटक आहे. हे आपल्या सभोवताल सर्वत्र व्यापक आहे. मानवांनी केलेल्या सर्व क्रियांचा थेट आणि अप्रत्यक्ष परिणाम पर्यावरणावर होतो. म्हणूनच भू आणि पाणी व्यवस्थापन अत्यंत महत्वाचे व काळाची गरज आहेत. नैसर्गिक स्रोतांचे संवर्धन आणि योग्य वापर हे आजच्या आधुनिक युगातील एक मोठे आव्हान बनले आहे.

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शिक्षणातून सामाजिक परिवर्तन करणारा द्रष्टा शिक्षणतज्ञ : शिक्षणमहर्षी डॉ. बापूजी साळुंखे**प्रा.डॉ. संतोष तुकाराम कदम**

इतिहास विभाग प्रमुख

एस.बी.आर. कॉलेज, म्हसवड संलग्न: शिवाजी विद्यापीठ, कोल्हापूर

प्रस्तावना :-

१९ व्या शतकाच्या उत्तरार्धात महाराष्ट्रात प्रबोधनाला सुरवात झाली. ब्रिटीशांची परकिय सत्ता दुर करून सर्वांगीण प्रगतीसाठी राजकिय स्वातंत्र्यासाठी आवश्यक वाटणारा एक गट निर्माण झाला आणि याच काळात सामाज सुधारकांना राजकिय स्वातंत्र्यापेक्षा सामाजिक सुधारण्याचे महत्व अधिक वाटत होते. अंधश्रध्दा रुढी व परंपरेच्या शृंखलासाठी अडकलेल्या सामाज सुधारल्या शिवाय राजकिय सुधारणांना अर्थ राहणार नाही. यासाठी महाराष्ट्रामध्ये थोर समाजसुधारकांनी लोकशिक्षणाची चळवळ सुरु केली. अज्ञानाच्या अंधकारामध्ये अडकलेला समाज शिक्षणाशिवाय प्रकाशमान होणार नाही. यासाठी अनेक समाजसुधारकांनी वैचारिक व सामाजिक प्रबोधन घडवले. यामध्ये महात्मा फुले, राजर्षी शाहू महाराज, डॉ. पंजाबराव देशमुख, महाराज सयाजीराव गायकवाड, कर्मवीर भाऊराव पाटील व शिक्षणमहर्षी डॉ. बापूजी साळुंखे या शिक्षणप्रेमी समाजसुधारकांनी आपले सर्वस्व समर्पित करून स्वातंत्र्योत्तर भारतात शैक्षणिक कार्यातून व चळवळीतून शैक्षणिक सुधारणा घडवून समाज परिवर्तन केले. बापूजींनी श्री. स्वामी विवेकानंद शिक्षण संस्था स्थापन करून महाराष्ट्रातील आज्ञानाचा अंधकार नष्ट केला.

पुर्वचरित्र :-

स्वातंत्र्यपूर्व काळातील सातारा जिल्ह्यातील पाटण तालुक्यात असणाऱ्या 'रामपुर' या छोट्या गावी ज्ञानोजी आणि तानुबाई या दांपत्याच्या पोटी ९ जून १९१९ रोजी बापूजींचा जन्म झाला. त्यांचे जन्म वर्ष हे महाराष्ट्राच्या शैक्षणिक प्रसाराच्या दृष्टीने क्रांतिकारी वर्ष म्हणावे लागेल. बहुजनांच्या उध्दारासाठी कर्मवीरांनी रयत शिक्षण संस्थेची स्थापना या वर्षीच केली व भविष्यात ज्ञानप्रसारासाठी श्री स्वामी विवेकानंद शिक्षण संस्था स्थापन करणाऱ्या शिक्षण महर्षी डॉ. बापूजी साळुंखे यांचे हे जन्मसाल, दोन्ही अर्थांनी हे वर्ष महत्वपूर्णच गोविंदरावांचे प्राथमिक, माध्यमिक शिक्षण रामपुरातच झाले. उच्च माध्यमिक शिक्षण त्यांना अत्यंत प्रतिकूल परिस्थितीत घ्यावे लागले त्यासाठी त्यांनी इस्लामपुर या ठिकाणी राहून सात दिवस वार लावून जेवायचे व्रत स्विकारून आपणी ज्ञानतृष्णा समविली. मॅट्रिक परिक्षेनंतर महाविद्यालयीन शिक्षणासाठी ते कोल्हापूरला गेले. छत्रपती शाहू महाराजांनी सुरु केलेल्या प्रिन्स शिवाजी बोर्डिंग मध्ये राहून राजाराम महाविद्यालयात त्यांनी प्रवेश घेतला. डॉ. आप्पासाहेब पवार यांच्या सारख्या गुरुवर्यांचे मार्गदर्शन बापूजींना मिळाले.

श्रीराम समाजसेवा मंडळाची स्थापना :-

प्रतिकूल परिस्थितीत बापूजी उच्च शिक्षणासाठी कोल्हापूरला गेले विद्यार्थीदशेतच बापूजींच्या मनात समाज सेवेची तळमळ होती. शिक्षणातून समाजाची प्रगती साधने ही सामजीक जाणीव त्यांना गप्प बसू देत नव्हती. या जाणीवेतूनच त्यांनी व काही मित्रांनी इस्लामपूर येथे 'श्रीराम समाजसेवा मंडळ' स्थापन केले याचे अध्यक्ष बापूजीच होते. ज्या इस्लामपूरने बापूजींना शिक्षण घेताना प्रतिकूल परिस्थितीत आधार दिला. त्या मातीत बापूजींनी शिक्षणाचे रोपटे विद्यार्थी दशेतच लावले. श्रीराम मंडळाने इस्लामपुरच्या परिसरात ग्रामीण भागात पंधरा प्राथमिक शाळा सुरु केल्या.

विद्यार्थी देशेतच त्यांनी केलेली ही शैक्षणिक कार्याची सुरवात त्यांच्या भावी शिक्षणप्रसाराच्या कार्यासाठी मिळालेली अनुभवाची शिदोरीच होय. इ.स. १९४५ ते १९५४ पर्यंत बापूजींनी स्वतःला रयत शिक्षण संस्थेच्या कार्यास वाहून घेतले होते. सुरवातीची चार वर्षे त्यांनी शिक्षक म्हणून आपले योगदान दिले. त्यानंतर त्यांनी मुख्याध्यापक म्हणून महात्मा गांधी विद्यालय, रुकडी येथे सेवा केली. इ.स. १९५४ मध्ये ते रयत शिक्षण संस्थेच्या सेवेतून मुक्त झाले. बापूजींच्या अत्यंत कष्टप्रद जीवनातून शिक्षण घ्यावे लागले होते. अशाच प्रकारचे कष्टप्रद शिक्षण घेण्याची वेळ पुढील पिढीला येऊ नये, दुर्गम खेड्यापाड्यातील गोर-गरीबांच्या मुलांना शिक्षणाचा लाभ मिळावा यासाठी स्वामी विवेकानंद शिक्षण संस्था स्थापन केली. ही शिक्षण संस्था ज्ञानदानाचे कार्य मोठ्या प्रमाणात करित आहे.

स्वामी विवेकानंद शिक्षण संस्थेची स्थापना :-

दि. १९ ऑक्टोबर १९५४ रोजी बापूजींनी आपल्या विश्वासू सहकार्यासह नवीन शिक्षण संस्था स्थापन करण्याचा संकल्प कराड येथील कृष्णा-कोयना प्रीती संगमावरील मुरलीधर मंदिर येथे केला. यानंतर संस्थेचे नाव काय ठेवावे हा प्रश्न होता. बापूजी अध्यात्मिक होते. तसेच त्यांच्यावर स्वामी विवेकानंदंच्या विचारांचा प्रभाव होता. स्वामी रामानंद भारती यांनी बापूजींना स्वामी विवेकानंद यांचे नाव सुचविले. त्यानुसार बापूजींनी नोव्हेंबर १९५४ मध्ये या शिक्षण संस्थेचे नाव 'श्री स्वामी विवेकानंद शिक्षण संस्था' असे ठेवण्यात आले. 'ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षणप्रसार' हे या संस्थेचे बोधवाक्य आहे. दि. १३ डिसेंबर १९५४ रोजी या संस्थेची नोंदणी करण्यात आली. स्वामी रामानंद भारती या शिक्षण संस्थेचे पहिले अध्यक्ष झाले. दि. ५ जून १९५५ पासून स्वामी विवेकानंद शिक्षण संस्थेच्या कार्यास प्रारंभ झाला. या शिक्षण संस्थेच्या माध्यमातून महाराष्ट्र आणि कर्नाटक राज्यात शाळा सुरु करून ज्ञानदार कार्यास प्रारंभ झाला. उस्मानाबाद जिल्ह्यात बापूजींनी संस्थेचे पहिले वरिष्ठ महाविद्यालय इ.स. १९५९ मध्ये सुरु केले. दूर, दुर्गम, डोंगराळ अडी-अडचणीच्या खेड्या-पाड्याच्या भागात विद्याज्ञानाची अनेक केंद्रे म्हणजे शाळा, महाविद्यालये स्थापन केली. आपली मिळकत संस्थेला अर्पण केली. निःस्वार्थीपणे बापूजींनी शिक्षण संस्थेचे कार्य केले. त्यांनी स्थापन केलेल्या स्वामी विवेकानंद शिक्षण संस्थेच्या रोपट्याचे आज विशाल वटवृक्षात रुपांतर झाले. आहे.

स्वामी विवेकानंद शिक्षण संस्थेची ध्येय व उद्देश -

या संस्थेचे ध्येय व उद्देश खालीलप्रमाणे राहतील -

१. सामान्य समाजात समाजत सुसंस्कारी शिक्षण प्रसाराच्या साधनाने समाजाचे परिवर्तन घडून आणणे.
२. सत्य, प्रामाणिकपणा, चारित्र्य, पिढवणूक प्रवृत्तीस आळा व त्याग या जीवनातील मौलिक निष्ठा जीवनात उतरविण्याचा प्रयत्न करणे हा आमच्या सुसंस्कारी शिक्षणाचा हेतू आहे.
३. कला, विज्ञान, वाणिज्य, शेती, समाजशास्त्र, तंत्र आणि शारीरिक शिक्षण आदी विषयांचा समावेश होणारे परिणामकारक प्राथमिक, माध्यमिक व उच्च शिक्षण या व्दारा समाजाचा सांस्कृतिक विकास साधणे.
४. सामान्य समाजाच्या सुसंस्कारी विकासाच्या ध्येयासाठी उत्स्फूर्तपणे वाहून घेणारे आदर्श समाजसेवक निर्माण करणे.
५. आचार, विचार आणि उच्चार यांच्या पावित्र्यावर संस्था आग्रहपूर्वक भर देते.
६. संस्थेच्या शाखा, उपशाखातून जात, धर्म, पंथ अथवा वर्ण यांचा भेदाभेद संस्था मानणार नाही.
७. संस्था राजकारणापासून अलिप्त राहील.
८. प्राचीन काळातील गुरु परंपरेला धरून शिक्षक कार्यरत यांच्या आदर्श जीवनाच्या धड्यातूनच नवीन शिक्षण पध्दती निर्माण केली जाईल जिच्यामुळे आत्मसमर्पण, प्रामाणिकपणा, सत्य, समता नि बंधूता या वृत्तींचा परितोष केला जाईल.
९. स्वतंत्र विचारवृत्ती आणि नवनिर्मिती यांची कुवत विकसित करणे.
१०. जीवनात हरघडी साधेपणा आणि काटकसर यांची जपणूक संस्था करित राहील.
११. संस्थेच्या शाखांचे हिशेब सर्वांना पाहण्यास खुले/ उपलब्ध राहतील.

बापूजींच्या शिक्षणाच्या संकल्पनेची व्याप्ती :-

याबाबत शिवाजीराव भोसले म्हणतात, "बापूजींनी संस्था उभी करताना कधी सुखाची इच्छा घेतली नाही. बापूजींच्या विचारातील शिक्षणाच्या संकल्पनेची व्याप्ती ही वेगळी होती. माणसाला साक्षर करण्याचे साधन म्हणूनच शिक्षण त्यांना अभिप्रेत नव्हते तर प्रगत राष्ट्रासाठी आधारस्तंभ ठरू शकणारी प्रगल्भ पिढी तयार करणे हे त्यांचे स्वप्न होते आणि म्हणून बापूजींनी भगिरथ प्रयत्न केवळ आपल्या हृदयातील संवेदनाच्या आणि माधुर्याच्या जोरावर हे सारे प्रहार लिलया झेलले. स्वतःच्या चारित्र्याच्या शुद्धतेचा आदर्श समाजासमोर निर्माण करून सर्वव्यापी क्रांती लोकसहभागातून निर्माण केली. लोकांच्या दातृत्वाला आवाहन करून सर्वांच्या सहकार्याने शिक्षणाचा ज्ञानयज्ञ प्रज्वलित केला. निर्माण होत असलेली प्रत्येक गोष्ट अप्रतिम दर्जाची करण्याची भूमिका घेतली आणि म्हणूनच महाराष्ट्राच्या कानाकोपऱ्यातून स्वामी विवेकानंद शिक्षणसंस्थेची होत असणारी घोडदौड ही बापूजींच्या समर्पित वृत्तीचीच फलनिष्पत्ती आहे, असे म्हटल्यास

वावगे ठरु नये. याबाबत माणिकराव साळुंखे म्हणतात, “ बापूजींच्या शैक्षणिक कार्यामुळे ग्रामिण महाराष्ट्राचा चेहरामोहरा आमूलाग्र बदलून गेला. विषमता, अंधश्रद्धा कमी होण्यास मदत झाली.

ध्येय वाक्य व पार्थना :-

“ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार” हे ब्रीद वाक्य बापूजींच्या आदर्श चारित्र्याचे आणि सुसंस्कृत मनाचे प्रतिक आहे. या ध्येय वाक्यातून त्यांची दूरदृष्टी आणि एकविसाव्या शतकाकडे झेप लक्षात आल्याशिवाय राहत नाही. ज्ञान म्हणजे सत्य, चारित्र्य, प्रामाणिकपणा पिळवणूक प्रवृत्तीस आळा. सेवा आणि त्याग यांचे ज्ञान, विज्ञान म्हणजे वरील तत्वांचे आचरण केल्याने मनुष्य सुसंस्कारीत बनले तो ईश्वराचा अविष्कार बनेल अशी बापूजींची धारणा होती

‘हरे राम, हरे राम राम राम हरे हरे
हरे कृष्णा हरे कृष्णा कृष्ण कृष्ण हरे हरे’

शिक्षणाची उद्दिष्टे :-

डॉ. बापूजी साळुंखे यांनी प्राथमिक शाळेपासून ते महाविद्यापर्यंत जो शिक्षण संस्थेच्या विस्तार केला त्यामागे निश्चित विचार होतो. त्यांच्या शिक्षण विचारांची व्याप्ती फार मोठी आहे. त्यांना आदर्श नागरिक निर्माण करणारी शिक्षण प्रणाली अपेक्षित होती. त्यामुळे बापूजींनी शिक्षणाचा हेतू किंवा उद्दिष्ट ‘ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार’ हे सांगितले. हेच आपल्या शिक्षण संस्थेचे बोध वाक्य ठेवले. या बोध वाक्यातील प्रत्येक शब्द अर्थगर्भीत आहे. या वाक्यात १) ज्ञान, २) विज्ञान, ३) सुसंस्कार, ४) यासाठी शिक्षण प्रसार हे चारही शब्द महत्वाचे आहेत. यातून बापूजींनी शिक्षण कशासाठी? किंवा शिक्षणाची उद्दिष्टे स्पष्ट केली आहे.

- १) **ज्ञान** — ज्ञान कशाचे? सत्य, शील, प्रामाणिकता, त्याग आणि पिळवणुकीस आळा यांचे ज्ञान.
- २) **विज्ञान** — या शब्दाचा अर्थ बापूजींनी आचरण या अर्थाने लावला. बापूजींच्या मते, जे ज्ञान मिळविले त्याचा उपयोग करणे म्हणजेच ते आचरणात आणले म्हणजे विज्ञान होय. पंचशील तत्वांचे (सत्य, शील, प्रामाणिकता, त्याग व पिळवणूकीस आळा) आचरण म्हणजे विज्ञान.
- ३) **सुसंस्कार** — व्यक्तीच्या विचार कृतीत मानव्यता असली पाहिजे. ईश्वराचे दर्शन घडेल अशी विचार व कृती असावी. ईश्वर म्हणजे मांगल्य, बापूजींच्या मते, सुसंस्कारी मनुष्यच ईश्वराचा अविष्कार आहे.
- ४) **शिक्षण प्रसार** — बापूजींची धारणा ही सुसंस्कारी समाजाची होती. असा समाज निर्मिती हे त्यांचे उद्दिष्टे होत. शिक्षण हे नोकरी किंवा रोजगारासाठी नाही तर शिक्षण म्हणजे आत्मविकास होय. हा आत्मविकास ज्ञान, विज्ञान आणि सुसंस्कार यातून होतो. यासाठी शिक्षण प्रसार असा विचार बापूजींचा होता.

विद्यार्थी हा केंद्र बिंदू —

शिक्षण प्रक्रियेत विद्यार्थी हा प्रमुख असतो. बापूजींनी ज्ञानदानाचे कार्य विद्यार्थ्यांस केंद्र बिंदू समजून केले. विद्यार्थी त्यांचे दैवत होते. त्यांचे शैक्षणिक विचार व कार्य विद्यार्थ्यांसाठी होते. विद्यार्थ्यांच्या विकासासाठी त्यांनी आपले सर्वस्व अर्पण केले. बापूजी म्हणत की, विद्यार्थ्यांची बुद्धी नेहमी तीक्ष्ण असली पाहिजे. त्याला अन्यायाची चीड असावी. विद्यार्थ्यांनी आपला स्वाभिमान जागृत ठेवावा. स्वामी विवेकानंदांची विवेकशीलता विद्यार्थ्यांनी आत्मसात करावी. विद्यार्थ्यांनी ही विवेकशीलता एकमेकांना देवून बंधुत्वाची भावना वाढवावी. विद्यार्थी कसा असावा? या विषयी बापूजी म्हणत की, विद्यार्थी विचारशील असावा. विद्यार्थी विकारशील असू नये विद्यार्थ्याने स्वतंत्र व स्वाभिमान वृत्तीची जोपासना केली पाहिजे. त्यांनी विद्यार्थ्यांनी पाळावयाचे नियम तयार केले. बापूजींनी वसतिगृहातील विद्यार्थ्यांसाठी एक वेगळे वेळापत्रक तयार केले होते. त्यात त्यांनी सकाळी ५ वाजल्यापासून ते रात्री १० वाजेपर्यंतच्या वेळेचे नियोजन केले होते. या वेळापत्रकाने विद्यार्थ्यांच्या जडण—घडणीमध्ये मोलाचे योगदान दिले.

श्री स्वामी विवेकानंद शिक्षण संस्थेची सद्यस्थिती —

डॉ. बापूजींची ही संस्था स्थापन करून महाराष्ट्राच्या शैक्षणिक क्षेत्रात भरीव असे कार्य केले. राष्ट्राच्या उधारासाठी त्यांनी शिक्षण मंत्र दिला. महाराष्ट्राच्या कोनाकोपन्यात दुर्गम भागात त्यांनी शाळा काढल्या वसतिगृहे सुरु केली. मुलींच्यासाठी शाळा सुरु केल्या. विविध संस्कार केंद्रे डॉ. बापूजींनी सुरु केली. डॉ. बापूजी या कार्यामुळे शिक्षण महर्षी झाले. २२, २३ डिसेंबर १९६८ रोजी सातारा येथे गुरुदेव कार्यकर्त्यांचे ‘शिक्षक’ एक शिबीर डॉ. बापूजींनी आयोजित केले होते. त्या शिबीरा समारोप प्रसंगी संत गाडगे महाराजांचे

शिष्य शिंदे महाराज यांनी बापूजींचे कार्य पाहून उपस्थित ८०० गुरुदेव कार्यकर्त्यांपुढे बापूजींचा शिक्षण क्षेत्रातील महर्षी असा उल्लेख केला. तेव्हापासून बापूजी 'शिक्षण महर्षी' झाले.

तत्कालीन परिस्थितीत शिक्षणसंस्था सुरु करणे हे अवघड त्याही पेक्षा त्या संस्थेचा विस्तार करून ती टिकवून ठेवणे व दर्जा सांभाळणे हे ही अवघडच. शिक्षणमहर्षी बापूजींनी स्थापन केलेला हा ज्ञानरथ संख्यात्मक व गुणात्मक अशा दोन्हीही बाबतीत महाराष्ट्राच्या शैक्षणिक विकासासाठी आगेकूच करत आहे. संस्थेची सध्या संख्यात्मक वाढ पाहता २३ महाविद्यालये, ६८ ज्युनियर कॉलेज, ८ शिक्षणशास्त्र विद्यालये, १ पुर्वप्राथमिक विद्यालय, २ इंग्रजी माध्यम शाळा, ९ बालवाड्या, १३ किमान कौशल्ये, ४ टेक्निकल, ५ शेती विभाग, ५ के.जी., २ नर्सिंग, १९ वसतीगृहे, १६ इतर विभाग अशा एकूण ३८० शाखा संस्थेमध्ये आहेत. संस्थेच्या या संस्कृती केंद्रामधून २.५ लाख विद्यार्थी शिक्षण घेत आहेत. तर १०,००० गुरुदेव कार्यकर्ते ज्ञानदानाचे पवित्र कार्य करत आहेत. ६० वर्षांपूर्वी ही संस्था सुरु करत असताना शिक्षणमहर्षी डॉ. बापूजींना अनंत आर्थिक अडचणींना तोंड द्यावे लागले. सध्या संस्थेचे वार्षिक बजेट २८० कोटी इतके आहे. डॉ. बापूजींनी स्थापन केलेल्या या संस्थेने महाराष्ट्राच्या शैक्षणिक क्षेत्रात फार मोलाचे योगदान दिलेले आहे, चालू आहे.

समारोप —

शिक्षणमहर्षी डॉ. बापूजी साळुंखे म्हणजे महाराष्ट्रातील समाजात शिक्षणाच्या माध्यमातून सुजाण, संस्कारक्ष, चारित्र्यसंपन्न, नितीमान आदर्श असा समाज घडविण्यासाठी अखंड आयुष्य वेचणारे 'ज्ञानमहर्षी' होते. शिक्षणाच्या माध्यमातून समाजामध्ये विधायक परिवर्तन घडवून आणण्याच्या प्रयत्न डॉ. बापूजींनी केला. डॉ. बापूजींच्या मते शिक्षणाने माणूस सुसंस्कारी होतो. व असा सुसंस्कारी माणूस परमेश्वराचा अंश असतो. सुसंस्कारी माणूस घडविण्यासाठी राष्ट्राच्या हितासाठी त्यांनी संस्कार केंद्रे उभारली व राष्ट्र उभारणीत मोठा हातभार लावला. डॉ. बापूजी म्हणजे प्रमिक्कुल परिस्थितीत शिक्षण घेणारे आदर्श विद्यार्थी, आदर्श शिक्षक, सोडूर संस्थानातील राजगुरु, राष्ट्रहित साधणारे स्वातंत्र्यसेनानी, सच्चे समाजसेवक, संस्थापक, बहुजक समाजाची ज्ञानतृष्णा शमविणारे शिक्षण महर्षी अशा कितीतरी जबाबदाऱ्या डॉ. बापूजींनी सामाजिक जाणीवेतून पार पाडल्या. त्यांच्या कार्यामुळे आधुनिक महाराष्ट्राचा शैक्षणिक चेहरामोहराच बदलून गेला. महाराष्ट्र शासनाने त्यांच्या या कार्याबद्दल त्यांना १९८५ मध्ये दलितमित्र पुरस्काराने सन्मानित केले आहे. शिक्षणमहर्षी डॉ. बापूजींचे शैक्षणिक क्षेत्रातील हे कार्य पाहून शिवाजी विद्यापीठाने ११ फेब्रुवारी १९८६ रोजी त्यांना 'डी.लिट' ही सन्माननीय पदवी देवून शिक्षण क्षेत्रातील या महान तपस्वीचा यथार्थ असा गौरव केलेला आहे. म्हणूनच डॉ. धनंजय कीर म्हणतात, 'आधुनिक महाराष्ट्राच्या शैक्षणिक इतिहासात डॉ. बापूजींचे नाव सुवर्णाक्षरांनी लिहिजे जाईल'.

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देशभक्त रत्नाप्पा कुंभार यांचे स्वातंत्र्य चळवळीतील आणि सहकार चळवळीतील कार्य

प्रा. डॉ. लक्ष्मी दादासो भोसले,
स.ब.खाडे कॉलेज, कोपार्डे.

महाराष्ट्राचे आराध्य दैवत, हिंदवी स्वराज्य संस्थापक छ. शिवाजी महाराज या महान राष्ट्रपुरुषाच्या अलौकीक कृतत्वाने निर्माण झालेला इतिहास हीच कोल्हापूर जिल्ह्याची प्रेरणा आहे. या कोल्हापूर जिल्ह्याने भारतीय स्वातंत्र्य चळवळीमध्ये आपला वेगळा ठसा उमटवला आहे. इ.स. १९३० ची सविनय कायदेभंग चळवळ, १९४२ ची चलेजाव चळवळ या चळवळीमध्ये कोल्हापूर जिल्ह्यातील अनेक स्वातंत्र्य सेनानींनी कार्य केले आहे. त्यापैकीच एक म्हणजे रत्नाप्पा कुंभार हे होत. देशभक्त रत्नाप्पा कुंभार यांनी भारतीय स्वातंत्र्य चळवळीमध्ये योगदान तर दिले आहेच. परंतु स्वातंत्र्योत्तर काळामध्ये कोल्हापूर जिल्ह्यात सहकारी चळवळीच्या विकासामध्येही आपले योगदान दिले आहे. प्रस्तुत शोधनिबंधात देशभक्त रत्नाप्पा कुंभार यांच्या कार्याचा आढावा घेण्यात आला आहे.

देशभक्त रत्नाप्पा कुंभार यांचा जीवन परिचय

देशभक्त रत्नाप्पा कुंभार यांचा जन्म १५ सप्टेंबर १९०९ रोजी कोल्हापूर जिल्ह्यातील शिरोळ तालुक्यातील निमशिरगाव या खेडेगावात झाला.^१ त्यावेळी प्लेगची साथ आल्याने त्यांचे आईवडिल गाव सोडून शेतात राहत होते. संबंध महाराष्ट्रभर रत्नाप्पा यांना आणणाऱ्या म्हणून संबोधले जात होते. त्यांच्या वयाच्या सातव्या वर्षी त्यांची आई निधन पावली. त्यापुढे त्यांचा सांभाळ त्यांच्या वडीलांनी केला.^२

रत्नाप्पा कुंभार यांचे प्राथमिक शिक्षण १९१७ ते १९२४ पर्यंत निमशिरगाव येथे झाले. घरची परिस्थिती अत्यंत प्रतिकूल असताना मराठी सातवी पास झाल्यानंतर पुढील शिक्षणासाठी ते कोल्हापूरला आले. कोल्हापूरमध्ये विरशैव बोर्डिंगमध्ये प्रवेश घेतला. इ.स. १९२८ साली ते मुंबई विद्यापिठाची मॅट्रिक परिक्षा उत्तीर्ण झाले.^३ १९३३ मध्ये बी.ए. पदवी परिक्षा उत्तीर्ण झाले.^४

कोल्हापूरमधील स्वातंत्रता आंदोलन आणि प्रजा परिषदेची स्थापना

संपूर्ण भारतभर इंग्रजांविरुद्ध आंदोलने सुरु होती. कोल्हापूरमध्ये स्वातंत्र्य आंदोलनामध्ये रत्नाप्पा कुंभार, माधवराव बागल इत्यादी तरुण कार्य करत होते. हरिपुरामध्ये काँग्रेसने (१९३८) संस्थानी प्रजेच्या स्वातंत्र्य आंदोलनास नवीन दिशा प्राप्त करून दिली. संस्थानामध्ये काँग्रेसशी संलग्न अशा प्रजा परिषदा स्थापन करण्यावर हरीपुरा अधिवेशनाने बराच भर दिला. त्याद्वारे विविध संस्थानामधील स्वातंत्र्यप्रेमी लोकांमध्ये नवीन आशा आकांक्षा निर्माण झाल्या. त्यातूनच डेक्कन स्टेट पीपल्स कॉन्फरन्सच्या मार्गदर्शनाखाली कोल्हापूर प्रजापरिषदेची ६ फेब्रुवारी १९३९ रोजी निर्मिती झाली. भारतीय राष्ट्रीय काँग्रेस तसेच सर्व्हंट्स ऑफ इंडिया सोसायटीच्या मार्गदर्शनाचाही प्रजा परिषदेस चांगला उपयोग झाला. माधवराव बागल व रत्नाप्पा कुंभार हे धडाडीचे लढाऊ कार्यकर्ते या परिषदेचे आधारस्तंभ होते. या दोन्ही पुढाऱ्यांनी बहुजन समाजात राष्ट्रीय जागृती व स्वातंत्र्य लढयासाठी जनआंदोलन उभारण्याचे प्रयत्न केले. छत्रपतींच्या राजवटीचा या सर्व उपक्रमांना कडवा विरोध होता. सभा भाषणावर बंदी होती. त्यास न जुमानता त्यांनी आपले कार्य चालूच ठेवले. माधवराव बागलांना त्यासाठी १९३९ मध्ये तुरुंगवास भोगावा लागला.^५

कोल्हापूरमधील प्रजाजनांच्या आंदोलनामध्ये रत्नाप्पा कुंभार यांच्याबरोबरच माधवराव बागल दिनकरराव देसाई, बाळकृष्ण शिखरे (मिरज), वसगडेकर (सांगली) आणि नाना जगदाळे इ. पुढारी होते. त्यांना शंकरराव देव मार्गदर्शन करीत होते.^६

शेतकरी आंदोलन

स्वातंत्र्य आंदोलन सुरु असतानाच रत्नाप्पा कुंभार यांनी १९४१ मध्ये जून महिन्यापासून माधवराव बागल, दिनकरराव देसाई, नाना जगदाळे इ. च्या सहकार्याने शेतकरी आंदोलनास प्रारंभ केला. हे आंदोलन प्रामुख्याने जमीन महसूल व शेतीशी निगडीत इतर मागण्याबाबत होते.^७

छोडो भारत चळवळीतील रत्नाप्पा कुंभार यांचे कार्य

तरुण मुलांमध्ये १९४२ च्या भूमिगत चळवळीचे विलक्षण आकर्षण होते. कोल्हापूरचे रत्नाप्पा कुंभार सांगलीचे वसंतदादा पाटील, सातारचे नाना पाटील हे तरुणांचे दैवत झाले होते.^८

कोल्हापूर संस्थानातील छोडो भारत लढ्याचा प्रारंभ १८ ऑक्टोबर १९४२ पासून झाला. रत्नाप्पा कुंभार, माधवराव बागल, बंडाप्पा आण्णा घुंगुरे इ. च्या नेतृत्वाखाली शेकडो राष्ट्रप्रेमींनी आंदोलनात उडी घेतली. आदमासे १ हजार व्यक्तींनी तुरुंगवास पत्करला. शासकीय दडपशाहीने उग्र स्वरूप धारण केले. पोलीसांनी अनन्वीत अत्याचार केले. त्यामुळे आंदोलक भूमिगत झाले. ज्या वाडयात रत्नाप्पा राहत होते. त्या वाडयाला बाहेरून कडी लावून पेटवीला. तथापि ते तत्पूर्वीच तेथून निसटले असल्याकारणाने वाचले. पोलीसांच्या अत्याचारांमुळे जनतेचा प्रक्षोभ वाढल्याने ७ मे १९४३ रोजी भाई माधवराव बागल व काही पुढाऱ्यांना मुक्त करावे लागले. तथापि रत्नाप्पा कुंभार भूमिगत राहून त्यांनी आंदोलन चालू ठेवले. त्यांनी निदर्शने, पाटलांचे राजीनामे घेणे, शासकीय कारभार विस्कळीत करणे, कार्यालयावर हल्ले करणे अशा प्रकारची आंदोलने प्रामुख्याने संस्थानाबाहेरच्या भागात घडवून आणली. त्यामागे प्रेरणा होती, क्रांतिसिंह नाना पाटील यांची.^९

भूमिगत चळवळी

भूमिगत चळवळीचा मुख्य हेतू सरकारला सतावून सोडण्याचा होता. कोल्हापूर प्रांतामध्ये ही चळवळ रत्नाप्पा कुंभार यांच्या नेतृत्वाखाली जोमाने सुरु होती.

अ) मेल ट्रेन लुटली

भूमिगत चळवळीचाच एक भाग म्हणून रत्नाप्पा कुंभार व त्यांच्या सहकाऱ्यांनी मेल ट्रेन लुटण्याचे नियोजन केले होते. २० डिसेंबर १९४३ रोजी मालगाव येथे गुप्त सभा बोलविली. या गुप्त सभेला रत्नाप्पा कुंभार यांच्यासह ५० कार्यकर्ते हजर होते. या गुप्त सभेमध्ये कृतीचे नियोजन केले. महत्वाचे भूमिगत पुढीलप्रमाणे कोल्हापूर संस्थानातील सांगावचे बाबुराव देशपांडे, इचलकरंजीचे शिवगौडा पाटील, हुपरीचे आनंदराव गाट जमखिंडीचे शाम पटवर्धन, निमशिरगावचे रत्नाप्पा कुंभार. तीन दिवस विचारविनिमय केल्यानंतर मेल ट्रेन लुटण्याचा निर्णय घेतला. संपर्क तोडण्यासाठी सलगरे आणि आथणी रोड यामधील मेल नं. ६६/१-२ येथील आणि मेल नंबर ७७/९-१० येथील टेलीग्राफच्या तारा तोडल्या. या कृतीमध्ये प्रत्यक्ष रत्नाप्पा कुंभार यांनी भाग घेतला नाही. परंतु त्यांच्या मार्गदर्शनाखाली मेल ट्रेन लुटीचा प्रयत्न यशस्वी झाला. या गुन्ह्याची नोंद पोलिसात करण्यात आली.^{१०}

ब) जेजुरी दरोडा

रत्नाप्पा कुंभार यांनी शंकरराव माने, डॉ. माधवराव कुलकर्णी, दत्तोबा तांबट, श्याम पटवर्धन, य.म. कुलकर्णी, इब्राहीम नदाफ, शि.पी.पाटील या सहकाऱ्यांसह २७ जुलै १९४४ रोजी रात्री जेजुरी देवस्थानावर दरोडा टाकला. पुजाऱ्यांकडून जबरदस्तीने मंदीरातील जामदारखान्यातील तिजोरीच्या चाव्या घेऊन खजिना उघडला. तिजोरीत इंदूरचे होळकर, ग्वाल्हेरचे शिंदे, पुण्याचे पेशवे व इतर धनिकांनी खंडोबाला दिलेले सोन्याचे, रत्नाचे, माणिकांचे कोटयावधींचे दागिने होते. ते सर्व दागिने घेऊन भूमिगत पळून गेले. पोलिसांनी या दरोड्याचा तपास लावला. रत्नाप्पा कुंभार यांना सोडून इतर सर्व क्रांतीकारकांना पकडण्यात आले. ब्रिटिश सरकारने रत्नाप्पा कुंभार यांच्याविषयी माहिती सांगणाऱ्यांना अथवा अटक करण्यासाठी मदत करणाऱ्यांना २० हजार रुपयांचे बक्षिस जाहीर केले. परंतु ते काही सापडले नाहीत. त्यांनी सहकारी क्रांतीकारकांसोबत लुटलेल्या पैशाचा वापर भूमिगत चळवळीसाठी केला.^{११}

कोल्हापूर विलीनीकरणाविषयी वाद

कोल्हापूर विलीनीकरणाच्या प्रश्नावरून प्रजा परिषदेत परस्परविरोधी गट निर्माण झाले. एक माधवराव बागल यांचा आणि दुसरा रत्नाप्पा कुंभार यांचा. बागलांच्या मते, कोल्हापूरचे विलीनीकरण न करता मुंबई राज्याशी स्नेहभावाचे नाते ठेवून मुंबई राज्याशी सलंगन रहावे. तथापि रत्नाप्पा कुंभार यांना कोल्हापूरचे विलीनीकरण व्हावे असे वाटत होते. त्यांनी विलीनीकरणासाठी आंदोलन चालू ठेवले. बऱ्याच आंदोलनानंतर प्रजापरिषदेच्या कार्यकारी मंडळातील १५ पैकी ८ सभासदांनी राजीनामे देवून कार्याध्यक्ष बागलांविरुद्ध अविश्वासाचा ठराव संमत करून विलीनीकरणाचा अंतिम निर्णय घेतला. आणि कोल्हापूरातील स्वातंत्र्य आंदोलन समाप्त झाले.^{१२}

सहकारी चळवळीतील कार्य

पंचगंगा सहकारी साखर कारखाना

रत्नाप्पा कुंभार १९५२ साली खासदार झाल्यावर लगेचच त्यांनी भारतातील दुसरा सहकारी साखर कारखाना उभारण्याच्या हालचाली सुरु केल्या. त्यांनी सहकारी साखर कारखान्याच्या परवाणगीचा प्रस्ताव सादर केला. तत्कालीन मुंबई राज्याचे अर्थमंत्री जीवन मेहता यांनी साखरेच्या उत्पादनाने गुळाच्या निर्यातीस मार बसतो. असे कारण सांगून साखर कारखान्यास परवाणगी नाकारली. रत्नाप्पा कुंभार यांनी ३ वर्षे अथक प्रयत्न करून १ ऑक्टोबर १९५५ रोजी सहकारी तत्वावरच्या पंचगंगा सहकारी साखर कारखान्याच्या उभारणीचा परवाना मिळविला. १२,९६,०३७ रुपयांचे भागभांडवल जनतेतून उभे केले. व पश्चिम जर्मनीतील बकाऊ वुल्फ या कंपनीकडून रेज १००० टन ऊस गाळण क्षमता असलेली यंत्रसामग्री आयात केली. स्थापनेवेळी १००० टन ऊस गाळण क्षमता असलेला कारखाना ३० सप्टेंबर १९८३ रोजी ५००० टन गाळण क्षमतेचा होता. या कारखान्यांबरोबर त्यांनी शेतीच्या विकासासाठी पाणी, खत, औजारे, तांत्रिक ज्ञान, शेतीमालाच्या किंमती याबरोबरच खेड्यातून शेतीवाड्यात जाणाऱ्या पाणंद रस्त्याची बांधणी आणि दुरुस्ती इ. वर भर दिला. त्यांच्या मृत्यूनंतर कारखान्यास देशभक्त रत्नाप्पा कुंभार पंचगंगा सहकारी साखर कारखाना असे नाव देण्यात आले.^{१३}

कोल्हापूर जिल्हा शेतकरी विणकरी सहकारी सूतगिरणी

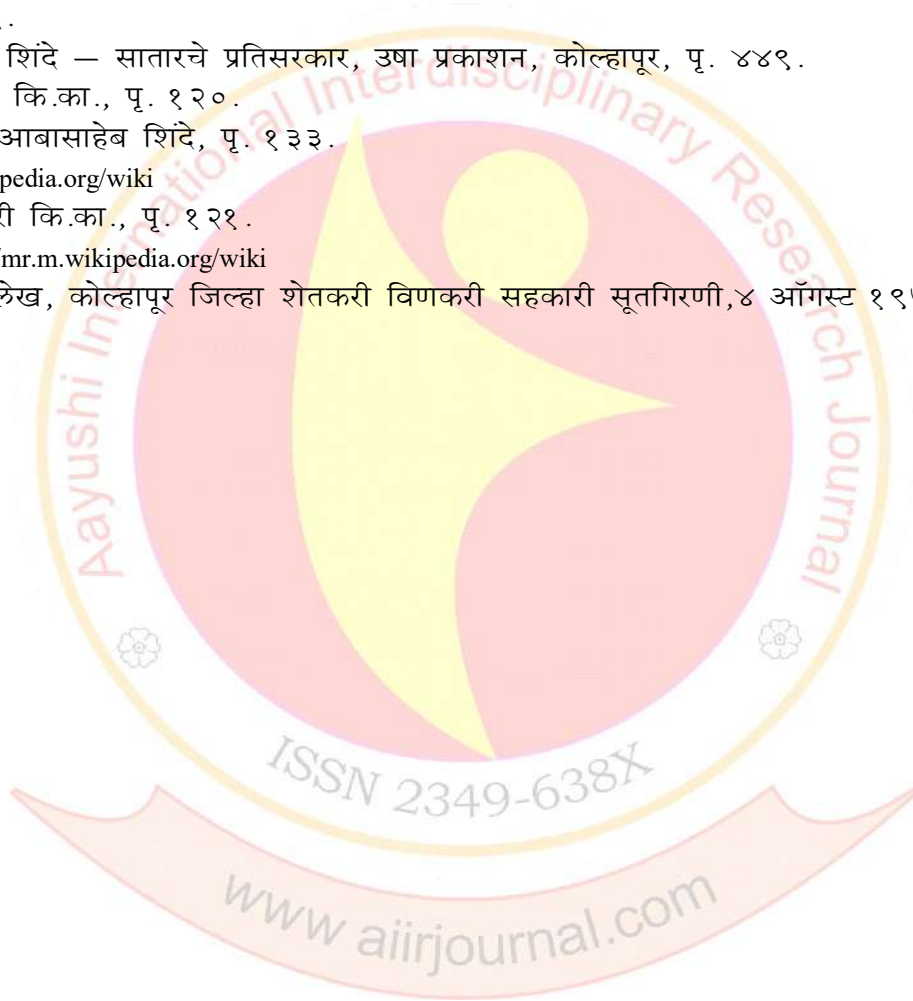
पंचगंगा सहकारी साखर कारखान्याचे एक उद्योग आपत्य म्हणून कोल्हापूर जिल्हा शेतकरी विणकरी सहकारी सूतगिरणीचे वर्णन करता येईल. शेतकरी व विणकरी हे दोन्ही घटक एकमेकांपासून अलग गणले जातात. शेतकऱ्यांचा विणकऱ्यांशी काहीही संबंध नव्हता. शेतकरी आणि विणकरी यांचा संबंध सहकारी तत्वातून साधण्याचा प्रयत्न रत्नाप्पा कुंभार यांनी केला. रत्नाप्पा कुंभार यांनी अशा स्वरूपाची सूतगिरणी स्थापन करण्यासाठी इ.स. १९६३ पूर्वीच प्रयत्न केले होते. परंतु शासनाने जानेवारी १९६४ मध्ये या गिरणीला परवाणगी दिली. या गिरणीचे संस्थापक रत्नाप्पा हे होते. ही गिरणी स्थापन करण्यासाठी मृगनधर सुलतानपुरे, शामराव पाटील, बापूसाहेब पंडीत रघुनाथ देसाई, शंकरराव डांबल, महादेवराव लाडकर यांनी विशेष प्रयत्न केले. या सूतगिरणीचे भूमिपूजन समारंभ भारत सरकारचे तेव्हाचे अन्न व कृषीमंत्र मा. ना.श्री. सुब्रमण्यम यांच्या शुभहस्ते झाला. कापूस पिकविणारा शेतकरी व कापड विणणारा विणकरी यांच्या संयुक्त मालकीची ही भारतातील पहिलीच सूत गिरणी होती. सूतगिरणीमध्ये कर्मचाऱ्यांची भरती प्रामुख्याने ग्रामीण भागातून करण्याचे संचालक मंडळाचे धोरण होते.^{१४}

देशभक्त रत्नाप्पा कुंभार यांनी आयुष्यभर देशासाठी व समाजासाठी कार्य केले. भारतीय स्वातंत्र्य चळवळीमध्ये त्यांनी कोल्हापूर परिसरामध्ये ब्रिटिश शासनाला वेगवेगळ्या मार्गाने सळो की पळो करून सोडले. त्यासाठी त्यांनी तुरुंगवासही भोगला, काही दिवस ते आज्ञातवासातही राहिले. स्वातंत्र्योत्तर काळातही त्यांनी आपले जनसेवेचे व्रत सोडले नाही. सहकारी चळवळीच्या माध्यमातून त्यांनी पंचगंगा सहकारी साखर कारखाना व शेतकरी विणकरी सहकारी सूतगिरणी स्थापन केली. त्यामुळे साखर कारखान्याचा शेतकऱ्यांना फायदा झाला. त्याचप्रमाणे ग्रामीण भागातील तरुणांना रोजगार मिळाला. त्यामुळे त्यांच्या आर्थिक परिस्थितीत सुधारणा झाली. एकूणच रत्नाप्पा कुंभार यांनी भारतीय स्वातंत्र्य चळवळी बरोबरच कोल्हापूर जिल्ह्याच्या आर्थिक विकासांमध्ये महत्वपूर्ण योगदान

दिले आहे. त्यांच्या सामाजिक कार्यासाठी त्यांना १९८५ साली पद्मश्री पुरस्काराने सन्मानित करण्यात आले तर १९८५ साली पुणे विद्यापिठाने त्यांना डी.लिट पदवी दिली.

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जीवन पद्धति

डॉ.श्वेता एन.दवे

असिस्टेंट प्रोफेसर

धर्मेन्द्रसिंहजी कालेज, राजकोट

प्रस्ताविक

किसी एक मनुष्य की जीवन पद्धति का कोई मायने नहीं होता, जब तक किसी राष्ट्रीय समाज की पद्धति का चरित समग्र रूप से अपना प्रभाव नहीं छोड़ता। जीवन पद्धति सम्पूर्ण आयु खंड से झलकती है, पीढ़ी दर पीढ़ी जीवन शैली से झलकती है और समाज की गतिविधियों से प्रकट होती है। भारतीय जीवन पद्धति की विशेषता यह है कि श्रेष्ठतम दार्शनिक अनुभूतियां भारतवासियों के खून में मिश्रित हैं; उनके विचारों एवं भावों के मूल में पैठी हुयी हैं। यहां धर्म संतों के चरित्र में दिखलायी पड़ता है।

राधाकृष्ण कहते हैं, “परंपराएं एक पीढ़ी से दूसरी पीढ़ी को बांधने वाली कड़ियां होती। जीवन की यात्रा अतीत को त्यागकर नहीं होती। जीवन अतीत को मानकर चलता है। जीवन अतीत को लेकर भविष्य की चादर बुनता है और इसी क्रम में अतीत का पुनर्जन्म होता है।..... विज्ञान सार्वभौम विद्या है और सार्वभौम मानव जाति का आविर्भाव विज्ञान की अभिलाषा है।.....धर्म की वास्तविक शिक्षा विश्व को सुंदर एवं शिव बनाने का अथक प्रयास है।.... प्रकाश के धरातल पर अभिनव जन्म ग्रहण करना आध्यात्मिक अनुभूति है।.... प्रकृति को पालतू नहीं बनाया जा सकता है।.....सुख के लिये अपने आप पर स्वामित्व पाना होगा’ “यह दृष्टिकोण है जो धर्म-अध्यात्म-विज्ञान के संयुक्तीकरण के परिणामस्वरूप उपजता है। यह दृष्टिकोण है जो प्रकृति के प्रति माधुर्य भाव जगाता है। यह दृष्टिकोण है जो प्रकृति को दास समझता है। जीवन पद्धति परंपराओं का फलाफल है। जीवन पद्धति अवधारणाओं का समुच्चय है। इसी अबलंब पर समाज स्थूल और सूक्ष्म के प्रति अपना विचार सिरजता है। भारतीय जीवन पद्धति के पोर-पोर में जीवन्तता का समावेश है। यदि ईमानदारी से इसको व्यवहार में लाया गया तो यह विश्व, यह वर्तमान और यह धरती ‘सुखागार’ बन सकते हैं।

ऋग्वेद से उद्धृत सत्यः

१. इन्द्र मित्रं वरुणमग्निहोत्रो दिव्यः स सुपर्णो गरुत्मान्।

एकं सदविप्रा बहुधा वदन्त्यग्नि यमं मातरिश्वानमाहुः ॥ सृष्टि का नियामक देव एक ही है जिसके अनेक रूप देवों में = प्रतिबिम्बित हैं।

२. तद् एकं, तद् सत्यम्।

यह सर्वोच्च देव है। देवों की वृहत् शक्तिशालिता सूर्य में मूर्तिमंत है। ३. या आपो दिव्या उत वा स्रवन्ति खनित्रिमा उत वा याः स्वयंजाः।

३. या आपो दिव्या उत वा सर्वन्ति खनित्रिमा उत वा याः स्वयंजाः

समुदार्था शुचयः पावकास्ता आपो देवीरिह मामवन्तु ॥

दिव्य जल जो या तो खोदी हुयी या स्वयं बहती हुयी नहरों में बहता है, जिनकी गति समुद्र की ओर है, जो पवित्र है, पावन है, वह दिव्य जल मेरी पालना करे

४. यत्र वेत्थ वनस्पते देवानां गृह्या नामानि। तत्र हव्यानि गामय ॥

हे वनस्पते! हे आनन्द के स्वामी जहां तुम दोनों के गुह्य को जानते हो, वहां, उस लक्ष्य तक हमारी भेंटों को ले जाओ।

५. य नो बोधि श्रुधि हवमुरुष्या णे अघायतः समस्मात्। नामोतं त्वा शोचिष्ठ दीदिवः सुम्नाय नूनमीमहे सखिभ्यः

वह तू जागा। हमारी पुकार सुन। हमें, उन सबसे, जो अशुभ व बुराई की तरफ प्रवृत्त करना चाहते हैं, दूर रखा हे ज्योतिर्मय! हे पवित्रम प्रकाश की ज्वाला! तुझको हम अपने मित्रों के लिये चाहते हैं ताकि वे अभी ही आनन्द और शांति प्राप्त करें।

अथर्ववेद में पर्यावरण तथा जीवन दृष्टिः

१) ऋषि-सिन्धुद्वीप। देवता आपः।

जिस प्रकार मातायें स्वेच्छा से अपने बच्चे को दूध करती हैं, उसी प्रकार हे जल! आप में तो तत्त्वरूप परमकल्याणी रस है, उससे हमें पुष्ट करो। पिलाकर समस्त वनों और सुख साधनों के स्वामी! प्राणी मात्र को अपने-अपने स्थानों पर बसाने वाली औषधियों से व्याधि निवारण करने वाले जल की मैं प्रार्थना करता हूं। जल में सब औषधियां विद्यमान हैं तथा समस्त जन को तथा कल्याण देने वाले अग्निदेव हैं, ऐसा सोम ने उपदेश दिया है। मरुप्रदेश का जल हमें सुख प्रदान करे, जल संपन्न देश का जल हमें सुख प्रदान करे,

खोदे हुये कुयें का जल हमें सुखप्रद हो, घड़े आदि बर्तन में लाया हुआ जल हम सुख प्रदान करे, वर्षा से प्राप्त हुआ जल भी हमें सुखी बनाये।

२) ऋषि-प्रमोचन देवता-दूर्वा, शाला।

हे अग्ने ! तुम्हारे सामने जाने पर अथवा पीछे जाने पर भी हमारे देश में सुंदर फूल वाली दूर्वा उत्पन्न हो और जल के झरने पर तैरती रहे। हमारे यहां कमलयुक्त सरोवर भी हो। हमारा घर जल पूर्ण हो। हमारे सरोवर जल से युक्त हो। हे अग्ने! अपनी लपटो को परांगमुख करो। हे शाले! तू हमारे निमित्त शीतहृदा हो। हम तुझको ठंडे पानी से जटायु रूप घेरकर शैवाल से लपेटते हैं। हमारे द्वारा स्तुति करने पर अग्नि से घर आदि न जले, ऐसा यत्न हम करें।

३) ऋषि-अथर्वा । देवता-ध्वादर्यो मंत्रोक्ता ।

सब नदियां हमारे अनुकूल होकर बहें। वायु भी हमारे अनुकूल होकर बहे। पक्षी भी अनुकूल हों, साथ-साथ उड़ें। नदियों के जो अक्षय स्रोत ग्रीष्मादि में भी कभी क्षीण न होकर संगठनबद्ध होकर रहते हैं, उन सबसे हम पशु, धन, धान्यादि अविच्छिन्न रूप में प्राप्त करते रहें।

४) ऋषि-ब्रह्मा । देवता लिंगाक्ता ।

सबमें आत्मा रूप में व्याप्त सूर्यदेव हमें सहस्रों वर्ष तक स्वस्थ होकर जीने की शक्ति प्रदान करें। यह सूर्यदेव ही सब ज्ञानी पुरुषों में माननीय और उन्हें सत्कर्म और कर्मफल में टिकाये रखने वाले हैं। हे आनन्द भगवान! सत्कार्य करने के लिये हमें आयु प्रदान करें। ज्ञान देने वाली, पापहारिणी, तेजयुक्त उषार्यें, उन सूर्य भगवान की ओर हमको प्रेरित करती रहें।

५) ऋषि अथवा । देवता-सामगस्यम् अश्विनी ।

हम सब एक रस हों हमारे प्रतिकूल बातें करने वाले भी हमारे अनुकूल हों। हे अश्विद्वय! तुम अपने पराये मनुष्यों को समान मति वाला बनाओ। हम अपने मन से दूसरे के मन को जोड़ें। हम पृथक् न हों। मन का उच्चाटन करने वाले शब्द न हों और इन्द्र का वज्र हमारे उपर न गिरे।

श्रीमद्बालमीकीय रामायणः

इस अमर ग्रन्थ में चर और अचर मानवीय गुण-अवगुण से उत्पन्न हैं तथा सृष्टि प्रवाहमान है। सृष्टि में एकता है और यही एकता अन्तर्धारा बनकर पूरी कथा को जीवंत बनाती है। इस ग्रन्थ ने भारतीय लोकमानस को शुरू से प्रभावित किया है।

१) **बालकांड :** गंगा ने अपने गर्भ में महादेव के तेज को धारण किया जिससे एक कुमार का जन्म हुआ। दोनों द्वारा धाय मां के रूप में छह कृतिकायें प्रतिनियुक्त की गयीं। नहलाने, दूध पिलाने, क्रीड़ा करने, रंजन करने के दायित्व निर्वाह के कारण वे कुमार महादेव पुत्र कार्तिकेय कहे गये।

२) **अयोध्याकांड:** माता कौशल्या राम के वन-गमन के अवसर पर मंगलकामना करती हैं तथा प्रकृति की प्रत्येक सत्ता में आस्था व्यक्त करती हैं। नरश्रेष्ठ! समिधा, कुशा, पवित्री, वेदियां, मन्दिर के देवपूजन सम्बन्धी स्थान, पर्वत, वृक्ष, क्षुप, जलाशय, पक्षी, सर्प और सिंह वन में तुम्हारी रक्षा करें।

३) **अरण्यकांड:**

पम्पासरोवर तथा ऋष्यमूलक पर्वत के मार्ग की ओर जाते हुये राम-लक्ष्मण भ्राताद्वय ने प्राकृतिक सुषमा का दर्शन किया। यह विशाल वन टिट्टिभों, मोरों, कठफोड़वों, तोतों तथा अन्य बहुत से पक्षियों के कलरवों से गूंज रहा था उसके तट पर तिलक, अशोक, नागकेशर, वकुल तथा लिसोढ़े के वृक्ष उसकी शोभा बढ़ा रहे थे।...

तिलक, बिजौरा, बट, लोध, खिले हुये करवीर, पुष्पित नागकेशर, मालती, कुन्द, झाड़ी, भंडीर, वंजुल, अशोक, छितवन, केतकी, माधवी लता तथा अन्य नाना प्रकार के वृक्षों से सुशोभित हुई पम्पा भांति-भांति के वस्त्राभूषणों से सजी हुई युवती के समान जान पड़ती थी। पम्पा के तट पर उत्पन्न हुये ये वृक्ष इसी के जल से अभिषिक्त हो बढ़े हैं और मधु, मकरन्द एवं गंध से सम्पन्न हुये हैं। इनके नाम इस प्रकार हैं। मालती, मल्लिका, पदम और करवीर। ये सबके-सब फूलों से सुशोभित हैं। केतकी, सिन्दुवार तथा वासन्ती लतायें भी सुन्दर फूलों से भरी हुई। माधवी लता तथा कुन्द-कुसुमों की झाड़ियां सब ओर शोभा पा रही हैं। चिरिबिल्व, महुआ, बेंत, मौलसिरी, चम्पा, तिलक और नागकेशर भी खिले दिखायी देते हैं। पर्वत के पृष्ठ भागों पर पद्मक और खिले हुये नील अशोक भी शोभा पाते हैं। वहीं सिंह के अयाल की भांति पिंगल वर्ण वाले लोभ्र भी सुशोभित हो रहे हैं। अड्कोल, कुरंट, चूर्णक, परिभद्रक,

आम, पाटलि, कोविदार, मुचुकुन्द और अर्जुन नामक वृक्ष भी पर्वत शिखरों पर फूलों से लदे दिखायी देते हैं। केतक, उद्यालक, शिरीष, शीशम, धव, सेमल, पलाश, लाल कुरबक, तिनिश, नक्तमाल, चन्दन, स्यंदन, हिन्ताल, तिलक तथा नागकेश्वर के पेड़ भी फूलों से भरे दिखायी देते हैं।

४) युद्धकांडः

तब समुद्र के बीच से सागर स्वयं मूर्तिमान होकर प्रकट हुआ, मानो महाशैल मेरुपर्वत से सूर्यदेव उदित हुये ॥ 17॥

५) उत्तरकांडः

राजा निमि की जीवात्मा से ऋषि भृगु तथा देवताओं ने वर मांगने के लिये कहा- निमि की जीवात्मा ने कहा- 'समस्त प्राणियों के नेत्रों में निवास करना चाहता हूं' - "सुरश्रेष्ठ! मैं।

६) उत्तरकांडः

विष्णु के अवतार महानायक श्री रामचन्द्र के भाइयों एवं मित्रों-नगरवासियों सहित सरयूजी में जल समाधि लेने के निर्णय से 'मृत्यु दिवस', 'उत्सव दिवस' बन गया और सरयू नदी 'अमर' हो गयी। "उस समय सैंकड़ों प्रकार के बाजे बजने लगे और गन्धर्वों तथा अप्सराओं से वह स्थान भर गया। इतने में ही श्रीरामचन्द्रजी सरयू के जल में प्रवेश करने के लिये दोनों पैरों से आगे बढ़ने लगे।"

पराशरनन्दन वेदव्यासरचित महाभारत

यह अमर ग्रन्थ मानव संसार की कुरुपताओं को उजागर कर शाश्वत सत्य से परिचय कराता है और भारतीय जीवन पद्धति का सहस्रों वर्षों से निर्माण करता आ रहा है।

पुरोहित धौम्य द्वारा सूर्य की आराधना पद्धति का बतलाया जाना तथा सूर्य द्वारा अक्षय पात्र दिये जाने की कथा (वन पूर्व), मुनि मार्कण्डेय-युधिष्ठिर संवाद में मत्स्योपाख्यान, सृष्टि-प्रलय कथा और सांसारिक संताप का वर्णन, ययाति इन्द्र वार्तालाप (आदि पर्व), नारद प्रश्नावली, दुर्योधन-धृतराष्ट्र वार्ता (सभा पर्व), युधिष्ठिर-द्रौपदी संवाद, युधिष्ठिर-सर्प प्रश्नोत्तर, यक्ष-युधिष्ठिर संवाद (वन पर्व), विदुर नीति, सनत्सुजातीय (उद्योग पर्व), व्यास-धृतराष्ट्र संवाद, अर्जुन श्री कृष्ण संवाद-श्रीमद्भागवत गीता-(भीष्म पर्व), दुर्योधन-विलाप (शल्य पर्व), कृपाचार्य-अश्वत्थमा संवाद (सौप्तिक पर्व), व्यास-युधिष्ठिर वार्ता, भीष्म-युधिष्ठिर वार्ता, व्यास-शुकदेव वार्ता, पराशर-गीता (शान्ति पर्व), भीष्म-युधिष्ठिर संवाद, अंगिरा-वचन, नारद वचन, श्री कृष्ण वचन (अनुशासन पर्व), श्रीकृष्ण-अर्जुन वार्ता (आश्वमेधिक पर्व), द्रौपदी सहित पांडवों का स्वर्ग गमन (महाप्रास्थानिक पर्व) द्वारा नदी, सरोवर, समुद्र, पर्वत, तरु, पशु-पक्षी, कीट-पतंग, ग्रह-तारे-नक्षत्र आदि मानुषिक मनोजगत् के अंग बनकर मूर्तिमंत हो उठते हैं। सृष्टि और ईश्वर के बीच का भेद मिट जाता है। प्रकृति (पर्यावरण) मानुषिक संसार के साथ अन्तर्गुम्फित होकर साथ-साथ चलती हुई दिखलायी देती है। जन के उत्थान-पतन से मानवीय सृष्टि का व्यवहार एवं व्यापार निश्चित हुआ दिखलायी पड़ता है। शाश्वत सत्य मनोलोक का निर्माण कर तत्कालीन विश्व का नियमन करने में सफल हुये और आज भी नैतिकता और अनैतिकता का विभाजन करने एवं अधर्म की पहचान करने में वे ही सच्चे मानक बने हुये हैं।

वेदव्यास-प्रणीत श्रीमद्भागवत महापुराणः

१) संसार की उत्पत्ति, स्थिति और प्रलय की रचना करने के लिये भगवान सत्व, रज तथा तम का उपयोग करते हैं।

(श्री शुक उवाच)

नमः परस्मै प्ररुषाय भूयसे सदुद्भवस्थान निरोध लीलया।

गृहीतशक्तित्रितयाय दोहिना-मन्तर्भवायानुपलक्ष्यवर्त्मने ॥

(द्वितीय स्कन्ध)

२) ब्रह्मांड के अणु-अणु में विराट पुरुष का वास है श्री ब्रह्म उवाच ।

(द्वितीय स्कन्ध)

३) परमाणुओं के संयोग वियोग से पदार्थ रूप परिवर्तन करता है। और फलस्वरूप भिन्न-भिन्न संसार दृष्टिगोचर होते हैं।

(श्री मैत्रेय उवाच)

चरमः सद्विशेषाणामनेकोऽसंयुतः सदा ।

परमाणुः स विज्ञेयो नृणामैक्यभ्रमो यतः ।

४) जल में डूबे स्थल भाग का उद्धार भगवान वाराह ने किया।

(श्री मैत्रेय उवाच)

तमालनीलं सितदन्तकोटया क्षमामुत्क्षिपन्तं गजलीलयाङ्ग ।

प्रज्ञाय बद्धाञ्जलयोऽनुवाकैविरिञ्चिमुख्या उपतस्थुरीशम् ।

(तृतीय स्कन्ध)

५) पृथ्वी को अनुशासित कर उसका दोहन करने वाले प्रथम राजा पृथु हुये जिनके पुरुषार्थ का प्रसाद सभी जनों को प्राप्त हुआ ।

(श्री मैत्रेय उवाच)

सर्वे स्वमुख्यवत्सेन स्वे-स्वे पात्रे पृथक् पायः ।

सर्वकाम दुधां पृथ्वी दुदुहुः पृथुभाविताम् ।

(चतुर्थ स्कन्ध)

६) वसुन्धरा का एकमात्र भूखंड भारतवर्ष है जो कर्मभूमि कहलाया, शेष आठ वर्ष योगभूमि कहे गये।

७) भारतवर्ष के शासक महाराज दिलीप के पुत्र भीमरथ की साधना से गंगा का मृत्युलोक में अवतरण हुआ जिनकी जल राशि से भीमरथ के पितर राजा सागर के साठ हजार पुत्रों के शव-भस्म का उद्धार हुआ तथा जिनके स्पर्श से नाना प्रकार के जीवों का कल्याण आज तक होता आ रहा है।

८) श्री कृष्ण के संग यमुना जी तथा कदम्ब वृक्ष पावन हो गये

(दशम स्कन्ध)

९) श्री कृष्ण के विरह में व्याकुल गोपियों में तरुओं से, पौधों से तथा लताओं से वेदना कहकर श्रीकृष्ण का पता पूछा।

१०) पृथ्वी जल प्रलय का शिकार होकर डूबी पड़ी थी जिस प्रलय का साक्षात् दर्शन मार्कण्डेय मुनि ने किया। प्रलय सृष्टि का अभिन्न अंग है, जैसे सृजन और नित्य नूतन परिवर्तन अभिन्न अंग हैं।

(द्वादश स्कन्ध)

११) समुद्र मंथन से प्राप्त सामग्रियों की सूची में हलाहल, अमृत एवं कौस्तुभ-पद्म पराग मणि के अतिरिक्त कामधेनु, उच्चैःश्रवा अश्व, ऐरावत हाथी, कल्पवृक्ष, लक्ष्मी, अप्सरायें, वारुणी एवं वैद्य धन्वन्तरी की गणना होती है। समुद्र स्वयं संसाधनों का आगार है। कल्पवृक्ष इच्छित फल का अवदान देने में अतुलनीय है। गौ, अश्व और हाथी उस व्यापक पर्यावरण के अंग हैं। शेष ख्यात पौराणिक सत्तायें हैं, जिनमें वारुणी उल्लास, उन्माद, मादन भाव एवं ऐश्वर्य जाग्रत करने के लिये ख्यात हुई।

तुलसीकृत रामचरितमानसः

भारतीय वाङ्मय की अमर रचनाओं में जनप्रियता की दृष्टि से यह ग्रन्थ शीर्ष पर है। रचनाकाल से आज तक भारतीय लोकमानस इससे आदर्श शासक, आदर्श पुत्र, आदर्श भाई, आदर्श पत्नी, आदर्श बन्धु, आदर्श पति, आदर्श सखा, आदर्श सेवक, आदर्श भक्त का प्रेक भाव ग्रहण करता आ रहा। व्यक्ति, परिवार, समाज तथा राज्य के अन्तर्संबंधों का श्रेष्ठ संजाल यहां उपस्थित है तथा सांसारिक कष्टों के पर्वत पर सत्यमेव जयते का ध्वज लहराता हुआ लक्षित होता है।

श्रीमद्भगवद्गीताः

गीता वैष्णव धर्म का आदर्श प्रतिमान प्रस्तुत करती है। गीता गृहस्थों का उपनिषद् है। यह कर्म का शिक्षण देती है, यह जाति-भेद से ऊपर चलती है और सर्वजन के लिये मुक्ति का द्वार खोलती है। मोक्ष के लिये ज्ञान-मार्ग आवश्यक है। भक्ति-मार्ग आवश्यक है। यह स्फटिक सदृश व्याख्या करती है कि कर्म का त्याग उचित नहीं है बल्कि, “कर्मों के फलों में होने वाली आसक्ति त्याज्य है।”

➤ गुरु-शिष्य परंपरा

भारत में विद्या-गुरु के प्रति जो आराध्य उसी का पल्लवित-पुष्पित स्वरूप सद्गुरु / धर्मगुरु के प्रति विकसित हुआ देखा गया। भारत में सिद्धों के काल से गुरु परंपरा स्थिर दिखायी देती है जिसे संतों ने और पुष्ट किया।

➤ संत तथा भक्त

भारत में भक्ति धारा वेदों के पूर्व से चली आ रही है। यह सनातन जन-धर्म रही है जिसमें भक्ति एवं पूजा का प्राधान्य रहा है। मोहनजोदड़ो के महामाता मन्दिर / आदियोगी के मन्दिर में पूजनोत्सव से लेकर, छान्दोग्य-उपनिषद् में वर्णित वासुदेव पूजन, गीता में

वर्णित श्रीकृष्ण शरणागति, नाथ परंपरा, आलवार भक्ति परंपरा, शंकराचार्य, रघुनाथाचार्य, यमुनाचार्य, माधवाचार्य, रामानुजाचार्य, रामानुज, निम्बार्क, रामानन्द, कबीर, वल्लभाचार्य, चैतन्य, नानक, रैदास, दादूदयाल, सुन्दरदास, मलूकदास, विठ्ठल स्वामी, सूरदास, नाभादास, तुलसीदास, समर्थ रामदास, परमहंस रामकृष्ण तथा अनेकानेक संत भक्ति-धारा को सिंचित करने में निमग्न रहे हैं। संतों की महिमा इस तथ्य से प्रबल होती है कि उनमें सामान्य जन ने देवत्व का दर्शन किया। सामान्य जन भक्ति मार्ग की राह में कर्मकांड को व्यर्थ का वितंडा समझता रहा है, इसलिये भक्ति मार्ग की महत्ता कभी मलिन नहीं हुई। हीन से हीन मनुष्य को भी भक्ति मार्ग से उतना ही सम्मान प्राप्त हुआ, जितना किसी उच्च वर्णीय मनुष्य को प्राप्त हुआ। इसने धर्म की वर्जनाओं तक को स्वीकार नहीं किया। भक्ति-धारा ने सर्वशक्तिमान को परम-पिता, स्वामी, संरक्षक तथा स्रष्टा माना और भक्तों में समर्पण भाव जगाया।

➤ रहस्यवाद

उपनिषदों ने आत्म-विद्या तथा तप को महिमामंडित किया और प्रतिपादित किया कि आकाश सर्वत्र व्याप्त है और ब्रह्म सृष्टि के कण-कण में स्थित है। पुनर्जन्म तथा कर्म फलवाद की स्थापना उपनिषदों ने की और सम्बुद्धि को उच्च स्थान प्रदान किया। ज्ञान तथा दर्शन को शिखर पर बैठाकर उपनिषदों ने हिन्दू धर्म का आधारभूत स्तंभ बनना स्वीकार किया। उपनिषदों ने मनुष्यों के समान ही पशु-पक्षी व पेड़-पौधों को महत्व दिया तथा संन्यास एवं वैराग्य की भावना को प्रेरित किया। बौद्ध धर्म तथा जैन धर्म ने भी संन्यास को बढ़ावा दिया। इसके अतिरिक्त अनेकानेक श्रमण संघों ने साधु-वृत्ति को सर्वोच्च स्थान देकर धार्मिक त्रुटियों को चुनौती दी। हठयोग और कृच्छ्र मार्ग साधुओं के अभीष्ट मार्ग बन गये। चित्त तथा आत्मा की सत्ताये निर्मित हुई, केवल्य एवं मोक्ष प्राप्ति जन लक्ष्य बन गये और ईश्वर से मिलन की अभिलाषा सबकी प्यास बन गयी।

वेदकालीन जन प्रवृत्ति के उपासक थे परन्तु निवृत्ति अज्ञात का एक सशक्त लहर रही है। सभ्यता के उत्थान में प्रवृत्ति मार्ग का अंशदान सबसे अधिक रहा है किन्तु विकृतियों पर अंकुश निवृत्ति मार्ग द्वारा लगता रहा है। भारतीय योग एवं दर्शन प्रणालियों ने भारतीय लोकमानस को गहराई से प्रभावित किया तथा रहस्यवाद को बुलंद किया। सबके बावजूद गृहस्थाश्रम से ही संसार चलायमान हुआ। जब इस्लाम में फलसफा का प्रवेश हुआ, तब इस्लामी वैरागियों ने सूफी सम्प्रदाय को जन्म दिया। सूफियों ने मादन-भाव अर्थात् ब्रह्मानन्द भाव को प्राथमिकता दी। सूफियों को विश्व के भारतीय भूभाग में वह उर्वर मिट्टी मिली कि भारतीय परंपरा के संतों की एक और श्रृंखला खड़ी हो गयी। सूफी मत ने ईश्वर को 'पति' एवं 'प्रेमी' की पांति में खड़ा कर दिया तथा फकीरी को आराधना की एक विशिष्ट शैली घोषित किया। सिक्ख धर्म ने भी वेदांत तथा सूफी मत के मेल से वैराग्य को पुष्ट किया तथा नामजप, साधना, ध्यान और समाधि को महत्व देकर ब्रह्ममय सृष्टि का प्रतिपादन किया। इसने रहस्यवाद का कुहरा छांटकर एक सरल एवं विनयशील मार्ग निर्मित किया। एशियाई ईसाईयत ने भी त्याग-साधना-संन्यास की एक लहर पैदा की और पृथ्वी पर स्वर्ग उतारने की बात कही।

परमहंस रामकृष्ण ने निश्छलता से उस अदृश्य सत्ता से संबंध जोड़ा और स्वामी विवेकानंद ने उस अदृश्य सत्ता को लोकसत्ता बनाकर संजीवनी बूटी के रूप में प्रस्तुत किया। पुष्ट तन, आध्यात्मिक मन, जाग्रत मस्तिष्क, सुसंस्कृत चित्त तथा वीरता, निर्भयता, बलिदान, सेवा व कर्म वृत्ति वाले मनुष्य का प्रतिमान गढ़कर उन्होंने सहस्रों वर्षों से चले आ रहे रहस्यवाद पर से परदा हटा दिया और जीवन शैली का एक प्रशस्त मार्ग निर्मित किया। भारतीय जीवन पद्धति, जो धुंध में ओझल हो गयी थी, को लोकमान्य बनाने में कोटि-कोटि जन जो नहीं कर सके, उसे इस स्वामी ने अल्पकाल में समर्थ बना डाला।

➤ श्रुति तथा कवित्व

वेदों को ही श्रुति कहते हैं जो मौखिक हुआ करती थी। मंत्र कंठस्थ किये जाते थे और उनका गायन होता था। भारतीय परंपरा का पहला काव्य वाल्मीकि रचित रामायण भी गायन करके घर-घर में फैलायी जाती थी। यज्ञों में वेदों का गायन होता था। गायन के लिये पद्य में रचनायें रची जाती थीं। कविता ही साहित्य की एकमात्र विधा थी। कालीदास, चन्दबरदाई और अमीर खुसरो जनकवि होने के कारण साहित्य में महान स्थान पाने में सफल हुये।

भक्तिकाल में जितने संत हुये (कबीर-नानक-रैदास-दादूदयाल रजाद-वाजिदजी-सुन्दरदास मलूकदास-पलटू साहब मलिक मुहम्मद जायसी सूरदास-तुलसीदास-जयदेव-भूषण-कुतबन-रहीम रसखान-रसलीन आदि) सभी ने कविताओं के माध्यम से पद्यमय वाणी में भाव विह्वलता को जाग्रत किया। भारतीय समाज के हृदय के तार को छेड़कर, मनोजगत में मधुरिमा तथा दिव्य भाव भरकर तथा ईश्वरीय सत्ता की अनुभूति कराकर कवित्व जीवन पद्धति से सम्बद्ध हो गया। रुक्षता को परे धकेलकर जीवन में लालित्य एवं शिव-भाव भरने में भारतीय कवित्व स्मरणीय भूमिका निभाता रहा है।

व्रत-पर्व-त्योहार- उत्सव की श्रृंखला:

भारत भूमि पर जन्मे पंथों ने ऐतिहासिक घटनाओं, आख्यान, आस्था, नैतिकता, परंपराओं, महापुरुषों, जन-उल्लास, आचार-विचार, स्वास्थ्य, वैज्ञानिक चेतना एवं सामाजिक अनुशासन से संबंधित भावों एवं मूल्यों को क्रियान्वित करने के लिये धर्म की चाशनी में एक सौर वर्ष की विभिन्न तिथियों के लिये एक आचरण तालिका निर्मित की। इस उद्देश्य की दिशा में व्रत-पर्व-त्योहार-उत्सव एक श्रृंखला के रूप में उपस्थित हुये। विदेशों में जन्मे पंथ भी इसी राह चलने लगे। अपसंस्कृति के प्रभाव से इस श्रृंखला को अंधविश्वास का नाम दिया जाता है। जीवन-संघर्ष के दौरान उत्पन्न कष्ट को विस्मृत करने के लिये तथा सपाट जीवन में उमंग-उल्लास की ऊर्जा भरने के लिये इस श्रृंखला की उपादेयता स्वयंसिद्ध है। समाज-राष्ट्र को निर्भीक, पुरुषार्थी, कर्मशील एवं चैतन्य बनाने हेतु गुरु गोविन्द सिंह ने जगदम्बा दुर्गा के प्रति, स्वामी विवेकानंद ने महाकाली व रुद्र के प्रति और लोकमान्य बालगंगाधर तिलक ने गणेश के प्रति सामुहिक आराधना को नयी प्रेरणा दी। पुरानी तालिका में ये उत्सव जुड़ गये। नूतन

अतीत की कुहेलिका:

यूनान की लोकगाथाओं में 'अटलांटिक द्वीप' के ऐश्वर्य एवं भौतिक उत्थान की गाथा चर्चित है तथा पुनः जनों के साथ द्वीप के समुद्र में पूर्णतः विलीन हो जाने का उल्लेख है। लोककथा में उस द्वीप के डूबने के कारणों में जनों की स्वेच्छाचारिता एवं विलासितापूर्ण जीवन पद्धति का उतरदायी ठहराया गया है। पुराणों में भगवान श्री कृष्ण द्वारा यदुवंशियों के आंतरिक विग्रह के फलस्वरूप पुरवासियों सहित द्वारिकापुरी के समुद्र में विलीन होने की भविष्यवाणी की गयी थी। 20वीं शताब्दी के पुरातत्ववेत्ताओं द्वारा समुद्र में डूबी द्वारिकापुरी खोजी गयी है।

यह स्पष्ट है कि विश्व की महान सभ्यताओं के पतन तथा सम्पूर्ण विनाश का एकमात्र कारण जीवन पद्धति में आयी विकृति के फलस्वरूप उत्पन्न परिस्थितियां रही हैं। श्री भगवान सिंह अपनी पुस्तक 'हड़प्पा सभ्यता और वैदिक साहित्य' तथा 'THE VEDIC HARAPPANS' में यह स्थापित करने में सफल हुये हैं कि हड़प्पा सभ्यता के पतन में नागरिकों की विलासिता-दुर्व्यसन, आंतरिक प्रतिस्पर्धा, ब्राह्मण-क्षेत्रीय गठजोड़, कर्मकांड का बढ़ता जोर, भाग्यवाद, तंत्र-मंत्र का वर्चस्व, प्रशासनिक हास, शिल्पकारों का दमन, विदेश व्यापार में विदेशी व्यापारियों का प्रवेश तथा स्थानीय लुटेरों का संगठित आक्रमण के हाथ रहे हैं।

श्री सिंह विशिष्ट रूप से सिद्ध करते हैं कि हड़प्पा काल के जनों में खेत विस्तार की भूख के चलते जंगलों का व्यापक नाश हुआ; नदियों के उद्गम क्षेत्र या जलग्रहण क्षेत्र के जंगल भी नष्ट किये गये। इसके परिणामस्वरूप भूस्खलन, भूक्षरण, अनावृष्टि, अतिवृष्टि, सूखा, बाढ़ के चक्र शुरू हो गये। अत्यधिक गाद के कारण सरस्वती का प्रवाह-मार्ग अवरुद्ध होता गया; मुहाना (कच्छ) भी उथला हो गया। पुरानी धारायें मृत हो गयीं और नयी धारायें फूट गयीं। सारस्वत क्षेत्र में जल प्रलय की महाघटना घटित हुयी। श्री सिंह प्रखर दृष्टांत प्रस्तुत करते हैं कि इसी दशा में अकाल के मारे जन पूरब की ओर अभिमुख हुये और विध (विदेह) माधव ने पुरोहित गौतम राहूगण के साथ वैश्वानर अग्नि के नेतृत्व सदानिरा नदी के पूरब पहुंचकर नया ठौर (दलदली भूमि से भरी आधुनिक मिथिला) बनाया। पारिस्थितिकी अकाल पूरब की ओर प्रयाण आब्रजन के इस दृष्टांत से अतीत के पर्यावरण और पर्यावरण के विनाश की नयी गाथा स्पष्ट संदेश प्रस्तुत करती है। अतीत की कुहेलिका को चीर कर संदेश ग्रहण करना वर्तमान एवं भविष्य की दुर्गति से बचाव करने हेतु आज की मानव जाति का एक पुनीत कर्म है।

जीवन पद्धति पर पितरों-पुरखों के शब्द:

सौ शरद स्वस्थ जीवन जीने की अदम्य अभिलाषा भारतीय जनों के पुरखों की रही है; यद्यपि वे देवताओं से अमरत्व प्राप्ति हेतु प्रार्थना करते रहे। जीवन-प्रणाली के प्रासाद के निर्माण में उन्होंने जीवन-मूल्यों को इंटों की भांति प्रयुक्त किया। वाङ्मय में प्रकृति के अंग-उपांग मानवी चेहरा धारण कर मानवी भाषा में बातें करते चलते-फिरते दिखलायी देते हैं। यह सहचर भाव प्रकृति की एकता को संपुष्ट करता है। तरु, लता, पत्ते, फल, फूल, पशु, पक्षी, सरीसृप, कीट, पतंग, शैल, पर्वत, नदी, सरोवर, समुद्र, वायु, मेघ, तड़ित, अग्नि, जल, आकाश, ग्रह, तारे, नक्षत्र आदि मनुष्य से समान व्यवहार करते दृष्टिगोचर होते हैं। प्रकृति के प्रति पूज्य भाव उनका (पुरखों का) काम्य उद्देश्य रहा है। निर्धनता से वे भयभीत होते रहे हैं। जीवन के उतार-चढ़ाव की दुरुहताओं से सीख लेकर उन्होंने 'सादा जीवन उच्च विचार' का समीकरण सामने रखा। भारतीय पुरखों का यही संदेश बार-बार ध्वनित होता है। भारतीय जीवन पद्धति एक लय उत्पन्न करती है, एक दृष्टिकोण उत्पन्न करती है और दूरदर्शिता और व्यवहार सुनिश्चित करती है। भारतीय जीवन पद्धति से चिपकी विकृतियों, युगों की मलिनताओं से उपजे अंधविश्वासों तथा अवांछित पूर्वाग्रहों को दूर करके व वैज्ञानिक एवं समरस सामाजिक दृष्टि से युक्त करके भारतीय जीवन पद्धति को एक अधुनातन मॉडल का रूप देना शेष है।

सारांस

आज की संतति के समक्ष विकराल चुनौतियां हैं। चुनौती है-भोग-लिप्सा को सीमाबद्ध करने की, सदाचरण को व्यवहार में लाने की, पृथ्वी को बचाने की और पृथ्वी को हरित ग्रह, जल ग्रह, प्राणी ग्रह में संवर्द्धित करने की। इस ग्रह को विश्रामागार बनाने के लिये प्रत्येक व्यक्ति को पर्यावरण मित्र बनना होगा। पार्थिव मानव अंतहीन अंतरिक्ष के चाहे जितने बड़े हिस्से पर काबिज हो जाये, उसको अपना घर इसी ग्रह पर बनाना होगा।



चंद्रपूर जिल्हा: तालुकानिहाय लोकसंख्या घनतेचा अभ्यास**डॉ. गोदावरी आत्माराम गौरकर**

सहाय्यक प्राध्यापक, भूगोल विभाग प्रमुख

एस.चंद्रा.महिला महाविद्यालय साकोली, जिल्हा- भंडारा

सारांश –

चंद्रपूर जिल्ह्यातील लोकसंख्येची घनता गणितीय पद्धतीने काढण्यात आलेली आहे . तालुक्या नुसार घनतेचा विचार केल्यास 1981 ते 2001 या कालावधीत घनतेत सातत्याने वाढ झालेली आहे. 1981 साली चंद्रपूर जिल्ह्याची लोकसंख्येची घनता 124 होती त्यात वाढ होऊन 1991 साली लोकसंख्येची घनता 155 होती तर त्यात लक्षणीय वाढ होऊन 2001मध्ये चंद्रपूर जिल्ह्याची लोकसंख्येची घनता 180 दिसून येते .तालुक्यानुसार घनतेतील भिन्नतेत क्षेत्रफळाचा परिणाम जाणवतो .ज्या तालुक्याचे क्षेत्रफळ कमी आहे त्या तालुक्यातील लोकसंख्येची घनता जास्त, तर ज्या तालुक्याचे क्षेत्रफळ जास्त आहे अशा तालुक्याची लोकसंख्या घनता कमी आहे. अर्थात क्षेत्रफळ व लोकसंख्या यांचे व्यस्त प्रमाण आहे. 1991 ते 2001 या दशकात चंद्रपूर जिल्ह्यातील काही शहरांचा ऊर्ध्व विस्तार वेगाने झाला आहे. त्याचा परिणाम लोकसंख्येच्या घनतेवर झालेला आहे. चंद्रपूर जिल्ह्यात लोकसंख्येची घनता असमान असून 1981 ते 2001 या कालावधीत घनतेत सातत्याने वाढ होत आहे .जिल्ह्याच्या केंद्र भागात घनता जास्त असून अंतरानुसार घनता कमी होत जाते .लोकसंख्या व क्षेत्रफळ यात ऋणात्मक सहसंबंध प्रस्थापित झालेला आहे .

प्रस्तावना :

लोकसंख्या वितरणाच्या अभ्यासात लोकसंख्या घनतेला अनन्यसाधारण महत्त्व आहे .लोकसंख्या भूगोलाच्या अभ्यासात वितरण व लोकसंख्येची घनता याचे पृथक्करण समजून घेणे महत्त्वाचे असते .लोकसंख्येची घनता ही संकल्पना सर्वप्रथम इसवी सन 1937 मध्ये हन्सरी ज्युरी हारनेसने आयर्लंडमध्ये रेल्वेचे नकाशे तयार करताना वापरली. परंतु त्यावेळी त्याचा हेतू व अर्थ भिन्न स्वरूपाचा होता. घनतेमध्ये खऱ्या अर्थाने किती लोक राहतात ही संकल्पना दडलेली आहे. लोकसंख्या आणि भूभागाचे गुणोत्तर म्हणजे लोकसंख्या घनता होय.घनता हे केंद्रीकरणाचे माप आहे .कोणत्याही प्रदेशातील लोकसंख्येची घनता तेथील प्राकृतिक संसाधन आणि आर्थिक विकासाच्या अवस्थेवर अवलंबून असते लोकसंख्या घनतेचे पाच प्रकार आहे .चंद्रपूर जिल्ह्यातील लोकसंख्या घनता समजून घेण्याकरिता प्रामुख्याने गणितीय घनता काढण्यात आली आहे. यामध्ये एकूण लोकसंख्या आणि एकूण क्षेत्रफळ यातील अनुपाता मध्ये प्रकट केली जाते .

चंद्रपूर जिल्ह्यात लोकसंख्येच्या गणितीय घनतेचे वितरण पाहता ते असमान असल्याचे दिसून येते लोकसंख्येची गणितीय घनता प्रामुख्याने निर्वाहासाठी कशा प्रकारचा व्यवसाय उपलब्ध होतो यावर अवलंबून असते. पुरेसे आणि खात्रीचे उत्पन्न वाहतुकीच्या सोयी, व्यवसाय वगैरे गोष्टींवर अवलंबून असते. ज्या प्रदेशात प्राकृतीक हवामान दृष्ट्या ,आर्थिक दृष्ट्या व उत्पादनास मर्यादा पडतात तेथे लोकसंख्येची गणितीय घनता कमी असते .चंद्रपूर जिल्ह्यातील 68 टक्के लोकसंख्या ग्रामीण भागात केंद्रित झालेली आहे .आणि त्याचा प्रमुख व्यवसाय शेती व शेतीचे उत्पन्न प्रामुख्याने नैसर्गिक घटकावर अवलंबून असते. याशिवाय आर्थिक सामाजिक घटकही परिणाम करतात. यामुळे शेतीचे उत्पन्न अनिश्चित प्रकारचे असते .म्हणून कोरडवाहू शेती करणाऱ्या प्रदेशात लोकसंख्येची घनता कमी किंवा मध्यम स्वरूपाची असते, तर बागायती शेती करणाऱ्या प्रदेशात लोकसंख्या दाट आढळते. औद्योगिक केंद्र व कारखाने असणाऱ्या प्रदेशात निश्चित स्वरूपाचा कामधंदा मिळत असल्याने तिकडे जाण्याचा लोकांचा ओढा मोठ्या प्रमाणात असतो .अशा प्रदेशात लोकसंख्येची गणितीय घनता दाट व अतिदाट असते.

अभ्यास क्षेत्र-

महाराष्ट्र राज्यातील पूर्वेकडील संसाधन संपन्न असलेला चंद्रपूर जिल्हा. चंद्रपूर जिल्ह्याचे 26 ऑगस्ट 1982 साली विभाजन होऊन गडचिरोली जिल्हा अस्तित्वात आला .चंद्रपूर जिल्ह्यामध्ये सध्या 15 तालुके आहे. औद्योगिकदृष्ट्या औष्णिक विद्युत केंद्र, कागद उद्योग, सिमेंट उद्योग, खाणकाम व्यवसाय याशिवाय इतरही उद्योग विकसित झाल्यामुळे मोठ्या प्रमाणात परप्रांतातून लोकांचे स्थलांतर झालेले आहे

उद्दिष्टे - 1)चंद्रपूर जिल्ह्यातील तालुकानिहाय लोकसंख्या ची घनता जाणून घेणे .
2)चंद्रपूर जिल्ह्यातील तालुका निहाय लोकसंख्या घनतेचे वितरण जाणून घेणे .
वरील उद्दिष्टे लक्षात घेऊन संशोधन पेपर तयार करण्यात आला आहे..

गृहितके -

1. उद्योगधंद्यांच्या स्थानिकीकरण[नुसार त्या प्रदेशात लोकसंख्येची गणितीय घनता जास्त आहे.
2. ज्या तालुक्यांमध्ये उद्योगधंद्यांचा विकास झालेला नाही तेथे लोकसंख्येची गणितीय घनता विरळ आहे.

संशोधन पद्धती व माहिती संकलन- चंद्रपूर जिल्ह्यातील तालुकानिहाय लोकसंख्येची गणितीय घनता अभ्यासाकरिता द्वितीयक आकडेवारीचा उपयोग करण्यात आला आहे. यासाठी चंद्रपूर जिल्हा जनगणना अहवाल 1981 ,1991, 2001 या आधारे मिळालेल्या आकडेवारीचा साह्याने सूत्राचा वापर करून लोकसंख्येची गणितीय घनता काढण्यात आली .सूत्र पुढील प्रमाणे ,

प्रदेश किंवा क्षेत्रातील लोकसंख्येची गणितीय घनता = $\frac{\text{घनता व विशिष्ट प्रदेशातील एकूण लोकसंख्या}}{\text{त्या विशिष्ट प्रदेशाचे एकूण क्षेत्रफळ (चौ. कि.मी.किंवा हेक्टरमध्ये)}}$

चंद्रपूर जिल्हा तालुकानिहाय लोकसंख्येची गणितीय घनता 1981

तालुके	लोकसंख्येची गणितीय घनता
चंद्रपूर	181
वरोरा	112
ब्रह्मपुरी	142
राजुरा	83

स्रोत:- चंद्रपूर जिल्हा जनगणना अहवाल 1981

वरील सारणीचे निरीक्षण केल्यास असे स्पष्ट होते की, चंद्रपूर जिल्ह्यातील तालुक्यानुसार लोकसंख्येची गणितीय घनता सर्वत्र सारखी नाही. चंद्रपूर तालुक्यात सर्वाधिक लोकसंख्येची गणितीय घनता 181 वरोरा व ब्रह्मपुरी तालुक्यात अनुक्रमे लोकसंख्येची गणितीय घनता 112 व 142 आहे. राजुरा तालुक्यात सर्वात कमी लोकसंख्येची गणितीय घनता 83 इतकी आहे.

1981 वर्षातील लोकसंख्येच्या गणितीय घनतेचा विचार केल्यास ज्या क्षेत्रात उद्योगधंदे व शेती व्यवसाय केल्या जात असे त्याच तालुक्यात लोकसंख्येची गणितीय घनता जास्त आहेत. मात्र राजुरा तालुक्यात लोकसंख्येची गणितीय घनता कमी असल्याचे कारण म्हणजे तेथे उद्योगधंदे व शेती व्यवसायात अनुकूल घटक नसल्याने या तालुक्यात लोकसंख्येची गणितीय घनता कमी दिसून येते.

चंद्रपूर जिल्हा: तालुकानिहाय लोकसंख्येची गणितीय घनता 1991

अनुक्रमांक	तालुके	लोकसंख्येची गणितीय घनता
1	चंद्रपूर	350
2	वरोरा	144
3	ब्रह्मपुरी	157
4	राजुरा	135
5	भद्रावती	110
6	चिमूर	139
7	नागभीड	142
8	सिंदेवाही	124
9	मुल	189

स्रोत:चंद्रपूर जिल्हा जनगणना अहवाल 1991

वरील सारणीचे निरीक्षण केल्यास स्पष्ट होते की, 1991 साली लोकसंख्येची गणितीय घनता 1981 च्या तुलनेत वाढलेली आहे. चंद्रपूर जिल्ह्यात सर्वाधिक लोकसंख्येची गणितीय घनता 350 प्रति चौ. किमी. आहे. मात्र इतर तालुक्यांमध्ये त्या तुलनेत कमी आहे .मुल ,ब्रह्मपुरी या तालुक्यात अनुक्रमे लोकसंख्येची गणितीय घनता 189, 157 प्रति चौ. किमी. आहे. वरोरा ,राजुरा ,भद्रावती, चिमूर ,नागभिड ,सिंदेवाही व गोंडपिपरी या तालुक्यात या तालुक्यामध्ये लोकसंख्येची गणितीय घनता अतिशय विरळ आहे

चंद्रपूर जिल्ह्यात ज्या तालुक्यांमध्ये व्यवसायाची संधी, शैक्षणिक सुविधा ,प्रशासकीय संस्था उपलब्ध आहे .त्या तालुक्यामध्ये लोकसंख्येची गणितीय घनता दाट आहे. चंद्रपूर हे जिल्ह्याचे ठिकाण त्याच प्रमाणे याच दशकात अनेक मोठे उद्योगधंदे विकसित झाल्यामुळे 1981 च्यातुलनेत 1991 मध्ये चंद्रपूर तालुक्यातील लोकसंख्येच्या गणितीय घनतेत तीव्र गतीने वाढ झाली. मात्र जंगलक्षेत्र, पडीत जमीन, पाण्याचा तुटवडा, रोजगाराच्या संधी नसलेल्या तालुक्यांमध्ये लोकसंख्येच्या गणितीय घनतेत वाढ झालेली नाही.

चंद्रपूर जिल्हा: तालुकानिहाय लोकसंख्येची गणितीय घनता 2001

अनुक्रमांक	तालुके	लोकसंख्येची गणितीय घनता
1	चंद्रपूर	468
2	वरोरा	140
3	ब्रह्मपुरी	162
4	राजुरा	122
5	भद्रावती	140
6	चिमूर	154
7	नागभीड	189
8	सिंदेवाही	171
9	मुल	222
10	गोंडपिपरी	69
11	सावली	165
12	कोरपना	186
13	पोंभुर्णा	NA
14	बल्लारशा	NA

स्रोत:चंद्रपूर जिल्हा जनगणना अहवाल 2001

वरील सारणीचे निरीक्षण केल्यास स्पष्ट होते की ,चंद्रपूर जिल्ह्यातील तालुकानिहाय लोकसंख्येची गणितीय घनता असमान आहे .चंद्रपूर तालुक्यात सर्वाधिक लोकसंख्येची गणितीय घनता 468 चौ. किमी आहे .मात्र इतर तालुक्यात त्या तुलनेत कमी आहे .या तालुक्यामध्ये मुल 222, नागभीड 189, कोरपना 186 , सिंदेवाही 171 ,सावली165, ब्रह्मपुरी162, चिमूर 154 लोकसंख्येची गणितीय घनता मध्यम स्वरूपाची आहे. तर भद्रावती 140, वरोरा140 राजुरा 122, गोंडपिपरी 69 लोकसंख्येची गणितीय घनता विरळ आहे.

तालुक्या नुसार लोकसंख्येची गणितीय घनता असमान असल्याचे प्रमुख कारण म्हणजे उद्योगधंद्याची वाढ होय. चंद्रपूर तालुक्यात तीव्र गतीने उद्योगधंद्यांची वाढ, शैक्षणिक सुविधा, प्रशासकीय कार्यालय व इतर व्यवसाय निर्माण झाल्याने इतर तालुक्यामधून मोठ्या प्रमाणात लोकसंख्या स्थलांतरित झाल्याने लोकसंख्येच्या गणितीय घनतेत वेगाने वाढ होतांना दिसून येते. या तालुक्यांमध्ये रोजगाराच्या संधी उपलब्ध नसल्याने तेथील लोकसंख्या बाहेर जात असल्याने या तालुक्यामध्ये लोकसंख्येतील गणितीय घनता विरळ आहे.

निष्कर्ष

1) चंद्रपूर जिल्ह्यातील तालुकानिहाय लोकसंख्येची गणितीय घनता चंद्रपूर व मुल तालुक्यात 200 पेक्षा जास्त आहे.

- 2) 1981 पासून 2001 या कालावधीत घनतेचे सातत्याने वाढ झाली आहे. जिल्ह्याचे ठिकाणी जास्त दिसून येते आणि अंतरानुसार घनता कमी कमी होत जाते.
- 3) लोकसंख्या व क्षेत्रफळ यात ऋणात्मक सहसंबंध आढळतो .

संदर्भ ग्रंथ

1. डॉ. हिरालाल एव चंद्रभान “उपरी गंगा मैदान के नगरो मे जनसंख्या घनत्व प्रारूप” उत्तर भारत भूगोल पत्रिका अंक 24 संख्या1 जून 1986
2. डॉ. कदम अविनाश, डॉ. सप्तर्षी प्रवीण” बारामती तालुक्यातील लोकसंख्या वितरण” महाराष्ट्र भूगोलशास्त्र संशोधन पत्रिका पूर्ण खंड 12 अंक दोन जुलै - डिसेंबर 1999
3. चंद्रपूर जिल्ह्याचे आर्थिक व सामाजिक समालोचन पुस्तिका 1981,1991आणि 2001
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शाश्वत विकास आणि भारत

केदार सुदामराव गरड

संशोधक विद्यार्थी, अर्थशास्त्र विभाग,

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

गोष्टवारा :

“वर्तमान पिढीच्या गरजा पूर्ण करताना येणाऱ्या पुढील पिढ्यांच्या गरजा पूर्ण करण्याच्या क्षमतेला बाधा पोहचू न देता साध्य केलेला विकास म्हणजेच शाश्वत विकास होय. विकासात अंतर्भूत असणारे आर्थिक, सामाजिक व पर्यावरणीय पैलू समन्यायी, सुसह्य आणि वर्धनक्षम असल्यास होणारा विकास शाश्वततेच्या दिशेने वाटचाल करू शकतो.

अलीकडेच फ्रान्स, जर्मनी, बेल्जियम यासारख्या युरोपियन राष्ट्रांमध्ये महापुराने थैमान घातले होते. सुमारे 200 पेक्षा जास्त व्यक्तींची पुरामुळे मृत्यू झाला. जर्मनीच्या चान्सलर अँजेला मॉर्केल यांनी अशा अघटित घटनांना जागतिक तापमान वाढ हे कारण असल्याचे म्हटले. मानवाने केलेल्या औद्योगिक प्रगतीचा परिणाम, त्यामधून उत्पादित विविध प्रदूषित पदार्थ जसे कार्बन डायऑक्साईड, कार्बन मोनोऑक्साईड, सल्फर डायऑक्साईड, अमोनिया, शिसे यासारखे विषारी वायू तसेच क्लोरोफ्ल्युरोकार्बन, हायड्रोफ्ल्युरो कार्बन, या सर्वांमुळे जागतिक तापमान वाढ, ओझोन थराचा क्षय इत्यादी परिणाम होत आहेत त्यामुळे निसर्ग चक्र बिघडून महापूर, दुष्काळ, हिमस्खलन, दरडी कोसळणे, चक्रीवादळ, अतिवृष्टी इत्यादी नैसर्गिक आपत्तींमध्ये वाढ झालेली आहे. मानवाने आपल्या हव्यासापायी नैसर्गिक संसाधनांचे अति दोहन केले आहे. उशिराच परंतु मानवाजवळ ते लक्षात आले आहे की, नैसर्गिक संसाधनांचे अती वापरामुळे भविष्यातील पिढ्यांना, संसाधनांच्या दर्भिक्षाचा सामना करावा लागू शकतो तसेच बिघडलेले निसर्ग चक्र चालू व भविष्यातील पिढ्यांना अपायकारक ठरू शकते त्यामुळे कुठेतरी आर्थिक विकास साधन असताना तो विकास सामाजिक, आर्थिक व पर्यावरणीयदृष्ट्या संतुलित असावे हे लक्षात आलेले आहे. त्यामुळे जागतिक स्तरावर UNO सारख्या संघटना पुढाकार घेऊन विविध प्रकारे प्रयत्न करत आहेत याचाच भाग म्हणून जागतिक स्तरावर अनेक परिषदा झालेल्या आहेत याचेच फलित म्हणून शाश्वत विकास लक्ष ही संकल्पना समोर आली. भारतासहित संयुक्त राष्ट्र संघटनेची सर्व सदस्य ते पूर्ण करण्यासाठी प्रयत्न करत आहेत.

प्रस्तुत संशोधनात आपल्याला शाश्वत विकास म्हणजे काय? याची गरज का आहे? यासाठी आंतरराष्ट्रीय स्तरावर कोणते प्रयत्न होत आहेत व यामध्ये भारताचा सहभाग कसा आहे त्यासाठी भारत कोणते प्रयत्न करत आहे त्या प्रयत्नांची शहानिशा व चिकित्सा तसेच भारताने आणखी कोणत्या गोष्टी करायला हव्या आहेत. त्याचप्रमाणे आणखीन कोणते बदल शाश्वत विकास साधण्यासाठी करता येतील याचा अभ्यास करून शिफारशी संशोधन विषयात करायच्या आहेत.

प्रस्तावना :

शेवटचा वृक्ष कापल्यानंतर
शेवटची नदी प्रदूषित केल्यानंतर
शेवटचा मासा पकडल्यानंतर

आपल्या लक्षात येईल की, पैसा खाल्ल्या जाऊ शकत नाही.....

प्रस्तुत वाक्य Ministry of environment, forest and climate change government of India, २०१५-१६ च्या वार्षिक अहवालाच्या मुखपृष्ठावर नमूद आहे वरील वाक्यावरून शाश्वत विकासाची गरज प्रकर्षाने जाणवते. आर्थिक प्रगती तेव्हाच लाभदायक किंवा उपभोग्य होऊ शकते जेव्हा पर्यावरण व विकासात संतुलन असेल.

पर्यावरणावर चालू पिढी व भावी पिढीचा सारखाच अधिकार आहे. आपण पर्यावरणाचा न्हास करून भावी पिढीचा अधिकार हिरावून घेऊ शकत नाही या समान अधिकाराला आंतर-पीढीय समानता (intergenerational equity) असे म्हणतात. म्हणून वर्तमान पिढीने पर्यावरण संवर्धन करणे हे त्याचे कर्तव्य आहे व तो भावी पिढीचा अधिकार आहे.

याच प्रमाणे वर्तमान पिढीतही विविध देशातील लोकांचा पर्यावरणावर सारखाच अधिकार आहे. या समान अधिकाराला पिढी अंतर्गत समानता (Intragenerational equity) असे म्हणतात. उदा. अमेरिकेसारखे विकसित देश प्रचंड गतीने पर्यावरणाचा न्हास करत आहेत म्हणजे भारतासारख्या विकसनशील देशातील लोकांचा पर्यावरणातील वाटा ते हिरावून घेत आहेत म्हणून विकसित देशांनी पर्यावरण संवर्धन करणे त्यांचे कर्तव्य आहे व विकसनशील देशांना पर्यावरण

संवर्धन करण्यासाठी तांत्रिक मदत करणे म्हणजेच स्रोताचा अविवेकी वापर होऊ नये यासाठी अविकसित देशांना तंत्रज्ञान निर्यात करणे, हरितगृह वायूचे उत्सर्जन कमी करणे, ऊर्जा कार्यक्षमतेत वाढ करणे, विकसनशील व अविकसित देशांना आर्थिक व तांत्रिक मदत करणे या सर्व बाबींचा समावेश होतो.

शाश्वत विकासाचा अर्थ :

‘Sustainable’ हा शब्द ‘sustainere’ या लॅटिन शब्दापासून तयार झाला आहे ‘sustainere’ म्हणजे धरून ठेवणे, सहन करणे, चालू ठेवणे, टिकवून ठेवणे इत्यादी याचे अर्थ होतात.

- 1) भविष्यातील पिढ्यांच्या गरजा पूर्ण करण्याच्या क्षमतेची तडजोड न करता वर्तमान पिढ्यांच्या गरजा पूर्ण करणे म्हणजे शाश्वत विकास होय.
- 2) शाश्वतता म्हणजे सजीव परिस्थितीची किंवा नैसर्गिक स्रोतांचा असा वापर करणे जो भरून काढता येईल. - IUCN-1991.
- 3) शाश्वत विकास होण्यासाठी वर्तमान काळातील गरजा अशा पद्धतीने पूर्ण झाल्या पाहिजेत जेणे करून भावी पिढीच्या गरजापूर्ण करण्याच्या क्षमतेवर परिणाम होणार नाही : **OUR COMMON FUTURE-** ग्रीन हार्लेम ब्रुटलँड अहवाल -1987

थोडक्यात नैसर्गिक स्रोत जे आपल्या पूर्वजांनी आपल्यासाठी जतन करून ठेवले आहेत त्यांचा आपल्या गरजेपुरता वापर करून ते स्रोत जशास तसे पुढील पिढीच्या गरजा पूर्णता करण्यासाठी ठेवणे. तसेच सामाजिक व आर्थिक विकास साध्य करत असताना पर्यावरणीय विकासाकडे ही लक्ष देणे म्हणजेच शाश्वत विकास होय.

उद्दिष्टे

- १) शाश्वत विकास म्हणजे काय यावर प्रकाश टाकणे.
- २) हवामान बदलानुसार शाश्वत विकासाची गरज नमूद करणे.
- ३) शाश्वत विकासाचे सामाजिक, आर्थिक व पर्यावरणीय पैलू अभ्यासणे.
- ४) शाश्वत विकासात भारताचे प्रयत्न अभ्यासणे.

गृहीतके :

- १) नैसर्गिक संसाधनांचा अविवेकी वापर हा शाश्वत विकासातील एक मोठा अडथळा आहे.
- २) आर्थिक विषमता व पर्यावरण-व्हासाचा जवळचा संबंध आहे.

संशोधन पद्धती :

प्रस्तुत विषयांमध्ये दुय्यम साधन सामग्रीचा वापर केलेला असून त्यामध्ये विविध आंतरराष्ट्रीय परिषदा, संदर्भ ग्रंथ, वर्तमान पत्रातील लेख, इंटरनेट, भारताची आर्थिक पाहणी अहवाल इत्यादींचा वापर केलेला आहे.

भारतातील आर्थिक विषमता आणि शाश्वत विकास :

भारतातील आर्थिक विषमता ही शाश्वत विकासास मारक ठरत असल्याचे दिसून येते उदाहरणार्थ एकिकडे गरीब व दुसरीकडे अतिश्रीमंत जनता यांच्यामध्ये आर्थिक विषमता मोठ्या प्रमाणात असल्यामुळे नैसर्गिक संसाधनांचे वितरण आसमान झालेले आहे. त्यामुळे गरीबाकडे संसाधनांचा तुटवडा असल्यामुळे त्याचा अविवेकी वापर होतो जसे, स्वयंपाकाच्या गॅस ऐवजी लाकूडफाटा ज्वलनास वापरणे. त्याच वेळी समृद्ध लोकांकडे अमाप पैसा असल्यामुळे गरजेपेक्षा जास्त चैनीच्या वस्तू वापरल्या जातात व संसाधनांचे अति दोहन होऊन पर्यावरणाचा व्हास होतो व पर्यायाने या दोन्ही गोष्टी शाश्वत विकासात बाधक ठरतात.

शाश्वत विकास आंतरराष्ट्रीय परिषदा :

1) **मानवी पर्यावरण परिषद -१९७२ :** स्टॉकहोम येथे संयुक्त राष्ट्र संघाची मानवी पर्यावरण परिषद १९७२ मध्ये आयोजित करण्यात आली होती. आर्थिक विकासामध्ये पर्यावरण बदलाचा विचार सर्वप्रथम या परिषदेत करण्यात आला.

- 2) **ग्रो हार्लेम ब्रुटलँड आयोग-१९८३** : आर्थिक वाढ होत असताना मानवी पर्यावरण व नैसर्गिक स्रोतांचा होत असलेला न्हास आणि त्याच्या आर्थिक व सामाजिक विकासावर होत असलेल्या परिणामांची जाणीव या काळात जगाला होऊ लागली याच्या अभ्यासासाठी संयुक्त राष्ट्र संघाने १९८३ साली ब्रुटलँड यांच्या अध्यक्षतेखाली हा आयोग गठित केला. या आयोगाने १९८७ मध्ये 'OUR COMMON FUTURE' या शिर्षकाचा अहवाल सादर केला या अहवालात शाश्वत विकासाची व्याख्या देण्यात आली.
- 3) **माँट्रीयल प्रोटोकॉल- १९८७** : ओझोन थराच्या न्हासास कारणीभूत असलेली हायड्रोकार्बन, क्लोरीन आणि ब्रोमीन असणाऱ्या द्रव्यांच्या उत्पादन व प्रक्रियावर काही बंधने घालण्याचा निर्धार करण्यासाठी १६ सप्टेंबर १९८७ रोजी ११ देशांनी मिळून हा करार केला.
- 4) **रिओ परिषद/ वसुंधरा परिषद १९९२** : 'स्टॉकहोम परिषद' व 'पर्यावरण व विकास आयोगा'च्या शिफारशी ने प्रेरित होऊन संयुक्त राष्ट्राने १३ ते १४ जून १९९२ मध्ये पहिली वसुंधरा परिषद भरवली. या परिषदेचे शीर्षक 'संयुक्त राष्ट्रसंघाची पर्यावरण व विकास परिषद' (United nation conference on environment and development) असे होते.
- 5) **शतकोत्तर परिषद २०००** : विकासासाठी २१ व्या शतकात संयुक्त राष्ट्र संघाची भूमिका काय असेल यावर चर्चा करण्यासाठी संयुक्त राष्ट्र संघाने ६ ते ८ सप्टेंबर २००० दरम्यान न्यूयॉर्क येथे शतकोत्तर परिषद भरवली. यात शतकोत्तर घोषणेनुसार मोजता येतील अशी ८ सहस्रक विकास ध्येय (MDG) स्वीकारण्यात आली. ती २००० ते २०१५ या काळात साध्य करावयाची होती.
- 6) **रिओ +१० परिषद**: १९९२ च्या रिओ परिषदेनंतर दहा वर्षांनी दक्षिण आफ्रिकेतील जोहान्सबर्ग येथे ही परिषद २६ ऑगस्ट ते ४ सप्टेंबर २००२ दरम्यान पार पडली हीचे शीर्षक 'शाश्वत विकासाची जागतिक परिषद' असे होते. परिषदेच्या १९३ सदस्य देशांनी एक घोषणापत्र जाहीर केले याचे नाव 'THE FUTURE WE WANT' असे होतेयात सहस्रक विकास ध्येय (MDG) चे महत्व अधोरेखित करून पुढील काळातील शाश्वत विकास ध्येय (SDG) निर्धारित करण्याचा उल्लेख करण्यात आला.

शाश्वत विकास ध्येय (sustainable development goals) :

६ ते ८ सप्टेंबर २००० दरम्यान न्यूयॉर्क येथे परिषद आयोजित केली होती या परिषदेमध्ये (MDG) चे ८ ध्येय ठरवण्यात आली ती २०१५ अखेर पर्यंत साध्य करावयाची होती. हे ८ ध्येय, २१ लक्ष आणि ६ निर्देशकामध्ये विभागलेली होती या नंतर न्यूयॉर्क येथेच सप्टेंबर २०१५ मध्ये शाश्वत विकास परिषद भरली. या परिषदेत सदस्य राष्ट्रांनी ठरवलेली १६ ध्येय व १६९ लक्षांचा समावेश होता ती २०३० पर्यंत पूर्ण करण्याचा निर्धार संयुक्त राष्ट्र संघाच्या १९३ सदस्य देशांनी सर्वानुमते केला. ती ध्येय खालील प्रमाणे:

- १) संपूर्ण जगातील हरतऱ्हेचे दारिद्र्य दूर करणे.
- २) उपासमार दूर करून अन्नसुरक्षा प्राप्त करणे पोषणात वाढ व शाश्वत शेतीला प्रोत्साहन देणे.
- ३) निरोगी जीवनाची खात्री देऊन सर्वांमध्ये चांगल्या स्वास्थ्याची भावना निर्माण करणे.
- ४) दर्जेदार शिक्षण देऊन सर्वांना आयुष्यभर (काही ना काही) शिकता येईल अशी संधी निर्माण करणे.
- ५) लैंगिक समानता प्राप्त करणे व महिला व मुलींची सबलीकरण करणे.
- ६) सर्वांना पाणी आणि स्वच्छता उपलब्ध करणे व त्यांचे शाश्वत नियोजन करणे.
- ७) सर्वांसाठी परवडण्याजोगी विश्वसनीय व शाश्वत ऊर्जा उपलब्ध करणे.
- ८) निरंतर समावेशक व शाश्वत आर्थिक वाढीचा देणे.
- ९) सुयोग्य पायाभूत सुविधांची उभारणी करणे व शाश्वत औद्योगीकरण करून प्रोत्साहन देणे
- १०) देशातील व देशा-देशांमधील असमानता कमी करणे.
- ११) शहरे व मानवी आदिवास समावेशक सुरक्षित लवचिक आणि शाश्वत करणे.
- १२) शाश्वत उत्पादन व उपभोगाचा आकृतिबंध निर्माण करणे.
- १३) पर्यावरणबदल व त्याचे परिणाम यावर तात्काळ कारवाई करणे.
- १४) शाश्वत विकासासाठी सागरी संसाधनाचा शाश्वत वापर करणे व त्यांचे जतन करणे.
- १५) जमिनीवरील पर्यावरणाचे संरक्षण पुनर्वसन व शाश्वत वापरास प्रोत्साहन देणे.
- १६) शाश्वत विकासासाठी शांतताप्रिय आणि समावेशक संस्था उभारणे.
- १७) शाश्वत विकास अंमलबजावणीसगती देणे व जागतिक भागीदारी प्रोत्साहन देणे.

शाश्वत विकासासाठी भारताचे प्रयत्न

भारतीय आर्थिक पाहणी अहवाल २०१५-१६, PBL, नेदरलँड एन्व्हायरमेंटल असेसमेंट एजन्सी च्या पाहणीनुसार २०१४ मध्ये भारतातून 2.3 अब्ज टन कार्बन उत्सर्जनासह भारत चौथ्या क्रमांकावर आहे, पहिल्या क्रमांकावर चीन, दुसऱ्या क्रमांकावर अमेरिका व तिसऱ्या क्रमांकावर युरोपीय युनियन आहे. त्याच वेळी दरडोई उत्सर्जन विचारात घेतल्यास २०१४ मध्ये भारतात 1.8 % राहिले आहे याबाबत भारत तब्बल 123 व्या क्रमांकावर आहे. पहिल्या क्रमांकावर चीन, दुसऱ्या क्रमांकावर अमेरिका आणि तिसरा क्रमांक युरोपीय युनियनचा लागतो म्हणजे ९ भारतीय जेवढे कार्बन उत्सर्जित करतात तेवढा एकटा अमेरिकन उत्सर्जित करतो.

घटनात्मक प्रयत्न

कलम २१

भारतीय राज्यघटना प्रत्यक्ष-अप्रत्यक्षपणे पर्यावरणला संरक्षण प्रदान करते जसे कलम २१ नुसार जीवित व व्यक्तिगत स्वातंत्र्याचे संरक्षण हा मूलभूत अधिकार आहे याचा अर्थ लावताना मा. सर्वोच्च न्यायालयाने जीविताच्या हक्कांमध्ये उपजीविकेचा हक्क मिळतो. तसेच पर्यावरणाचा व त्याच्या संवर्धनाचा अधिकारही यामध्ये येतो असे म्हटले जाते.

कलम 48 A

४२ वी घटनादुरुस्ती १९७६ नुसार हेकलम जोडण्यात आले त्यानुसार पर्यावरणाचे संरक्षण व सुरक्षा तसेच सुधारणा करणे आणि वने व वन्यजीव यांचे संरक्षण करण्यासाठी राज्य प्रयत्न करेल हे मार्गदर्शक तत्व देण्यात आले.

कलम 51 A :

४२ वी घटनादुरुस्ती १९७६ नुसार कलम 51 A (g) जोडून मूलभूत कर्तव्यामध्ये सरोवरे, नद्या, वन्यजीव व पर्यावरणाचे संरक्षण करणे व सजीव याबद्दल करुणा बाळगणे हे नागरिकांचे मूलभूत कर्तव्य आहे. असे जोडण्यात आले.

कायदेशीर व शासकीय प्रयत्न

- १) राष्ट्रीय पर्यावरण नियोजन व समन्वय समिती-1972 (NCEPC)
- २) वन संवर्धन कायदा-1980
- ३) पर्यावरण, वन आणि हवामान बदल मंत्रालयाची निर्मिती-1985
- ४) राष्ट्रीय पर्यावरण धोरण-2006
- ५) राष्ट्रीय कृती आराखडा-2008 (national action plan on climate change)
- ६) प्रधानमंत्री उज्ज्वला योजना – दारिद्र्यरेषेखाली सुमारे 8 कोटी महिलांना स्वयंपाकाची मोफत गॅस जोडणी दिलेली आहे.
- ७) SDG INDIA INDEX– भारत सरकारने शाश्वत विकास धोरणचे कार्य निती आयोगाकडे सोपवलेले आहे. याचाच एक भाग म्हणून निती आयोग SDG india index प्रकाशित करते. या इंडेक्समध्ये राज्यांना 100 पैकी ठराविक गुण दिले जातात. 2019 ला निती आयोगाने SDG india index 2.0 प्रकाशित केला यानुसार केरळ हे राज्य 70 गुण घेऊन प्रथम क्रमांकावर तर बिहारा राज्य 50 गुण घेऊन शेवटच्या स्थानी आहे. तसेच केंद्रशासित प्रदेशांचा विचार केल्यास चंडीगड ७० गुण घेऊन प्रथम तर लद्दाख ५९ गुण घेऊन सर्वात शेवटच्या स्थानी येते.
- ८) विजेवरील वाहनांना प्रोत्साहन – इलेक्ट्रिक वाहनांना प्रोत्साहन देण्यासाठी भारत सरकार FAME (faster adoption and manufacturing of hybrid and electric vehicle) कार्यक्रम राबवत आहे.

भारताची स्थिती :

- १) गरिबी व उपासमारी च्या संदर्भात आंतरराष्ट्रीय निर्देशांकानुसार भारताची स्थिती खराब असल्याचे दिसून येते.
- २) भारतात 1990 मध्ये दारिद्र्याचे प्रमाण 47 टक्के होते ते 2011-12 मध्ये 21 टक्के राहिले आहे.
- ३) भारतातील सुमारे 38 टक्के मुले कुपोषित आहेत.
- ४) भारतात नवजात मृत्युदर सुमारे २५ टक्के आहे, जो श्रीलंका, नेपाळ व भुटानपेक्षा जास्त आहेत.
- ५) भारतात परिणामांचे आकलन करणारे मापदंड अद्यापही व्यवस्थित परिभाषित नाहीत.

६) तेंडुलकर समिती व रंगराजन समिती या दोन्ही समितिचे आकडे व पद्धती वेगवेगळ्या आहेत. यामुळे निश्चित आकडेवारी लक्षात येत नाही.

भारताचे स्वच्छ ऊर्जा निर्मिती लक्ष :

पॅरिस करारानंतर भारताने 175 गिगावॉट (GW) टन स्वच्छ ऊर्जा निर्मिती लक्ष ठेवले होते ते पूर्ण करत असतानाच नुकतेच भारताचे मा. पंतप्रधान नरेंद्र मोदी यांनी 2030 पर्यंत 450 गिगावॉट (GW) टन लक्ष ठेवले आहे यातून भारताचा स्वच्छ ऊर्जा, पर्यावरण व शाश्वत विकासाकडे पाहण्याचा सकारात्मक दृष्टिकोन दिसून येतो.

निष्कर्ष :

प्रस्तुत संशोधनाद्वारे भारताची शाश्वत विकासाचा प्रति असलेली बांधिलकी व प्रतिबद्धता दिसून येते. भारत सरकारची कृती देखील त्या दिशेने जाणारी आहे तरीही या प्रयत्नांमध्ये आणखी सुधारणा व वाढ करायला वाव आहे. जसे योजनांची तात्काळ व प्रामाणिक अंमलबजावणी, इलेक्ट्रिक वाहने व सौर ऊर्जा उपकरणांवर मोठ्या प्रमाणात सबसिडी देणे इत्यादी.

भारताचे विशाल भौगोलिक क्षेत्रफळ व विविधता ही कधी कधी योजना अंमलबजावणीमध्ये अडथळा ठरते. विविध भाषा, संस्कृती, स्थानिक परिस्थिती व राजकारण यामुळे कोणतेही एकल धोरण ठरवणे सरकारला अवघड जाते. तसेच केंद्राने ठरवलेल्या बहुतेक धोरणांची अंमलबजावणी करणे हे राज्याचे अधिकार असतात. त्यामुळे केंद्राचे राज्य सरकार सोबत सामंजस्य असायला हवे भारत संघराज्य व्यवस्था असणारे राष्ट्र आहे केंद्र, राज्य व स्थानिक स्वराज्य संस्था या तीनही शाश्वततेसाठी स्तरांवर अधिक प्रयत्न होणे गरजेचे आहे. तसेच नागरिकांनीही वैयक्तिक स्तरावर पर्यावरण व नैसर्गिक संसाधना विषयी जागरूक असणे आवश्यक आहे. या सर्व गोष्टी झाल्यास एक दिवस निश्चितपणे शाश्वत विकास साध्य होईल यात तिळमात्र शंका नाही.

शिफारशी :

- 1) विविध शासकीय योजना व कायदे यांची प्रभावी अंमलबजावणी करणे.
- 2) शाश्वत विकास ध्येयापैकी अपूर्ण राहिलेली ध्येय पूर्ण करण्याच्या दिशेने जलद वाटचाल करणे.
- 3) पॅरिस हवामान बदल परिषद – 2015 मधील लक्ष गाठण्यासाठी पावले उचलणे.

संदर्भ सूची

- १) इंडियन इकोनॉमी - दत्त आणि सुंदरम
- २) भारतीय अर्थव्यवस्था - रमेश सिंह 'Mc graw hill publication'.
- ३) Environment and ecology – Vaishali Anand, 'Mc graw hill publication'
- ४) यशाची परिक्रमा मासिक फेब्रुवारी २०२० - 'पृथ्वी पब्लिकेशन', पुणे.
- ५) विकास - किरण देसले 'दीपस्तंभ प्रकाशन', जळगाव.
- ६) भारताची आर्थिक पाहणी अहवाल २०१५-१६, २०१९-२०.
- ७) SDG india index 2.0 (२०१९) – नीती आयोग

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- 1) www.moef.gov.in
- 2) www.wikipedia.com
- 3) www.undp.org

शाश्वत विकासासाठी शाश्वत शेतीची गरज

प्रा. रमेश कचरु शिंदे

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सरस्वती शिक्षणशास्त्र महाविद्यालय, मांडवा रोड, किनवट, जि.नांदेड

भारत हा कृषीप्रधान देश आहे येथे 70% लोकांचा व्यवसाय हा शेती आहे. आज मोठ्या प्रमाणात शेती ही आधुनिक झालेली आहे. आत्याधुनिक तंत्रज्ञानाचा शेतीमध्ये वापर वाढला आहे त्यामुळे उत्पादनक्षमता जरी वाढली असली तरी उत्पादनाची गुणवत्ता ही पहील्यासारखी राहिली नाही याचे मुख्य कारण जर पाहिले तर आधुनिक कीटकनाशके आहेत यामुळे जमिनीची उत्पादकता वाढते मात्र जमिनीची जी खरी उपज आहे त्याला बाधा पोहचते त्यामुळे आज जरी आपण त्या जमिनीतून भरघोस पीक घेत असू पण पूढील काळात त्या जमिनीतून हवे तसे उत्पादन घेऊ शकणार नाही म्हणजेच आपण आपल्या ठराविक काळासाठी घेतलेल्या फायद्यासाठी पुढील पिढीला धोक्यात टाकत आहोत. यासाठी शाश्वत शेतीची आवश्यकता आहे. यासाठी शाश्वत विकासाची संकल्पना सर्वांना माहीती असणे गरजेचे आहे. म्हणजेच आज आपल्या ज्या काही गरजा आहेत त्या पूर्ण करण्यासाठी त्या आशा पूर्ण करावयाचा की त्यातून भविष्यकाळातील मानवजातीला त्यांच्या गरजा सहजरीत्या पूर्ण करता येतील यासाठी वर्तमान मानवजातीने शाश्वत विकासाची कास धरणे महत्वाचे आहे. भारतासारख्या कृषीप्रधान देशाला आपल्या अन्नाची गरज भविष्यकाळामध्ये सहज साध्य करावयाची असेल तर शाश्वत शेती हा ऐकमेव उपाय आहे.

शाश्वत विकास म्हणजे काय?

“शाश्वत विकास म्हणजे पर्यावरण आणि विकास जागतिक आयोगाच्या अनुषंगाने ज्याच्या अंतर्गत पिढीच्या गरजा पूर्ण करण्याच्या क्षमतेशिवाय तडजोड करता येईल. म्हणूनच पर्यावरण संरक्षणाशिवाय विकास टिकाऊ होऊ शकत नाही, म्हणजेच सध्याच्या काळात नैसर्गिक संसाधनांचा वापर भविष्यातील पिढ्यांच्या गरजा लक्षात घेऊन कसा केला पाहिजे जेणेकरून आर्थिक विकास आणि पर्यावरण संरक्षण यांच्यात इच्छित संतुलन स्थापित केले जाऊ शकेल.”

शाश्वत विकासामध्ये आपण मनुष्याच्या विकासासाठी निसर्गाचा अशा प्रकारे वापर केला पाहिजे की निसर्गाने पर्यावरणाला हानी पोहोचू नये आणि विकासामध्ये संतुलन राखू शकेल.

शाश्वत विकास उद्दिष्टे

2015 साली संयुक्त राष्ट्र संघाच्या पुढाकारातून सगळ्या जगाचे ‘शाश्वत विकास उद्दिष्टे’ स्वीकारली. भविष्यातील आपल्या वाटचालीला दिशा देण्यासाठी यांचा मोठा उपयोग होईल असा विश्वास हे स्वीकारताना सगळ्यांनी दर्शवला आहे. जागतिक पातळीवर मानवी विकासासंबंधी हा पहिलाच एकत्रित प्रयत्न होता. मानवी आयुष्याच्या सर्व अंगांचा विचार करून, तसेच पृथ्वीवरील विविध प्राणिमात्र आणि निसर्ग यांच्या संरक्षणासाठीचे महत्त्व लक्षात घेऊन या उद्दिष्टांची रचन करण्यात आली.

या कार्यक्रमाला ‘शाश्वत विकास उद्दिष्टे’ म्हणून सगळ्या जगासमोर मांडण्यात आले. सप्टेंबर २०१५ मध्ये संयुक्त राष्ट्रांच्या आमसभेत याला सर्व देशांच्या प्रमुखांनी मान्यता दिली. संयुक्त राष्ट्रांच्या ७० वर्षांच्या कार्यकाळात सर्वात जास्त देशांनी मान्यता दिलेला हा कार्यक्रम आहे. ही उद्दिष्टे स्वीकारताना, ‘Living no one behind (कोणीच मागे राहता कामा नये)’ या तत्त्वाचा स्वीकार करण्यात आला आहे.

या उद्दिष्टांना मानवविकास, पृथ्वीरक्षण, समृद्धी, जागतिक शांतता आणि जागतिक भागीदारी अशा ५ प्रमुख भागात विभागता येऊ शकते. मानवी विकास विभागात २०३०पर्यंत गरिबी पूर्णपणे संपवणे, एकही व्यक्ती भुकेली राहणार नाही याची व्यवस्था करणे, सर्वांना चांगले आरोग्य तसेच गुणवत्तापूर्वक आयुष्य मिळावे, सर्व प्रकारची विषमता दूर करणे, सर्वांना शुद्ध पाणी व स्वच्छता मिळेल अशी उद्दिष्टे आहेत.

पृथ्वीरक्षणासाठी हवामान बदलाचे परिणाम कमी करणे, जमिनीतील व पाण्यातील जीवनाचे संरक्षण, स्वच्छ ऊर्जेचा वापर वाढवणे, मानवी उपभोगामध्ये संयम आणणे या उद्दिष्टांचा समावेश करण्यात आला आहे. तर समृद्धीसाठी ऊर्जेचा शाश्वत पुरवठा, आर्थिक विकासाच्या जोडीला सगळ्यांना सन्मानजनक काम मिळणे, उद्योगामध्ये शाश्वत तत्त्वांचा वापर, पर्यावरणाची हानी न होता

समाजाला गरजेच्या पायाभूत सुविधा तयार करणे आणि शहरातील व्यवस्था शाश्वत बनवण्यासाठी विशेष लक्ष देणे या उद्दिष्टांचा समावेश केलेला आहे.

शांतता, न्याय व त्यासाठी गरजेच्या संस्थात्मक रचना हे एक विशेष उद्दिष्ट ठेवले गेले आहे. उद्दिष्टपूर्तीसाठी जागतिक भागीदारी तयार करणारे हे एक विशेष उद्दिष्ट ठेवले गेले आहे. यामध्ये वैज्ञानिक माहितीची, तंत्रज्ञानाच्या आदानप्रदानासाठी, आर्थिक मदतीच्या सतत पुरवठ्यासाठी, व्यापारामधील विकसनशील देशांचा वाटा वाढण्यासाठी भागीदारी तयार करणे अपेक्षित आहे.

शाश्वत शेती

शाश्वत शेती म्हणजे जमीन, पिके, वने, पशुधन, वन्यजीव, मासे, पर्यावरण इत्यादी पुनःर्जीत करण्याजोगे स्रोतांच्या प्रतवारीचा घसारा न होऊ देता संतुलीत व्यवस्थापन करून वर्तमान व भावी पिढीसाठी अन्न, वस्त्र व निवारा यांचा पुरवठा करणे होय. शाश्वत शेतीला सेंद्रीय शेती, नैसर्गिक शेती, पर्यावरणीय शेती असेही म्हणतात. शाश्वत शेतीत पर्यावरण संतुलनाला जास्त महत्त्व दिले जाते. म्हणून तिला पर्यावरणीय शेती म्हणतात. शाश्वत शेतीसाठी अन्नद्रव्ये व्यवस्थापनासाठी सेंद्रीय पदार्थ मुख्य स्रोत म्हणून वापरतात.

शाश्वत शेती ला सेंद्रीय शेती असेही म्हटले जाते. भावी पिढीला आवश्यक असणाऱ्या मूलभूत स्रोतांना कोणत्याही प्रकारची हानी पोहचू न देता वर्तमान पिढीच्या गरजा भागवण्यासाठी अवलंबण्यात आलेली शेतीची पद्धत होय.

शाश्वत शेतीची गरज

- पर्यावरणाचे संतुलन राखणे हा शाश्वत शेती चा महत्वाचा फायदा आहे.
- शाश्वत शेती साठी पिक उत्पादन खर्च कमी असतो.
- शुद्ध पर्यावरण आणि कोणतीही हानिकारक अवशेष नसलेले अन्न उत्पादन शाश्वत शेतीद्वारे दिले जाते.
- निव्वळ सामाजिक नफा जो असतो तो शाश्वत शेती पद्धतीत वाढतो.
- प्रतिकूल हवामान व बाजार भावामुळे होणारे नुकसान शाश्वत शेतीद्वारे टाळता येते.

शाश्वत शेती पद्धत अवलंबण्यासाठी पाणलोट क्षेत्र व्यवस्थापन,एकात्मिक अन्नद्रव्य व्यवस्थापन,कार्यक्षम पाणी व्यवस्थापन,एकात्मिक तण व्यवस्थापन, मूळ अनुवांशिक स्रोतांचे संवर्धन आणि एकात्मिक कीड व रोग व्यवस्थापन या व्यवस्थापन पद्धतीचा काटेकोरपणे वापर केला जातो.सदर व्यवस्थापन पद्धतीचा मूळ उद्देश म्हणजे मर्यादित रासायनिक निविष्टा जास्तीत जास्त शेती उत्पादित निविस्थांचा वापर करून विना प्रदुषण व नैसर्गिक साधन संपत्तीला कोणतीही हानी न पोहोचता शाश्वत उत्पादन घेणे हे आहे.

शाश्वत शेती मुलतत्वे:

वनस्पती आणि प्राणी यापासून निर्माण होणारे अन्न पदार्थ ज्यामुळे नैसर्गिक पर्यावरण संतुलन, जन आरोग्य, मानव जातीचे कल्याण आणि पक्षी प्राणी यांचे कल्याण याचा योग्य समतोल साधून असंख्य भावी पिढी साठी नैसर्गिक स्तोत्र (पाणी , जमीन हवा इत्यदी) सुरक्षित राहू शकते.

पर्यावरण संवर्धन आणि समतोल:

शाश्वत शेतीमुळे अन्न धन्य निर्मिती आणि पशुपालन वाढते ज्यामध्ये रासायनिक घटकांचा अथवा घातक खतांचा अथवा मानव निर्मित नवीन बियाने याचा समावेश टाळला जावून जमिनीतील माती , पाणी आणि नैसर्गिक स्तोत्र यांना हानी पोहचवणाऱ्या घटकांना टाळून योग्य प्रकारची नैसर्गिक काळजी घेतली जाईल.

विविध प्रकारच्या अन्न धान्य निर्माण करणाऱ्या शेती मधून पिकांचे बदल करून भरपूर मोठ्या प्रमाणात जैवविविधता निर्माण होवून निरोगी नैसर्गिक अमुलाग्रता निर्माण होण्यासाठी अनुकूल वातावरण निर्मिती होणे.

जनसामान्य आरोग्य सुरक्षिता:

कोणत्याही अन्नधान्याची निर्मिती लोकांचे आरोग्य धोक्यात आणून केली जाऊ नये. शाश्वत शेतीमुळे रासायनिक खते आणि कीटक नाशके यांचा वापर टाळला जावून योग्य प्रकारची पिके भाजीपाला आणि फळे निर्माण केली जातात कि जी आसपास परिसरात राहणाऱ्या कामगार , आणि समाजाच्या आरोग्याला खूप सुरक्षित आणि निरोगी बनवू शकतात. या शिवाय निर्माण होणारे पशु पक्षी पशुधन जे संकरीत पद्धती ऐवजी नैसर्गिक रित्या निर्माण होवून समाज आणि प्रादेशिक उन्नती मध्ये नैसर्गिक समतोल साधून सभोवतालील पर्यावरणचा समतोल ठेवू शकते.

शाश्वत समाज विकास :

शाश्वत शेतीमुळे आर्थिक चालना मिळून शेतकरी विकास , शेतकरी कामगार, तसेच समाज घटक साखळीमुळे अन्न धन्य निर्मिती प्रक्रिया उद्योग निर्मिती यामुळे रोजगार निर्मिती होते. यामुळे आसपास परिसरात आर्थिक जीवनमान उंचावून सामाजिक विकास प्रक्रिया गतिमान होते.

पशुधन वाढ आणि समाजकल्याण :

शाश्वत शेतीमुळे पशुधन यामध्ये वाढ होते कारण निर्माण होणारे पिक अन्न धान्य गुरांसाठी आरोग्याच्या दृष्टीने अनुकूल असते या शिवाय पशुधन बंधन मुक्त वातावरण मध्ये राहिल्याने त्यांचे राहणीमान नैसर्गिक रित्या होवून पशुधन निर्मिती वाढून शेतकरी बांधव यांचे आर्थिक राहणीमान उंचावून सामाजिक आणि राष्ट्रीय विकास यासाठी मोठा हातभार लागतो. याशिवाय योग्य प्रकारचे नैसर्गिक संतुलन साधून नैसर्गिक पर्यावरण समतोल वाढतो.

शेती व्यवसाय :

खरे तर शेती व्यवसाय हा मोठ्या प्रमाणात शेती मधून उपलब्ध होणार्या पिकावर अवलंबून आहे. जसे आपल्या देशात साखर उद्योग मोठ्या प्रमाणवर फैलावला आहे. साखर याबरोबर उपपदार्थ निर्मिती म्हणून आसवनी प्रकल्प उभे आहेत. आसवनी प्रकल्प या मधून निर्माण होत असलेल्या अल्कोहोलचा वापर खूप औषधी कारखान्यात प्रतीजैवके याशिवाय मद्यार्क निर्मिती साठी होतो. सामान्य आणि संकरीत पशु धन यांच्या पासून निर्माण होत असलेल्या दुधासाठी खूप दुग्धव्यवसाय कारखाने आहेत.

नगद पिके आणि व्यवसाय यासाठी असंख्य शेतकरी बांधव आपल्या शेती मध्ये पारंपारिक गोष्टी ऐवजी वाढीव उत्पादनासाठी नवीन नवीन प्रयोग करून जमीन माती, पाणी आणि हवेचे नैसर्गिक घटक बदल होतील असे प्रयोग करून सभोवतील तसेच त्या भागातील वातावरण बदल घडवत असतात. याचे दूरगामी परिणाम आपल्याला ग्लोबल वार्मिंग सारख्या घटने मध्ये बदल करून निसर्गाचे अपरिमित नुकसान करतात.

आपल्याला भावी पिढी निरोगी आणि सक्षम बनवण्यासाठी खूप काही प्रयत्न करावे लागतील त्या मध्ये शाश्वत शेती हा एक मुख्य भाग असून आपल्याला धरती वसुंधरा अनंतकाळची माता ठेवण्यासाठी शाश्वत शेती करत पर्यावरण आणि नैसर्गिक समतोल साधने हीच खरी काळाची गरज आहे.

आशाप्रकारे शाश्वत विकास ही काळाची गरज आहे. जोपर्यंत आपण आपल्या प्रत्येक क्षेत्रात शाश्वत विकासाचा विचार अंगीकारणार नाही तोपर्यंत आपण एक मानव म्हणून भविष्यकाळासाठी आदर्श होऊ शकत नाही. शेती क्षेत्र जे क्षेत्र मानवाची अन्नाची मुलभूत गरज पूर्ण करते आशा महत्त्वाच्या क्षेत्रात सर्व जगाने जाणिवपुर्वक लक्ष देऊन शाश्वत शेतीची कास धरणे सर्व जगातील मानवजातीला हीतकराक ठरेल.

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भारतीय गणतंत्र तथा पर्यावरण का यथार्थ : एक समीक्षा**हिना वर्मा**

परास्नातक विद्यार्थी-

संस्कृति एवं मीडिया विभाग राजस्थान केन्द्रीय विश्वविद्यालय किशनगढ़, अजमेर ,

अध्ययन का सार :

भूमंडलीकरण तथा उदारीकरण के दौर में भारतीय गणतंत्र के धरातल पर होने वाले परिवर्तन का अवलोकन करना एक अनिवार्यता हो गयी है। भारतीय गणतंत्र का इतिहास बहुत प्राचीन नहीं है। गणतंत्र में जनता अपनी सरकार खुद चुनती है। भारतीय गणतंत्र को सम्पूर्णता प्रदान करने के उद्देश्य संविधान का निर्माण किया गया था। संविधान की उद्देशिका में हम भारत के लोग को स्पष्ट करता है कि भारत कि सम्प्रभुता भारत के लोगो में निहित है। भारतीय संविधान की उद्देशिका जो २६ जनवरी १९५० में लागू हुई थी उसमें केवल गणतंत्र का विवरण था। नागरिकों के सामाजिक आर्थिक तथा राजनैतिक, न्याय को ध्यान में रखकर समय समय पर संशोधन किया जाता रहा है। (१)

इन उद्देश्यों की पूर्ति के लिये पर्यावरण का अंधाधुंध दोहन पिछले ७० सालों में किया गया है इस अध्ययन में पर्यावरण यथार्थ का अवलोकन किया गया है जिसके फलस्वरूप यह पाया गया पर्यावरण यथार्थ के धरातल पर विकृति हो चुका है

अध्ययन के तर्कसंगत :

संविधान में निहित सामाजिक आर्थिक तथा राजनैतिक न्याय की पूर्ति के लिये पर्यावरणीय न्याय की स्थिति की विवेचना करना है

उद्देश्य :

- १ . भारतीय गणतंत्र यथार्थ की व्याख्या एवं अवलोकन
- २ . पर्यावरणीय यथार्थ की व्याख्या एवं अवलोकन
- ३ . भूमंडलीकरण तथा उदारीकरण के दौर में सामाजिक, आर्थिक एवं राजनैतिक यथार्थ का अवलोकन

परिकल्पना :

यथार्थ समय के साथ परिवर्तनशील है तथा इसका अवलोकन करने की आवश्यकता है। गणतंत्र यथार्थ जो की सामाजिक, आर्थिक एवं राजनैतिक है जिसका सीधा सम्बन्ध पर्यावरणीय यथार्थ से भी है। भूमंडलीकरण गणतंत्र यथार्थ तथा पर्यावरणीय यथार्थ को प्रभावित करता है

अध्ययन की क्रियाविधि :

उद्देश्यों की पूर्ति के लिये पत्र पत्रिकाओं में प्रकाशित शोध पत्रसमाचार पत्रों में प्रकाशित लेख, शोध ग्रंथ तथा विषय से सम्बंधित पुस्तकों का गहन अध्ययन तथा उनका साहित्यिक विश्लेषण किया गया है

निष्कर्ष :

सामाजिक विकास आर्थिक विकास तथा राजनैतिक विकास के लिये संविधान में सन १९७६ में ४२ वे संशोधन के द्वारा समाजवादी पथ निरपेक्षता, एकता एवं अखंडता को संविधान में निहित किया गया है। भारतीय नागरिकों के सामाजिक विकास करने के लिए सामाजिक कार्यकर्म चलाए जा रहे हैं जिनमें योजना आयोग का गठन करना प्रमुख है। (२) योजना आयोग का प्रमुख कार्य जनता के लिए हितकारी योजना बनाना होता था। हाल ही में योजना आयोग को नीति आयोग बना दिया गया है साथ ही इसमें कई सारे बदलाव लाये गए हैं जिससे भारत का पूर्ण विकास हो और नागरिकों को सामाजिक अधिकार और न्याय मिल सके। सामाजिक विकास को ध्यान रखकर ही १९५१ में जमींदारी प्रथा को समाप्त किया गया था और जिनके पास जमीन नहीं थी उनको कृषि योग्य भूमि आवंटित की गयी थी। संविधान में निर्मित समानता के अधिकार को यथार्थता प्रदान करने के लिए ही सबको कृषि योग्य भूमि का आवंटन किया गया था। सामाजिक विकास हेतु भारत सरकार ने बहुत सारी प्रमुख योजना को चलाया तथा सामाजिक

मुद्दों से जुड़ी संस्थाओं का गठन किया है। महिलाओं की शिक्षा स्वास्थ्य तथा उनके बहुमुखी विकास को प्राथमिकता दे कर, सामाजिक विकास को गति प्रदान की है। प्रथमिक शिक्षा को सामाजिक विकास के लिए अत्यंत आवश्यक मानकर उसके विकास के लिए शिक्षा को मूलाधिकार के अंतर्गत अनुच्छेद २१ के अंतर्गत समाहित किया गया है। ६ वर्ष से १४ वर्ष के बच्चों को निशुल्क शिक्षा का प्रावधान भी सामाजिक विकास की दिशा में किया गया कार्य है। सूचना का अधिकार वर्ष २००५ में लाया गया था जो सामाजिक पारदर्शिता को गति दे कर सामाजिक सेहत को ठीक करना था। नागरिकों की न्यायिक जरूरतों के लिए न्यायपालिका का गठन किया गया है। न्यायपालिका समय समय पर संविधान की परिकल्पना और अनुच्छेदों का अवलोकन कर सरकार को सलाह देती है जिससे नई परियोजना का निर्माण हो सके और संविधान के मूलभूत सामाजिक विकास का यथार्थ देखा जा सके। बेटी बचाओ बेटी पढ़ाओ मुहिम और पल्स पोलियो उज्ज्वला योजना, कन्याधन योजना, जनधन योजना, मिड डे मील योजना आदि इसके उदाहरण हैं। सरकारों के अथक प्रयासों के बावजूद समाज में बहुत सारी रूढ़वादी परम्परा की वजह से महिलाओं को अनेक प्रकार की मुश्किलों का सामना प्रतिदिन करना होता है। महिलाओं और कमजोर वर्ग को समानता का अधिकार दिलाने में संविधान कहा तक योगदान दे सका है एक समीक्षा का विषय है।

आर्थिक विकास की दृष्टि से भारतीय गणतंत्र ने कई परियोजनाओं का क्रियावन्धन किया है जैसे कि कृषि में क्रांति क्योंकि भारत एक कृषि प्रधान देश है। यहाँ पर ५० लोग कृषि पर आश्रित हैं। कृषि को प्रथमिता देते हुए सरकारों ने देश में शोध तथा उन्नत कृषि को लगातार बढ़ावा देते रहे हैं। आर्थिक नीतियों का उदारीकरण इसी दिशा में लिया गया अहम कदम है जिससे भारत में विदेशी मुद्रा विनिमय को बढ़ावा दिया गया साथ ही संचार क्रांति की उपयोगिता को समझते हुए भारत में तकनीकी शिक्षा को उन्नत कर आर्थिक विकास के लिए देश को उन्मुख किया। आज भारत में कई देशी और विदेशी कंपनियाँ देखी जा सकती हैं जो देश के नागरिकों को रोजगार दे रही हैं और देश के आर्थिक विकास में सहयोग प्रदान कर रही हैं। सरकार द्वारा चलाई जा रही मनरेगा, स्टार्टअप इंडिया, मेक इन इंडिया आदि योजनाएँ नागरिक के आर्थिक विकास की प्रतिबद्धता को दर्शाते हैं साथ भारत की जनसंख्या को देखते हुए यह प्रयास उतने सार्थक सिद्ध नहीं हो पा रहे जितना एक नागरिक के लिए संविधान में परिभाषित किया गया है। संविधान में निर्गत आर्थिक विकास के लिए भारत गणतंत्र में नई पहल की आवश्यकता जो आर्थिक विकास को नए आयाम दे सके। इसके लिए शोध को बढ़ावा दे कर नए उत्पादों का निर्माण कर उनको अंतराष्ट्रीय बाजार दिलाना होगा। भूमंडलीकरण के दौर में आर्थिक विकास को गति देने में ज्यादा मुश्किलें नहीं होती क्योंकि बड़े बाजार भारतीय कलापर्यटन, तकनीकी, कृषि उत्पादों के लिए खुले हुए हैं बस जरूरत है सूचनाओं और ज्ञान की जिसके द्वारा नागरिकों का विल बनकर उनको दिशा दी जाये। (८) राजनैतिक विकास की चर्चा की जाये तो संविधान ने भारतीय गणतंत्र के सभी नागरिकों सामान अधिकार दिए हैं जिसके चलते कोई भी नागरिक देश का प्रधानमंत्री या राष्ट्रपति बन कर देश की सेवा कर सकता है। संविधान ने सभी को दल बना कर देश राजनैतिक विकास को गति प्रदान करने का अधिकार दिया है। किसी भी गणतंत्र का विकास उसकी राजनैतिक गतिविधियों तथा कूटनीतियों पर काफी हद तक निर्भर करता है। भारतीय विदेश मंत्रालय इस दिशा काफ़ी प्रयासरत और विदेशों में भारतीय नागरिकों को सेवा प्रदान कर उनका राजनैतिक विकास करता है। पंचायती राज इसका एक उदाहरण है जो ग्रामीण नागरिकों को राजनैतिक अधिकार देता है कि वे अपने ग्राम को विकास अपने जरूरतों के अनुसार कर सकें। पर्यावरणीय यथार्थ का विश्लेषण किया जाए तो यह पाया जाता है कि पर्यावरण की समस्याएँ एक विक्रान्त रूप ले चुकी हैं जो सामाजिक यथार्थों को भी प्रभावित कर रही हैं आर्थिक एवं राजनैतिक यथार्थों की पूर्ति के लिये औद्योगिकीकरण का सहारा लिया गया जिसने पर्यावरण को प्रदूषित तथा विकृत कर दिया पर्यावरण के प्रदूषित होते ही उसमें रहने वाले जैव विविधता का हिरास हुआ है जैव विविधता पर्यावरण संतुलन के लिये एक मुख्य आवश्यकता है प्रदूषण जो कि भौतिक रासायनिक तथा जैवकीय स्तर पर होने वाला परिवर्तन होता है जिसके फलस्वरूप वायुजल तथा मृदा की गुणवत्ता पर, आवांछनीय प्रभाव पड़ता है प्रदूषण के कारण कृषि की उत्पादकता तथा जलीय जीवन पर गंभीर प्रभाव पाया गया है (६) जल प्रदूषण की वजह से पीने योग्य जल की कमी हो गयी है जिसकी कारण सामाजिक न्याय को पूर्ण करने में कठिनाई आ रही है पीने योग्य जल मानव का एक मौलिक अधिकार है जो कि संविधान में निहित अनुच्छेद २१ में जीवन के अधिकार के अंतर्गत आता है इसी प्रकार वायु प्रदूषण जिसकी वजह से साँस लेने योग्य वायु की कमी हो गयी है ये भी अनुच्छेद २१ के जीवन के अधिकार के अंतर्गत आती है जैव विविधता के संरक्षण के लिये भारत सरकार द्वारा वन संरक्षण अधिनियम १९८६ को संविधान में निहित किया गया है जिसके फलस्वरूप भारत सरकार द्वारा पक्षी अभयारण्य वन्यजीव अभयारण्य, प्राणिवन, संरक्षित, सरोवर जैसे की चिलका झील जिसमें मगरमच्छों को संरक्षित किया गया है (६)

भूमंडलीकरण तथा उदारीकरण सन १९९१ में डॉ. मनमोहन सिंह द्वारा अनुमोदित किया गया तथा भारत सरकार द्वारा लागू किया गया भूमंडलीकरण में खुली आर्थिक व्यवस्था होती है जिसके फलस्वरूप विदेशी कम्पनीओ का भारत के बाज़ार में हस्ताक्षेप की वृद्धि हुयी है(३) विदेशी कम्पनीओ में अपने कारखाने भारत में स्थापित किये हैं जो भारत के प्राकृतिक संसाधनों का दोहन कर रही है यद्यपि ये भारतीय आर्थिक व्यवस्था में मददगार है अगर हम पर्यावरणीय न्याय की चर्चा करें तो ये पाया जाता है की विदेशी कंपनिया अपने उत्पादों के निर्माण के लिये जैसे की पेप्सी शीतल पेय के उत्पादन के लिये लाखों लीटर पीने योग्य पानी का प्रयोग कर मुनाफा कमाती है और दूसरी ओर भारत में पेय जल का संकट गहराता जा रहा है जो की सामाजिक तथा पर्यावरणीय न्याय को छतिग्रस्त करता है अगर हम विश्व राजनीति के हस्ताक्षेप का विश्लेषण करते हैं तो ये पाते हैं की विकसित देश कार्बन उत्सर्जन के लिये विकासशील देशों को जिम्मेदार ठहराते हैं उन विकासशील देशों में भारत की गिनती होती है उपरोक्त बातों से यह कहा जा सकता है कि भारतीय गणतंत्र ने सामाजिक , आर्थिक तथा राजनैतिक आधार पर काफी हद तक सफलता प्राप्त की है।(७) कुछ मुद्दों में ज्यादा ध्यान देने की आवश्यकता है जैसेकि महिलाओ , बच्चों तथा निशक्तजनों के सामाजिक , आर्थिक और राजनैतिक मुद्दों को गंभीरता से लेकर कानून बनाने की। पर्यावरण यथार्थ के संरक्षण के लिये जैविक माध्यमों जैसे की जैविक कृषि का सहारा लेना आवश्यक हो गया है(४) सतत विकास एक ऐसा माध्यम है जिसके फलस्वरूप सामाजिक आर्थिक तथा पर्यावरण न्याय संगत हो सकते हैं(९) भारतीय गणतंत्र का यथार्थ ही देश का सही आयामों में विकास है।

भारतीय संविधान जो सामाजिकआर्थिक, राजनीतिक , तथा पर्यावरणीय न्याय के संरक्षण के लिये समय समय पर इनका अवलोकन करता है तथा भारतीय संसद द्वारा नये कानून पारित किये जाते हैं जिसकी मदद से गणतंत्र तथा पर्यावरणीय यथार्थ को धरातल प्रदान किया जाता है

सुझाव :

- १ पर्यावरणीय यथार्थ के संरक्षण के लिये जनसंचार माध्-यमों का सदुपयोग
- २ लोगो में पर्यावरण के प्रति समवेदनशील बनाना जो कि स्कूली शिक्षा द्वारा आसानी से किया जा सकता है -
- ३ वन संरक्षण अधिनियम १९८६ का सख्ती से पालन तथा धरातल प्र उतरना एक आवश्यकता बन चुका है -
- ४ विदेशी कम्पनीओ द्वारा निर्मित उत्पादों की समीक्षा -जिसमें प्राकृतिक संसाधनों का प्रयोग किया गया है

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शाश्वत विकासामध्ये लोकशाहीवर प्रसारमाध्यमांचा पडणारा प्रभाव**प्रा.विकास सुभाष नालकर**

सहाय्यक प्राध्यापक,राज्यशास्त्र विभाग,

लोकनेते रामदास पाटील धुमाळकला,विज्ञान व वाणिज्य महाविद्यालय,राहुरी

प्रस्तावना :-

भारत हा जगातील सर्वात मोठा लोकशाही देश म्हणून ओळखला जातो. भारत हा विकसनशील देशांमध्ये गणला जातो. स्वातंत्र्य मिळाल्यानंतर मिश्र अर्थ व्यवस्थेचा स्विकार केला. त्याच बरोबर पंचवार्षिक योजना यशस्वीपणे पार पाडत आहोत. 1991 मध्ये तत्कालीन शासनाने खाजगीकरण, जागतिकीकरण व उदारीकरण धोरण स्वीकारून अर्थव्यवस्थेत बदल घडवण्यात आणले. या बदला बरोबरच नैसर्गिक साधनसंपत्तीचा वापर केला जाऊ लागला त्यामुळे मर्यादित असणारी संपत्ती ही लयास पावेल. व येणारी पिढीला ती नाहीशी होऊ शकते ही शक्यता नाकारता येत नाही. म्हणून जागतिक पातळीवर या विषयावर चर्चा सुरू झाली पाहिजे. व त्यासाठी विकासासाठी याचा नाश होता कामा नये. लोकशाही देशात सत्ता बदल घडवण्यासाठी वेगवेगळे प्रयोग केले जाते. त्या मध्येही राजकारण होणं स्वाभाविक आहे. भारतासारख्या लोकसंख्या बहुल देशांमध्ये बहुपक्षीय पद्धत असल्याने प्रसार माध्यमांचा लोकशाहीवर प्रभाव हा मोठ्या प्रमाणावर नवनव्या तंत्रज्ञानाचा वापर करून एकमेकांशी संबंध येत असतो व त्याचा परिणाम समाजात झाल्याचे दिसून येते.

प्रसार माध्यम हे लोकशाहीचा चौथा स्तंभ म्हणून ओळखला जातो. कार्यदेमंडळ, कार्यकारी मंडळ, व न्याय मंडळ ह्या महत्वाच्या घटकांबरोबर प्रसार माध्यमास महत्व आहे. लोकशाही मध्ये जनता ही प्रतिनिधी नेमणूक केली जाते व त्यांच्या माध्यमांतून शासन कारभार चालवला जातो. आधुनिक तंत्रज्ञानाचा वापर करून आपण आपल्या नैसर्गिक साधनसंपत्तीचा वापर करून त्यामध्ये सध्या शाश्वत विकासासाठी प्रयत्नशील राहिले पाहिजे. लोकशाहीत मतदानाचा अधिकार प्राप्त झाला आहे. त्यातून विकासासाठी शासन हे कार्यरत असते. प्रसारमाध्यमां द्वारे शासनावर दबाव आणला जातो. व त्यासाठी विकासासाठी प्रयत्नशील राहिले पाहिजे हे दर्शविले जाते हे दिसून येते.

संशोधन पद्धती:-

प्रस्तुत शोध निबंधासाठी विश्लेषणपद्धतीचा उपयोग करण्यात आला आहे. त्यासाठी संशोधनाचे दुय्यम स्रोत वापरण्यात आले आहे. त्यामध्ये स्रोत ग्रंथ, पुस्तके, दैनिक वृत्तपत्र, साप्ताहिक, मासिके, नियतकालिके, शोधनिबंध यांचा उपयोग मुख्यतः करण्यात आलेला आहे.

विषय शिर्षक:- शाश्वत विकासामध्ये लोकशाहीवर प्रसारमाध्यमांचा पडणारा प्रभाव**संशोधनाची उद्दिष्टे:-**

- 1) शाश्वत विकासासाठीची सद्य परिस्थितीचे अध्ययन करणे.
- 2) शाश्वत विकासात लोकशाही घटकांचे महत्व अध्ययन करणे.
- 3) प्रसार माध्यमांचे लोकशाहीतील पडणारा प्रभाव याचे अध्ययन करणे.

संशोधनाची गृहितके:-

- 1) शाश्वत विकासामध्ये लोकशाहीचा अभ्यास महत्वाचा आहे.
- 2) लोकशाही देशांमध्ये प्रसारमाध्यमांचा प्रभाव पडत असतो.
- 3) प्रसार माध्यमांनी केलेल्या जनजागृती होत असल्याने शाश्वत विकास होत असतो.

शाश्वत विकास संकल्पना :-

शाश्वत विकासामध्ये आपण मनुष्याच्या विकासासाठी निसर्गाचा अशा प्रकारे वापर केला पाहिजे की निसर्गाने पर्यावरणाला हानी पोहोचू नये आणि निसर्ग आणि विकासामध्ये संतुलन राखू शकेल. 'शाश्वत विकासामध्ये १९९२ ह्या संकल्पनेचा उदय' ब्राझील चीराजधानी 'मध्ये आयोजित करण्यात आलेल्या 'जेनेरिओ-डी-रिओ' वसुंधरा' परिषदेत झाला ह्या परिषदेत. 'संयुक्तराष्ट्रसंघाकडून पर्यावरण आणि विकास संबंधित दस्तावेज तयार करण्यात आले पर्यावरण आणि विकास' त्यात, हे विषय एकमेकांशी संबंधित असल्याचे स्पष्ट करण्यात आले. भारत हा विकसनशील देश आहे. त्यामुळे शासन कारभार हा

विकासात्मक दृष्टीकोन ठेवून चालत असतो.लोकशाही मध्ये राज्य हे “लोककल्याणकारी राज्य” म्हणून ओळखला जाते.राज्याची अंतिम सत्ता ही जनता असते.त्या मुळे शासनास निवडणूकीस सामोरे जावे लागत असते. व केलेल्या कामाचा आढावा ही जनता घेत असते.यामध्ये शासनाचे कामकाज व धोरण हे सर्वसामान्य जनतेसमोर ठेवण्याचे कार्य प्रसार माध्यमे करत असतात.

लोकशाही आणि शाश्वतविकास:-

लोकशाही म्हणजे- “लोकांनी लोकांसाठी चालवलेले राज्य म्हणजे लोकशाही”होय.असे अब्राहम लिंकन हे म्हणतात. जनता ही आपल्या मधुन प्रतिनिधी नेमते. व त्याच्या माध्यमांतुन कारभार चालविला जातो.लोकशाहीमध्ये कायदेमंडळ,कार्यकारी मंडळ न्याय मंडळ ह्या माध्यमांतुन कारभार चालविला जातो.भारत हा संघराज्यअसल्याने केंद्र सरकार व राज्य सरकार यामध्ये सत्तेचे विक्त्रेद्रीकरण झालेले आहे.लोकांनी निवडून दिलेले प्रतिनिधी विधेयकाबाबत निर्णय घेतात.हे लोक प्रतिनिधी निवडून येण्यासाठी वाटेल ते करण्या साठी तयार होत असल्याचेच समाजात दिसून येते. आपण मनुष्याच्या विकासासाठी निसर्गाचा अशा प्रकारे वापर केला पाहिजे की निसर्गाने पर्यावरणाला हानी पोहोचू नये आणि निसर्ग आणि विकासामध्ये संतुलन ठेऊ शकेल. वर्तमानकाळातील आर्थिक विकास साधनांचा भविष्यातील आर्थिक विकासासाठी नैसर्गिक संसाधने अपुरे पडणार म्हणून या ‘शाश्वत विकास’ घोषणाया आधारे ,मग यात शाश्वत विकासासंबंधीच्या परिषदा .संकल्पनेचा जन्म झालाप्रत्येक देशाने आपल्या आर्थिकविकासाचे नव्याने केलेले नियोजन हे अभ्यासणे महत्त्वाचे ठरते.भारतामध्ये आर्थिक व सामाजिक विकास साध्य करण्यासाठी आणि जागतिक स्तरावर करण्यात येत असलेले प्रयत्न असे सहस्रक विकास लक्ष्य MDGs २०१५ पर्यंत साथ करायची होती .जागतिक पातळीवर आता शाश्वत विकास लक्ष्य SDGs २०१६ या २०३०-कालखंडात एकूण १७ लक्ष्य साध्य करावयाचे आहे. यातील प्रमुख लक्ष्य हे प्रामुख्याने त्यांच्या भारतातील सामाजिकव आर्थिक विकासाशी संबंधित आहेत. 1947 साली भारतास स्वातंत्र्य मिळाले व त्यानंतर नियोजन सुरुवात करण्यात आली. त्यासाठी भारत सरकारने 1950 मध्ये योजना आयोग स्थापन करण्यात आला. त्याच्या मार्गदर्शनाखाली बारा पंचवार्षिक योजना देशांमध्ये राबविण्यात आला.योजना सुट्टीचा काळ वगळता सरकारची भूमिका व धोरणे त्यानुसार असायची.1जानेवारी 2015 पासून नियोजन आयोगाचे रूपांतर निती आयोगात करण्यात आले..केंद्र तसेच राज्य सरकार यांना सल्ला देण्याचे कार्य करतो. भारतीय लोकशाही व्यवस्थेमध्ये स्वातंत्र्य समतेचे तत्त्व स्वीकारण्यात आले. त्या अनुषंगाने भारतातील सर्व व्यक्तींना या राजकीय प्रक्रियेमध्ये सहभाग घेता येतो व तो मिळविण्यासाठी प्रत्येकजण प्रयत्नशील असतो. विकासासाठी सरकार यामध्ये सत्तेचे विक्त्रेद्रीकरण करत असतात म्हणून प्रत्येक नागरिक त्यामध्ये सहभागी होत असतो. पर्यावरणाचा तोल राखत हा विकास होणं हे काळाची गरज आहे.

प्रसारमाध्यमे व त्यांचालोकशाही आणि विकासावर प्रभाव:-

आधुनिक युगात जगामध्ये अमुलाग्र बदल घडत असलेला दिसून येतो. लोकशाही व्यवस्थेत लोकप्रतिनिधी हे जनतेतुन निवडून येतात. कायदे मंडळ,कार्यकारी मंडळ,व न्यायमंडळ याबरोबरच प्रसार माध्यमांस (Media)लोकशाहीचा चौथा स्तंभ म्हणून ओळखले जाते. लोककल्याणकारी राज्य हे लोकशाहीत महत्त्वाचे उद्दिष्ट असते. भारतामध्ये वाहतूक व दळण वळण साधनंचा वापर ब्रिटिशांनी आपल्या सोईसाठी सुरू केला. याच काळात टपाल,तारायंत्राची सुरुवात झाली. म्हणजे प्रसारमाध्यमांची भारतामध्ये मुहूर्त मेढ रोवण्याचे कार्य ब्रिटिशांनी केलं.प्रत्येक समाजाचेपरी वर्तन करणे हेच खरे प्रसार माध्यमांचकर्तव्य आहे.देशाच्या स्वातंत्र्यानंतर महात्मा गांधी यांनी आकाशवाणी केंद्राला १२ नोव्हेंबर १९४७ला पहिल्यांदा भेट दिली आणि तेथूनच त्यांनी शांतता राखण्याचे आवाहन केले होते. त्या दिवसापासून १२ नोव्हेंबर हा दिवस सार्वजनिक प्रसारण सेवा दिवस म्हणून साजरा केला जातो.

मिडिया(Media) म्हणजेच माध्यम होय.21 व्या शतकात ही माध्यम क्रांती प्रत्येक व्यक्तीपर्यंत पोहोचली आहे. त्याच बरोबर ती व्यक्ती जीवनाची एक भाग म्हणून रुजवली आहे.मिडिया म्हणजे फक्त बातमी नव्हे तर त्यामध्ये वृत्तपत्र,दूरचित्रवाणी,रेडिओ,चित्रपट,लघुपट, नाटक,ऑडिओ,व्हिडिओ ,इंटरनेट,कथा कविता,,आदि साहित्य,सर्व प्रकारची प्रसार माध्यमे हे सर्व माध्यमांचा भाग असतात. शासन दरबारी व्यवस्था ही जनतेच्या सोईसाठी करण्यात आलेली व्यवस्था आहे. त्याला विकासासाठी माध्यमांची गरज आवश्यक असते. जनमत हे सुद्धा शासनाला माध्यमांतुन समजत असते. विकासकामांची माहिती ही माध्यमांनी जनतेला पुरविण्यात येत असल्याने त्यांना जनतेला काय वाटते ते कळत असते व त्यातुन लोकशाहीत महत्त्वाचे उद्दिष्ट असते ते साध्य होत असते.त्या मुळे माध्यमांना लोकशाहीत अनन्य साधारण महत्व दिसून येते. केंद्र किंवा राज्य शासनाचेधोरण ठरवित असताना माध्यमांची भूमिका विचारात घेतली जाते.

निष्कर्ष:-

अशा रीतीने प्रस्तुत शोधनिबंध असे स्पष्ट करता येते लोकशाही व्यवस्थेत शाश्वत विकास हा महत्वाचा आहे व ती काळाची गरज बनत चाललेली आहे. नवनवीन प्रयोग करून निसर्गाची हानी होत असल्याची दिसून येत आहे. त्यासाठी शाश्वत विकास हा या शोधनिबंधातून स्पष्ट करता येते. यामध्ये मिडियाला सुद्धा महत्व समजून घेता येते. लोकशाहीत शासनाची धोरण ठरवत असताना माध्यमांनी केलेल्या जनजागृती मधुन निर्णय घेण्यास मदत होते. यावरून असे स्पष्ट होते कि, माध्यमांनी निती ला धरूनच आपले कार्य पार पाडले पाहिजे. तरच तो लोकशाहीचा चौथा स्तंभ म्हणून ओळखला जाऊ शकतो. जागतिक पातळीवर या विषयावर चर्चा सुरू झाली असली तरी त्याची अंमलबजावणी सुरू होत नसल्याचे समजते. त्यामधुन असे स्पष्ट करता येते शाश्वत विकासामध्ये लोकशाहीवर प्रसार माध्यमाचा प्रभाव पडत असतो.

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शाश्वत विकासची संकल्पना आणि अंमलबजाणी

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गोष्टवारा-

कोणत्याही अर्थव्यवस्थेचा स्थिरतेतून विकास झाला तर तो विकास दिर्घकाळ टिकणारा असतो म्हणून कोणतीही अर्थव्यवस्था स्थिरतेतून विकास साधे करण्याचा प्रयत्न करीत असते. 1986 च्या वसंधरा संमेलनानंतर शाश्वत विकासाचे सुत्र जगातल्या सर्वच देशांनी स्विकारलेले आहे. विकासाच्या नावाने झालेली पर्यावरणाची हानी कोणत्याही मार्गाने भरून काढता येणार नाही हे लक्षात आल्यामुळे शाश्वत विकासाची कास धरण्याची गरज मानवजातीला जणवली “शाश्वत विकास म्हणजे असा विकास की, ज्याच्याद्वारे भावि पिढ्यांच्या त्यांच्या स्वतःच्या गरजा पूर्ण करण्याच्या क्षमतेशी तडजोड न करता वर्तमानकालीन गरजा पूर्ण केल्या जातात” 25 सप्टेंबर 2015 रोजी युनोच्या आमसभेतील 194 देशांनी Transforming our world: the 2030 Agenda for sustainable Development या शीर्षकाखाली 2030 साठीचा विकास अजेंडा स्वीकृत केला. यालाच शाश्वत विकास उद्दिष्टे संभोधले जाते. या अजेंड्यामध्ये 17 उद्दिष्टे होती. ही उद्दिष्टे साध्य करण्यासाठी जागतीक पातळीवरून प्रयत्न केले जात आहेत त्याचाच आढावा प्रस्तुत लेखात करण्यात आलेला आहे.

प्रस्तावना:

शाश्वत विकास ही बदलत्या काळची गरज आहे. कोणत्याही अर्थव्यवस्थेचा स्थिरतेतून विकास झाला तर तो विकास दिर्घकाळ टिकणारा असतो म्हणून कोणतीही अर्थव्यवस्था स्थिरतेतून विकास साधे करण्याचा प्रयत्न करीत असते. 1986 च्या वसंधरा संमेलनानंतर शाश्वत विकासाचे सुत्र जगातल्या सर्वच देशांनी स्विकारलेले आहे. विकासाच्या नावाने झालेली पर्यावरणाची हानी कोणत्याही मार्गाने भरून काढता येणार नाही हे लक्षात आल्यामुळे शाश्वत विकासाची कास धरण्याची गरज मानवजातीला जणवली. पर्यावरण आणि विकास जगतिक आयोगाच्या अनुषंगाने धरणी किंवा टिकाऊ विकास ज्याच्या अंतर्गत पिढ्यांच्या गरजा पूर्ण करण्याच्या क्षमतेशिवाय तडजोड करता येईल, म्हणूनच पर्यावरण संरक्षणाशिवाय विकास टिकून राहू शकत नाही. म्हणजेच सध्याच्या काळात नैसर्गिक संसाधनांचा वापर भविष्यतील पिढ्यांच्या गरजा लक्षात घेऊन केला गेला पाहिजे. ज्यामुळे आर्थिक विकास आणि पर्यावरण संरक्षण यांच्यात इच्छित संतुलन स्थापित केले जाऊ शकेल.

कृषी विकासातील शाश्वतता ही जैवसृष्टी शास्त्र आणि पर्यावरण शास्त्र शाखेशी अधिक निगडित आहे. ते लक्ष केवळ कृषी धोरणामुळे नव्हे तर कृषी कृषीविकासातील संरचनात्मक बदलामुळेच साध्य होणार आहे याची जणीव आता झालेली आहे. कारण धोरण हे एका चौकटीतले असते तर सुधारणा मात्र चौकटच बदलणारी असते. हरीत क्रांतीने शेतीक्षेत्राला एक शाश्वत दर्जा दिलेला आहे. जैव तंत्रज्ञानाने कृषी उत्पादन वाढले. सिंचन सुविधामुळे कृषी उत्पादनात आणखी भर पडली. कृषी क्षेत्रामध्ये सेंद्रिय शेती, अचनक निदानाची शेती, सौर कृषी तंत्रज्ञान इ. च्या माध्यमातून कृषी विकासाची दिशा निश्चित झालेली आहे.

अभ्यासाची उद्दिष्टे:

या शोध निबंधाचा हेतू शाश्वत विकासाचा अर्थ समजाऊन घेणे. तसेच शाश्वत विकास साध्य करण्यासाठी जनसामान्यांबरोबर शासन स्तरावर घेतलेले निर्णय व त्याच्या अंमलबजावणी कशी करता येईल याचा परामर्श घेण्याचा प्रयत्न केलेला आहे. शाश्वत विकासाच्या बाबतीत संसाधनांच्या मुल्यांकनाची समस्या अर्थशास्त्रीय पद्धतीने कशी सोडवता येईल हा हेतू समोर ठेऊन विश्लेषणाची मांडणी केली आहे.

शाश्वत विकासाचा अर्थ:

शाश्वत राहाणे म्हणजे सतत सुरू राहाणे किंवा टिकून राहाणे असा आहे. यानुसार शाश्वत विकास म्हणजे सतत सुरू राहणारा किंवा टिकून राहणारा विकास होत.

व्याख्या:

ब्रुटलॅंड आयोगाच्या मते, विकास करताना पर्यावरण संरक्षणाची व्यवस्था कशी असावी हे मांडण्यासाठी संयुक्त राष्ट्रांच्या आमसभेने 1983 मध्ये पर्यावरण व विकासाबाबतचा जागतिक आयोग (World Commission on Environment and Development) नेमला. याचे अध्यक्ष प्रो. हर्लेम ब्रुटलॅंड (नार्वे) होते. त्यामुळे त्यास ब्रुटलॅंड आयोग असेही म्हणतात. या आयोगाने आपले सामाईक भविष्य या नावाने जो प्राथमिक अहवाल सादर केला त्यामध्ये शाश्वत विकासाची व्याख्या पुढीलप्रमाणे दिलेली आहे.

“शाश्वत विकास म्हणजे असा विकास की, ज्याच्याद्वारे भावि पिढ्यांच्या त्यांच्या स्वतःच्या गरजा पूर्ण करण्याच्या क्षमतेशी तडजोड न करता वर्तमानकालीन गरजा पूर्ण केल्या जातात”

ब्लावर्स: “गरजपूर्तीसाठी आणि पुढील पिढीस नुकसानकारक ठरणा-या कृती थांबविण्यासाठी श्रीमंतांकडून गरिबांकडे संपत्तीचे पुनर्वाटप करावे व साधनसामग्रीच्या उपभोगाऐवजी तिचे संवर्धन करणे असा संपूर्ण पालट किंवा बदल शाश्वत विकासात अंतर्भूत आहे.”

ब्लावर्स: “गरजपूर्तीसाठी आणि पुढील पिढीस नुकसानकारक ठरणा-या कृती थांबविण्यासाठी श्रीमंतांकडून गरिबांकडे संपत्तीचे पुनर्वाटप करावे व साधनसामग्रीच्या उपभोगाऐवजी तिचे संवर्धन करणे असा संपूर्ण बदल शाश्वत विकासात अंतर्भूत आहे.”

के. पाटील: “निसर्गावस्थेकडून समाजात वस्तू व सेवांचा पूरवठा होण्यासाठी अर्थव्यवस्थेच्या उत्पादक शक्यतांचे जतन करणे म्हणजे शाश्वत विकास होय.”

शाश्वत विकासातील घटक:

शाश्वत विकासाच्या वरील व्याख्यांचे विश्लेषण केले असता त्यामध्ये पुढील घटकांचा समावेश होतो गरजांची पूर्तता- मानवाच्या गरजा या अनंत आहेत तसेच काही गरजा या पुन्हा पुन्हा निर्माण होणा-या आहेत. शाश्वत विकास हा लोकांच्या मुलभूत गरजा पूर्ण करणारा आहे. यामध्ये चैनीच्या गरजांना स्थान नाही.

सर्व लोकांचा विचार- शाश्वत विकासात सर्व लोकांच्या कल्याणाची संकल्पना अंतर्भूत आहे. याठिकाणी लोक म्हणजे जगातील सर्व वंशाचे, धर्माचे, वर्गाचे, जातीचे, प्रदेशाचे, भाषेचे, लिंगाचे लोक असा अर्थ अभिप्रेत आहे. शाश्वत विकास हा वर्तमान तसेच भावी पिढ्यांचे कल्याण किंवा उन्नती साधनारा त्यांना संरक्षण करणारा आहे.

विकासाची पद्धत: शाश्वत विकासात विकासाची विशिष्ट पद्धती व प्रतिमान आहे. आपला विकास घडवून आणण्याची क्षमता मनुष्यात आहे. या क्षमतेचा उपयोग विवेकबुद्धीने, संयमाने व शास्त्रशुद्ध केला पाहिजे. विकासाची पद्धत अशी असली की तिच्यामुळे भावी पिढ्यांच्या गरजा भागविण्याच्या क्षमतेस धोका निर्माण होता कामा नये.

उपभोग: शाश्वत विकासात उपभोग हा विशिष्ट पद्धतीने घेणे अपेक्षित आहे. उपभोग घेणे म्हणजे नैसर्गिक साधन संपत्तीच्या साहय्याने निरनिराळ्या गरजांची पूर्तता करणे. हा उपभोग साधनसंपत्तीचा हास करणारा, तिची गुणवत्ता घटविणारा, तिला प्रदूषित करणारा नसावा. नैसर्गिक साधनांच्या अतीवापरामुळे पर्यावरणाचे प्रदूषण होऊ नये. त्याचबरोबर पुनर्नवीकरणीय पर्यायी संसाधनांच्या उदा. सौरऊर्जा, पवनऊर्जा इ. चा वापर वाढवावा.

पर्यावरण संरक्षण व संवर्धन: शाश्वत विकासामध्ये पर्यावरण संरक्षणाची व संवर्धनाची कल्पना केंद्रस्थानी आहे. विकास प्रक्रियेत पर्यावरणाची हाणी होते, प्रदूषण वाढते त्याचबरोबर पर्यावरणाचा समतोल बिघडते असे अतले तरी विकास प्रक्रिया लबवावीच लागते. पण ती राबवत असताना पर्यावरणाचा समतोल बिघडणार नाही याची काळजी घ्यावी त्यासाठी पर्यावरणस्नेही तंत्राचा वापर करावा म्हणजेच एखादे उत्पादन, त्याची प्रक्रिया व त्याचा वापर यामुळे पर्यावरणाचे होणारे दुष्परिणाम कमी करणा-या तंत्रज्ञानास पर्यावरणस्नेही तंत्रज्ञान असे म्हणतात. याच्या वापरामुळे प्रदूषण कमी होते, संसाधनांची वचत होते. इ.

अभिवृत्ती दृष्टिकोन व वर्तनप्रकार यात बदल: शाश्वत विकासामध्ये लोकांच्या अभिवृत्ती दृष्टिकोन व वर्तनप्रकार यात बदल होणे अपेक्षित आहे. यासंदर्भात लोकांनी गरजा कमी करणे, चंगळवादी वृत्तीस आळा घालणे, कमीत कमी टाकाऊ पदार्थ निर्माण करणे, प्रदूषणयुक्त उत्पादनाऐवजी स्वच्छ उत्पादनपद्धतीचा अवलंब करणे. केलळ मनुष्यजातीच्याच नव्हे तर सर्व सजीव व तसेच निर्जीव घटकांच्या म्हणजेच एकंदर विश्वाच्या कल्याणाची काळजी घेणे, त्यादृष्टीने कोणाचेही शोषण न करणे, लोकसंख्यावाढ रोखणे, टाकड पासून टिकाड वस्तु तयार करणे, पर्यावरण संरक्षण व संवर्धनाविषयी लोकजागृती करणे इ. चा अंगीकार हणे गरजेचे ठरते.

शाश्वत विकासासाठीची अंमलबजावणी.

जगतिक शाश्वत विकास परिषद 2018 च्या उद्घाटन प्रसंगी भारताचे पंतप्रधान श्री. नरेंद्र मोदी यांच्या भाषणातून शाश्वत विकासासंबंधाने खालील मूद्दे स्पष्ट होतात.

पंतप्रधान श्री. नरेंद्र मोदींच्या मते, एक राष्ट्र म्हणून आम्हाला दीर्घ इतिहासावर, निसर्ग आणि मानवा दरम्यान सहानुभूती पूर्ण परंपरेबद्दल अभिमान वाटतो. निसर्गाबद्दल आदर हा आपल्या मूल्य प्रणालीचा अविभाज्य अंग आहे. 2015 मध्ये पॅरिस येथे नॅशनल जियोग्राफिक या ग्रीनडेक्स अहवालामध्ये उपभोगात निवडीच्या पर्यावरणीय स्थितीचे मूल्यांकन करण्यात आले आहे. ज्या वापर भारतात सर्वात कमी केला जातो. पृथ्वी या शाश्वत ग्रहाला वचवण्यासाठी सर्व राष्ट्रांनी एकत्र येउन काम करणे ही भारताची भूमीका होती. यासाठी आम्ही जागतीक पातळीवर वचनबद्ध होतो आणि हा बदल घडवूनही आणला. पुढे बोलताना पंतप्रधान म्हणाले की, फ्रान्सबरोबर भारताने 'अंतरराष्ट्रीय सौर आघाडी' साठी प्राथमिकता घेतली. सौर प्रकल्पामध्ये 121 सदस्य असून त्यांनी पॅरिसनंतर सर्वाधिक महत्वाचे जागतीक यश प्राप्त केले आहे. भारत 2005-2030 पर्यंत 33 ते 35 टक्के कार्बन उत्सर्जन कमी करण्यासाठी वचनबद्ध आहे. त्याचबरोबर आपण 2030 पर्यंत राष्ट्रीय पातळीवर निश्चित योगदान देण्यानुसार वाटचाल करत आहोत. संयुक्त राष्ट्र संघ शाश्वत विकास उद्दिष्टानुसार आपण समानता, समभाग आणि वातावरणाच्या न्यायासाठी व्यवस्थित मार्गक्रम करीत आहोत. पर्यावरण संतुलनासाठी जे जे आवश्यक आहे ते सर्व आपण आवश्यकतेनुसार करत आहोत. भारत हा कृषीप्रधान देश आहे. निरंतर जल उपलब्धता ही शेतीसाठी महत्वाचे असून यासाठी प्रधानमंत्री कृषी सिंचन योजना सुरु करण्यात आलेली आहे. याव्दारे कुठलेही शेत पाण्याशिवाय राहता कामा नये. हे या पाठीमागचे उद्दिष्ट ठेवण्यात आले आहे. भारताला नेहमीच असा विश्वास वाटतो की, प्रत्येकापर्यंत चांगले प्रशासन पोहोचवण्यात आम्ही यशस्वी होऊ. आमचे मिशन हे 'सबका साथ, सबका विकास' असून याव्दारे आम्ही तत्वज्ञानाचा विस्तार करत आहोत. या तत्वज्ञानाव्दारे आम्ही प्रत्येकाचा सामाजिक आणि आर्थिक विकास घडविण्याचा अनुभव घेत आहोत.

त्याचबरोबर, आम्ही जगात पाचव्या क्रमांकावर सर्वात मोठा सौर ऊर्जा निर्मिती करणारा देश म्हणून कार्यरत आहोत. एवढेच नाही तर आम्ही नवीकरणीय ऊर्जेची निर्मिती करणारा जागतिक पातळीवर सहावा मोठा देश आहे.

या पृथ्वीतलासाठी एक मनुष्य म्हणून आहण बरेच काही करू शकतो या विश्वासावर काम करण्यासाठी आपण प्रयत्न करू आहोत. पृथ्वी एक आहे हे समजून घेण्याची आपल्याला गरज आहे. म्हणूनच तीचे रक्षण करण्यासाठी जात, धर्म, आणि सत्ता हे मतभेद विसरून एकजुटीने काम करायला हवे.

शाश्वत विकास ही नवीन संकल्पना आहे. औद्योगिक क्रांतीनंतर जी निरनिराळी प्रदुषणे निर्माण झाले व विकासाच्या नवाने जी नैसर्गिक साधनसंपत्तीची हाणी झाली ती भरून काढत काढत विकासाची उद्दिष्टे गाठण्यासाठी शाश्वत विकासाची संकल्पना पूढे आली. 25 सप्टेंबर 2015 रोजी युनोच्या आमसभेतील 194 देशांनी Transforming our world: the 2030 Agenda for sustainable Development या शीर्षकाखाली 2030 साठीचा विकास अजेंडा स्वीकृत केला. यालाच शाश्वत विकास उद्दिष्टे संबोधले जाते. या अजेंड्यामध्ये 17 उद्दिष्टे होती.

1. सर्व प्रकारच्या गरिबीचे निर्मूलन करणे
2. भूक संपवणे, अन्न सुरक्षा व सुधारीत पोषणअहार उपलब्ध करून देणे आणि शाश्वत शेतीला प्राधान्य देणे.
3. आरोग्यपूर्ण आयुष्य सुनिश्चित करणे व सर्व वयोगटातील नागरीकांचे कल्याण साधणे.
4. सर्वसमावेशक व गुणवत्तापूर्ण शिक्षण उपलब्ध करणे.
5. लिंगभावाधिष्ठित समानता व महिला आणि मुलांचे सक्षमीकरण साधणे.
6. पाण्याची व स्वच्छतेच्या संसाधनांची उपलब्धता सुनिश्चित करणे.
7. सर्वांना अल्पखर्चिक विश्वासाह, शाश्वत आणि आधुनिक ऊर्जा साधने उपलब्ध करून देणे.
8. शाश्वत सर्वसमावेशक आर्थिक वाढ आणि आधुनिक ऊर्जा साधने उपलब्ध करून देणे.
9. पायाभूत सोयीसुविधांची निर्मिती करणे, सर्वसमावेशक आणि शाश्वत औद्योगिकीकरण करणे आणि कल्पकतेला वाव देणे.
10. विविध देशांमधील असमानता दूर करणे.
11. शहरे आणि मानवी वस्त्या, अधिक समावेशक, सुरक्षित, संवेदनशील आणि शाश्वत करणे.
12. उत्पादन आणि उपभोगाच्या पद्धती शाश्वत रूपात आणणे.

13. हवामान बदल आणि त्याच्या दुष्परिणामांना रोखण्यासाठी त्वरीत उपाययोजना करणे.
14. महासागर व समुहांचे संवर्धन करणे तसेच त्यांच्याशी संबंधित संसाधनांचा शाश्वतपणे वपर करणे.
15. परिस्थितिकीय व्यवस्थांचा शाश्वत पद्धतीने वापर करणे. वनाचे शाश्वत व्यवस्थापन, वाळवंटीकरणाशी मुकाबला करणे, जमिनीचा कस कमी होण्याची प्रक्रिया आणि जैवविविधतेची हानी रोखणे.
16. शांततापूर्ण आणि सर्वसमावेशक समाजव्यवस्थांना प्रोत्साहन देणे व त्याची शाश्वत विकासाच्या दिशेने वटचाल निश्चित करणे, सर्वांची न्यायापर्यंत पोहच स्थापित करण्यासाठी विविध पातळ्यांवर परिणामकारक, उत्तरदायी आणि सर्वसमावेशक संस्था उभ्या करणे.
17. चिरस्थायी विकासासाठी वैश्विक भागेदारी निर्माण व्हावी यासाठी अंमलबजावणीची साधने विकसित करणे.

शासन स्तरावरील प्रयत्न:

युनोच्या आमसभेतील 194 देशांनी Transforming our world: the 2030 Agenda for sustainable Development या शीर्षकाखाली 2030 साठीचा विकास अजेंडा स्वीकृत केला. यालाच शाश्वत विकास उद्दिष्टे संबोधले जाते. या अजेंड्यामध्ये 17 उद्दिष्टे व 169 लक्ष्ये निश्चित केली होती. ती राज्यात 2030 पर्यंत पूर्ण करण्यासाठी प्रशासकीय विभागामार्फत राज्यस्तरीय व जिल्हास्तरीय पूर्वतयारी नियोजन विभागाकडून पूर्ण केलेली आहे. तरी ही उद्दिष्टे व लक्ष्ये 2020 ते 2030 या कालावधीत साध्य करण्यासाठी राज्यस्तरावर परिणामकारक अंमलबजावणी, समवर्ती संनियंत्रण व अंतर्दृष्टी मूल्यमापन होणे आवश्यक असल्याने 'शाश्वत विकास ध्येय-अंमलबजावणी आणि समन्वय केंद्र' स्थापन करण्यासाठी दि. 3 डिसेंबर, 2020 रोजी शासनाकडून शासन निर्णय जारी करण्यात आला.

यानुसार 'शाश्वत विकास ध्येय-अंमलबजावणी आणि समन्वय केंद्र' या कक्षाकडून खालीलप्रमाणे पाच स्तंभीय धोरण अवलंबण्यात आले.

अ) फलनिष्पत्तीचे तुलनात्मक विश्लेषण व धोरणविषयक सल्ला

ब) ज्ञानाचे एकत्रिकरण आणि धोरण अंमलबजावणी

क) माहिती संकलन व राज्य चौकट आणि जिल्हा निर्देशक चौकटीबाबत सांख्यिकीय आराखडा.

ड) संघटनात्मक भागिदारी आणि अशासकीय संस्था व नागरी समाज सहभाग.

आशा रितीने शासन स्तरावर शाश्वत विकास करण्यासाठी स्वतंत्र कक्ष स्थापन करून प्रयत्न केले जात आहेत.

सारंश:

शाश्वत विकास ही निरंतर चालनारी प्रक्रिया आहे. यातून घडून आलेला विकास हा चिरकाळ टिकणारा असतो. आर्थिक विकास प्रक्रियेत नैसर्गिक संसाधनांची जी हानी होते त्याचा थेट प्रतीकूल परिणाम येणा-या पिढ्यांवर होणार आहे. आर्थिक विकास साध्य करत असताना भविष्यातील प्रतीकूल परिणाम टाळण्यासाठी शाश्वत विकासा आवश्यक आहे. यासाठी जागृतीक पातळीवर जनसामान्यातून तसेच शासनस्तरावर मोठ्या प्रमाणावर प्रयत्नांची आवश्यकता आहे.

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जैवविविधता आणि शाश्वत विकास**प्रा. डॉ. लक्ष्मण फुलचंद शिराळे**

राज्यशास्त्र विभाज प्रमुज

विदर्भ महाविद्यालय, बुलडाणा

प्रस्तावना :

जैवविविधता हे एक नैसर्गिक संसाधन मानले जाते. निसर्गाने मानवाला दिलेल्या विविध देणग्यापैकी ती एक देणगी असून मानवी जीवन सुखकर जगण्यासाठी महत्वाचा घटक आहे. जीवावरण म्हणजे पृथ्वीवरील सजीवांचे आवरण होय. पृथ्वीवर मानव जन्माला येण्यापूर्वी जीवावरणात लाखो सजीवांची उत्क्रांती झाली. या सजीवांच्या उत्क्रांतीमध्ये तापमान, पर्जन्य, वनस्पती, आद्रता, पाणी, खडक या भौगोलिक घटकांचे योगदान मोठे आहे. सजीवांच्या उत्क्रांतीसाठी सुमारे ३००० दशलक्ष वर्षांचा कालावधी लागला आहे.

पृथ्वीवरील पर्यावरण संतुलनासाठी जैवविविधता महत्वाची आहे. जैवविविधतेमध्ये विविध प्रकारचे प्राणी, पक्षी, मानव, जलचर, किटक, सुक्ष्मजीव आदींचा समावेश होतो. मानवी विकासासाठी जैवविविधता अतिशय महत्वाची आहे. मानवजातीच्या शांततापूर्ण आणि सर्वांगीण शाश्वत टिकाऊ व चिरकाल विकासासाठी जैवविविधतेचे संरक्षणाची अत्यंत गरज आहे. शाश्वत विज्ञान ही बहुआयामी व परस्पर परावलंबी संकल्पना आहे. या संकल्पनेत वर्तमान काळातील पिढीबरोबरच भविष्यातील पिढीचा विचार केला जातो. ही संकल्पना विवेक बुद्धीने व दूरदृष्टीने वापर करण्यावर अधिक भर देते. परंतु सध्या होत असणारा विकास हा कुणाच्या तरी विनाशावर अवलंबून आहे. त्यामुळे तो अल्पजीवी आहे. अलिकडच्या काळात शेतीच्या आधुनिक पद्धती, बहुउद्देशीय धरण योजना, खानकाम, रस्ते व वस्ती यामुळे पर्यावरणाबरोबरच जैवविविधता नष्ट होत आहे. तसेच मोठ्या प्रमाणात धोका निर्माण होत आहे. तसेच मोठ्या प्रमाणात धोका निर्माण होत आहे. सध्याच्या काळात जैवविविधतेचा प्रश्न गंभीर बनलेला आहे. वाढती लोकसंख्या, नैसर्गिक साधनसंपदेचा अमर्याद वापर, वृक्षतोड, यामुळे सजीवांच्या अनेक प्रजाती नष्ट झाल्या आहेत व बऱ्याच नष्ट होण्याच्या मार्गावर आहेत. मानवी हस्तक्षेपामुळे अनेक प्रजातीचे अस्तित्व धोक्यात आले आहे. जैवविविधता टिकविण्यासाठी गरज आहे जंगल संवर्धनाची, जंगल हे वन्यजीवांचे व जीवाणूंची वसतीस्थाने म्हणून वन्यजीवांच्या रक्षणासाठी वनांचे रक्षण करणे आवश्यक आहे. पर्यावरणाचा समतोल राखण्यासाठी वन व वन्यजीव वाढविणे, जैवविविधतेची जपवून करणे तिचे संवर्धन करणे ही काळाची गरज आहे. जैवविविधता हा पर्यावरणाचा आत्मा असून वन वा वन्यजीव एकाच नाण्याच्या दोन बाजू आहेत. त्यामुळे संतुलित पर्यावरणासाठी जैवविविधतेची संरक्षण करणे आवश्यक आहे. प्राणी व जीवजीवाणूंच्या विविध जाती व प्रजातीच्या पुढील पिढ्यांसाठी संवर्धन आणि संरक्षण करणेही काळाची गरज आणि मानवाची जबाबदारी आहे. म्हणून जैवविविधतेचे संवर्धन करणे हे प्रत्येकाचे कर्तव्य आहे. यासाठी राष्ट्रीय व आंतरराष्ट्रीय स्तरावर प्रयत्न केले जातात.

१) शोधनिबंधाची उद्दिष्टे :

- मानवी अस्तित्वाच्या दृष्टीने जैवविविधतेचा अभ्यास करणे.
- जैवविविधतेचे परिस्थितीकीय मूल्ये अभ्यासणे
- जैवविविधता नष्ट होण्याची कारणे अभ्यासणे
- जैवविविधतेच्या संवर्धनाचा अभ्यास करणे

२) शोधनिबंधाची पद्धती :

सदर शोधनिबंधासाठी दुय्यम साधनाचा उपयोग करण्यात आला आहे. यात संदर्भग्रंथ, मासिके, साप्ताहिक इ.

३) शाश्वत विकास :

शाश्वत विकासही संकल्पना अलीकडचीच आहे. निसर्ग व नैसर्गिक संसाधनेच्या आंतरराष्ट्रीय संघाने सादर केलेले १९९० च्या जागतिक संरक्षक योजनेचे ही संकल्पना प्रथमच वापरली. शाश्वत म्हणजे टिकाऊ, चिरकाल होय. सध्या प्रत्येक देश हा विकासासाठी प्रयत्न करतो मात्र एकदा विकास झाल्यानंतर तो चिरकाल टिकविणे महत्वाचा आहे. विकास व पर्यावरणावरील जागतिक आयोगाने शाश्वत विज्ञान ही संज्ञा सामान्य वापरात आणली.

शाश्वत विकास ही सर्वांशी संबंधित संकल्पना आहे. भविष्यकालीन विकासाच्या गरजांच्या संदर्भासह सध्याचा विकास असे शाश्वत विकास मानतो. दारिद्र्य निर्मुलन करण्यासाठी, पर्यावरणीय प्रदुषण कमी करण्यासाठी जीवनशैलीचे प्रारूप बदलण्यासाठी,

आरोग्याचा गुणात्मक दर्जा सुधारण्यासाठी, निसर्गाबरोबर जीवन जगण्यासाठी पर्यावरणीय विकासाबरोबरच जैवविविधतेचे संरक्षण व संवर्धनासाठी शाश्वत विकासाची संकल्पना विकसित होणे आवश्यक आहे.

जैवविविधतेमध्ये सर्व सजीवांच्या प्रजाती, जनुके व परिसंस्था यांचा समावेश होतो. मानवी अस्तित्वासाठी ते खूप आवश्यक आहे.

४) मानवी अस्तित्वासाठी जैवविविधता :

मानवी समाज हा स्वतःच्या अस्तित्वासाठी म्हणजे स्वतःच्या विकासासाठी जैवविविधतेवर अवलंबून आहे. निसर्गातील जैवविविधतेतूनच मानवाच्या गरजा पूर्ण होतात. तसेच अनेक मानवी व्यवसाय हे जैवविविधतेवर अवलंबून आहे.

जैवविविधतेचे आर्थिक महत्व :

i) अन्नाच्या दृष्टीने महत्व :

प्राचीन काळापासून वनस्पती हे आपले अन्न म्हणून मानव वापरत आहे. मनुष्य सुमारे १०,००० प्रकारच्या वनस्पतीपासून खाद्य मिळवितो. त्यापैकी सुमारे १५० जातींची मोठ्या प्रमाणात लागवड केली जाते. वनस्पतीद्वारे ९०% उष्मांक मानवास मिळतो. अवर्षण काळात विविध वनस्पतींचा अन्न म्हणून वापर केला जातो.

ii) औषधी व सौंदर्य प्रसाधने :

जैवविविधतेमुळे सर्व सजीवांना आरोग्याची सुरक्षितता प्राप्त होते. मानव अनेक आयुर्वेदिक औषधे वनस्पतीपासून मिळवितो. पश्चिम घाटात सुमारे २००० वनस्पती औषधासाठी वापरतात व देशात सुमारे ८००० वनस्पती व शेकडो प्राणी स्थानिक जमातीकडून औषधी प्राणी व वनस्पती म्हणून वापरत आहेत. अॅलोपॅथिक औषधामधील बरीच औषधे वनस्पतीजन्य आहेत. भारतातून अनेक शतकापासून आयुर्वेदिक औषधे व औषधी वनस्पतीवर प्राथमिक प्रक्रिया करून निर्माण केली जातात. भारतात सध्या वैद्यकीय पर्यटन हे नवे क्षेत्र उदयास येत आहे.

iii) तंतू :

कापूस, ज्यूट, वेत यापासून मानवास जंतू मिळतात. याचा उपयोग दैनंदिन व्यवहारात तसेच विविध उद्योगधंद्यातही केला जातो.

iv) जैविक इंधने :

भारतात ग्रामीण भागातील बहुतांशी लोक जैविक इंधनाचा वापर करतात. त्यासाठी प्राणी व वनस्पतींचा वापर केला जातो. बायोगॅसचा वापरही दिवसेंदिवस मोठ्या प्रमाणावर होत आहे.

v) बांधकाम साहित्य :

सामान्यपणे घरांसाठी लोक स्थानिक परिसरात उपलब्ध असलेल्या वस्तूंचा वापर करतात. यामध्ये अजैविक पदार्थाबरोबरच जैविक वस्तूंचा वापर जास्त आढळतो. इमारत लाकड, झावळ्या, गवत, बांबू याचा वापर इमारत बांधकामासाठी मोठ्या प्रमाणात केला जातो. यासाठी विविध प्रकारच्या वृक्षांचा वापर केला जातो.

vi) पर्यटन :

निसर्ग पर्यटन ही संकल्पना दिवसेंदिवस विकसित होत आहे. निसर्गावर आधारित पर्यटन जगभर वाढत आहे. हे एक नवे आर्थिक क्षेत्र उदयास आले आहे. अभयारण्ये, राष्ट्रीय उद्योगधंदे, समुद्रकिनारे, निसर्गसौंदर्य स्थळे, धबधबे ही पर्यटकांची आकर्षण केंद्रे आहेत.

५) जैवविविधतेचे परिस्थितीकीय मूल्य :

i) प्रजातींचे परस्परअवलंबित्व :

विशिष्ट भौगोलिक परिस्थितीमध्ये आपले अस्तित्व व स्वतःच्या वैशिष्ट्यपूर्ण विकासासाठी प्रजाती धडपडत असतात. विविध परिस्थितीत राहणाऱ्या अनेक प्रजाती एकमेकांवर अवलंबून असतात. तसेच त्या विशिष्ट प्रकारच्या भूमिका पार पाडत असतात. उदा. बिजप्रसारामध्ये अनेक किटक उपयुक्त ठरतात. या सजीवांमध्ये विशिष्ट प्रकारची अन्नसाखळी तयार होते. अन्नजाळी हे जैवविविधतेचे घटक आहेत. जैवविविधतेच्या विकासासाठी ही जैवविविधता टिकवून ठेवणे आवश्यक आहे.

ii) जैवविविधता : नैसर्गिक चक्राचा भाग:

निसर्गामध्ये जलचक्र, कार्बनन चक्र अशी विविध चक्र आहेत. या चक्रामधील प्रक्रिया विशिष्ट नियमानुसार चालत असतात. यामध्ये विविध सजीव सक्रीय सहभाग घेतात. वातावरणातील कार्बन डायऑक्साईडचे प्रमाण वनस्पतीच्या आच्छादनामुळे नियमित होते. सुक्ष्म जीवजंतू, मृत सेंद्रीय पदार्थाचे रूपांतर, कार्बन हायड्रोजन, नत्र, ऑक्सीजन यांच्या गुंतागुंतीच्या संयुगात करतात. मृत सजीवांचे अपघटन, विघटन होणे त्यांचा खनिजांवर परिणाम होतो. सुक्ष्म जीव मृदा निर्मितीस उपयुक्त ठरतात. जीवावरणांमुळे वातावरणातील वायूंचे संतुलन राखले जाते. व त्यामुळे हवामानात स्थिरता राहते.

iii) मृदा जलसंधारण व जैवविविधता :

वने व गवताळ प्रदेशामुळे नद्या व झरे दिर्घकाळ केले जातात. त्यामुळे भूजल पातळी वाढते. मृदा धूप कमी होते. वनस्पतीच्या आच्छादनामुळे पाणी झिरपण्यास मदत होते. वनस्पतीच्या मुळाशी माती धरून ठेवली जाते व त्यामुळे धूप थांबते.

iv) सौंदर्य दृष्टीने जैवविविधतेचे महत्व :

पृथ्वीच्या सौंदर्यात व समृद्धीमध्ये विविध प्रकारचे प्राणी, पक्षी, किटक व वनस्पती यामुळे भर पडत असते. त्यामुळे मानवी जीवनही सुंदर व रसपूर्ण बनते. जैवविविधतेमुळे मानवी जीवन आनंददायी बनलेले आहे. प्राणी, पक्षी यांचे आवाज, रंग, आकार, त्यांच्या सवयी यामुळे मानवी मनास आनंद मिळतो. वनस्पती व फुलांचे प्रकार, आकार, रंग यामुळेही मानवी जीवनात आनंद निर्माण होतो.

v) जैवविविधतेचे धार्मिक, अध्यात्मिक व सांस्कृतिक महत्व :

भारतीय संस्कृती ही निसर्गपूजक आहे. आपण वनस्पती, प्राणी, पक्षी, भूमी यांची उपासना करतो. त्यांचे पूजन करतो. आपल्या सन उत्सवामध्ये जैवविविधतेस विशिष्ट स्थान दिलेले आहे. वनराई म्हणजे देण्याचे जंगल, गायपुजा, बैलपुजा, वटपौर्णिमा, अशा विविध संकल्पनांद्वारे जैवविविधता रक्षणाचा विचार आपल्या संस्कृतीमध्ये केलेला आहे. वनांचे छोटेभाग, तळी, नद्या, भूमी हे सर्व काही देवतांचे निवासस्थान आहे या भावनेतून त्यांना विशिष्ट महत्व दिले जाते.

६) जैवविविधता नष्ट होण्याची कारणे :

जैवविविधता नष्ट होण्यासाठी प्रत्यक्ष वा अप्रत्यक्ष अनेक घटना कारणीभूत आहेत. प्रदुषण, निसर्गातील मानवाचा प्रत्यक्ष हस्तक्षेप, हवामानातील बदल, काही जातींचा अपेक्षेपेक्षा जास्त केलेला उपयोग, शेतीच्या अयोग्य पद्धती यामुळे जैवविविधता नष्ट होत आहेत.

i) जमिन वापरातील बदल :

जगात सर्वत्र लोकसंख्या वाढत आहेत त्यामुळे वने व कुरणे यावर अतिक्रमण होत आहे. वनाखालील क्षेत्राचा वापर शेती, वस्ती, रस्ते यासाठी केला जात आहे. शेतीच्या आधुनिक पद्धतीमुळे स्थानिक पातळीवरील परिसंस्थेवर परिणाम होतो. भूमी उपयोगातील बदलामुळे भारतातून चिरता प्राणी नष्ट झाला, खाद्यांची संख्या कमी झाली. पश्चिम घाटातील वनक्षेत्र झपाट्याने जमीन होत आहे.

ii) अधिवासाचे विभाजन :

संपन्न जैवविविधता असणारी मोठी क्षेत्र दिवसेंदिवस आकाराने लहान होत आहेत. या क्षेत्रामध्ये शेतीचा शिरकाव होत आहे. रस्ते तयार होत आहे. अनेक धरण प्रकल्प बांधले जात आहे. उद्योगांचा विकास होतो त्यामुळे जैवविविधता असलेल्या क्षेत्राचे विभाजन होते.

iii) नव्या प्रजाती :

मानवाने जाणीवपूर्वक काही नव्या जातीचा समावेश आपल्या पर्यावरणात केला आहे. हा जागतिक स्तरावरील सजीवांच्या विविधतेला असणारा सर्वात मोठा धोका आहे. उदा. अमेरिकन गव्हाबरोबर आलेले गाजर गवत विविध प्रकारची पीके घेणे, नवीन वृक्षांची लागवड करणे यामुळे मुळ जातीवर त्यांचा परिणाम होतो.

iv) प्राणी वनस्पतीचे अतिशोषण :

मानवाने काही विशिष्ट प्राणी व वनस्पतींचा वापर प्रमाणापेक्षा अधिक केलेला आहे. त्याद्वारे आपल्या अन्न, वस्त्र, निवारा या प्राथमिक गरजा भागविल्या आहेत. काही प्राण्यांचे अतिशोषण झाल्याने त्यांच्या प्रजाती नष्ट होण्याच्या मार्गावर आहेत.

v) मृदा, पाणी व वातावरणाचे प्रदुषण :

प्रदुषणामुळे परिसंस्थेत अडथळे निर्माण होतात. परिसंस्थेचे संतुलन बिघडते. त्यातील संवेदनशील जाती नष्ट होतात.

vi) वाढती लोकसंख्या :

वाढत्या लोकसंख्येमुळे साधनसंपत्ती मोठ्या प्रमाणात वापरली जाते. लोकांच्या आर्थिक क्षमतेनुसार साधनसंपत्ती वापराचे मानदंड बदलतात. खनिजांच्या वाढत्या मागणीमुळे वनक्षेत्र कमी होत आहे.

७) जैवविविधतेचे संवर्धन:

जैवविविधतेचे विशेष महत्व आहे. हजारो वर्षांपासून समाजाने जैवविविधतेचे अनेक प्रकारे संरक्षण केले आहे. अलिकडच्या काळात राष्ट्रीय व आंतरराष्ट्रीय स्तरावर विविध कायदे व नियम अस्तित्वात आल्यामुळे जैवविविधतेचे रक्षण केले जात आहे.

समाजाधिष्ठीत जैवविविधतेचे संवर्धन :**i) पवित्र नैसर्गिक प्रदेश व प्रजाती :**

भारतात विविध ठिकाणी समाजाने 'पवित्र' म्हणून घोषित केलेला परिसर, प्रदेश, तलाव, जलाशय, पवित्र गवताळ प्रदेश यांचे संधारण होत आहे. देशातील विशिष्ट जागा, स्थळे निवडून त्यांचे संरक्षण केले जाते. व विशिष्ट प्रकारच्या प्रजातीचे संरक्षण केले जाते. वडाचे झाड, माकड, पक्षी, मोर.

ii) पारंपारिक व्यवस्थापन पद्धती :

अनेक काही जाती जमातीमध्ये विशिष्ट प्रकारच्या सजिवांना संरक्षण दिले जाते. हे संरक्षण काही काळापुरते सुध्दा असते.

iii) समाजातील बियाने पतपेढ्या :

टेहरी गढवाल क्षेत्रामध्ये वीज बचाओ आंदोलनाद्वारे वृक्षाची वाढ केली जाते. या भागात ४० विविध प्रकारची पीके घेतली जातात. तसेच विविध संरक्षण व संवर्धन कायद्याद्वारे भारतात जैवविविधतेचे संरक्षण केले जाते.

जैवविविधता आणि शाश्वत विकासांचा संशोधनाच्या दृष्टीने अध्ययन केले असता. मानवी हस्तक्षेपामुळे जैवविविधता धोक्यात आली जरी असली तरी शाश्वत विकासाच्या दृष्टीने सद्यस्थिती आणि भविष्यातील विकास हा चिरकाल टिकून राहावा या हेतूने नैसर्गिक साधनसंपदा आयोगाच्या माध्यमातून समाजधिष्ठीत जैवविविधता संवर्धन बरोबरच, आंतरराष्ट्रीय करार, भारतातील विविध राष्ट्रीय कायदे, व्यवस्थापन जागच्या जागी संवर्धन, दूरच्या प्रदेशातील जैवविविधता संरक्षण प्रयोगशाळेतील संवर्धन नैसर्गिक व जृत्रिम बागांमध्ये जैवविविधता संवर्धन या विविध माध्यमांतून शाश्वत विकासातून जैवविविधतेचे संरक्षण आणि संवर्धन करण्यात येत आहे व याला यश येत आहे. पर्यावरणाचा समतोल राखण्यासाठी व नैसर्गिक साधन संपदा संवर्धनासाठी हे आवश्यक असल्याचे मानवाच्या लक्षात येत आहे. ही जैवविविधतेच्या विकासाच्या दृष्टीने फार महत्वाची असल्याचे दिसून येते.

संदर्भग्रंथ सूची :

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- ४) डुरुजेत्र (हिंदी) पर्यावरण विशेषांक, डिसेंबर २००४.
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सतत विकास एवं जीवन के अस्तित्व कि निर्भरता

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‘सतत विकास’ (Sustainable Development) की अवधारणा पिछले आधी सदी से भी जादा समय से वैश्विक चर्चा के केंद्र में हैं। दो विश्वयुद्ध के उपरांत जिस तरहसे जीवित और वित्तीय क्षति के साथ-साथ प्राकृतिक क्षति हुई है, उससे निसंशय ही आज का वर्तमान एवं आनेवाली पीढ़ियों के अस्तित्व को लेकर सवाल उभरकर सामने आया है। विशेष रूप से द्वितीय विश्व युद्ध के उपरांत जिस तरह से शीतयुद्ध का दौर शुरू हुआ और इस स्थितिने ज्ञान-विज्ञान एवं तकनीकी-प्रौद्योगिकी के क्षेत्र में विकास के नये आयाम स्थापित करना शुरू किए, उससे प्रकृति एवं प्राकृतिक संसाधनों की बड़े स्तर पर क्षति हुई है। इस तरह की क्षति ने इस धरातल के सभी जीवों के अस्तित्व को ही खतरे में डाल दिया है। जिस तरह से दिन ब दिन प्राकृतिक संसाधनों का दोहन किया जा रहा है, जिसने आनेवाली नस्लों की चिंताओं को बढ़ा दिया है। इस तरह से प्रकृति एवं प्राकृतिक संसाधनों की हो रही क्षति से बिगड़ते हुए हालातों को ठीक करणे हेतु विश्व के सभी राष्ट्रों को सतत विकास की अवधारणा को अपनाना ही होगा। इस पृष्ठभूमि पर लगभग ६० के दशक सेही विश्व स्तरपर प्रयास शुरू किये गये हैं। अपितु, सतत विकास की ओर हो रहे इन प्रयासों से विश्व की समूची मानव जाती आशंकित हैं। क्योंकि आज भी विकसित एवं विकासशील देशों के बीच सतत विकास के नियमन को लेकर हो रहे टकराव के चलते इस दिशा में हो रहे प्रयासों में खासी अटकले उत्पन्न हुई हैं। अतः इन्हीं अटकलों, संयुक्त राष्ट्र के सतत विकास लक्ष्य को एवं सतत विकास पर ही इस पृथ्वी का जीवन कैसे निर्भर है? इसे समझने का प्रयास प्रस्तुत शोध पत्र में किया गया है।

“सतत विकास” इस शब्द का पहलीबार वर्ल्ड कंजर्वेशन स्ट्रैटेजी में प्रयोग किया गया। जिसे प्रकृति और प्राकृतिक साधनों के संरक्षण के लिए अन्तर्राष्ट्रीय संघ ने १९८० में प्रस्तुत किया। दुसरे विश्व युद्ध के उपरांत अस्तित्व में आई नई विश्व व्यवस्था ने मुख्यतः आर्थिक एवं प्रौद्योगिकी विकास को गति प्रदान की। विकास की इस प्रक्रियाने प्रकृति एवं प्राकृतिक संसाधनों की क्षति में बहुत बड़ी मात्रा में बढ़ोतरी हुई। बिगड़ते हुए हालातों पर पहलीबार १९७२ में स्टॉकहोम पर्यावरण परिषद में विचारविमर्श किया गया।

पर्यावरण एवं विकास के मध्य उत्पन्न खाई को पाटने वाले पूल के रूप में संधारणीयता या सतत विकास की अवधारणा को लिया गया है^१। राष्ट्रों का विकास एवं प्रकृति के बीच सम्बन्धों को समझने और उनका अध्ययन करने हेतु सन - १९८७ में एक अन्तर्राष्ट्रीय आयोग का गठन किया गया। यह आयोग पर्यावरण और विकास पर अन्तर्राष्ट्रीय आयोग इस नाम से जाना जाता है। इस आयोग के अध्यक्ष नॉर्वे के पूर्व प्रधानमंत्री ब्रण्डटलैण्ड को बनाया गया। “ब्रण्डटलैण्ड रिपोर्ट” को “अवर कॉमन फ्यूचर” (Our Common Future)^२ के नाम से भी जाना जाता है।

ब्रण्डटलैण्ड रिपोर्ट (Brundtland Report) के अनुसार, सतत विकास का अर्थ है, “वर्तमान पीढ़ी की आवश्यकताओं को भविष्य की पीढ़ियों की आवश्यकताओं से समझौता किये बगैर पूरा करना。”^३

मानवजाती की भविष्यकालीन पीढ़ियोंका विचार कर उनकी जरूरतोंको ठीक तरीकेसे पूरा कराने कि दृष्टीसे आज कि जरूरतोंको पूरा करना ही सतत विकास है।

प्राकृतिक संसाधनों का उपभोग लेते हुये उन संसाधनोंको आनेवाली पीढ़ियोंके लिये संवर्धित एवं सुरक्षित करना ही पर्यावरण का पोषण करना है।

सतत विकास कि अवधारणा में पर्यावरण, सामाजिक, आर्थिक और संस्थात्मक इन चार घटकों को सम्मिलित किया जाता है। मुख्यतः सतत विकास में जीन मुख्य घटकोंको सम्मिलित किया जाता है उनमें, मानव अधिकार, प्राकृतिक संसाधन, पोषणीय विकास कि शिक्षा, सांस्कृतिक एवं वांशिक विविधता, हरितगृह परिणाम आदि महत्वपूर्ण हैं। सर्वव्यापी एवं कालातीत रहनेवाली समानता यह नैतिक कल्पना ही सतत विकास के केंद्र में है।

ब्रण्डटलैण्ड आयोग द्वारा सतत विकास के परिप्रेक्ष्य में महत्वपूर्ण बिंदुओं को सामने रखा है। उनमें सर्वप्रथम यह कहा गया है कि प्रकृति की सुरक्षा एवं प्रकृति का प्रवर्धन और प्रौद्योगिकी एवं आर्थिक विकास यह दोनों एक शिक्के के दो पहलू मात्र हैं।

केवल राष्ट्रों का आर्थिक विकास का मतलब राष्ट्रों की समृद्धि यह न होकर अनुसंधान संपत्ति का विकास राष्ट्र के विकास का अविभाजित अंग है. और यह विकास प्रकृति की सुरक्षा एवं प्रवर्धन पर आधारित होता है. प्राकृतिक पर्यावरणपूरक विकास में प्राकृतिक संसाधन का विवेक से इस्तेमाल पर जोर दिया गया है. प्राकृतिक पर्यावरणीय विकास के स्वरूप को हासिल करने से ही हम मानव अधिकारों की रक्षा कर सकते हैं. अपितु, सर्वसमावेशी विकास की यह कल्पना मूल रूप से मानव अधिकारों की सुरक्षा पर आधारित है. विशेषरूप से १९९२ के रियो शिखर सम्मेलन और उसके बाद हुई अनेक अन्तर्राष्ट्रीय सम्मेलनों में पर्यावरण एवं सतत विकास से सम्बन्धित रही हैं. हाल ही में संयुक्त राष्ट्र के दस्तावेज में “मानव विकास” पर जोर दिया गया है.

आज विश्व में सभी लोगों को यह आगाज हो चुका है के प्रकृति एवं पर्यावरणीय क्षति से हमारी पुरी मानव सभ्यता एवं जीवन ही असुरक्षित और अनिश्चित बना हुआ है. ईसी अनुभव से सतत विकास की कल्पना सामने आयी है. प्राकृतिक संसाधनों की क्षति होना और इस पृष्ठभूमि पर सतत विकास की जरूरत महसूस होना इस स्थिति को समझने के लिए प्राकृतिक संसाधनों की शक्ति के लिए जिम्मेदार कुछ वजहों को समझना जरूरी है. इन वजहों में –

१) प्रौद्योगिकी एवं आर्थिक विकास के प्रक्रिया का बौना होना माना जाता है. १८ वीं शताब्दी में औद्योगिकरण की शुरुवात कब हुई और धीरे-धीरे यह प्रक्रिया समूचे विश्व में स्थापित हो गयी. विशेषरूप से इस औद्योगिकरण के चलते युरोपीयन देशों का विकास हुआ. विकास की इस युरोपीयन राह को चूना विकासशील देशों के लिये स्वाभाविक था. युरोपीयन देशों के विकास का आर्थिक प्रारूप केवल स्वार्थ पर आधारित था. सिर्फ अपनी जरूरतों को पूरा करने के लिए राष्ट्रों ने प्राकृतिक संसाधनों की भारी मात्रा में लुट आरंभ कर दी जिससे धरातल पर जीवन के लिये आवश्यक जल एवं हवा का बड़ी मात्रा में प्रदूषण हुआ. परिणाम स्वरूप पारिस्थितिकी व्यवस्था बुरी तरह से प्रभावित हो कर ग्रीन हाउस इफेक्ट, ग्लोबल वॉर्मिंग जैसी भयावह समस्याएं जीवन के अस्तित्व के लिये ही गम्भीर चुनौती बनकर सामने खड़ी हैं.

२) जनसंख्या में हुई भारी वृद्धि यह भी एक प्राकृतिक संसाधनों के क्षति के लिए बड़ी वजह मानी जा सकती है. बिसवीं सदी के उत्तरार्ध से लेकर आज तक जनसंख्या में भारी वृद्धि देखी जा सकती है. बढ़ती जनसंख्या की सारी जरूरत को पूरा करना यह राष्ट्र राज्यों की जिम्मेदारी होती है. रोटी कपडा मकान स्वास्थ्य शिक्षा जैसी महत्वपूर्ण जरूरतों को पूरा करने के लिये आर्थिक एवं औद्योगिक विकास की गति को तेज करना राष्ट्र के लिए जरूरी हो जाता है. यही जरूरत अन्ततोगत्वा प्राकृतिक संसाधनों के लूट में परीवर्तित हो जाती है.

मुख्यतः उपर्युक्त दो वजहें प्राकृतिक संसाधनों कि लूट के लिये जिम्मेवार ठहरायी जाती हैं. औद्योगिक क्रांति के बाद विज्ञान एवं प्रौद्योगिकी के क्षेत्र में हुये विकास ने विकसित और विकासशील देशों के मध्य विकास के अन्तर को बढ़ा दिया है. इस बढ़ते अन्तर को पाटने के लिए विकसित राष्ट्रों द्वारा हरित तकनीकी एवं अन्य आर्थिक विकास के साधनोंको विकासशील राष्ट्रों के लिये कम दरों में मुहय्या कराना सतत विकास की दृष्टि से अतिआवश्यक है. साथ ही विकासशील देशों ने भी अन्तर्राष्ट्रीय सहयोग के साथ साथ अनुसंधान कर सतत विकास के अपने स्थानीय प्रतिमान को कार्य रूप देनेसे ही सतत विकास के लक्ष्य को प्राप्त किया जा सकता है.

संयुक्त राष्ट्र महासचिव एंटोनियो गुटेरेस के अनुसार, २०१५ में अनुमोदित २०३० एजेंडा और उसके १७ सतत विकास लक्ष्य द्वारा मानवजाती और समूचे जिवों के सामने उभरी चुनौतियों एवं इनके बिच अन्तरसम्बन्धों के समाधान हेतु संपूर्ण एवं सामंजस्यपूर्ण रूपरेखा प्रदान करते हैं. इस रूपरेखा के अंतर्गत सदस्य राष्ट्रों को सतत विकास के सामाजिक, आर्थिक और पर्यावरणीय पहलुओं का समाधान संतुलित ढंग से करना होगा. इन पर अमल करते हुए समावेशन और एकीकरण तथा किसी को पीछे छूटने न देने के सिद्धांतों का पालन अनिवार्य है.”^६

संयुक्त राष्ट्र के माध्यम से उसके तमाम सदस्य राष्ट्रों के द्वारा १७ सतत विकास लक्ष्यों की दीर्घकालीन योजना शुरू की है. जिसका उद्देश्य वर्ष २०३० तक अधिक संपन्न, अधिक समतावादी और अधिक सुरक्षित विश्व की रचना हासिल करना है. यह योजना १ जनवरी, २०१६ से प्रभावी हो चुकी है. इन लक्ष्यों को निर्धारित करने के लिए हुई अभूतपूर्व परामर्श प्रक्रिया में राष्ट्रीय सरकारों और दुनिया भर के लाखों नागरिकों ने मिलकर विचारविमर्श किया और अगले १५ वर्ष के लिए सतत विकास हासिल करने का वैश्विक मार्ग अपनाया. सतत विकास लक्ष्य और उद्देश्य निम्नलिखित सबसे महत्वपूर्ण क्षेत्रों में कार्रवाई प्रेरित करेंगे: गरीबी, भुखमरी, शिक्षा, स्वास्थ्य और खुशहाली, शिक्षा, लैंगिक समानता, जल एवं स्वच्छता, ऊर्जा, आर्थिक वृद्धि और उत्कृष्ट कार्य, बुनियादी सुविधाएं, उद्योग एवं नवाचार, असमानताओं में कमी, संवहनीय शहर, उपभोग एवं उत्पादन, जलवायु कार्रवाई, पारिस्थितिक प्रणालियां, शांति एवं न्याय और भागीदारी. ७ सतत विकास लक्ष्य के इस एजेंडे में यह बात स्वीकृत है कि अधिक समतामूलक एवं न्यायी समाज

तथा अधिक सुरक्षित, संपन्न जीवन पर लक्ष्य केंद्रित करना होगा। साथ ही यह विचार भी सर्व स्वीकृत हैं कि वैश्विक शांति, न्याय, पर्यावरण संरक्षण और औद्योगिक-आर्थिक विकास यह चिरस्थायी विकास लक्ष्य के अभिन्न अंग हैं। इससे यह स्पष्ट होता है कि संयुक्त राष्ट्र के इस एजेंडे में यह अंतर्निहित है सभी राष्ट्रों कि सरकारें, उद्यम जगत के लोग, प्रबुद्ध समाज एवं व्यक्तियों के बीच सम्बन्धों को एक बार फिरसे नए सिरे से वैश्विक समझदारी कि साझेदारी अतिआवश्यक हैं।

निष्कर्ष:

यह सुस्पष्ट है कि, समूची मानवजाती के लिये उसका और साथ ही पृथ्वीपर पारिस्थितिकी में बसे समूचे जीवों का अस्तित्व केवल 'सतत विकास' सेही सम्भव है। अतः आंतरराष्ट्रीय स्तर पर संयुक्त राष्ट्र की सभी महत्वपूर्ण संस्थाएँ, कारोबारी जगत, संसार के सभी राष्ट्रों कि जनतान्त्रिक सरकारें, एवं गैर सरकारी संगठनों द्वारा 'सतत विकास' कि दिशा में केवल अपना कार्य हि नहीं बल्की उन्हें अपने कार्यों के ढांचे को हि 'सतत विकास' पर आधारित करना ही होगा। क्योंकि अन्ततोगत्वा 'सतत विकास' पर हि इस पृथ्वी पर बसी मानवजाती के साथ-साथ सभी जीवों अर्थात पारिस्थितिकी का अस्तित्व निर्भर है। इसीलिये यह अतिआवश्यक है कि, राष्ट्रों के अन्तर्गत सभी तरह के स्थानिक निकाय, सामाजिक, सांस्कृतिक, धार्मिक, शैक्षणिक तथा छात्र संघटनों एवं हर व्यक्ति का यह पहला कर्तव्य है कि वे प्राकृतिक संसाधनों का दोहन ना करते हुये उनका हरित तकनीकी (Green Technology) के साथ विवेक से उपयोग कर अपने 'सतत विकास' (Sustainable development) के मूल दायित्व को समझे और इस दिशा में अपने जीवन कार्यों को मोड लें।

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मानवी जीवनाचा ऐतिहासिक आढावा व पर्यावरण

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प्रास्ताविक :-

मानवी जीवनाचा उदय पहाता सर्वसाधारणपणे पाच कोटी वर्षांपूर्वी आफ्रीका खंडात झालेला दिसून येतो, होमोहेबिलिस, कीनियापिथीकस, ऑस्ट्रेलोपिथीकस, होमोइरेक्टस, होमोसेपियन्स निएंडरथल, क्रोमग्नॉन ते आज पर्यंतचा आधुनिक मानव असे मानवी जीवनाचे टप्पे आपणास दिसून येतात. तेव्हापासून ते आजतागायत मानवाचा व पर्यावरणाचा संबंध जवळचा दिसून येतो. जर हया पृथ्वी ग्रहावर पर्यावरण नसते तर जीवसृष्टी नसती आणि आजचा पर्यावरणातील सर्वात महत्वाचा परंतू पर्यावरणपुरक जीवन जगत असताना पर्यावरणात हस्तक्षेप करणारा मानव हा घटक सुद्धा नसता, मूळ आफ्रीका खंडात माकडी अवस्थेपासून निर्माण झालेला मनुष्य वातावरणीय बदलानुसार पुढे स्थलांतर करू लागला व पर्यावरणातील पोषक घटकांचा फायदा घेऊन तो आपले जीवन उत्क्रांत करू लागला निसर्गातील बहुतांश घटकांसोबत त्याने आपल्या कुशाग्र बुद्धीमत्तेने वावरण्यास सुरुवात केली. खानपान व रहाणीमान याचे टप्पे हळुहळु उत्क्रांत होऊ लागले. उबदार व पोषक वातावरणात मानवाने राहण्यास सुरुवात केली व नवअश्मयुगात अग्नीच्या शोधाने त्याचे जीवन प्रकाशमान झाले तर चाकाच्या शोधाने गतीमान झाले. अश्मयुगात हळुहळू टोळी ही संकल्पना अस्तित्वात आली तेव्हा तो गुफेमध्ये सुरक्षेच्या कारणास्तव राहू लागला. पुढे कंदमुळे, फळे हे त्याचे मुख्य अन्न झाले. मूळ मांसाहारी असलेला मानव पर्यावरण पुरक वातावरणात स्थिर झाला, मांसाहार शिकार, कंदमुळे, फळे ते धान्य असा त्याचा खानपाणाचा प्रवास सुरू झाला. कुशाग्र बुद्धीमत्तेमुळे संकृती समाज, धर्म या बाबी विकसीत होऊ लागल्या मानव स्थिर जीवन जगू लागला. तस तसे त्याचे व पर्यावरणाचे संबंध जवळीक झाले. एक काळ पर्यावरणात आपल अस्तित्व शोधणारा मनुष्य आता पर्यावरणात हस्तक्षेप करू लागला. पुढे मध्ययुगिन काळात मानवाचा हस्तक्षेप अल्प प्रमाणात दिसू लागला तर आताच्या आधुनिक काळात मानवी हस्तक्षेप मोठ्या प्रमाणात दिसून येत आहे. मानवी जीवनाचा ऐतिहासिक आढावा व पर्यावरण या प्रस्तुत शोध निबंधात त्याची थोडक्यात अचूक माहिती देण्याचा प्रयत्न पुढील प्रमाणे करण्यात आला आहे.

संशोधन पद्धती :-

मानवी जीवनाचा ऐतिहासिक आढावा व पर्यावरण या प्रस्तुत शोध निबंधासाठी वर्णनात्मक व विश्लेषणात्मक ऐतिहासिक व शास्त्रशुद्ध आधुनिक संशोधन पद्धतीचा अवलंब केलेला आहे. मानव व पर्यावरणामधील संबंधासह मानवी जीवनाचा विकास या बाबीचा आढावा घेण्यात आलेला आहे. सूर्यापासून निर्माण झालेली जीवसृष्टी पुढे वाढत गेली व या जीवसृष्टीमध्ये सर्वात बुद्धीवान मनुष्य प्राणी असल्यामुळे त्याने जीवावरण, वातावरण, जलावरण अशा सर्वच क्षेत्रात हस्तक्षेप केलेला दिसून येतो. त्याच पर्यावरणातील मुख्य घटकावर परिणाम झालेला पहावयास मिळतो. मानव व पर्यावरणातील घटकाशी आलेला संबंध प्रस्तुत शोध निबंधात पुढील प्रमाणे विषद करता येईल.

शोध निबंधाचा हेतू :-

- मानवाने आपली प्रगती साधत असताना शेती व्यवसाय केला त्यात पर्यावरणाचे महत्व विषद करणे.
- मानवाचा ऐतिहासिक विकासामध्ये वनसंपदेला अनन्य साधारण असे महत्व आहे.
- मानवी विकासात जलसंपदा अत्यंत महत्वाची आहे.
- पर्यावरणातील मानव हा एक घटक आहे म्हणून पर्यावरण व मानव याचे महत्व विषद केलेले आहे.
- जीवसृष्टी किंवा जीवावरण हा पर्यावरणातील एक महत्वाचा घटक आहे म्हणून मानव व पशुपक्षी यांचेसुद्धा पर्यावरणात महत्वाचे स्थान आहे.
- नैसर्गिक साधन संपतीचा होणारा च्हास पुढे मानवी अस्तित्व संपुष्टात आणिल म्हणून मानवाने काळजी घेणे गरजेचे आहे.
- मानवी अस्तित्व टिकून राहण्यासाठी पर्यावरणातील ढवळा ढवळ बंद झाली पाहिजे असे दिसून येते.

उपरोक्त मुद्द्या नुसार मानवी जीवनाचा ऐतिहासिक आढावा व पर्यावरण या शोध निबंधाचे हेतू स्पष्ट होताना दिसून येतात पुढील प्रमाणे प्रस्तुत शोध निबंधाची माहिती देता येईल.

मानव व पर्यावरण :-

सूर्यापासून पृथ्वीचे अस्तित्व निर्माण झाले सर्व प्रथम हायड्रोजन व ऑक्सीजन हे दोन वायू इतर ग्रहाच्या तुलनेत पृथ्वीवर मुबलक असल्यामुळे पाणी निर्माण झाले. हळू हळू कोट्यावधी वर्षांनंतर पाण्याच्या अस्तित्वात शेवाळ नामक वनस्पती निर्माण झाली. नंतर सागरी बुरशीजन्य घटकापासून अमिबा नावाचा एकपेशी प्राणी अस्तित्वात आला. कोट्यावधी वर्षे त्याच्या शारीरिक पेशीय बदलामुळे वेगवेगळे जीव अस्तित्वात येवू लागले. जलचर, भूचर व उभयचर असे जीवसृष्टीचे घटक दिसून येवू लागले. यामध्ये पुढे मानवाचा विकास होवू लागला. सर्वप्रथम मानव हा प्राणी पाण्यातून आल्यामुळे आजही मानवी शरीरात पाण्याचे प्रमाण इतर घटकाच्या तुलनेत जादा असते म्हणून मानव हा पर्यावरणाचाच एक अविभाज्य घटक आहे. चार्लस डार्विन यांनी आपल्या संशोधनात सुद्धा सर्वप्रथम जलचरापासून भूचर निर्माण झाले आणि यातूनच मानवाची शारीरिक ठेवण अस्तित्वात आली असे सांगितले आहे. होमोहेबिलिस, कीनियापिथीकस, ऑस्ट्रेलोपिथीकस, होमोइरेक्टस, होमोसेपियन्स निएंडरथल, क्रोमग्नॉन अशा मानवी अवस्था निर्माण झाल्या होत्या. आजचा आधुनिक माणुस क्रोमग्नॉन या वंशातील दिसून येतो. पाच कोटी वर्षे मानवाचे अस्तित्व पर्यावरणात निर्माण झाले. सर्वप्रथम मानवाने पर्यावरणातील पोषक घटकाचा अभ्यास करण्यात आपले कोट्यावधी कालखंड घातला. हळुहळू पोषक वातावरण, पोषक जलावरण व पोषक भूआवरण यामध्ये तो आपले आयुष्य व्यतीत करू लागला. जस जसा काळ बदलत गेला तस तसा मनुष्य आपल्या गरजा बदलू लागला. आज आधुनिक काळात मानवाच्या असंख्य गरजामुळे पर्यावरणात मोठ्या प्रमाणात हस्तक्षेप दिसून येतो. पर्यावरण व मानव हा मुद्दा पहात असताना पर्यावरणातूनच मानवाची निर्मिती झाल्याचे दिसून येते.

मानव आणि कृषी व्यवसाय :-

मानव हा मुळात बुद्धिमान प्राणी असल्यामुळे त्याच्या कुशाग्र बुद्धीमत्तेला अनेक प्रश्न पडत असत. सर्व प्रथम मानव हा रानटी व भटके जीवन जगत होता. हळुहळू शिकार हाच त्याचा व्यवसाय असला तरी कधीकधी शिकार करणे जोखिमीचे होऊ लागले. अशातच त्याला पर्यावरणातील माती हा पोषक घटक असून त्यामध्ये कंदमुळे, फळे, फुले, पाने हे खाऊ लागला. पुढे प्रागैतिहासिक काळात त्याला जल तेथे स्थल या उक्तीप्रमाणे शेतीचा शोध लागला. नवाश्म युगामध्ये त्यांनी जगातील नद्यांच्या प्रदेशात शेती व्यवसायाला चालना दिली. भारतात सप्तसिंधूचा प्रदेश, गंगा नदीचा प्रदेश, दक्षिणेचा गोदावरी, महानदी व कावेरी आदि नदी परिसरात तो शेती करू लागला. वातावरणीय पोषकतेचा अभ्यास व शेती हा त्याला काळानुरूप होवू लागला. पर्यावरणातील एक महत्वाचा घटक म्हणून मानव हा पहिला प्राणी शेती व्यवसायात पडलेला दिसून येतो.

मानव आणि जलसंपदा :-

मानवी जीवनाचा ऐतिहासिक आढावा घेत असताना जलसंपदा हा पर्यावरणातील महत्वाचा घटक मानवी जीवनाला अत्यंत उपयुक्ततेचा आहे. पाणी हे जीवसृष्टीच्या संचालनासाठी महत्वाचा घटक आहे. मानवाने शेतीविषयक कार्यासाठी पाणी हा महत्वाचा घटक आहे असे ओळखून आपला रहिवास नदीपरिसरात किंवा मोठ्या जलसाठ्याच्या शेजारी अस्तित्वात आणला. नाईल, गंगा, मिसिसीपी, गोदावरी, अमेझॉन, यांगली, एनीस, व्होलगा आदि नदी परिसरात मानवी जीवन व प्रथम मानवी संस्कृती अस्तित्वात आली. गोड्या पाण्याची जलसंपदा मानवाच्या व एकंदरीत जीवसृष्टीच्या काळानुरूप संचलनासाठी महत्वाची वाटते. जगात ०.९ टक्के एवढेच पाणी उपयुक्त आहे. पाऊस, पाणी या मुळेच मानवी जीवन समृद्ध व फुलून गेलेले दिसून येते. जलसंपदा ही मानवी जीवनात अत्यंत महत्वाची व अनन्य साधारण अशी पर्यावरणीय बाब दिसून येते असे स्पष्ट सांगता येईल.

मानव व वनसंपदा :-

पर्यावरणामध्ये वनसंपदा हा मानवासाठी असलेला अत्यंत उपयुक्त असा घटक आहे व वनसंपदेमुळे ऑक्सीजनची निर्मिती होते हे ऑक्सीजन एकंदरीत जीवसृष्टीला जीवंत ठेवण्याचे कार्य करते. वन संपदा या पर्यावरणातील महत्वाच्या घटकाचा मानवाने आपले जीवन समृद्ध करण्यासाठी मोठ्या प्रमाणात उपयोग केलेला दिसून येतो. औषधी व शेती विषयक औजार, गृहउपयोगी वस्तू यासाठी वन संपदेचा उपयोग इतर

प्राण्यापेक्षा मनुष्यप्राणी करत आलेला आहे. मानवी जीवनात पर्यावरणाबरोबर वनसंपदेच महत्व अनन्य साधारण आहे. वेगवेगळ्या पशुपक्षाबरोबर मानवाने या वनसंपदेमुळेच संवाद साधलेला दिसून येतो. वन संपदेमधून बाहेर निघालेले प्राणी हे पुढे माणसाळले व त्या प्राण्यांचा उपयोग मानवाने संरक्षण व शेती विषयक कामकाजासाठी, मांस भक्षणासाठी, दूधासाठी केलेला दिसून येतो. जंगलात राहिलेले हे वन्य जीव ठरले तरी त्यांचे महत्व इतर प्राण्यांना एकंदरीत अन्न साखळी व जीवसृष्टीचा गाडा टिकवून ठेवण्यात अनन्य साधारण आहे. वनसंपदा व मानव हा मुद्दा पहात असताना मानवी अस्तीत्व हे वनसंपदेवर अवलंबून आहे असे दिसून येते.

मानव व पशुपक्षी :-

पर्यावरणातील जीवावरण या घटकात मानवाबरोबर पशुपक्षी यांचे महत्व अनन्य साधारण आहे. जीवसृष्टी व पर्यावरणात समतोल राहण्यासाठी पशुपक्षी यांचे अस्तीत्व हे स्पष्ट दिसून येते. आधुनिक काळात मानवाने भ्रमणध्वनी व इंटरनेट, सॅटेलाईट अशी उपयुक्त उपकरणे शोधून काढले आहेत. मानव फोरजीतून फाईवजी मध्ये प्रवेश करीत आहे. यामुळे लहान व सुक्ष्म असे पक्षी भ्रमण लहरीला बळी ठरत आहेत. पुढे मोठे पक्षी बळी ठरण्याची शक्यता आहे. एकंदरीत जीवसृष्टीतील पक्षी हा घटक जर नाहीसा झाला तर पृथ्वी तलावर किटक राज्य येवू शकते. अगोदरच एकंदरीत जीवसृष्टीच्या ७५ टक्के घटक हा किटकांनी व्यापलेला आहे. त्यावर पक्षांचे नियंत्रण आहे. म्हणून किटक हे घटक नियंत्रणात आहेत त्याचप्रमाणे जीवसृष्टीतील जंगली हिंस्र मांसभक्षक व तृणभक्षक पशुपक्षी हे सुद्धा जंगलसंहिता गवत व इतर जंगली व गवताळ प्रदेश निर्माण करण्यासाठी उपयुक्त आहेत म्हणून मानवाने पर्यावरणाचा रक्षक म्हणून पुढे येवून पशुपक्षांचे संरक्षण केले पाहिजे. एकंदरीत पर्यावरणातील जीवावरण हा घटक जपला पाहिजे तरच मानवी अस्तीत्व पुढील अनंत काळासाठी टिकून राहीला नसता. पर्यावरणातील जीवावरण हा घटक नष्ट झाला म्हणजे मानवी अस्तीत्व आपोआप नष्ट होईल असे दिसून येते.

नैसर्गिक साधनसंपत्तीचा न्हास व मानवी अस्तीत्व :-

पर्यावरणात केवळ मनुष्य असा प्राणी आहे जो नैसर्गिक साधन संपत्तीचा भोक्ता म्हणून ओळखला जातो. मानवाने आपले जीवन समृद्ध बनविण्यासाठी मोठ्या प्रमाणात पर्यावरणातील शिलावरण, जलावरण, जीवावरण, वातावरण अशा विविध घटकात हस्तक्षेप केलेला दिसून येतो. धातु संशोधन करत असताना मानवानी नवाश्मयुगात सर्व प्रथम तांबे या धातुचा शोध लावला. तांब्याच्या वस्तू प्राचीन काळात मोठ्या प्रमाणात वापर होवू लागला. तांबे, सोने, चांदी, अल्युमिनिअम, जस्त, शिसे अशा अनेक धातुंचा उपयोग मनुष्य करू लागला त्यासाठी नको ते डोंगर पोखरू लागला. खनिजे व खनिजजन्य पदार्थांचा वापरसुद्धा मानवी जीवनात वाढू लागला. त्यामुळे नैसर्गिक साधन संपत्तीचा न्हास होताना दिसत आहे. जलसंपदा, वनसंपदा सर्वच क्षेत्रातील नैसर्गिक साधन संपत्तीचा न्हास पावताना दिसत आहे. तरी मानवाने वेळीच सावधान होवून नैसर्गिक साधन संपत्तीचा वापर कमी प्रमाणात केला, नैसर्गिक डोंगर, नदीचे प्रवाह, वनाचे क्षेत्र खाणकाम क्षेत्र या सर्व गोष्टी राखून ठेवल्या तरच मानवी अस्तीत्व कायम टिकून राहील असे दिसून येते.

पर्यावरण पुरक विकासाची गरज :-

प्राचीन काळापासून आजतागायत मानवी विकास सरळ व चढत्या रेषेत दिसून येतो. तरी मानवाने आज आधुनिक काळात पर्यावरणात अनेक हस्तक्षेप केलेले दिसून येतात. नदी अडविणे, मोठे धरणे बांधणे, नैसर्गिक पाण्याचा प्रवाह आडविल्यामुळे पूरपरिस्थितीला मानव सामोरे जात आहेत. भूप्रदूषणात मानवाने पॉलीथीन पिशव्या व तत्सम वस्तूंची निर्मिती करून मोठ्या प्रमाणात भूप्रदूषण केले आहे. हे वेळीच रोखण्यासाठी नैसर्गिक वस्तूंचा पर्याय निवडला पाहिजे. पर्यावरणपुरक वस्तूंचा वापर जास्तीत जास्त मानवानी केला पाहिजे. नैसर्गिक शेती, नैसर्गिक जीवनशैली याचा स्विकार मानवाने केला पाहिजे. पर्यावरणपुरक विकासाची गरज आज मानवी जीवनात प्रामुख्याने भासते. पर्यावरण पुरक विकास झाला तरच या पृथ्वीचे नंदनवन व मानवी अस्तीत्व कायम टिकून राहील असे दिसून येते हे स्पष्ट सांगता येईल.

सारांश/निष्कर्ष :-

मानवी जीवनाचा ऐतिहासिक आढावा व पर्यावरण या संशोधनपर शोध निबंध मानवाचे व पर्यावरणाचे अस्तित्व टिकवून ठेवण्यासाठी मार्गदर्शक ठरतो. मानवाने आज साधलेली प्रगती कोटयावधी वर्षांच्या वाटचालीचा चढता व सरळ रेषेतील आलेख आहे. मानव आपले जीवन व्यतीत करताना शिकारी

पासून ते शेतीपर्यंत त्यांनी वाटचाल केलेली दिसून येते. प्राचीन काळात वनवासी भटकत असताना त्याला लागलेला शेतीचा शोध, जलसंपदा, वनसंपदा, शेती व्यवसाय, साधन संपत्ती, पशुपक्षी या सर्व पर्यावरणातील घटकांचा त्याने आपले जीवन समृद्ध करण्यासाठी योग्य वापर केलेला दिसून येतो. आज आधुनिक काळात मानवाने पर्यावरणाला पोषक अशा गोष्टी स्विकारण्यापेक्षा स्वतःचे जीवन समृद्ध व अल्हाददायक करण्याचे ठरविले आहे. तरी याबाबी मुळे पर्यावरणाचा न्हास होताना दिसून येतो ही बाब पर्यावरणातून निर्माण झालेल्या मानवी लोकसंख्येच्या मर्यादिला अत्यंत घातक अशी दिसून येते. मानवाने पर्यावरणासाठी आपल्या परीने सर्वच नैसर्गिक घटक प्रदूषण विरहीत राहतील अशी काळजी घेतली पाहिजे. शेती व्यवसाय, पशु व पक्षी, जलसंपदेचे शुद्धीकरण, भूसंपदेचे शुद्धीकरण, वनसंपदेचे जतन करणे ही अत्यंत काळाची गरज आहे. असे प्रस्तुत शोध निबंधातून दिसून येते सांगता येईल.

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पर्यावरण बदल आणि शेती उत्पादन

प्रा. डॉ. बिराजदार एस.एम.

एम.ए.एम.फील, पीएच.डी.

सहयोगी प्राध्यापक वाणिज्य विभाग शिवळे.

गोषवारा :-

भारत हा खेड्यांचा देश म्हणून ओळखला जातो. साधारणपणे ७०% लोकग्रामीण भागात राहतात. त्यामुळे त्यांचा प्रमुख व्यवसाय शेती हा आहे. शेती या क्षेत्राला ग्रामीण भागाचे उदरनिर्वाहाचे साधन म्हणून ओळखला जातो. या शोधनिबंधात पर्यावरण बदलाचे शेती उत्पादन वर झालेला परिणाम संशोधनाची उद्दीष्टे गृहितके, समस्या व उपाययोजना इ. सर्व घटकांच्या अभ्यास करण्याचा प्रयत्न केलेला आहे.

प्रस्तावना :-

जी मानवाच्या भौतिक पर्यावरणात अस्तित्वात असतात व ज्यांच्यावर मानव आपल्या कोणत्या ना कोणत्या गरजा भागविण्याकरिता अवलंबून असतो अशा सर्व वस्तुंना संसाधने म्हणण्यात येतो. अशा संसाधनात भूमीचा सुध्दा समावेश आहे. जमिनीवर मानव राहतो एवढेच नव्हेतर त्याच्यावर लागवड व इतर आर्थिक क्रियासुध्दा करीत असतो. अल्पविकसित देशांमध्ये ज्या नैसर्गिक संसाधनाचा वापर मानव करीत आहे. कोळसा पेट्रोलियम, गॅसे व युरेनियम इ. पदार्थ दुरमिळ असतात. जसेजसे मानवाचे ज्ञान विकसित होऊ लागले तसतसे गरजा भागविण्याच्या दृष्टीने ह्या खनिजांचे महत्व वाढू लागले. उर्जेच्या आधुनिक साधनांची औद्योगिक क्रांतीला जन्म दिला. पर्यावरण घटकामध्ये भूपृष्ठावरील पाणी व भूमिगत पाणी ह्यांचाही समावेश होतो. पाण्यापासून ऊर्जा किंवा वीजनिर्मितीही होते. सौर उर्जेबाबत अजूनही मानवाचे ज्ञान बरेच कमी आहे. ह्या सर्वांचा पर्यावरणाशी अत्यंत निकटचा संबंध आहे. म्हणून आर्थिक विकासात पर्यावरणाचे महत्व दिसून येतो.

कोणत्याही देशाच्या विकासाची पातळी व स्वरूप हे त्या देशात उपलब्ध असलेल्या पर्यावरणाशी सीमित होत असतो. एकंदरित पर्यावरणतील बदलामुळे शेती उत्पादन मध्ये अग्रेसर (मोठ्या) प्रमाणात बदल झालेला दिसून येतो. मनुष्याच्या आर्थिक प्रयत्नांची शेती हा एक मुलभुत व अत्यंत महत्वाचा घटक होय. अन्नधान्याच्या लागवडीबरोबरच पशुपालनाचीही समावेश येतो. म्हणून शेती उत्पादन मध्ये पर्यावरण या घटकाला अनन्य असे साधारण महत्व प्राप्त झाले आहे.

संशोधनाचा उद्देश :

१. पर्यावरण बदलाचे शेती उत्पादनतील वाढीचा अभ्यास करणे.
२. पर्यावरणातील बदलामुळे शेती या घटकावर पडणारा अतिरिक्त ताण कमी करणे या घटकांचा अभ्यास करणे.
३. बेरोजगारांचे प्रमाण कमी करण्यासाठी पर्यावरणाचे महत्व या संबंधी अभ्यास करणे.
४. अविकसित देशातील दारिद्र्य, विषमता नष्ट करण्यासाठी पर्यावरणीय विषयक चर्चा करणे.
५. पर्यावरण बदल व शेतीउत्पादन मधील समस्या व उपाययोजनांचा अभ्यास करणे.

संशोधनाची गृहितके :-

१. पर्यावरण बदलामुळे शेती उत्पादनामध्ये घट झालेली आहे.
२. कृषिक्षेत्रामध्ये बेरोजगारांचे प्रमाण कमी आहे.

संशोधनाची पध्दती :-

प्रस्तुत संशोधनाची द्वितीयक सामग्रीचा आधार घेण्यात आला आहे.

पर्यावरण बदल व शेती उत्पादन :-

जगातील अनेक नैसर्गिक साधन संपत्तीपैकी शेतजमीन हा महत्वाचा घटक होय. या घटकामुळे मनुष्याच्या अन्न वस्त्र व निवारा या मुलभुत गरजांची पूर्ती होत असते. शेतीचा प्रारंभ केव्हा झाला हे अजूनही संगत येत नाही. परंतु जंगलातील खाद्यपदार्थ गोळा करणे शिकार व मासेमारी या प्रयत्नानंतरच वाढत्या लोकसंख्येचा पोषणाचा प्रश्न निर्माण होवून त्यातून शेतीचा प्रयत्न उत्क्रांत झाला असावा. एकंदरित

पर्यावरण बदलामुळे शेती उत्पादनाला एक वेगळी दिशा निर्माण झाली आहे. पर्यावरणातील बदलामुळे शेती उत्पादनातील बदल खालील वेगवेगळ्या विश्लेषणाद्वारे करण्याचा प्रयत्न करण्यात आलेला आहे.

१ मानवी जीवनाला स्थैर्य प्राप्त :-

शेतीमुळेच मानवी जीवनाला स्थैर्य प्राप्त झाले आहे. मानवी संस्कृतीचा विकास अशक्य आहे. मानवी गरजांची पूर्ती करण्यासाठी मनुष्याला निसर्गाची उत्पादकता वाढविणे क्रमप्राप्त ठरले.

२ शेती उत्पादन वाढ :-

पर्यावरणातील बदलामुळे निश्चित शेती पिकांचे उत्पादन वाढले आहे. पर्यावरणातील बदलाचा निश्चित फायदा घेऊन जी जमिन नापीक होते ते लागवडी खाली आणण्याचे प्रयत्न झाले आहे.

३ जलसाठा मध्ये वाढ :-

निश्चितच कालवे बंधारे, नदया, नाले इ. मार्फत शेती उत्पादकांसाठी जलसाठ्याची खुप मदत झाली आहे. पण हे पर्यावरणामुळे शक्य झाले आहे. चांगली बियाणे व खंताचा वापर करून व शेतीच्या सुधारत पध्दती इ. प्रयत्नांतून शेती पिकांचे उत्पादन वाढविण्यास चालना मिळाली.

४ अणुशक्ती या शक्तीसाधनांचा वापर :-

खनिजतेल, वायु, नैसर्गिक वायु, जलविद्युत व अणुशक्ती या शक्तीसाधनांची शेतीतील उपयोगामुळे यांत्रिकीकरण घडून आले. यामुळे दर एकरी उत्पादन तर वाढलेच पण त्याचबरोबर लागवडीखालील क्षेत्रातही वाढ झाली.

५ आंतरराष्ट्रीय व्यापारास चालना मिळाले :-

पर्यावरणातील बदलामुळे शेतीचे यांत्रिकीकरणामुळे काही भागात उत्पादन वाढून शेती उत्पन्नाच्या आंतरराष्ट्रीय व्यापारातून चालना मिळाली आहे. शेती उत्पादन जरी कमी असले तरी वाढत्या लोकसंख्येचे पोषण अन्नधान्याच्या आयातीमुळे कारणे शक्य झाले आहे.

६ शेतीवरील वाढत्या लोकसंख्येचा पडणारे भार कमी :-

लोकसंख्येची होणारी वाढ मर्यादित करून आणि शास्त्रीय संशोधनाचा शेतीत जास्तीत जास्त उपयोग करून या भीषण प्रश्नांवर मानवाला मात करणे अंगदीच शक्य नाही. वाढत्या औद्योगिकरणामुळे शेतीवरील वाढत्या लोकसंख्येचा पडणारा भारही कमी करणे शक्य आहे.

७ अन्नधान्यात वाढ :-

अविकसित देशात कृषिउद्योगाकडे दुर्लक्ष झालेला असतो. पण हरितक्रांती करून आज भारत अन्नधान्यामध्ये स्वयंपूर्णता प्राप्त केली आहे. व भविष्यकाळात कोणतेही अडचण भासणार नाही. शेती उत्पादनामध्ये आज भारत अन्नधान्याची निर्मितीही करू लागले आहे. हा बदल निश्चितच पर्यावरण या घटकामुळे झालेला आहे.

८ उद्योगधंद्यात वाढ :-

पर्यावरणातील बदलामुळे विविध खाद्यपिके व औद्योगिक पिके घेणे मनुष्याला शक्य झाले आहे. त्यामुळे त्याच्या पोषणाचा प्रश्न सुटला. तसेच शेतीमालावर आधारित उद्योगधंदे उभारून व त्यातून विविध उत्पन्ने घेऊन मानवाच्या वाढत्या गरजांची पूर्तता करणे शक्य झाले आहे त्याचबरोबर बेरोजगारांची संख्या कमी करण्यात यश आले आहे.

एकंदरित पर्यावरणातील बदलामुळे निश्चितच शेती उत्पादनामध्ये वाढ होण्यास मदत झाली आहे.

समस्या :-

१ लोकसंख्यात वाढ :-

पर्यावरणातील बदलामुळे जरी शेती उत्पादकामध्ये मोठ्या प्रमाणात वाढ झाले तरी त्याच्या पेक्षा कितीतरी पटीने लोकसंख्येमध्ये वाढ होताना दिसत आहे.

२ पर्यावरणाचा न्हास :-

पर्यावरणाचा जतन करण्या ऐवजी मोठ्या प्रमाणात पर्यावरणाचा न्हास होताना दिसून येत आहे.

३ शेती उत्पादनाचे प्रमाण कमी :-

इतर देश ज्या प्रमाणे करतात मात्र पर्यावरणाचा वापर करून शेती उत्पादन मध्ये निश्चितच वाढ होणे अपेक्षित होते. परंतु दारिद्र्य, बेकारी, ऊर्जास्त्रोत कमी वापर, इ. अनेक समस्यांना तोंड द्यावे लागले आहे. म्हणून उत्पादनाचे प्रमाण कमी आहे.

४ तांत्रिक मागासलेपणा :-

विकसित देशामध्ये बदल करणे सहज शक्य आहे. परंतु अविकसित देशात मुळातच अज्ञानीपणाचे प्रमाण जास्त असल्यामुळे तंत्रज्ञान सहजासहजी यामध्ये बदल करता येत नाही असे दिसून येतो.

५ शासन व लोकसहभाग यांचे कमतरता :-

पर्यावरण जतन करण्यासाठी व त्याचा फायदा घेण्यासाठी शासन व लोकांचे सहभाग खूप कमी प्रमाणात आहे. असे दिसून येतो. म्हणजेच याकडे पाहण्याचा दृष्टीकोन नकारात्मक आहे.

अश्याप्रकारे पर्यावरणातील बदलामुळे जरी शेती उत्पादनामध्ये अनेक अडचणी जरी येत असले तरी देश अन्नधान्य बाबत प्रगतशील झालेला आहे. असे दिसून येत आहे.

उपाययोजना :-

- १ पर्यावरण एक व्यापक आणि समिश्र स्वरूपाची संकल्पना असल्यामुळे पर्यावरणाचे शिक्षणाचे माध्यमातून व्यक्तीला जागतिक स्तरावरील पर्यावरणाचे ज्ञान उपलब्ध करून देणे आवश्यक आहे.
 - २ वनस्पती, वृक्ष, जंगल प्राणीमात्र यांचेशी मैत्रीपूर्ण वागणे आवश्यक आहे.
 - ३ आपल्या चहुबाजूच्या अंगणात स्वच्छता राखण्यासाठी सक्रिय कार्य करणे.
 - ४ स्वास्थ्यशिक्षण आणि शेती उत्पादन मध्ये वाढ करण्यासाठी तांत्रिक बदल स्वीकारणेची आवश्यकता आहे.
 - ५ केंद्र, राज्य, तालुका व स्थानिक लोकांचा सहभागातून पर्यावरणातील बदलाचा निश्चित अभ्यास करून मानवी जीवन आनंदमय बनविण्याची आवश्यकता आहे.
- अशा प्रकारे भांडवल, पर्यावरणाकडे बघण्याचा दृष्टीकोन सकारात्मक इ. उपाययोजना आखता येईल.

सारांश :-

मानवी जीवनाशी संबंधित सर्वविषयांशी शास्त्रांशी पर्यावरणाचा संबंध असल्यामुळे पर्यावरणाची व्याप्ती व्यापक, स्वरूपाची आहे. पर्यावरण संतुलन ठेवण्यासाठी, पर्यावरणातील बदलामुळे शेतीचे उत्पादकमधील वाढ, इ. सर्व घटकांशी प्रामुख्याने लक्ष देणे आवश्यक आहे. एकंदरित नैसर्गिक संसाधनाची जतन करणे आवश्यक आहे. पर्यावरणाचा समतोल राखणेनितांत गरजेचे आहे.

संदर्भसूची

१. घोरमोडे कला व घोरमोडे के.ए (२०११) पर्यावरण शिक्षण विद्या प्रकाशन नागपूर.
२. भंडारकर के.एम. (२०१०) पर्यावरण शिक्षण नित्य नुतन प्रकाशन, पुणे.
३. विजय कविमंडळ (२०११) विकासाचे अर्थशास्त्र आणि नियोजन, मंगेश प्रकाशन नागपूर.
४. रेखा पाटील (२०१३) लोकसंख्या शिक्षणातून पर्यावरण जागृती व सुरक्षिता, योजना मराठी मासिक.
५. रावत ताज (२०११) विश्व पर्यावरण संरक्षण एवं प्रबंधन, अनुराग प्रकाशन दिल्ली.

निसर्ग जाणीवा आणि आदिवासी साहित्य

डॉ. राजेंद्र ठाकर

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प्रस्तावना :

आदिवासी साहित्य प्रवाहात आज अनेक नामवंत आदिवासी साहित्यिक साहित्याच्या विविध प्रकारांतून अनुभव, विचार, कल्पना सक्षमपणे अभिव्यक्तीच्या विभिन्न पद्धतींद्वारे अभिव्यक्त करत आहेत. साधारणपणे पन्नास—साठ वर्षांचे आयुर्मान असलेला हा साहित्यप्रवाह बिगर आदिवासींच्या लेखनीतून प्रसवला आणि आज या साहित्यप्रवाहाला वृद्धीगत करण्यासाठी अनेक आदिवासी साहित्यिक पुढे सरसावलेले आहे. ही निश्चितच आदिवासी साहित्याकरीता कौतुकास्पद घटना आहे. आदिवासी साहित्यात कविता, कादंबरी, कथा, नाटक, चरीत्र, आत्मचरीत्र, वैचारीक लेखन होत आहे. उपरोक्त साहित्यप्रकारांतून आदिवासींच्या विभिन्न जाणीवा आदिवासी साहित्यिक मांडत आहेत. ज्यात निसर्ग जाणीवा देखील त्यांनी मांडलेल्या आहेत. पण आदिवासी साहित्य निर्माण होण्यापूर्वी आदिवासी जमातीत लोकसाहित्य रूढ होते. या मौखिक साहित्यातून अनादी काळापासूनच्या त्यांच्या जाणीवा व्यक्त झालेल्या आहेत. ज्यामध्ये पर्यावरणीय जाणीवादेखील तितक्याच समर्थपणे व्यक्त झालेल्या आहेत. यासंदर्भात डॉ. शैलजा देवगावकर म्हणतात, “आदिवासी संस्कृती व लोकसाहित्याच्या अभ्यासकाला मात्र या—म्हणजे आदिवासींना पर्यावरणाची माहिती, ज्ञान नव्हते. या कल्पनेचेच आश्चर्य वाटते. कारण आदिवासींच्या संस्कृतीत पर्यावरणाबद्दलचे ज्ञान, संकल्पना व त्याचे महत्त्व आढळते आणि त्याचे उल्लेख त्यांच्या विधींमध्ये तसेच लोकसाहित्यात विपूल प्रमाणत आढळते.”^१ म्हणजे आदिवासी जमातींचे जंगल रक्षणाकरीता मोठे योगदान राहीलेले आहे. आणि त्याचेच प्रतिबिंब त्यांच्या मौखिक आणि लिखित साहित्यातून उमटतांना दिसते. प्रस्तुत शोधनिबंधात नजुबाई गावीत लिखित ‘भिवा फरारी’ या आदिवासी जीवन जाणीवा प्रकट करणाऱ्या कादंबरीत उमटलेल्या आदिवासींमधील निसर्ग जाणीवांसह, जंगल आणि आदिवासी यांचा सहसंबंध, वनकायद्याचा आदिवासी आणि एकुणच मानवी जीवनावरील परीणाम आणि मानवी जीवनातील निसर्गाचे महत्त्व याचा शोध घेण्याचा प्रयत्न केलेला आहे. या संशोधनातून आदिवासी साहित्यातील निसर्ग जाणीवा, आदिवासी आणि निसर्ग यांच्यातील सहसंबंध आणि निसर्गाच्या नासाडीने मानवी जीवनावर झालेल्या परीणाम आकलनास सहाय्य होईल.

आदिवासी साहित्याच्या अनेक प्रेरणांपैकी निसर्ग प्रेरणाही महत्त्वपूर्ण मानली जाते. चरीतार्थाची सर्वच साधने त्यांना जंगलातूनच उपलब्ध होतात. त्यांमूळे निसर्गच त्यांचा देव असतो. या निसर्गाचे गौरव ते लोकसाहित्यातूनदेखील करतात. त्यांमूळे निसर्गाला आदिवासी साहित्य पहीली प्रेरणा मानते. या संदर्भात लक्ष्मण ढवळु टोपले म्हणतात, निसर्गाच्या सानिध्यात थंडी, उन, वारा, पाऊस त्यांच्याशी सामना देत, कधी त्यांच्याच उपयोग करून घेत तो आपले जीवन जगत असतो. या निसर्ग शक्तीला देवतास्वरूप मानून त्यांची आराधना करतो. त्यांनी आपलं आणि आपल्या कुटूंबाचं रक्षण करावं म्हणून प्रार्थना करतो. सूर्य, चंद्राची, बडादेवाची, डोंगरदेवाची कसणारीची, जलदेवतेची जशी तो पूजा करतो तशीच तो गायीची ‘गोमाता’ म्हणून पुजा करतो. तसेच राखणदार म्हणून नागोबाची, वाघोबाचीही पूजा करून त्यांना प्रसन्न राखण्यासाठी प्रयत्नशिल राहतो.”^२ आदिवासी जीवनावर पहील्यांदा श्री. व्यं. केतकरांच्या ‘गोंडवनातील प्रियंवदा’ या कादंबरीतून आदिवासींच्या सामाजिक, सांस्कृतिक, धार्मिक, आर्थिक जीवनासह त्यांच्या निसर्गभावना या साहित्यकृतीतून सक्षमपणे मांडल्या. त्यानंतर असंख्य लेखकांच्या फळीने दया, परोपकार, सुधारणावादी, कुतूहलापोटी आदिवासी प्रदेशातील भटकंती, समाजसेवेच्या निमित्ताने आलेल्या अनुभवातून आदिवासींच्या जाणीवांमध्ये निसर्गाबाबत असणारी मुल्येदेखील कादंबरीतून साकार केली. पुढे डॉ. विनायक तुमराम यांनी ऐंशीच्या दशकात आदिवासी साहित्य संमेलन घडवून आणल्यानंतर अवघ्या महाराष्ट्रभर आदिवासी साहित्यासंदर्भातील मेळावे, चर्चासत्र, प्रादेशिक साहित्य संमेलने घेण्यात आली. यातून आदिवासी असलेली आणि आदिवासी दुःखभोग, समस्या, अडचणींचा सामना केलेली नजुबाई गावीत, डॉ. विनायक तुमराम, डॉ. गोविंद गारे, वाहरू सोनवणे यासारखी असंख्य प्रतिभावान लिहती पिढी निर्माण झाली. त्यांच्यामूळे आदिवासी जीवनाच्या समकालीन खऱ्या जाणीवा आदिवासी साहित्यातून अवतरल्या. यात प्राथमिक शिक्षणच झालेले पण उच्च कोटीतल्या आदिवासी जाणीवा असणाऱ्या नजुबाई गावीत यांनी अनुक्रमे ‘तृष्णा’ आणि

‘भिवा फरारी’ या दोन महत्त्वपूर्ण कादंबरीतून मावची, भिल्ल आणि कोकणी आदिवासी जीवनानुभव मांडला. यातील ‘भिवा फरारी’ ही कादंबरी जरी आदिवासी स्वातंत्र्यसेनानींनी आपल्या समाजासाठी दिलेल्या बलीदान या मुख्य आशयसूत्राभोवती गुंफलेली असली तरी या कादंबरीतून भिल्ल जमातीच्या सामाजिक, सांस्कृतिक, धार्मिक, आर्थिक जीवन जाणीवांसह निसर्ग जाणीवाही त्याच क्षमतेने अभिव्यक्त झालेल्या आहेत.

‘भिवा फरारी’ ही कादंबरीत ब्रिटीश राजवटीतील कालावकाश रेखाटतांना शासनाच्या वन कायद्याचा विपरीत परीणाम आदिवासी जगण्यावर कसा झाला होता. आदिवासींचे जगण्याचे साधन हिसकावले गेल्याने त्यांना जगण्यासाठी अवैध मार्गाचा अवलंब करीत कसा संघर्ष करावा लागला याचे चित्रण येते. आदिवासींचे जंगलातील रानमेवा, शिकार, मासेमारी करून चरीतार्थ चालते. यासाठी ते जंगलालाच आपले दैवत संबोधतात. यास्तव डोंगरदेव, कणसरी, वाघदेव, नागदेव या प्राण्यांची आराधना करत होते. शिकार जंगलातून मिळते यास्तव सर्वात आधी कृतज्ञता म्हणून जंगलालाच शिकारीचा नैवेद्य देत होते. त्याचे वास्तव्य जंगलात असल्याने जंगलातील झाडांचा वापर घर बांधण्यासाठी, सरपणासाठी याशिवाय विविध विधींमध्ये वापर तो करत होते. यावेळी झाडांच्या फांद्या तोडतांना पूजा करून त्याची क्षमा मागत होते. यासंदर्भात कादंबरीत असे निवेदन येते, “सगळ्यांनी चिमूट चिमूट तांदूळ हातात घेतले आणि त्या झाडांकडे निघाले. भिवाने कुह्याड खाली ठेवली आणि पिंपरीच्या बुंध्याजवळ तांदळाची भुगली ठेवली आणि हात जोडून पाया पडला. मग उंबराच्या झाडाजवळ जावून तेच केलं.” ३ शिवाय जंगलातील वास्तव्यात दवाखान्याची सोय नसल्याने आदिवासी प्राचीन कालीन आपली पारंपरीक वनौषधांची उपचार पद्धतीचा अवलंब करीत होते. वनौषधीसाठी लागणाऱ्या वनस्पतींचे ज्ञान त्याला होते. वनौषधींचा वापर तो आरोग्यासाठी आणि धान्याला किड लागू नये यासाठी करीत असे. शिवाय शिकार करतांना वा शत्रूला नामोहरम करण्यासाठी बाणाच्या टोकांना वनस्पतीपासून विष तयार करून त्याचा वापर करत होता. यासंदर्भातील निवेदन तुळसा या व्यक्तिरेखेच्या माध्यमातून लिखिकेने केलेले आहे., “भाऊ, काचकुयरीची खाज खाजवून जाईल. पण काचकुयरीचं वीष जाणार नाही. ती देवीरोगासारखी कातडी फुलून फोड उठवील अन् ढोराची कातडी सोलावी तशी सोलून काढेल.” ४ याच कारणाने वनस्पतींच्या माध्यमातून मिळणाऱ्या औषधांमूळे त्याच्या मनात वनस्पतीबद्दल आदरभाव असतो. यामुळे जंगले त्याच्यासाठी सर्वस्वी होत. याशिवाय जंगलातील झाडांमूळे मिळणाऱ्या स्वच्छ पाण्यामूळे वातावरणातील शुद्ध हवेमूळे त्यांच्या आरोग्याच्या समस्या अत्यंत कमी होत्या. आणि याच कारणाने त्यांचे आयुर्मानदेखील उंचावलेले होते.

ब्रिटीश कालीन शासनव्यवस्थेची पार्श्वभूमी लाभलेल्या या कादंबरीतील आदिवासी भिल्ल जमात शहरापासून लांब आणि खेड्यापासून काही अंतरावर जंगलात, द्याखोचात झोपड्या बांधून समुहाने राहत होती. जंगलच त्यांचे सर्वस्व होते. जंगलच आपल्याला जगण्याची सर्व साधने उपलब्ध करून देतो. यासाठी जंगलाची ते मनोभावे पुजा करत होते. एखादा प्रमाद घडला तर जंगलाची, झाडाची माफी मागीतली जात होती. यासंदर्भात भिवाच्या माध्यमातून कादंबरीत असे विवेचन येते. “साग्या देवा, मला माफ कर. तू साग्य देव अन् वाघ देव दोन्ही आहेस. वाघदेवाची पूजा केल्याशिवाय तुझ्या पानांना आम्ही हात लावत नाही, आनं आमच्या झोपड्याबी झाकत नाही. वाघदेवाच्या दिवशी शेतकरी शेताच्या तुकड्यातुकड्यात तुझ्या फांद्या रोपून पूजा करतात. तेव्हा तुझी पानं घराघरात वापरली जातात.” ५ पण ब्रिटीशांनी वनविषयक कायदे केल्यामूळे आदिवासींवर उपासमारीची वेळ आली. ब्रिटीश शासनाने वन कायदा केला पण वनावर उपजिविका करणाऱ्या आदिवासींना उपजिविकेचे साधन वा पर्याय उपलब्ध करून दिला नाही. जंगलतोडीने ज्या जमीनी हातात आल्या त्या जमीनी शासनाने विक्रीस काढल्या. आदिवासी मुळात दरीद्री असल्यामूळे त्यांना जमीनी घेताच आल्या नाही. ब्रिटीशांनी याच्यावर उपाय म्हणून सधन शेतकऱ्यांची फळी आदिवासी प्रदेशात वसवून त्यांच्यामार्फत शेतीतून भरमार उत्पादन घेतले. यातून आदिवासी आणि ब्रिटीश शासन यांच्यातील संघर्ष वाढत गेला. स्वातंत्र्यप्राप्तीनंतर ब्रिटीशांची हिच नीती भारत सरकारनेदेखील अधिक निर्बंधासह लागू केल्याने संघर्षाचा वनवा पेटत गेला. आजही आदिवासींचा लढा जल, जंगल आणि जमीनशी अव्याहतपणे चालूच आहे. यासंदर्भात केदार प्रसाद मीणा लिहतात, “वन पर अधिकार का मतलब ये हुआ कि अंग्रेजी सरकार ने १८८५ में ‘वन भूमी अधिग्रहण अधिनियम’ बनाया था जिसके तहत सार्वजनिक हित के नाम पर जमीने ली गयी, उसके साथ-साथ आदिवासीयों को वनों से छोटी वन्य लघु उपज जैसे—गोंद हुआ, दातुन हुई, नीम के पत्ते हुए—ऐसी चीजों को भी जंगल से आदिवासी नहीं ले सकते थे।” ६ ‘जंगले अबाधित राहिली तर मानवसृष्टी अबाधित राहिल’ असा उच्च कोटीतला विचार त्यांच्याजवळ कदाचित नसेलही पण त्याला एवढेच कळते की जंगलामूळे निसर्गचक्राचे संतुलन राखले जाते. आजही

एखाद्या गावातील म्हाताच्या आजोबांना 'यंदा पाऊस चांगला झाला नाही' असा सहज सवाल केला तरी तो याचा संबंध वृक्ष तोडीशी देईल यात तिळमात्र शंका नाही.

जागतिकीकरणाची प्रक्रिया आपल्याकडे वास्को—द—गामा याच्या भारताच्या आगमनाने सुरू झाली होती. अशी टिप्पणी जागतिकीकरणाच्या संदर्भात डॉ. भालचंद्र नेमाडे जोडतात. कारण जागतिकीकरणाचा मूळ हेतू व्यापारीकरणाशी, अर्थकारणाशी निगडित असल्याने ते या स्वरूपाचे विधान करतात. व्यापारीकरणाची ही प्रक्रिया जंगल, शेतीशी निगडित असल्याने भारतातील असंख्य जंगले भूईसपाट झाली. यामुळे जंगलावर जीवनयापन करणाऱ्या आदिवासींच्या चरीतार्थाचा गंभीर प्रश्न निर्माण झाला. ब्रिटीशांच्या शासनकाळात फर्निचरसाठी जंगलातील पूर्वीच्या सागवानाची मोठी तोड केली गेली. तसेच सागवानची वाढती मागणी लक्षात घेता असंख्य जंगले जमीनदोस्त करून त्याठिकाणी केवळ व्यापारी वृक्षांची लागवड केली गेली. शिवाय कापसाला असणारी वाढती मागणी लक्षात घेवूनही कापूस उत्पादन वाढीसाठी जंगल तोड करून जमीनी काढल्या गेल्या. या जमीनीमधून बारमाही पिकांचे उत्पादन काढण्यासाठी धरणांची निर्मिती केली गेली. तसेच शेतीतील पिकविलेला माल बाजारपेठांपर्यंत पोहचविण्यासाठी महामार्ग तसेच रेल्वेमार्ग तयार करण्यात आली. ब्रिटीश शासनाची हिच नीती स्वातंत्र्योत्तर काळात भारत सरकारने अधिक निर्बंधासह लागू केल्याने जंगले जमीनदोस्त झाली. परीणामी आदिवासींच्या जगण्याचा प्रश्न आज निर्माण झालेलाच आहे. शिवाय वातावरण बदल घडण्यास ही नीती कारणीभूत ठरत आहे. भारतात विकासाच्या नावाखाली अशीच वृक्षतोड होत राहिली तर अलीकडे आपण दरवर्षी ज्या विविध नैसर्गिक आपत्तींना तोंड देत आहोत. त्यापेक्षा भयंकर परिणामांचा आपल्याला सामना करावा लागेल. यासंदर्भात रमणिका गुप्ता म्हणतात, "सत्तर के दशक से अस्सी के दशक तक आते—आते भारत के वनों का विस्तारण १६.९ से घटकर १४.१ : रह गया, यानि हर बरस औसत १० लाख ३ हजार हेक्टेयर वनों का नुकसान हुआ। बाद में यह घटकर केवल १० : रह गया है। आदिवासी मुख्यतः जंगलो पर निर्भर करता है। इनकी आबादी ५. ३८ करोड है और यह बरसों से प्रकृती के साथ मिलकर रहता रहा है। इनके जीवनकार्य के साधन जंगल ही है, इसलिए जंगलों के ह्रास के चलते भी आदिवासीयों के रोजगार घटे।" ७ जंगलतोड मोठ्या प्रमाणात झाली असल्यामुळे जंगलातील नैसर्गिक संपदा नष्ट झाली. शिवाय व्यापारीकरणानिमित्ताने आदिवासी भागात स्थायिक झालेला बिगर आदिवासी समाजाच्या संपर्कात आदिवासी मोठ्या प्रमाणात येवू लागल्याने आपोआपच तोही आधुनिक जीवनाशी जोडला गेला. या सर्वामुळे जंगलावर उदरनिर्वाह करणाऱ्या आदिवासींनादेखील आधुनिक जीवनशैलीचा स्वीकार आपोआप करावा लागला. परीणामी आज आदिवासींचे आरोग्य कमालीचे ढासळलेले आहे. ज्या आदिवासी समाजातील व्यक्तींना कधी 'शुगर', 'बिपी' काय असते हे ठाऊक नव्हते. असे असंख्य आदिवासी आज हृदयविकाराने ग्रस्त होवून अकाली मृत्यू होत आहेत. जंगलात मिळणाऱ्या नैसर्गिक खाद्यान्नावर शंभर वर्ष जगणारा आदिवासी आज जंगलातून बाहेर पडल्यामुळे आणि रासायनिक खातांच्या मंत्रातून पिकविलेल्या अन्नधान्याचा समावेश त्याच्या आहारात होवू लागल्याने त्याचेही आरोग्य बिघडून आयुर्मान घटत चाललेले आहे. म्हणून तुळसाच्या मृत्यूसमयी उंब्या घरातील स्त्रियांना सांगतो, "बायांनू, रडू नका. अव, तिने खाल्लं इतकं आपल्याला खाता येनार नाही, अन् जगताबी येनार नाही." ८

सारांश :

आदिवासी आणि निसर्ग याचा अनोन्य संबंध आहे. निसर्गालाच आदिवासी परमेश्वर मानत असतो. कारण जंगलातून शुध्द अन्न, पाणी, हवा आणि औषधोपचारासाठीची आवश्यक साधने त्याला मिळतात. त्याच्यामुळेच जंगले राखली गेली खरी पण व्यापारीकरणाची ब्रिटीश कालीन धोरणांची अंमलबजावणी करून अलिकडील काळात मोठ्या प्रमाणात आदिवासी भागातील जंगले नष्ट केली जात असल्यामुळे आदिवासींच्या जगण्याचे प्रश्न निर्माण झालेले आहे. शिवाय जंगले नष्ट होत असल्याने वातावरणात कमालीचा बदल होवून मानवाच्या जगण्यावर त्याच्या आरोग्यावर विपरीत परिणाम होत असल्याचे अप्रत्यक्ष सूचन ही कादंबरी देते. हे वेळीच ओळखून आदिवासींच्या नैसर्गिक जीवनशैलीचा स्वीकार जगाने केला पाहिजे. तरच जगातील वातावरण बदल आपण थोपवू शकतो आणि जगातील माणसांना उत्तम आरोग्यही देवू शकतो.

निष्कर्ष :

१. आदिवासींचे जीवन निसर्गाधिष्ठीत असते. हे आदिवासींच्या मौखिक आणि लिखित वाङ्मयातून प्रतिबिंबित झालेल्या नैसर्गिक जाणीवांच्या चित्रणातून प्रतित होते.

२. आदिवासींच्या नैसर्गिक जीवनमुल्यांमूळेच जंगले राखली गेली.
३. वनविषयक कायद्याचा आदिवासींच्या जीवनावर, त्यांच्या आरोग्यावरही विपरीत परिणाम होवून त्यांच्या चरीतार्थाचा गंभीर प्रश्न निर्माण झालेला आहे.
४. देशाच्या विकास प्रक्रियेमुळे आणि व्यापारी धोरणामुळे कमालीची जंगलतोड झालेली आहे. त्याचे दूष्परिणाम अलिकडे मानवाला भोगावा लागत आहे.

संदर्भ :

१. आदिवासी विश्व, डॉ. सौ. शैलजा देवगांवकर, डॉ. श. गो. देवगांवकर, आनंद प्रकाशन, नागपूर, प्रथम आवृत्ती, २००१, पृ. १७६
२. आनंदोत्सव, (सं.) प्राचार्य डॉ. अनिल सहस्रबुध्दे, आदिवासी विशेषांक, २०११, आदिवासी व ग्रामीण साहित्य संमेलन, जव्हार, लक्ष्मण ढवळू टोपले, अध्यक्षिय भाषण, पृ. ५३
३. जनुबाई गावीत, भिवा फरारी, मावळाई प्रकाशन, पूणे, पहिली आवृत्ती, २००८, पृ. ४५
४. तैत्रव, पृ. २३
५. तैत्रव , पृ. १३५
६. आदिवासी प्रतिरोध, केदार प्रसाद मीणा, अनुज्ञा बुक्स, नवी दिल्ली, पहिली आवृत्ती, २०१७, पृ. १०१
७. आदिवासी विकास से विस्थापन, (सं) रमणिका गुप्ता, राधाकृष्ण प्रकाशन, दिल्ली, पाचवी आवृत्ती, २०१८, पृ. १२
८. तैत्रव, (पृ. १२१)



भारतातील जलसिंचन व शेतीउत्पादकता : एक दृष्टीक्षेप

डॉ.सोमनाथ विष्णु काळे,
सहा. प्राध्यापक, अर्थशास्त्र विभाग,
विवेकानंद कॉलेज, कोल्हापूर.

घोषवारा:

प्रस्तुत शोधनिबंधामध्ये भारतातील दरडोई पाणी उपलब्धता, विविध स्रोतांद्वारे सिंचित क्षेत्र, प्रमुख पिकांचे उत्पादन, उत्पादकता व या पिकांखालील सिंचन क्षेत्राचे प्रमाण तसेच सिंचित क्षेत्र व शेती उत्पादकता यांतील सहसंबंध यांचा अभ्यास केला आहे. सदर अभ्यासासाठी आवश्यक माहिती व आकडेवारी विविध संदर्भ ग्रंथ, सरकारी कार्यालयांची संकेतस्थळे, संशोधन संस्थांचे अहवाल इ. मधून संकलित केली आहे. स्वातंत्र्योत्तर काळात भारतातील सिंचित क्षेत्राचे प्रमाण, विविध पिकांचे उत्पादन व दर हेक्टरी उत्पादकता यांचे प्रमाण दुपटीपेक्षा जास्त वाढल्याचे दिसून येते. तसेच सिंचनाखालील क्षेत्रातील वाढ व शेतीची दरहेक्टरी उत्पादकता यांमध्ये सकारात्मक सहसंबंध आढळतो.

संज्ञा : शेती उत्पादकता, दरडोई पाणी उपलब्धता.

प्रस्तावना :

कोणत्याही देशाच्या आर्थिक आणि सामाजिक विकासाच्या दृष्टीने जल संसाधनाचे महत्व अनन्यसाधारण असे आहे. भारतातही नैसर्गिक संसाधनांपैकी पाणी (जल) हे सर्वात महत्वाचे संसाधन आहे. पृथ्वीवरील एकूण जलसंपत्तीपैकी ४% जलसंपत्ती ही भारतात आहे.

पावसाच्या पाण्याव्यतिरिक्त पिकांना दिलेल्या पुरक पाण्याला जलसिंचन असे म्हणतात. मोसमी पाऊस अनिश्चित असल्यामुळे इतर ऋतूत पीके घेणे, वर्षातून एकापेक्षा जास्त पीके घेणे, नगदी पीके घेणे, रासायनिक खते लागू पडण्यासाठी, दर हेक्टरी जास्त उत्पादन घेणे इ. साठी खात्रीशीर जलसिंचनाची सुविधा उपलब्ध असणे आवश्यक असते. भारतातील ४५० जिल्ह्यांपैकी बागायत क्षेत्र असलेल्या ४४ जिल्ह्यांमधून देशाच्या अन्नधान्य उत्पादनापैकी ५०% उत्पादन होते. या ४४ जिल्ह्यांपैकी जास्त सिंचन क्षेत्र असणा-या १४ जिल्ह्यांत देशाच्या २५% अन्नधान्याचे उत्पादन मिळते. यावरून शेतीसाठी जलसिंचनाचे महत्व लक्षात येते.

पृथ्वीचा ७१% भाग पाण्याने व्यापलेला आहे. यापैकी ९७% पाणी खारे असून ते समुद्रात आहे. जागतिक पाण्याच्या वितरणाच्या बाबतीत भारताचा जगात ब्राझिल, रशिया, चीन, कॅनडा नंतर पाचवा क्रमांक लागतो.

भारतात वार्षिक सरासरी ११९ सेमी पाउस पडतो. भारतात एकूण एक वर्षात सरासरीने ४०० दशलक्ष हेक्टर पाणी मिळते. त्यापैकी ११५ दशलक्ष हेक्टर मी. पाणी वाहून जाते, २१५ दशलक्ष हेक्टर मी. जमिनीत मुरते व ७० दशलक्ष हेक्टर मी. पाण्याची वाफ होते. पृष्ठभागावरून वाहणा-या पाण्यापैकी १५ दशलक्ष हेक्टर मी. पाणी धरणात अथवा तळ्यात साठविले जाते. धरणाच्या पाण्यापैकी वाफे द्वारे २०.५% पाणी नष्ट होते. तळ्यातील पाण्यापैकी ४०% वाफे द्वारे नष्ट होणारे पाणी – कालव्यातून होणारी पाण्याची गळती २० ते ३०% इतकी प्रचंड आहे. प्रत्यक्षात पिकांना मिळणा-या पाण्यापैकी ९९% पाण्याचे बाष्पोत्सर्जन होते व उरलेले १% पाणी पीक वाढीसाठी वापरले जातात. भारतीय नद्यांच्या १८६९ क्यूबिक किमी पाण्यापैकी ६९० क्यूबिक किमी पाणी उपयुक्त आहे. तर भूगर्भातील ४३२ क्यूबिक किमी पाणी उपयुक्त आहे. देशात उपलब्ध असलेले पाणी शेतीपर्यंत पोहचविण्यासाठी विहीर (५३.९६%), कालवे (३२.३२%), तलाव (६.१३%) व इतर (६.६६) इ. जलसिंचन स्रोत वापरले जातात.

उद्दिष्टे :

1. भारतातील पाण्याची उपलब्धता अभ्यासणे.
2. भारतातील जलसिंचन सोयींचा अभ्यास करणे.
3. भारतातील जलसिंचन सोयींचा विकास व शेती उत्पादकता यांतील सहसंबंधाचा अभ्यास करणे.

संशोधन पद्धती :

या शोधनिबंधासाठी माहितीच्या केवळ दुय्यम सामग्रीचा उपयोग केला आहे. आवश्यक असलेली दुय्यम तथ्ये (आकडेवारी) ही विविध संशोधन संस्थांचे अहवाल, शासकीय कार्यालयांचे अहवाल तसेच विविध सरकारी कार्यालयांची संकेतस्थळे व विविध संदर्भ पुस्तके यामधून संकलित केली आहेत.

तथ्य विश्लेषण :**तक्ता क्र. १ : दरडोई पाणी उपलब्धता :**

वर्ष	लोकसंख्या	दरडोई पाणी उपलब्धता (घमी/प्रतीवर्ष)	शेरा
१९५१	३६१	५१७८	-
१९५५	३९५	४७३२	-
१९९१	८४६	२२१०	-
२००१	१०२७	१८२०	-
२०११	१२११	१६५१	-
२०१५	१३२६ ^a	१५०८ ^s	अतिरिक्त भार
२०२१	१३४५ ^a	१४८६ ^s	अतिरिक्त भार
२०३१	१४६३ ^a	१३६७ ^s	अतिरिक्त भार
२०४१	१५६० ^a	१२८२ ^s	अतिरिक्त भार
२०५१	१६२८ ^a	१२२८ ^s	अतिरिक्त भार

Source: Government of India, 2009 (NCIWRD Report, 1999).

^aprojected from 2011 census.

तक्ता क्र. १ वरून भारतातील प्रतिवर्ष प्रतिव्यक्ती पाणी उपलब्धता सन १९५१ मध्ये ५१७८ घमी इतकी होती ती घटून २०११ मध्ये १६५१ घमी/प्रतिवर्ष इतकी कमी झाली. आणि २०५१ मध्ये त्यामध्ये १२२८ घमी/प्रतिवर्ष पर्यंत घट होईल असा अंदाज व्यक्त केला आहे.

तक्ता क्र. २ : विविध स्रोतांद्वारे सिंचनाखालील निव्वळ क्षेत्र (द.ल.हे.)

वर्ष	कालवे			तलाव	ट्यूबवेल	इतर विहिरी	इतर स्रोत	निव्वळ सिंचित क्षेत्र
	सरकारी	खाजगी	एकूण					
१९५०-५१	७.१५८	१.१३७	८.२९५	३.६१३	-	५.९७८	२.९६७	२०.८५
१९६०-६१	९.१७	१.२	१०.३७	४.५६१	०.१३५	७.१५५	२.४४	२४.६६
१९७०-७१	११.९७२	०.८६६	१२.८३८	४.११२	४.४६१	७.४२६	२.२६६१	३१.१
१९८०-८१	१४.४५	०.८४२	१५.२९२	३.१८२	९.५३१	८.१६४	२.५५१	३८.७२
१९९०-९१	१६.९७२८	०.४८०४	१७.४५३२	२.९४४	१४.२५७	१०.४३७	२.९३२	४८.०२
२०००-०१	१५.७६२	०.२०३	१५.९६५	२.४५५	२२.५६९	११.२३	२.८८५	५५.१३
२०००-०५	१४.४७४	०.२१४	१४.६८८	१.७३५	२३.०५४	१२.१६१	७.५६७	५९.२१
२०१०-११	१५.४७२	१.७१	१६.६४३	१.९८०	२८.५४३	१०.६२९	६.८६४	६३.६५९

Source: Directorate of Economics & Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India

तक्ता क्र. २ वरून भारतात सन १९५०-५१ ते २०१०-११ या कालावधीत एकूण सिंचनापैकी सार्वजनिक कालव्यांद्वारे केल्या जाणाऱ्या जलसिंचनाचे प्रमाण ७.१८ द.ल.हे. वरून १५.४७ द.ल.हे. तर खाजगी कालव्यांद्वारे देण्यात येणाऱ्या सिंचनाचे क्षेत्र १.१३ द.ल.हे. वरून १.७१ द.ल.हे. पर्यंत वाढले आहे. अशा रीतीने कालव्यांद्वारे सिंचित क्षेत्र ८.२९ द.ल.हे. वरून १६.६४ द.ल.हे. पर्यंत वाढल्याचे दिसून येते. तसेच याच कालावधीत तलावांद्वारे सिंचित क्षेत्र कमी झाले असून ते ३.६१ द.ल.हे. वरून १.९८ द.ल.हे. इतके झाले आहे. ट्यूबवेल खालील सिंचन क्षेत्र १९६०-६१ ते २०१०-११ या कालावधीत ०.१३ द.ल.हे. वरून २८.५४ द.ल.हे.

इतके वाढले आहे. इतर विहिरींच्या माध्यमातून १९५०-५१ मध्ये ५.९७ द.ल.हे. सिंचनाखाली होते ते २०१०-११ मध्ये १०.६२ द.ल.हे. पर्यंत वाढले आहे. तसेच याच कालावधीतील सिंचित क्षेत्र २०.८५ द.ल.हे. वरून ६३.६५ द.ल.हे. पर्यंत वाढले आहे.

तक्ता क्र.३ : भारतातील विविध पिकाखालील सिंचित क्षेत्र.

(क्षेत्र – द.ल.हे., उत्पादन – द.ल.टन उत्पादकता – कि.ग्र./हेक्टर)

वर्ष	अन्नधान्य				डाळी				तेलबिया			
	क्षेत्र	उत्पादन	उत्पादकता	सिंचित क्षेत्र (%)	क्षेत्र	उत्पादन	उत्पादकता	सिंचित क्षेत्र (%)	क्षेत्र	उत्पादन	उत्पादकता	सिंचित क्षेत्र (%)
१९५०-५१	९७.३२	५०.८२	५२२	१८.१०	१९.०९	८.४१	४४१	९.४३	१०.७३	५.१६	४८१	
१९६०-६१	११५.५८	८२.०२	७१०	१९.०९	२३.५६	१२.७०	५३९	८.०२	१४.७७	७.२८	४९३	३.६
१९७०-७१	१२४.३२	१०८.४२	८७२	२४.११	२२.५४	११.८२	५२४	८.७५	१६.६४	९.६३	५७९	७.४
१९८०-८१	१२६.६७	१२९.५९	१०२३	२९.६६	२२.४६	१०.६३	४७३	८.९५	१७.६०	९.३७	५३२	१४.५
१९९०-९१	१२७.८४	१७६.३९	१३८०	३५.०७	२४.६६	१४.२६	५७८	१०.४८	२४.१५	१८.६१	७७९	२२.९
२०००-०१	१२१.०५	१९६.८१	१६२६	४३.७०	२०.३५	११.०८	५४४	१२.६४	२२.७७	१८.४४	८१०	२२.४
२०००-०५	१२१.६०	२०८.६०	१७१५	४५.७०	२२.७६	१३.१३	५७७	१३.०४	२७.५२	२४.३५	८८५	२७
२०१०-११	१२४.७५	२५९.२९	२०७८	४९.८२	२६.४०	१८.२४	६९१	१४.९२	२७.२२	३२.४८	११९३	२४.९
२०१४-१५	१२४.३०	२५२.०३	२०२८	५३.०५	२३.५५	१७.१५	७२८	१९.८७	२५.६०	२७.५१	१०७५	२४.०४
२०१७-१८	१२७.५६	२८४.८३	२२३३		२९.९९	२५.२३	८४१		२४.६५	३१.३१	१२७०	

Source: Directorate of Economics & Statistics, DAC&FW

तक्ता क्र. ३ वरून भारतात सन १९५०-५१ ते २०१७-१८ या कालावधीतील एकूण अन्नधान्य उत्पादन ५०.८२ द.ल. टनावरून २८४.८३ द.ल. टनांपर्यंत, डाळीचे उत्पादन ८.४१ द.ल. वरून २५.२३ द.ल. टन तर तेलबियांचे उत्पादन ५.१६ द.ल. वरून ३१.३१ द.ल. पर्यंत वाढल्याचे दिसून येते. म्हणजे या कालावधीत अन्नधान्य, डाळी व तेलबिया इ. च्या उत्पादनामध्ये मोठ्या प्रमाणात वाढ झाली आहे. तसेच याच कालावधीत अन्नधान्याखालील क्षेत्र ९७.३२ द.ल. वरून १२९.५६ द.ल.हे. पर्यंत वाढले आहे. याच कालावधीमध्ये अन्नधान्याची दरहेक्करी उत्पादकता ५२२ की.ग्रॅ. वरून २२२३ की.ग्रॅ., डाळीची ४८१ की.ग्रॅ. वरून १२७० की.ग्रॅ. पर्यंत वाढल्याचे दिसून येते. तसेच याच कालावधीत अन्नधान्याखालील क्षेत्र ९७.३२ द.ल.हे. वरून १२७.५६ द.ल.हे., डाळीच्या पिकाखालील क्षेत्र १९.०९ द.ल.हे. वरून २९.९९ द.ल.हे. व तेलबियांखालील क्षेत्र १०.७३ द.ल.हे. वरून २४.६५ द.ल.हे. पर्यंत वाढले आहे.

भारतात १९५०-५१ ते २०१४-१५ या कालावधीत अन्नधान्याखालील सिंचित क्षेत्र १८.१०% वरून ५३.०५%, डाळीच्या पिकाखालील सिंचित क्षेत्र ९.४३% वरून १९.८७ % तर तेलबियांखालील एकूण क्षेत्रापैकी सिंचित क्षेत्र १९६०-६१ मधील ३.६% वरून २०१४-१५ मध्ये २४.०४% पर्यंत वाढले आहे.

यावरून भारतातील विविध पिकांखालील एकूण क्षेत्र, उत्पादन, उत्पादकता व सिंचित क्षेत्र यामध्ये मोठ्या प्रमाणात वाढ झाल्याचे दिसून येते.

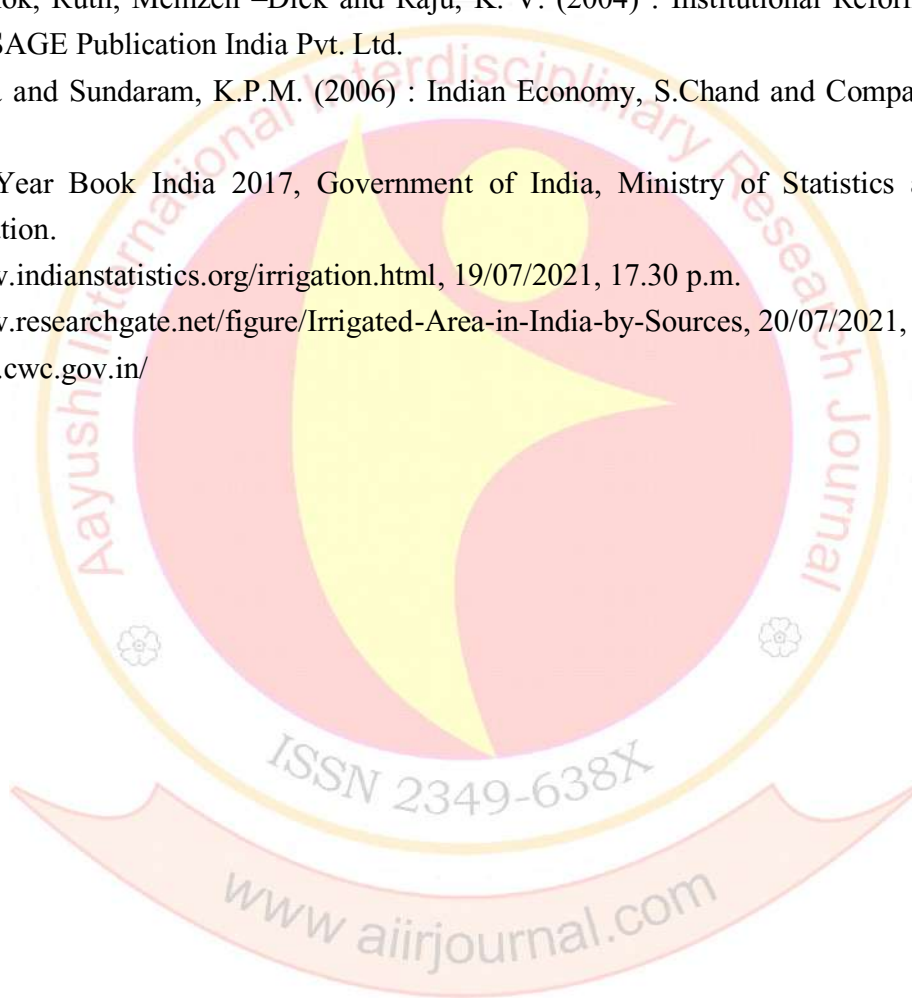
तक्ता क्र. २ व ३ यावरून १९५०-५१ ते २०१०-११ या कालखंडात भारतातील विविध स्रोतांद्वारे सिंचनाखाली असलेले निव्वळ क्षेत्र २०.८५ दलहे वरून ६३.६५ दलहे पर्यंत वाढले तर याच कालावधीमध्ये भारतातील प्रमुख पिकांची उत्पादकता त्यामध्ये अन्नधान्याची ५२२ वरून २०७८ किग्र/हे, ४४१ वरून ६९१ डाळीची किग्र/हे तर तेलबियांची ४८१ वरून ११९३ किग्र/हे इतकी वाढली आहे.

निष्कर्ष :

१. भारतातील दरडोई पाणी उपलब्धता वेगाने कमी होत आहे तसेच अस्तित्वात असलेल्या जलस्रोतांवर अतिरिक्त भार निर्माण झाला आहे.
२. देशातील ट्यूबवेल द्वारे सिंचित क्षेत्रांमध्ये वेगाने वाढ झाली असून विहीर व कालवे या स्रोतांद्वारे सिंचित क्षेत्राचे प्रमाण दुपटीने वाढले आहे याउलट तलावांद्वारे सिंचित क्षेत्र निमपट झाले आहे.
३. भारतातील प्रमुख (अन्नधान्य, डाळी, तेलबिया) पिकांखालील निव्वळ सिंचित क्षेत्राचे प्रमाण दुपटीने वाढले आहे. तसेच देशातील अन्नधान्य, डाळी व तेलबिया या पिकांखालील क्षेत्र, उत्पादन व उत्पादकता यामध्ये लक्षणीय प्रमाणात वाढ झाली आहे

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नैसर्गिक संसाधने आणि शाश्वत विकासापुढील आव्हाने

डॉ. भगवान सुरेश मनाळ

सहाय्यक प्राध्यापक, समाजशास्त्र विभाग

श्री मुक्तानंद महाविद्यालय गंगापूर जि. औरंगाबाद

गोषवारा (Abstract)

पृथ्वीच्या निर्मिती बरोबरच नैसर्गिक वातावरणाची आणि सजीवांच्या सहजीवनाची संकल्पना रूढ झालेली दिसून येते. निसर्ग सृष्टीचे नियमन आणि नियंत्रण हे सहजीवनाच्या अस्तित्वावर अवलंबून असते. स्वर्गातील उपलब्ध नैसर्गिक संसाधन याबरोबरच मानव प्राणी, इतर सर्व प्राणी, पक्षी, जीवजंतू वनस्पती आदी सर्वांचे सहजीवन हे पर्यावरण आणि शाश्वत विकासासाठी आवश्यक ठरते. परंतु व्यक्तिगत स्वार्थापोटी तथा विकासासाठी मानवाने नैसर्गिक संसाधनाचा अतिरेकी वापर करून शेती, औद्योगिकीकरण, रस्ते, महामार्ग, नागरी वस्त्यांचे निर्माण, आणि यामध्ये होणारी वाढ या सर्वांच्या निर्माणासाठी सर्वात जास्त वापर हा नैसर्गिक संसाधनाचा केला जातो आहे. ज्यामुळे निसर्गनिर्मित जंगले, वने, निसर्गनिर्मित नद्या डोंगर, पठारे तसेच बांधकामासाठी वाळूचा आणि मातीचा प्रचंड उपसा, पारंपारिक शेती पद्धतीच्या माध्यमातून हो भागातील शाश्वत पाण्याचा प्रचंड उपसा, कोळसा अनमोल खनिजे, तेल, वृक्षतोड या सर्वांवर विकासाच्या नावाखाली जो घाला घालण्याचे काम शेकडो वर्षांपासून सुरू आहे त्याचे विपरीत परिणाम पृथ्वीवरील मानव सृष्टी आणि एकूणच सजीव सृष्टीला भोगावे लागत आहेत किंबहुना त्याची सुरुवात झाली आहे, वर्तमान जागतिक आर्थिक विकास धोरणांमुळे नैसर्गिक संसाधनांचा झपाट्याने वापर होत आहे. जलद विकासासाठी विकसित आणि विकसनशील राष्ट्रे उपलब्ध असलेल्या नैसर्गिक साधनसंपत्तीचा बेहिशोबी तथा अविवेकी वापर करताना दिसत आहेत. याचा परिणाम भावी पिढ्यांना भोगावा लागेल. आज पर्यावरणासंबंधी ज्या समस्या निर्माण झालेल्या आहेत त्यापेक्षाही अधिक प्रमाणात पर्यावरणविषयक समस्यांना भावी पिढ्यांना तोंड द्यावे लागेल. आज अस्तित्वात असलेल्या विकास प्रक्रियेमध्ये टिकाऊ जीवनशैलीचा अवलंब होत नसल्याचे दिसून येते. त्यामुळे भविष्यात भावी पिढ्यांसाठी आपण काही शिल्लक ठेवू किंवा नाही? ही भीती निर्माण झालेली आहे. त्यामुळे भविष्यात फार मोठी आणीबाणीची परिस्थिती निर्माण होऊ शकते या जाणीवेतून शाश्वत विकासाच्या अनुषंगाने वर्तमानात जगभर चर्चा होताना दिसून येते.

शाश्वत विकासाकडे दुर्लक्ष करणं कुणालाही परवडणारं असूच शकत नाही. शाश्वत विकास नजरेआड करून केलेला विकास हा मानवजातीला सुख देणारा कधीच ठरू शकणार नाही. वारंवार नैसर्गिक आपत्तींचा सामना करावा लागत असलेल्या कित्येक देशांना स्पर्धात्मक विकासाची मोठी किंमत चुकवावी लागत आहे. पुढारलेल्या देशांपुढे सध्या हाच विषय चर्चेचा झाला असून यातूनच शाश्वत विकासाची संकल्पना जोर धरू लागली असून सर्वासमोर हेच मोठे आव्हान आहे. प्रस्तुत लघुशोधनिबंध च्या माध्यमातून नैसर्गिक संसाधनांच्या अतिरेकी वापरामुळे शाश्वत आणि निरंतर विकासासमोरची आव्हाने काय आहेत आहेत, याचे थोडक्यात विश्लेषण केले आहे..

Keywords: नैसर्गिक संसाधने, लोकसंख्या वाढ, शाश्वत विकास आणि आव्हाने

प्रास्ताविक(Introduction & Rationale of Study)

अलिकडील काळात शाश्वत विकास हा शब्द एक प्रकारे परावलीचा झालेला आहे. अनेक आंतरराष्ट्रीय परिषदा आणि कार्यक्रमांमधून ही संकल्पना एक सर्वात महत्वाचा राजकीय शब्दप्रयोग बनलेला आहे. ही एक बहुआयामी संकल्पना असून तिला चिरकालीन विकास असेही संबोधले जाते. मुलतः विकास या शब्दात गुणात्मक आणि संख्यात्मक अशा दोन्ही स्वरूपाची वाढ अपेक्षित असते. संख्यात्मक वाढ ही लक्ष्याधारित असते तर गुणात्मक वाढ ही सर्वांगाने असते. विश्वातील अखंड मानव जातीचं कल्याण हे शाश्वत विकासाच्या संकल्पनेत दडलेलं आहे. शाश्वत विकासाचं गमक ज्या देशांना कळलं त्यांनी त्या दिशेनं हळुहळू का होईना पावलं टाकण्यास सुरुवात केली असून ही बाब निश्चितच स्वागतार्ह आहे.

राष्ट्राच्या अनुषंगाने सर्व प्रकारचा आर्थिक विकास हा खरेतर नैसर्गिक संसाधनावर अवलंबून असतो. परंतु नैसर्गिक संसाधने ही मर्यादीत स्वरूपाची असतात. क्षयजन्य अशा या नैसर्गिक संसाधनाचा पून्हा-पून्हा वापर शक्य नसतो अथवा अशी साधनसंपत्ती नेहमी संपण्याचा धोका असतो. अशा स्थितीत संपणाऱ्या साधनसंपत्तीचा वापर योग्य प्रकारे अर्थात न्यायोचितरित्या न झाल्यास भविष्यकालीन विकासाची गती मंदावते, येणाऱ्या पुढील पिढ्यासाठी नैसर्गिक साधनसंपत्ती शिल्लक राहू शकणार नाही आणि वर्तमानातही पर्यावरणावर त्याचा विपरीत परिणाम होवून सजीव सृष्टीचे संतुलनही बिघडू शकते. वर्तमान पिढीने आपल्या अमर्याद गरजा भागविण्यासाठी उपलब्ध संसाधनाचा अविवेकी पद्धतीने वापर केल्यास येणाऱ्या पिढ्यांचे भविष्य हे तर अंधारात असणार नव्हे, त्यांचे जीवन आपल्या हातून धोक्यात टाकणार. त्यामुळे अशा प्राप्त परिस्थितीत यावर एकाच मार्गाने मात करता येवू शकते तो म्हणजे शाश्वत विकासाचा मार्ग होय. औद्योगिक क्रांतीनंतर मानवाने ज्या प्रमाणात नैसर्गिक साधनसंपत्तीचा वापर करून विकासाच्या अत्युच्च शिखरावर पोहचण्याचा प्रयत्न केला त्यामुळे काही वर्षांनंतर मानवाला या विकासाबरोबरच मानवी जीवनात भविष्यामध्ये जे भयंकर संकट येवू शकतात याची जाणीव होऊ लागली आणि यावरील उपाययोजना म्हणून जे काही संघटीत आणि सामुहिक प्रयत्न चालू झाले अर्थात या सर्व प्रयत्नांचे फलित म्हणजे शाश्वत विकासाची संकल्पना होय.

संशोधन विषयाची उद्दिष्टे (Objective of the Study)

प्रस्तुतलघुशोधनिबंधखालीलउद्दिष्टांवरआधारितआहे.

१. नैसर्गिक संसाधनांचे स्रोत आणि शाश्वत विकास संकल्पना अभ्यासणे.
२. नैसर्गिक संसाधने, पर्यावरणीय आपत्ती व्यवस्थापन आणि शाश्वत विकासाची आव्हाने यांचा अभ्यास करणे.

संशोधन अभ्यास पद्धती:-

प्रस्तुत लघुशोध निबंध हा नैसर्गिक संसाधने आणि शाश्वत विकास संकल्पनेवर आधारित आहे. सदर अभ्यास करताना गेल्या अनेक दशकांपासून मानवांकडून स्वतःचा विकास साधण्यासाठी नैसर्गिक संसाधनांचा अनिर्बंध वापर आणि त्याचे विपरीत परिणाम म्हणजेच अनेक वर्षांपासून येणाऱ्या नैसर्गिक आपत्ती ज्यामुळे मानवी आणि पर्यावरणाची होणारी हानी यावर सदर शोध अभ्यासाचे विवेचन करण्यात आले आहे. यासाठी दुय्यम तथ्य संकलनाचा वापर केला असून नैसर्गिक आपत्तीच्या सद्य स्थितीतील चालू घडामोडींचा आधार घेतला आहे.

नैसर्गिक संसाधनांचे स्रोत:-

नैसर्गिक संसाधनांच्या वर्गीकरणाच्या वेगवेगळ्या पद्धती आहेत. त्यांचे (१) संसाधनांचे स्रोत, (२) संसाधनांच्या विकासाचे टप्पे व (३) नूतनीक्षम अशा बाबींनुसार वर्गीकरण केले जाते. यांच्या उगमावरून त्यांचे जैव आणि अजैव असे प्रकार आहेत. जैव संसाधने ही जीवावरणातील घटकांपासून (उदा., वने, प्राणी, पक्षी इत्यादींपासून) प्राप्त होतात. यात कोळसा व जीवाश्म इंधन या जैव इंधनांचा देखील समावेश होतो. कारण ती सेंद्रिय पदार्थांच्या कुजण्यापासून तयार होतात. अजैव प्रकारात जमीन, पाणी, हवा, जड धातू (उदा., सोने, चांदी, तांबे, लोह इत्यादी) आणि वेगवेगळ्या खनिजांचा समावेश होतो. काही संसाधने नूतनीक्षम किंवा अनूतनीक्षम असतात. पाणी, सूर्यप्रकाश, हवा इत्यादी संसाधने कधीही संपणारी नाहीत, म्हणून त्यांना नूतनीक्षम संसाधने म्हणतात. जी संसाधने संपुष्टात येणारी आहेत, ज्या संसाधनांची उपलब्धता मर्यादित आहे त्यांना अनूतनीक्षम संसाधने म्हणतात. उदा., खनिजे, जैवइंधने इत्यादी.

(१) नूतनीक्षम संसाधने : नैसर्गिकरीत्या ज्या संसाधनांची पुनर्निर्मिती होऊ शकते अशा संसाधनांना नूतनीक्षम संसाधने म्हणतात. यात सौर ऊर्जा, पवन ऊर्जा इत्यादींचा समावेश होतो. ही संसाधने मुबलक प्रमाणात आणि निरंतर उपलब्ध असतात. मानवी वापरामुळे त्यांच्या प्रमाणावर होणारी घट नगण्य असते.

(२) अनूतनीक्षम संसाधने : ज्या संसाधनांच्या निर्मितीचा वेग अतिशय मंद आहे तसेच नैसर्गिकरीत्या ज्या संसाधनांची निर्मिती होत नाही, अशा संसाधनांना अनूतनीक्षम संसाधने म्हणतात. मानवी दृष्टिकोनातून अनूतनीक्षम संसाधने म्हणजे ज्यांच्या खपाचा वेग अधिक आहे आणि त्यामानाने त्यांची पुनर्निर्मिती मंद गतीने होते, अशी संसाधने (उदा., जीवाश्म इंधन). जीवाश्म इंधनांच्या निर्मितीला कोट्यावधी वर्षे लागतात. त्यामुळे ती अनूतनीक्षम संसाधने ठरतात. धातूंची खनिजे पुनर्चक्रीकरणाने वापरता येतात. मात्र, कोळसा व पेट्रोलियमचे पुनर्चक्रीकरण करता येत नाही. अनूतनीक्षम नैसर्गिक संसाधनांची उपलब्धता मर्यादित असते आणि मोठ्या प्रमाणावर त्यांची पुनर्निर्मिती व पुनर्वापर करता येत नाही. अशी संसाधने संपुष्टात आली की त्यांची पुनर्निर्मिती करता येत नाही. या

संसाधनांच्या मागणीचा वेग हा त्यांच्या उत्पादनाच्या वेगापेक्षा नेहमीच अधिक असतो. पृथ्वीवर उपलब्ध असलेली नैसर्गिक संसाधने मर्यादित आहेत. त्यांचा वापर ज्या वेगाने होत आहे तो पाहता पुढील काही दशकांत अनेक संसाधने संपुष्टात येऊ शकतात. त्यांच्या अतिवापरामुळे निसर्गाची अपरिमित हानी होते. तसेच प्रदूषण, जैवविविधतेचा Nहास, नूतनीक्षम संसाधनांच्या उपलब्धतेत घट इत्यादी परिणाम दिसून येतात. नैसर्गिक संसाधनांचा वापर उचित झाला तरच पर्यावरणाचा समतोल कायम राहील. अनेक पारिस्थितिकी तज्ज्ञांनी असे दाखवून दिले आहे की, मानवाच्या अनिर्बंध वापरामुळे नैसर्गिक संसाधनांचा Nहास असाच चालू राहिला तर सजीवसृष्टीतील अनेक घटकांच्या अस्तित्वास धोका पोहोचेल, मानवाचे अस्तित्व त्यामुळे धोक्यात येईल.

शाश्वत विकास संकल्पना :-

मानवी जीवनाचा विकास हा शब्द समोर आल्यानंतर एक गोष्ट प्रकर्षाने जाणवते ती म्हणजे मानवाच्या उत्पत्तीनंतर मानवाने आपल्या बुद्धी, कौशल्य, कार्यक्षमता या बळावर पृथ्वीवर विविध प्रकारचे अविष्कार केलेले आहेत. हे अविष्कार पाहिल्यानंतर सहाजिकच मानव आणि मानवीजीवन विकसित होत आहे, असेच म्हणावे लागेल. मानवाने केलेला जो काही विकास आहे तो सर्वच विकास नैसर्गिक घटकावर अवलंबून असलेला दिसून येतो. मानव हा विकास साधत असताना एक गोष्ट मात्र पूर्णतः विसरून गेला की, पृथ्वीवर उपलब्ध असणारे नैसर्गिक घटकमर्यादित आणि विनाशी/संपणारे आहेत आणि मानवाच्या विकासाच्या इच्छा आणि अकांक्षा या अमर्याद आहेत. औद्योगिक क्रांतीनंतर २० व्या शतकाच्या मध्यावधीमध्ये पर्यावरणामध्ये होणाऱ्या बदलांची जाणीव होण्यास सुरुवात झाली. नैसर्गिकसंपत्तीचा अमर्याद वापरतून भविष्यात उद्भवू शकणाऱ्या संकटाची जाणीव होऊ लागली आणि त्यानंतर शाश्वत विकास ही संकल्पना पूढे येण्यास सुरुवात झाली.

नैसर्गिक संसाधने, पर्यावरणीय आपत्ती व्यवस्थापन आणि आव्हाने

मानवी कृतींमुळे पर्यावरणाची अवनती होते व मानवी समाजाची भरून काढता न येणारी हानी होते. मानवकृत पर्यावरण आपत्तींचे पुढीलप्रमाणे तीन वर्ग करता येतात ; (१) प्राकृतिक आपत्ती : यात मानवी कृतींमुळे घडून येणारे भूमिकंपन, भूमिपात, मृदाक्षरण इत्यादींचा समावेश होतो. (२) रासायनिक आपत्ती , यात विषारी रसायने आणि वायू, अणुस्फोट, सागर तेलगळती, वायुगळती इत्यादींमुळे उद्भवणाऱ्या आपत्तींचा समावेश होतो. (३) सामाजिक आपत्ती : यात लोकसंख्या विस्फोट, नैतिकता व धार्मिक मूल्यांची अवनती, रसायने व युद्धात जैविक अस्त्रांचा वापर, बहुमजली इमारतींची रचना इत्यादींमुळे उद्भवणाऱ्या आपत्तींचा समावेश होतो.

निरनिराळ्या पर्यावरणीय आपत्तींमुळे जी संकटे ओढवतात त्यांपासून संरक्षण व्हावे, पर्यावरण अवनती कमी व्हावी व मानवासह इतर सजीवांच्या जीवास धोका होणार नाही यासाठी मानवाने प्रयत्नशील राहणे गरजेचे आहे. मानव स्वतः एक सामाजिक व नैसर्गिक पर्यावरणाचा महत्त्वाचा घटक आहे. या आपत्तींना सामोरे जाण्यासाठी तो सर्व तऱ्हेने सक्षम व्हावा, यासाठी विविध योजना शासकीय व अशासकीय स्तरावरील विविध संघटना, संस्थांमार्फत केल्या जातात. मागील काही वर्षांत पर्यावरणीय आपत्ती व्यवस्थापनाला विशेष महत्त्व आले आहे आणि पर्यावरणीय आपत्ती कशा टाळता येतील याकडे कल वाढत आहे. प्रदेश, राज्य, राष्ट्र यांच्या सीमांतर्गत व सीमाबाह्य क्षेत्रातदेखील आपत्तीग्रस्त स्थिती निवारण्याचे प्रयत्न वाढत आहेत. पर्यावरणीय आपत्ती व्यवस्थापनात समस्या निराकरण प्रक्रियेला महत्त्वाचे स्थान आहे. आपत्तीचा धोका ओळखणे, जोखमीचे मूल्यांकन व नियंत्रण करणे, त्यांचे मूल्यमापन करणे व त्याचा आढावा घेणे हा पर्यावरणीय आपत्ती व्यवस्थापनाचा एक भाग आहे.

1. लोकसंख्या वाढ आणि शाश्वत विकासातील अडथळे:-

विकसीत देशांच्या मते, लोकसंख्येची अतिरेकी वाढ ही पर्यावरणाचा समतोल बिघडण्यास महत्त्वाचा कारण आहे. कारण या लोकसंख्येच्या प्राथमिक गरजा पूर्ण करण्यासाठी निसर्गातील संसाधनांची बेसुमार लुट होत असते. अविकसीत देशातील लोकसंख्यावाढीचे प्रमाण हे औद्योगिकदृष्ट्या विकसीत देशांच्या तुलनेत अधिक आहे. अविकसीत देशातील लोकसंख्या वाढीचा दर २.५ टक्के तर औद्योगिकदृष्ट्या विकसीत देशात तो एक टक्का आहे. त्याच बरोबर लोकसंख्याविषयक एक अभ्यासगट असेही स्पष्ट करतो की, जगातील ८० टक्के लोकसंख्या ही आफ्रीका, लॅटीन अमेरिका व आशिया खंडात राहते. तर युरोप, यु.एस.ए. आणि कॅनडा यामध्ये २० टक्के लोकसंख्या राहते. सार्क देशांच्या प्रमुखांनी देखील काठमांडू (१९९७) येथील अधिवेशनात हे मान्य केले आहे की, पर्यावरणीय प्रदूषणास अविकसीत व विकसनशील देशातील प्रचंड लोकसंख्यावाढ, त्यांच्या गरजा, दारिद्र्य, निकृष्ट राहणीमान व निसर्गाची प्रचंड लुट कारणीभूत आहे. दुसऱ्या बाजूला अविकसीत व विकसनशील देशांचे मत आहे. या देशांच्या मते, औद्योगिक विकास हा केवळ विकसीत देशांमध्ये झाला. त्यामुळे जागतिक प्रदूषणास मुख्यतः जबाबदारी विकसीत देशांची आहे.

उद्योगधंद्यातील औद्योगिक कचरा व रासायनिक विध्वंसकारी वायु यामुळे पृथ्वीचे पर्यायाने मानव जातीचे आतोनात नुकसान झाले. स्टॉकहोम येथे झालेल्या जागतिक पर्यावरण परिषदेपासून (१९७२) ही भूमिका विकसनशील देश सातत्याने मांडत आले आहेत. सार्क परिषदेनेही वेळोवेळी हे स्पष्ट पणे सांगितले आहे की, विकसीत देशांच्या अमर्यादित गरजा व भोगी वृत्ती निसर्गावर विपरीत परिणाम करत आहे. परिणामी पर्यावरणीय प्रदूषण ही समस्या गंभीर बनली आहे.

२. पाणी आणि शाश्वत विकास

आदीम काळापासून मानवी समाज सातत्याने विकास करत आला आहे. त्याच्या प्रवासात पाण्याचे अनन्य साधारण महत्त्व आहे. आपल्याला उपलब्ध असलेल्या जमीन, पाणी आणि हवा या तीन नैसर्गिक संसाधनांपैकी एक पाणी हे साधन नसेल तर विकास जवळजवळ अशक्यच आहे. शेती असो, नाही तर औद्योगिक विकास असो, पाण्याशिवाय ते शक्य नाही, हे आता जवळजवळ मान्यच झाले आहे. पाण्याशिवाय विकास ही संकल्पनाच आता अशक्य बनली आहे. पण, या पृथ्वीतलावर पाण्याचे वितरण आणि त्याची गुणवत्ता यात खूप असमानता आहे. मानवी जीवन आणि पाणी यातील घनिष्ठ संबंध पाहता मानवी आरोग्य, शहरीकरण, औद्योगिकरण, शेती, ऊर्जा यासारख्या मानवी जीवनावश्यक बाबीसाठी पाण्याचे अस्तित्व अनन्यसाधारण आहे. विकास आणि शाश्वत विकास यात फार फरक आहे.

३. नैसर्गिक संसाधन शेती आणि शाश्वत विकास:-

शेती व्यवसायाची पारंपारिक संसाधने, नीतीमुल्ये व वारसा जपण्यासाठी अत्याधुनिक आणि अदयावत तंत्रज्ञानाचा वापर करून उज्वल भवितव्यासाठी केली जाणारी शेती म्हणजे शाश्वत शेती होय. शेती हे केवळ उदरनिर्वाहाचे साधन राहिले नसून आता शेतीकडे लोक व्यवसाय म्हणून पाहू लागले आहेत. आणि याचाच परिणाम शेती करण्याच्या पद्धतीवर झाला आहे. त्यामुळे शेतीतील आधुनिकीकरण वाढत गेले. मग त्यामध्ये खतांचा बेसुमार वापर, संकरीत बियाणांपासून उत्पादन, किटकनाशकांचा वजंतुनाशकांचा अवाजावी वापर या सर्व गोष्टींचा सहभाग शेतीमध्ये करण्यात आला परंतु कालांतराने याच गोष्टींचा दुष्परिणाम नैसर्गिक संसाधनावर होत गेला. रासायनिक खतांचा जास्त वापरामुळे जमिनीतील सुपिकतेचा ऱ्हास होत गेला. त्यातील जैविक घटकांची संख्या कमी होणे, जमिनीचा सामू बिघडणे, किटकनाशकांच्या नियमित व अतिवापरामुळे शेतमाल विषारी होऊन त्याचा मानवी आरोग्यावर दुष्परिणाम होणे, तण नाशकांच्या अतिरिक्त वापरामुळे पाणी प्रदूषित होणे. अशा अनेक अडचणी कृषी व्यवसायाला भेडसावू लागल्या आहेत. प्रशासनातील कृषी अधिकारी, कृषी विद्यापीठ यांनी लक्ष केंद्रीत करणे गरजेचे झाले आहे. या समस्या अधिक वाढल्या तर कालांतराने मानवी आरोग्याचा मोठा प्रश्न आपल्या देशासमोर निर्माण झाला आहे.

शिफारशी किंवा उपाययोजना:-

उपाय:

हवामान बदलावर काही उपाययोजना करता येऊ शकतात. त्यामध्ये सर्वप्रथम कार्बन डायऑक्साइड वायूच्या निर्मितीवर नियंत्रण ठेवणे, त्यासाठी पवन ऊर्जा, जलविद्युत, सौर ऊर्जा, अणु ऊर्जा, भूऔष्णिक ऊर्जा, भरती-ओहोटी ऊर्जा यांचा विकास अधिक प्रमाणावर करणे, क्लोरोफ्ल्युटोकार्बन्स आणि जीवाश्म इंधनाचा सध्याचा वापरचा दर कमी करणे. उर्जेचा वापरपर्याप्त कार्यक्षमतेने करणे, पुनर्वापरीय ऊर्जा स्रोतांकडे वळणे, कोळशाऐवजी नैसर्गिक वायूचा अधिक उपयोग करणे, मिथेनचा इंधन म्हणून उपयोग करणे, मांसोत्पादन कमी करणे, लोकसंख्यावाढ स्थिरतेकडे आणणे, वृक्षलागवड व संगोपन मोठ्या प्रमाणावर करणे इत्यादी उपायांद्वारे हवामान बदलाचा दुष्प्रभाव कमी करता येईल.

बदलत्या हवामानामुळे काही भागातील कृषी उत्पादनात घट झाल्यामुळे अन्नसुरक्षा धोक्यात येईल. अनुकूलन डावपेचांचा विचार करण्याची गरज - हवामान बदलाचा कृषी उत्पादन आणि उत्पादकतेवर होणारा परिणाम कमी करण्यासाठी अनुकूलन डावपेचांचा विचार करण्याची गरज आहे. हवामान बदलाचा आघात सर्व प्रकारच्या परिसंस्था व मानवी आरोग्यावर होण्याची शक्यता आहे. पूर, अवर्षण, अतिवृष्टी, तीव्र पाणीटंचाई, चक्री वादळे अशा नैसर्गिक आपत्तांची वारंवारिता वाढू शकेल. हवामान बदलाचे दुष्प्रभाव कमी करण्याचे प्रयत्न मानवाकडून केले जातील.

निष्कर्ष:-

वर्तमान परिस्थितीमध्ये पर्यावरणाचा ऱ्हास व त्याचे परिणाम या बाबत एक निष्कर्ष असा काढता येईल की ही समस्या संबंध मानव जाती पुढील आव्हान आहे. ती एक जागतिक समस्या बनली आहे. त्यामुळे या प्रश्नाचे केवळ राजकारणकरत

बसण्यापेक्षा जगातील सर्वराष्ट्रांनी (विकसीत, विकसनशिल, अविकसीत) त्यासंदर्भात एकत्रितपणे गांभीर्याने विचार करण्याची वेळ येऊन ठेपली आहे. पृथ्वीवरील मानवी सृष्टीची निर्मिती व त्यात उद्भवलेला प्रश्न म्हणून या समस्येकडे पहावे लागेल. मानवाच्या बुद्धीमत्तेचा परिणाम म्हणून पृथ्वीवरील नैसर्गिक संसाधने यांच्या वापरातून औद्योगिक प्रगती होऊ लागली व त्या सोबतच निसर्गाशी त्याने संघर्ष करायला सुरुवात केली. यातून प्रदूषणाची समस्या उदभवली ज्यामध्ये जमिन, पाणी, ध्वनी व वायु प्रदूषण असे अनेक प्रकार दृष्टीस आले. शेतातील रासायनिक खताच्या व किटकनाशकांच्या अतिरेकी वापरामुळे जमिनीची उपजत क्षमता कमी झाली. औद्योगिक कारखान्यातून तयार होणारा औद्योगिक कचरा समुद्र व जमिनीत निचरा होऊ लागला. पॉलीथीन सारखे विघटन नहोणारे पदार्थांची वाढतेप्रमाण, गोड्या पाण्याचा पुरवठा करणाऱ्या नद्यांमध्ये, सरोवरामध्ये औद्योगिक कचरा फेकला जातो. समुद्र तर अनावश्यक कचरा फेकण्याची मुक्त जागा बनली, समुद्रातून जाणारी तेल वाहतुक जहाजे बुडून त्याचा विपरीत परिणाम समुद्री जिवार झाला. लोकसंख्यावाढीमुळे इंधनाच्या गरजा, वाहने, उद्योग यांच्या उर्जा विषयक वाढत्या गरजामुळे हवेतील कार्बनडाय ऑक्साईडचे प्रमाण वाढू लागले. तो वायू उष्णता वरून ठेवतो. त्यामुळे पृथ्वीचे एकूणच वातावरण तापते. त्याच बरोबर मिथेन, नायट्रोजन, डाय ऑक्साईड, इ. प्रदूषक वायू मुळे वातावरणाचे तापमान वाढले. पृथ्वीचे सुर्याच्या अतिनील किरणापासून रक्षण करणाऱ्या ओझोन वायूच्या थराला पडलेले भगदाड, अमेझॉन नदीच्या खोऱ्यात येणारे वणवे, समुद्रकिनाऱ्यावर भरून पडलेले हजारो जलचर, त्सुनामी ही सर्व भविष्यात येणाऱ्या प्रलयाची लक्षणे आहेत. अशुद्ध हवा, पिण्या करिता अयोग्य पाणी, पृथ्वीवरील नैसर्गिक साधनसंपत्तीची वेगाने होणारी लुबाडणुक ही एक बाजू तर दुसरीकडे ज्या वेगाने पृथ्वीवरील लोकसंख्या वाढत आहे त्या आधारे एकविसाव्या शतकात आपण पृथ्वीवरील समुद्री अन्न, उर्जा संसाधने, जंगल संपत्ती व उत्पादने, लागवड करण्यायोग्य जमिन यांचा न्हास सातत्याने करत आहोत.

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भारतातील कृषी विपणन व्यवस्था आणि नवीन कृषी कायदा 2020

अशोकराव नरसिंगराव चित्ते

अर्थशास्त्र विभाग

कला विज्ञान व वाणिज्य महाविद्यालय वरणगाव

गोषवारा –

भारताच्या वेगवेगळ्या प्रांतात होत असलेल्या शेतकऱ्यांच्या आत्महत्येची गंभीर दखल घेऊन काँग्रेस प्रणित यू.पी.ए. सरकारने प्रसिद्ध कृषी अर्थशास्त्रज्ञ व भारतीय हरितक्रांतीचे जनक डॉ. एम.एस.स्वामीनाथन यांच्या अध्यक्षतेखाली नोव्हेंबर २००४ ला ' राष्ट्रीय शेतकरी आयोग ' ची स्थापना केली. या आयोगाने संपूर्ण भारत वर्षातील शेतकऱ्यांशी संवाद साधून त्यांच्या समस्या व प्रश्नांचा सविस्तर अभ्यास करून आपला अहवाल ऑक्टोबर २००६ पर्यंत पाच टप्प्यात सादर केला. मात्र दुर्दैवाने युपीए सरकारने संपूर्ण पणे या शिफारशी न स्वीकारता अंशता स्वीकारल्या त्यामुळेच खऱ्या अर्थाने शेतकऱ्यांच्या समस्या कायम राहिलेल्या दिसून येतात. पुढे शेतकरी हिताचे कायदे म्हणून मोदी सरकारने ,शेती उत्पादने व्यापार व वाणिज्य (प्रोत्साहन व सुविधा)अधिनियम २०२०. आणि शेतकऱ्यांचे (सबलीकरण आणि संरक्षण) किंमत आश्वासन आणि शेत सेवा विधेयक, २०२० हे कृषी कायदे केंद्र सरकारने दि.१९ व २० ऑक्टोबर २०२०, रोजी मंजूर केले. २७ सप्टेंबर २०२० ला राष्ट्रपती च्या स्वाक्षरीने त्याचे कायद्यात रूपांतर झाले. देशातील कृषि विपणन व्यवस्था सुधारण्या मध्ये व एकूणच कृषिविकासाच्या दृष्टीने हे कायदे महत्व पूर्ण ठरतील ही अपेक्षा केंद्र सरकारने ठेवली आहे.

प्रस्तावना

भारतीय अर्थव्यवस्था एक विकसनशील असून कृषी हा अर्थव्यवस्थेचा कणा आहे. १९५१ मध्ये सुमारे ७० टक्के लोकसंख्या कृषी व संलग्न क्षेत्रावर अवलंबून होती. आज स्वातंत्र्याच्या ७३ वर्षांनंतर मात्र शेतीवरील अवलंबित्व ते ४४ टक्क्यांपर्यंत कमी झालेले दिसून येते. तसेच कृषी क्षेत्रापासून स्वातंत्र्याच्या वेळी जी.डी.पी.मध्ये ५० टक्के वाटा कृषि क्षेत्राचा होता. सध्या मात्र त्याचे योगदान १४ ते १८ टक्क्यांपर्यंत कमी झालेले दिसून येते. भारतात शेतीचा विकास होण्यासाठी सुरुवातीपासूनच अनेक कायदे करण्यात आले. ते शेती हिताचे कमी व नुकसानीचे किंवा कमी लाभाचे होते असे म्हणावे लागेल. कारण स्वातंत्र्यानंतर ७३ वर्षे पूर्ण होऊन सुद्धा आजही देशात शेतकरी मोठ्या प्रमाणात आत्महत्या करताना दिसून येतो हे भारताचे दुर्दैवच म्हणावे लागेल.

स्वातंत्र्या अगोदर व नंतर सुद्धा शेतीच्या व शेतकऱ्यांच्या हिताकडे पूर्णपणे दुर्लक्ष झाल्याचे दिसून येते. त्या वेळेच्या ब्रिटिश सरकारने व स्वातंत्र्यानंतर आलेल्या अनेक सरकारने शेती संदर्भात अनेक कायदे केले असले तरी, सुद्धा शेतीचा हवा तेवढा विकास झालेला दिसून येत नाही. उलट स्थितीत शेतीची व शेतकऱ्यांची हाल झाल्याचे दिसून येते. शेतकऱ्यांवर किती मोठ्या प्रमाणात अन्याय केला जात असे, या अन्यायाच्या विरोधात आवाज उठविण्याचे प्रथम कार्य राष्ट्रपिता महात्मा ज्योतिराव फुले यांनी आपल्या गुलामगिरी, शेतकऱ्यांचा आसूड ,इशारा इत्यादी महान ग्रंथातून केल्याचे दिसून येते.

त्यातून त्यांनी ब्रिटिश सरकारचे शेती धोरण खूप चुकीचे व अन्यायकारी आहे. यात माझ्या कास्तकारावर खूप मोठ्या प्रमाणात वेगळ्या पद्धतीने कसा अन्याय केला जात आहे. त्याचा तपशील आपल्या ग्रंथातून मांडून ब्रिटिश शासनविरोधात आवाज उठवणे , जागृत करण्याचा व न्याय मिळवून देण्याचा प्रयत्न त्याकाळी महात्मा ज्योतिबा फुले यांनी केलेला दिसून येतो.

तसेच भारताचे पहिले कृषिमंत्री डॉ.पंजाबराव देशमुख यांनी सुद्धा 'कृषी संस्कृती हीच सर्व संस्कृतीची जननी आहे .' ही संस्कृती टिकली पाहिजे असे आपले मत व्यक्त केल्याचे दिसून येते. अशा अनेक महामानवांनी वेळोवेळी शेती विकासासाठी व शेतीच्या, शेतकऱ्यांच्या दुरावस्था विषयी आपले विचार मांडले होते. पण त्या त्या वेळच्या शासनाने पूरक व शाश्वत शेती विकास धोरणे राबवलेले नाहीत, त्याचे परिणाम आज शेतकऱ्यांच्या आत्महत्या ,मोर्चे, धरणे आंदोलने, करताना पाहत आहोत. शेतकऱ्यांना गेल्या ८ महिन्यांपेक्षा जास्त काळ आंदोलन आज की दिल्ली बॉर्डरवर चालू आहे ही एक मोठी शोकांतिका म्हणावी लागेल.

कृषि कायद्याची पार्श्वभूमी

भारताच्या वेगवेगळ्या प्रांतात होत असलेल्या शेतकऱ्यांच्या आत्महत्येची गंभीर दखल घेऊन काँग्रेस प्रणित यू.पी.ए. सरकारने प्रसिद्ध कृषी अर्थशास्त्रज्ञ व भारतीय हरितक्रांतीचे जनक डॉ. एम.एस.स्वामीनाथन यांच्या अध्यक्षतेखाली नोव्हेंबर २००४ ला ' राष्ट्रीय शेतकरी आयोग ' ची स्थापना केली. या आयोगाने संपूर्ण भारत वर्षातील शेतकऱ्यांशी संवाद साधून त्यांच्या समस्या व प्रश्नांचा सविस्तर अभ्यास करून आपला अहवाल ऑक्टोबर २००६ पर्यंत ५ टप्प्यात सादर केला. या अयोगाने संपूर्ण शेतकऱ्यांचे उच्चतम हित कसे जोपासले जाईल याचा पुरेपूर अभ्यास करून शासनास आपल्या शिफारसी सादर केल्या होत्या. मात्र दुर्दैवाने यु.पी.ए. सरकारने संपूर्ण पणे शिफारशी न स्वीकारता, अंशता स्वीकारल्या त्यामुळेच खऱ्या अर्थाने शेतकऱ्यांच्या समस्या कायम राहिलेल्या दिसून येतात. पुढे सत्तांतर झाले आणि मोदी सरकारने सुद्धा या शिफारसी लागू न करता शेतकरी हिताचे म्हणून दि.१९ ते २० सप्टेंबर २०२० रोजी. तीन नवीन कृषि कायदे राज्यसभेत व लोकसभेत संमत करून घेतले व २७ सप्टेंबर २०२० ला राष्ट्रपती च्या स्वाक्षरीने त्याचे कायद्यात रूपांतर झाले.

पण हे होत असताना या कायद्यावर दोन्ही सभागृहांमध्ये चर्चा न करता लॉकडाऊन अर्थात कोरोना महामारीच्या दरम्यान आवाजी बहुमताने मंजूर करून घेतले. हे करते वेळी विरोधी पक्षातील नेत्यांना , शेतकरी व शेतकरी संघटनांचे नेते चर्चेसाठी सहभागी करून घेतले नाहीत. आणि घाईघाईत पूर्वलक्षी प्रभावाने लागू साठी अध्यादेश सुद्धा काढला गेला. सर्व अर्थव्यवस्था ठप्प असताना या कायद्याला एवढी प्राथमिकता का दिली गेली, हे न उलघडणारे कोडे होते. हेच कुठेतरी चुकले त्यामुळे आजतागायत सुद्धा हे कायदे लागू झालेली नाहीत. हे प्रकरण सर्वोच्च न्यायालयत गेले. सरकारला दिड वर्षासाठी या कायद्याना स्थगिती द्यावी लागली.

भारत सरकारने नवीन तीन कृषि कायदे तयार केले गेले त्यापैकी पहिल्या कायद्यामध्ये नेमके काय आहे ? त्या कायद्यामुळे शेतकऱ्यांचे उत्पन्न खरोखरच दुप्पट होईल का? त्यांना पूर्णपणे स्वातंत्र्य मिळेल का? त्यांच्यावर होणाऱ्या अन्याय कमी होतील का? देशातील बाजार समिती अस्तित्वात राहतील का? इत्यादी प्रश्नांची उकल करण्याचा प्रयत्न या शोधनिबंधात केलेला आहे.

तीन नवीन कृषि कायदे

शेती उत्पादने व्यापार व वाणिज्य (प्रोत्साहन व सुविधा)अधिनियम २०२० . हा कृषि कायदा केंद्र सरकारने १९- २० ऑक्टोबर २०२०, रोजी मंजूर केला . या सोबतच अन्य दोन नवीन कृषि कायदे मंजूर केले. त्यातील पहिल्या कायद्यासंदर्भात या शोधनिबंधात चर्चा करण्यात आली आहे. या तीन नवीन कृषि कायद्यांना २७ सप्टेंबर २०२० रोजी देशाच्या राष्ट्रपतींच्या स्वाक्षरी ने कायद्याचे स्वरूप प्राप्त करून दिले आहे.

याची अंमलबजावणी ५ जून २०२० रोजी पासून होणार असे स्पष्ट केले. ही तारीख या कायद्याच्या संदर्भातील काढल्या आलेल्या वटहुकूम संदर्भात होती.या तीन कायद्या पैकी पहिला कायदा असे सांगतो की, देशातील शेतकऱ्यांनी आपला शेती विक्री वाढावा देशातील कोणत्याही जिल्ह्यात ,कोणत्याही राज्यात व देशात सरकारच्या परवानगीशिवाय खुल्या बाजारात विक्री करण्यास त्यांना मुभा देण्यात येत आहे. तसेच त्यांना बाजार समिती मधील व्यापारी, दलाल, आडते यांच्या पासून होणारी पिळवणूक व बाजार समिती मार्फत आकारली जाणाऱ्या फी पासून शेतकऱ्यांना मुक्त करण्यासाठी हे कायदे आणले आहेत, असा दावा सरकारव्दारे केला जातो . याचा अर्थ असा होतो की, सरकारला या कायद्याच्या अंतर्गत कृषि उत्पन्न बाजार समिती व्यवस्थेला एक समांतर कृषिमाल विक्री व्यवस्था , खाजगी व्यक्तीच्या किंवा कंपन्यांच्या मदतीने निर्माण करणार आहे. दुसऱ्या अर्थाने त्या सहकारी व सरकारी संस्थांचे सरकारला हळू करून संपवायचे आहेत असे दिसून येते. हे शेती व्यापार व विपणन व्यवस्थेत उदारीकरणाची व खाजगीकरणाची सुरुवात आहे. असे म्हटले तर वावगे ठरणार नाही.

हा कायदा मंजूर करण्यामागे सरकारचे प्रमुख उद्देश खालीलप्रमाणे

१. शेतकऱ्यांच्या उत्पन्नात दुप्पट वाढ करणे.
२. देशातील कोणत्याही शेतकऱ्याला देशाच्या कोणत्याही बाजारपेठेत आपला कृषिमाल विकता आला पाहिजे याची या कायद्याअंतर्गत परवानगी देण्यात आली आहे.
३. कृषि उत्पन्न बाजार समितीच्या जाचक अटीतून शेतकऱ्यांची सुटका करणे.
४. शेतकऱ्यांना त्यांच्या शेतीमालाची रास्त किंमत मिळवून देणे.
५. शेती विक्रीय वाढावा विक्रीसाठी पर्यायी समांतर व्यवस्था निर्माण करणे.

६. शेतमाल खरेदी खुल्या बाजाराच्या माध्यमातून केल्यामुळे स्पर्धा निर्माण करणे.

७. ई-एनएम ट्रेडिंग सिस्टमही मंडई मध्ये सुरू राहिल.

८. इलेक्ट्रॉनिक प्लॅटफॉर्मवर शेतीच्या उत्पादनांचा व्यापार वाढेल. यामुळे अधिक पारदर्शकता आणि वेळ बचत होईल.

या तीन नवीन कायद्या पैकी पहिल्या कायद्यामध्ये शेतकऱ्यांचा कृषीमाल कुठे? कशा पद्धतीने? कोणत्या किमतीला? विकावा याचे संपूर्ण स्वातंत्र्य शेतकऱ्यांना दिले जाईल. अशा स्वरूपाचा हा कायदा अमलात आणला जात आहे. इथे प्रश्न असा पडतो की, भारतातील ८५ टक्के शेतकरी सीमांत शेतकरी आहेत. स्वातंत्र्याच्या अगोदर व नंतर सुद्धा शेतकऱ्यावर शेती कराच्या व इतर मार्गाने अन्याय ब्रिटिश व त्यानंतरच्या येणार बहुतेक सरकारने केलेला दिसून येतो.

देशात कल्याणकारी राज्याच्या संकल्पनेचा स्वीकार करण्यात आला. आणि कृषी हा विषय राज्याच्या अनुसूची दोन नुसार १४ ते २८ अन्वये राज्याच्या अखत्यारीत होता. त्याप्रमाणे १९६० च्या दशकात देशातील विविध राज्यांनी शेतमाल विक्री व्यवस्था सुरळीत करण्यासाठी कृषी उत्पन्न बाजार समितीची (APMC) कायदे मंजूर केले. या कायद्यानुसार असे निश्चित करण्यात आले होते की, कृषिमाल सरकारी कृषी उत्पन्न बाजार समितीच्या आवारात खुल्या बोली पद्धतीने व खरेदी केला जाईल अशी व्यवस्था केली होती. त्यासाठी दलाल, अडते बाजारपेठांच्या आवारात शेतकऱ्यांना प्राथमिक सोयी सुविधा निर्माण करण्यात आल्या होत्या. आणि त्या नुसार आत्तापर्यंत शेतमालाची मोठ्या प्रमाणात खरेदी होताना दिसून येते.

याच बाजार समितीच्या माध्यमातून देशातील (FCI) फूड कॉर्पोरेशन ऑफ इंडिया (NAFD) नेशनल एग्रीकल्चर को-ऑपरेटिव्ह मार्केटिंग फेडरेशन ऑफ इंडिया लिमिटेड व्दारे देशातील अन्नधान्य खरेदी करण्याचे काम केले जाते. (CACP) कृषी खर्च आणि किंमत आयोग या संस्थेने जवळपास २३ अन्नधान्यांच्या आधारभूत किंमती निश्चित करून शिफारसी सरकारला सादर करते व त्या शिफारशीचा सरकार स्वीकार करून नाफेडला या आधारभूत किंमतीच्या आधारावर अन्नधान्याची खरेदी करण्याची परवानगी देते. त्यांच्या वतीने देशातील कृषी उत्पन्न बाजार समिती अंतर्गत शेतमालाची खरेदी करतात. व खरेदी केलेले अन्नधान्ये सार्वजनिक वितरण प्रणालीच्या माध्यमातून वितरित करण्याचे काम सरकार करते.

सध्या सरकारी व सहकारी कृषी उत्पन्न बाजार समित्यांमध्ये शेतमालाच्या खरेदीवर जवळपास ८ टक्के कर लावला जातो. मात्र या नवीन कायद्यामुळे हा कर कृषी उत्पन्न बाजार समितीला द्यावा लागणार नाही. हे या कायद्याचे विशेष आहे. त्याचे कारण असे की, सर्व कृषिमाल हे बाजार समितीच्या बाहेर विकला जात असल्यामुळे कर देण्याचा प्रश्नच निर्माण होत नाही. सरकार म्हणते की, बाजार समित्या बंद होणार नाहीत मात्र कृषिमाल खरेदी मध्ये मोठ्या प्रमाणात स्पर्धा निर्माण होईल व कृषी उत्पन्न बाजार समितीतील लायसन्स धारी आडते व दलाल यांचा एकाधिकार समाप्त होईल व कृषी क्षेत्रातील विपणन व्यवस्थेत पारदर्शकता, स्पर्धात्मक व्यवहार होतील व कृषीचा आणखीनच विकास होईल असा दावा सरकार द्वारे केला जात आहे. तसेच सरकारने या कायद्याचे समर्थन करते वेळी असे म्हटले आहे की, भारतात कृषी उत्पन्न बाजार समितीमार्फत खरेदीचा फायदा केवळ ६ टक्केच शेतकऱ्यांना होतो. त्यात जास्तीत जास्त व्यापाऱ्यांनाच खरा फायदा होतो.

वास्तव पाहता असे म्हणणे योग्य नाही, देशात साध्य कृषी उत्पन्न बाजार समितीमार्फत ३५ टक्के पर्यंत खरेदी पोहोचलेली आहे. देशातील ओरिसा व छत्तीसगड या दोन राज्यातून देशातील एकूण तांदूळ खरेदीच्या तब्बल २० टक्के तांदळाची खरेदी हमीभावाने होते. त्याचा फायदा प्रत्यक्षात शेतकऱ्यांना होतो. हा कायदा रद्द केला व नवीन कायदा लागू केला तर मात्र बाजारात शेतकऱ्यांना हमीभावाने व्यापारी त्या मालाची खरेदी करतील अशा प्रकारची ग्यारंटी हा नवीन कायदा देत नाही. किंवा तसे बंधन त्यांच्या वर नाही आणि ते निश्चितच शेतकऱ्यांच्या मालाच्या आवक नुसार त्यांची किंमत कमी जास्त करून शेतकऱ्याची लूट करतील यात कोणतीही शंका नाही.

या कायद्याचा फायदा केवळ पंजाब, हरियाणा राज्या पुरता मर्यादित आहे असे म्हणणे चुकीचे आहे. हमीभावाने कृषी उत्पन्न बाजार समितीमध्ये शेतमालाची विक्री करण्यामध्ये अथवा खरेदी करण्यामध्ये उत्तर प्रदेश ओरिसा, छत्तीसगड, मध्य प्रदेश, पश्चिम बंगाल, महाराष्ट्र या राज्यांना सुद्धा त्यांचा फायदा होतो. बाकीच्या राज्यांना होत नाही म्हणणे चुकीचे आहे. मात्र जर हे नवीन कायदे लागू केले तर नक्कीच पंजाब आणि हरियाणा यांना जास्त फटका बसणार असून इतर राज्यांना सुद्धा त्याची मोठ्या प्रमाणात झळ बसण्याची शक्यता नाकारता येत नाही.

देशातील बिहार सरकारने २००६ मध्ये एपीएमसी अॅक्ट आपल्या राज्यातून काढून टाकला. याचा फायदा शेतकऱ्यांना होईल ही अपेक्षा होती. पण अद्याप पर्यंत स्पष्ट झाले नाही की, या कायद्यामुळे शेतकऱ्यांना किती फायदा झाला आहे. तेथील

शेतकऱ्यांचा गहू व तांदूळ आज ही कमी भावाने खरेदी करून त्यांची खूप मोठ्या प्रमाणात पिळवणुक होताना दिसून येते. खरेदी केलेला माल शेजारील राज्यात नेऊन व्यापारी विकतात .

आंतरराष्ट्रीय नाणेनिधी (आयएमएफ) चे संचालक गेरी राईस म्हणाले की , भारत सरकारने मंजूर केलेल्या शेती बिलामध्ये कृषी सुधारणांच्या दृष्टीने महत्त्वपूर्ण पाऊल पुढे टाकण्याची क्षमता आहे. या उपाययोजनांमुळे शेतकऱ्यांना थेट विक्रेत्यांशी करार करण्यास मदत होईल, मध्यस्थाची भूमिका कमी करून, कार्यक्षमता वाढेल आणि ग्रामीण विकासाला आधार मिळवून देण्यात मदत होईल.

“तथापि, या नवीन यंत्रणेत संक्रमणादरम्यान ज्यांचावर प्रतिकूल परिणाम होण्याची शक्यता आहे, त्यांना सामाजिक सुरक्षा व संरक्षण कवच पुरेशा प्रमाणात देणे फार महत्वाचे आहे,” अशी चिंता ही ते व्यक्त करताना दिसतात.

पी साईनाथ म्हणतात की , पंतप्रधान पीक विमा योजनेच्या पहिल्या २४ महिन्यांत १८ विमा कंपन्यांनी १५,७९५ कोटींचा नफा कमावला. याचा अर्थ विमा कंपन्यांनी दोन वर्षात दरदिवशी पंतप्रधान पीक विमा योजनेतून २१ कोटींचा नफा कमावला. शेतकऱ्यांना यातून किती सावरता आले ही दुसरी बाजूही तपासली तर दिल्लीच्या सीमांवरील शेतकरी आंदोलनाचा न्याय अन्वयार्थ काढता येईल. विशेष म्हणजे या योजनेसाठी केंद्राने ८ हजार ८०० कोटींचा निधी मंजूर केला. राफेल सौदा ५८ हजार कोटींचा आहे. म्हणजे ही योजना त्यापेक्षाही मोठा घोटाळा आहे असे साईनाथ म्हणाले. दिल्लीच्या सीमांवर केवळ संपन्न शेतकरी आंदोलन करत असल्याचा समजही देशभरात पसरवला जात आहे. गेल्या ८ महिन्यांपासून हे "संपन्न" घटक रस्त्यावर तळ ठोकून आहेत. हे आंदोलन म्हणजे देशासाठी प्रेरणास्त्रोत आहे. शेतकऱ्यांचे "संपन्न असणे हे आंदोलना मागच्या भूमिकेला कमकुवत करू शकत नाही. देशातील खासगीकरणाच्या अतिरेकी प्रचाराला ही मोठी खिळ आहे असे साईनाथ म्हणाले.

या कायद्याचे संभाव्य चांगले परिणाम-

- १ शेतकऱ्यांना आपला शेतमाल विक्रीसाठी पर्याय व्यवस्था निर्माण होऊ शकते.
- २ खरेदीत निर्माण होणाऱ्या स्पर्धेमुळे मालास हमीभाव पेक्षा जास्त भाव मिळू शकतो .
- ३ शेती विक्रीतून जास्त भाव मिळाल्यामुळे त्यांच्या उत्पन्नात वाढ होऊ शकते.
- ४ बाजार फी किंवा करा पासून त्यांची सुटका होणार आहे.
- ५ दलाल, आडती यांच्या पासून होणाऱ्या पिळवणुकीतून सुटका होणार आहे.

या कायद्याची संभाव्य दुष्परिणाम-

१. देशात संघटित कृषी उत्पन्न बाजार समित्यांचे अस्तित्व हळूहळू संपुष्टात येऊ शकते.
२. व्यापारीवर्ग हमीभावाने कृषी मालाची खरेदी करेल याची कोणतीही गॅरंटी या कायद्यामध्ये नाही.
३. शेतकऱ्यांवर अन्याय झाल्यास ताबडतोब न्याय मागता येणार नाही.
४. व्यापारी कृषी मालाची मोठ्या प्रमाणात साठवणूक करतील .
५. शेतीमालाची आवक वाढल्यास व्यापारी त्या मालाच्या किमती जाणीवपूर्वक पाडतील अर्थात कमी करतील. कारण, या कायद्याचे कोणतेच बंधन त्यांच्या वर नाही. आणि अशा परिस्थितीत शेतकऱ्यांची मोठ्या प्रमाणात पिळवणूक होऊ शकते.

निष्कर्ष

- शेतीमालाच्या खरेदीसाठी खुल्या बाजारात स्पर्धा निर्माण होईल.
- शेतकऱ्यांना खुल्या बाजारात योग्य भाव मिळू लागल्यास हळूहळू हमीभाव जाहीर करणे व सरकारव्दारे त्याची खरेदी होणे बंद होईल.
- हमीभाव फक्त सरकारी कृषी उत्पन्न बाजारात होणाऱ्या खरेदीवर दिला जातो. खाजगी व्यापारी किंवा कंपन्या व्यवस्था लागू करणार नाहीत किंवा तशी कायद्यात तरतुदी नाही.
- कालांतराने सरकार कृषी उत्पन्न बाजार समित्या बंद होती. हमीभाव व्यवस्था पूर्णपणे संपुष्टात येईल. त्याचा फायदा या कंपन्यांना व व्यापकांना होईल.
- देशातील ८५ टक्के सीमांत शेतकरी हे योग्य भाव मिळेल, या आशेपोटी आपल्या मालाची साठवणूक करू शकणार नाहीत. पर्यायाने, आहे त्या भावांमध्ये या कंपन्यांना व खुल्या बाजारातील व्यापाऱ्यांना विकल्या शिवाय त्यांच्याकडे पर्याय उपलब्ध असणार नाही. म्हणून स्थानिक पातळीवर कृषि उत्पन्न बाजार समित्या असणे आवश्यक आहे.

- सार्वजनिक वितरण प्रणालीसाठी सरकारला सुद्धा या कंपन्यांकडून मोठ्या प्रमाणात मालाची खरेदी करावी लागेल. तेव्हा या कंपन्या शेतकऱ्यांकडून घेतलेल्या अन्नधान्याची विक्री चढ्या भावाने सरकारला करतील.
- व्यापारी किंवा कंपन्या या मुळातच नफा कमवण्याच्या उद्देशाने या कृषी बाजार विपणन व्यवस्थेत उतरतील त्यांना या कायद्या अंतर्गत अन्न धान्याची कितीही साठवणूक करण्याची परवानगी दिलेले आहे . तेव्हा ते कृत्रिम कृषि मालाचा तुटवडा निर्माण करून पुरेपुर फायदा घेतील आणि त्याचा संपूर्ण फटका देशातील शेतकरी व सामान्य ग्राहकांना बसेल.
- या कायद्यातून असा दावा करण्यात आला आहे की, शेतकरी देशातील कोणत्याही बाजारपेठेत आपला माल विकेल पण येथील शेतकरी हा सिमांतिक असल्याकारणाने आणि त्यांचे उत्पादन अल्प असल्यामुळे ते बाहेरच्या बाजारपेठेत किंवा राष्ट्रीय बाजार पेठेत आपला माल घेऊन जाण्यासाठी त्यांच्याकडे पुरेसा पैसा व वाहतूक साधने नसल्याने त्यांना स्थानिक बाजारपेठेतच कमी भावात विक्री करावी लागेल हे वास्तव आहे.

सारांश

या अभ्यासतून असे लक्षात येते की, या कायद्याच्या समर्थनार्थ उजव्या विचार सरणीचे लोक व जागतिक पातळीवर आयएमएफ सारख्या संघटना त्याचे स्वागत करत आहे. त्याच वेळी शेतकरी आंदोलनाची चिंता सुधा करताना दिसतात. दुसरीकडे डाव्या विचारसरणीचे अभ्यासक त्यात श्रीनिवास खांदेवाल ,पी साईनाथ हे या कायद्याचे खंडन करताना दिसतात. हे कायदे शेतकऱ्यांना जास्तीत जास्त फायदा होण्यासाठी आणले आहे असे सरकार दावा करते. पण भारतता खऱ्या अर्थाने व्यापाऱ्यांना व कंपन्यांना याचा जास्त फायदा होणार आहे.

कृषी उत्पन्न बाजार समित्यांचे अस्तित्व कायम राहील व हमीभावाने कृषी माल खरेदी होईल याची ही शेतकऱ्यांना गॅरंटी कायद्यात तरतूद करून दिली पाहिजे . या कायद्याअंतर्गत कंपन्यांना व व्यापाऱ्यांना सक्ती केली पाहिजे की सरकारने जाहीर केलेल्या हमी भावानुसारच कृषी मालाची खरेदी करावी लागेल. तसेच, साठवणुकीसाठी मर्यादित अधिकार दिले पाहिजेत. शेतकऱ्यांचे शोषण झाल्यास त्या अन्याया विरोधात न्याय मागण्यासाठी प्रभावी यंत्रणा निर्माण होणे आवश्यक आहे .व सदर चे नियम मोडल्यास व्यापाऱ्यांना व कंपन्यांना त्यांचे परवाने रद्द करण्याचे व त्यांच्या वर दंडात्मक कार्यवाही करण्याची तरतूद या कायद्यात करावी लागेल तेव्हाच खऱ्या अर्थाने भारतीय शेतीचा व शेतकऱ्यांचा विकास होईल.

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नैसर्गिक साधनांचे वर्गीकरण:यात्रा-उत्सव काळातील पर्यावरण पूरक संदेश

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प्रस्तावना -

मानवाच्या अन्न, वस्त्र, निवारा या जीवनावश्यक गरजा आहेत. मानवी सुखाच्या संकल्पना ह्या मानवी संस्कृतीच्या विकासाबरोबरच बदलेल्या आहेत. मानवाच्या गरजा पूर्ण होणे मानवाच्या अस्तित्वासाठी महत्वाचे आहे. मानवाचे भौतिक सुख या गरजांच्या पूर्ततेवरच अवलंबून आहे. यासाठी मानवाला विविध वस्तूंचे उत्पादन घ्यावे लागते. या वस्तू ज्या घटकांपासून घेतल्या जातात त्यांना नैसर्गिक साधन संपत्ती असे म्हणतात. मानवाच्या जीवनामध्ये नैसर्गिक साधन संपत्तीला महत्वाचे स्थान आहे. नैसर्गिक साधन संपत्ती ही निसर्गाची देणगी आहे. प्रत्येक देशामध्ये साधन संपत्तीचे समान वितरण झालेले नाही. साधन संपत्तीच्या असमान वितरणामुळे प्रत्येक देशाचा विकास कमी जास्त प्रमाणात झालेला आहे. ज्या ठिकाणी नैसर्गिक साधन संपत्ती ही विपुल प्रमाणात आहे, त्या ठिकाणी विकासाचे प्रमाण मोठ्या प्रमाणावर झालेले दिसते. प्रत्येक राष्ट्राच्या आर्थिक विकासांमध्ये नैसर्गिक साधन संपत्तीला महत्वाचे स्थान आहे. त्याच बरोबर विज्ञान-तंत्रज्ञान यांच्या विकासाच्या दृष्टीकोनातून नैसर्गिक साधन संपत्तीची उपलब्धता ही महत्त्वपूर्ण आहे.

यात्रा – उत्सवाच्या काळात जी हानी होते, ती टाळणे आवश्यक आहे.

अभ्यासाचे उद्देश-

- अ) नैसर्गिक साधन संपत्तीची संकल्पना समजून घेणे.
- ब) नैसर्गिक साधन संपत्तीचे वितरण समजून घेणे.
- क) नैसर्गिक साधन संपत्तीच्या संवर्धन विषयी माहिती घेणे व यात्रा – उत्सव काळातील पर्यावरण पूरक संदेश समजून घेणे.

अ) साधन संपत्तीची संकल्पना-

नैसर्गिक साधन संपत्ती या शब्दाचा अर्थ मानवाच्या गरजा पूर्ण करणा-या वस्तू असा आहे. व्यवहार नियमात संपत्तीचा अर्थ पैसा आहे. मात्र पैसा हे वस्तू विनिमयाचे साधन आहे. पैशाच्या माध्यमातून बाजारातील वस्तूंची खरेदी-विक्री केली जाते. परंतु पैशापेक्षा जास्त नैसर्गिक साधन संपत्ती महत्वाची आहे. निसर्गातील मानव हा एक मुलभूत घटक आहे. सुखी जीवनासाठी मानव आपल्या गरजांनुसार, कुवतीनुसार नैसर्गिक साधन संपत्तीचा उपयोग करतो. मानवाने बुद्धीकौशल्यावर नैसर्गिक साधन संपत्तीचा वापर करून स्वतःचा विकास केलेला आहे. बुद्धिमान लोक नैसर्गिक साधन संपत्तीचा सुयोग्य वापर करून आपल्या प्रदेशाचा, राष्ट्राचा आर्थिक विकास घडवून आणतात. तर अकुशल व अकार्यक्षम लोक आर्थिक विकासासाठी या नैसर्गिक साधन संपत्तीचा योग्य प्रकारे वापर करीत नाहीत. परिणामी ते मागास राहतात. यामुळे राष्ट्राचा योग्य प्रकारे विकास होत नाही. यामुळेच जागतिक पातळीवर काही देश विकसित आहेत तर काही देश हे मागासलेले आहेत.

ब) नैसर्गिक साधन संपत्तीचे वर्गीकरण

नैसर्गिक साधन संपत्तीचे वर्गीकरण हे अनेक निकषांच्या आधारे केले जाते. नैसर्गिक साधन संपत्तीचे वर्गीकरण निसर्गामध्ये असणा-या उपलब्धतेनुसार, ध्येय- उद्दिष्टानुसार केले जाते. नैसर्गिक साधन संपत्तीच्या वितरणाच्या माध्यमातून भौगोलिक भिन्नता दिसून येते. नैसर्गिक साधन संपत्तीची उपलब्धता ज्या – त्या भागातील भौगोलिक परिस्थितीवर भिन्न असल्याने त्या ठिकाणी असणा-या नैसर्गिक साधन संपत्तीमध्ये विविधता आढळून येते.

1) नैसर्गिक साधन संपत्तीच्या स्वरूपानुसार वर्गीकरण

यामध्ये स्वरूपानुसार नैसर्गिक साधन संपत्तीचे वर्गीकरण पुढीलप्रमाणे करता येते.

नैसर्गिक साधन संपत्तीच्या स्वरूपानुसार वर्गीकरण
क्षय साधन संपत्ती
अ) धातू
ब) खनिजे
क) उर्जा साधने

अक्षय साधन संपत्ती
अ) हवा
ब) पाणी
क) वनस्पती
ड) प्राणी

अ) अक्षय साधन संपत्ती-

निसर्गचक्राद्वारे ज्या नैसर्गिक साधन संपत्तीची पुन्हा निर्मिती करता येते. त्यास अक्षय साधन संपत्ती असे म्हणतात. उदा. हवा, पाणी, वनस्पती या घटकांचा यामध्ये समावेश होतो.

ब) क्षय साधन संपत्ती-

निसर्गामधील जी साधनसंपत्ती एकदा वापरल्यानंतर कायमचीसंपुष्टात येते. व तिची पुन्हा निर्मिती करता येत नाही. त्यास क्षय साधन संपत्ती असेम्हणतात. उदा. धातू, खनिजे(लोह, तांबे, मँगनीज) या घटकांचा यामध्ये समावेश होतो. उर्जा साधने (कोळसा, खनिज तेल, गॅस) या घटकांचा यामध्ये समावेश होतो.

2) नैसर्गिक साधन संपत्तीचे उत्पत्तीनुसार / निर्मितीनुसारवर्गीकरण -

अ) जैविक साधन संपत्ती
अ) प्राणी
ब) वनस्पती
ब) अजैविक साधन संपत्ती
अ) जमीन
ब) हवा
क) पाणी
ड) वनस्पती

अ) जैविक साधन संपत्ती-

निसर्गातील जैविक साधन संपत्तीस सजीव संपत्ती असे म्हणतात. निसर्गामध्ये साधन संपत्तीच्या ज्या घटकांची वाढ होते किंवा जे घटक हालचाल करू शकतात. तसेच ज्यांचे निश्चित जीवनचक्र आहे त्यांचा जैविक साधन संपत्तीमध्ये समावेश होतो.

ब) अजैविक साधन संपत्ती -

निसर्गामध्ये ज्या घटकांचे जैविक घटकांप्रमाणे निश्चित जीवनचक्र नसते. त्यांचा अजैविक साधन संपत्तीमध्ये समावेश होतो. निसर्गातील अजैविक साधन संपत्तीला निर्जीव साधन संपत्ती असेही म्हणतात.

3) नैसर्गिक साधन संपत्तीचे उद्दीष्टानुसार / ध्येयानुसार वर्गीकरण -

अ) मानवी साधन संपत्ती
अ)संख्यात्मक लोकसंख्या
ब) गुणात्मक लोकसंख्या
ब) नैसर्गिक साधन संपत्ती
अ) जमीन ब) हवा
क) पाणी ड) वनस्पती
ई) प्राणी फ) खनिजे
ग) सौरशक्ती

नैसर्गिक साधन संपत्तीचे उद्दीष्टानुसार /
ध्येयानुसार वर्गीकरण

नैसर्गिक साधन संपत्तीचे उद्दीष्टानुसार व ध्येयानुसार केले जाणारे वर्गीकरणजास्त उपयुक्त व सोईस्कर आहे असे मानले जाते.

वरीलप्रमाणे वर्गीकरणाच्या विविध पद्धती असल्यातरी नैसर्गिक साधनसंपत्तीच्या घटकांमध्ये बदल होत नाही.उद्दीष्टानुसार किंवा ध्येयानुसार साधन संपत्तीचे नैसर्गिक व मानवी संपत्ती असे वर्गीकरण केले जाते.

क) नैसर्गिक साधन संपत्तीचे संवर्धन -

संवर्धन म्हणजेच उपलब्धअसणा-या साधन संपत्तीचा योग्य पद्धतीने वापर करणे आणि प्रदूषण टाळून गुणवत्ता टिकविणे होय.नैसर्गिक साधन संपत्तीचे काळजीपूर्वक नियोजन व व्यवस्थापन करून उपलब्ध नैसर्गिक साधनांचा वापर करणे, यालाच साधन संपत्तीचे संवर्धन असे म्हणतात.

यात्रा - उत्सवांच्या काळात प्रदूषण मोठ्या प्रमाणात होते, ते टाळणे आवश्यक आहे.आपल्या सण, यात्रा-उत्सवांचाहीपर्यावरणाच्या हानी होण्यात मोठा वाटा आहे. यात्रा - उत्सववेळी निसर्गलाहानीन पोहचवितायात्रा - उत्सव साजरे झाले पाहिजेत.

मानवाने आपले जीवन सुखमय केलेले आहे. त्यासाठी मानवाने अनेक प्रकारे नैसर्गिक साधन संपत्तीचा वापर केलेला आहे. ही नैसर्गिक साधन संपत्ती मर्यादित आहे. यामुळे ती काळजीपूर्वक वापरणे गरजेचे आहे. औद्योगिकदेशांमध्ये वेगवेगळ्या उद्योगांसाठी खनिज, तेल, लाकूड, वेगवेगळी खनिजे यांची मागणी वाढलेली आहे. मानवाच्या या नैसर्गिक साधन संपत्तीच्या अमाप वापरामुळे ही नैसर्गिक साधन संपत्ती झपाट्याने कमी होत आहे. तिच्या संरक्षणाचे / संवर्धनाचे काम निकडीचे झाले आहे.नैसर्गिक साधन संपत्तीचा काळजीपूर्वक वापर केला नाही, तर ती संपुष्टात येईल व मानवी जीवनास धोका निर्माण होईल. यामुळे नैसर्गिक साधन संपत्तीचा काळजीपूर्वक वापर केला पाहिजे.यात्रा - उत्सवांच्या काळात ही निसर्गाचा जपून वापर केला पाहिजे. झाडे तोडणे, प्रदुषण करणे टाळले पाहिजेकारण याचा आरोग्यावरही परिणाम होतो.

जगाची लोकसंख्या झपाट्याने वाढत आहे. वाढणा-या लोकसंख्येच्या गरजाही वाढत आहेत. त्या गरजा भागविण्यासाठी मानवाकडून नैसर्गिक साधन संपत्तीचावापर ही वाढत आहे.मानवाच्या या अतिवापरामुळे अनेक प्रकारच्या गंभीर समस्या निर्माण होत आहेत. त्यामुळे नैसर्गिक साधन संपत्तीचे संरक्षण ही काळाची गरज बनली आहे. निसर्गिक साधनसंपत्तीच्या संवर्धनात तिचा विकास आणि संरक्षण महत्वाचे आहे. उपलब्ध असणा-या नैसर्गिक साधन संपत्तीचा जास्तीत जास्त योग्य वापर करून घेणे याला साधन संपत्तीचा विकास म्हणतात. तर नैसर्गिक साधन संपत्तीचा अपव्यय टाळणे याला तिचे संरक्षण करणे म्हणतात.

निष्कर्ष -

- 1) नैसर्गिक साधन संपत्तीची संकल्पनासमजून घेता आली.
- 2) साधन संपत्तीचे वर्गीकरण करता आले.
- 3)साधनसंपत्तीच्या संवर्धन विषयी आकलन झाले वयात्रा – उत्सव काळातील पर्यावरण पूरक संदेशाची माहिती घेता आली.

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लातूर जिल्ह्यातील याजा केंद्राच्या मोजमाप करण्याच्या पध्दतीचा भौगोलिक अभ्यास

डॉ.केरबा कांबळे
उदगीर जि.लातूर

प्रस्तावना

महाराष्ट्र हा साधु संतांची भूमि म्हणून ओळखले जाते.विविध संस्कृती जपणारा महाराष्ट्र भारतामध्ये एक विविधतेने नटलेला देश आहे. विशेषता सांस्कृतिक , धार्मिक ,राजकीय , आर्थिक घडामोडीमध्ये महाराष्ट्राची प्रगती उल्लेखनीय झालेली दिसून येते. महाराष्ट्रात विविध धार्मिक सण उत्सव साजरा केले जातात.यात विविध जाती धर्माच्या देवदेवतांच्या पुजा आराधना याजांच्या माध्यमातून केल्या जातात.या याजांना लातूर जिल्ह्यात अनन्यसाधारण महत्त्व आहे. लातूर जिल्हा या अभ्यासक्षेत्रात भौगोलिक व सामाजिक स्थिती याजेला अनुरूप आहेत.म्हणून याजा केंद्र अभ्यासताना याजाकेंद्राच्या सेवास्तर अभ्यासने , याजा केंद्राच्या अभ्यासपध्दती अभ्यासणे अवश्यक आहे.याजा केंद्राच्या अभ्यासात भौगोलिक घटकांशी निगडीत असलेल्या ईतर सर्व उद्दिष्टांचा आणि अभ्यासपध्दतीचा अभ्यास करणे क्रमप्राप्त आहे.

अभ्यासक्षेत्र

लातूर जिल्ह्यातील याजा केंद्राचे मोजमाप करण्याच्या पध्दतीचा भौगोलिक अभ्यास करण्यासाठी लातूर जिल्हा हे अभ्यास क्षेत्र म्हणून निवडलेला आहे.

उद्दिष्ट

लातूर जिल्ह्यातील याजा केंद्राचे मोजमाप करण्याच्या पध्दतीचा भौगोलिक अभ्यासनेसह उद्दिष्ट समोर ठेऊन प्रस्तुत शोध निबंध तयार करण्यात आलेला आहे.

अभ्यासपध्दती

प्रस्तुत शोधनिबंध हा द्वितीय स्वरूपाच्या आकडेवारीवर आधारित आहे.सदर अभ्यासासाठी लातूर जिल्हा सामाजिक व आर्थिक समालोचन , भारतीय जनगणना अहवाल , संदर्भ ग्रंथ आणि विविध संकेतस्थळे याद्वारे माहिती संकलीत केली आहे.

याजा केंद्राच्या मोजमाप करण्याच्या पध्दती

भारतातील अनेक भूगोल तज्ज्ञांनी याजा केंद्राच्या विविध मोजमाप पध्दतीचा वापर करून याजा केंद्राच्या स्थितीचा अभ्यास केलेला आहे.त्यात अनेक भूगोल तज्ज्ञांनी खालील मुख्य पध्दती वापरलेल्या दिसून येतात.

१) प्रत्यक्ष मोजमाप पध्दत

याजा केंद्राची स्थिती मोजण्याची ही अतिशय साधी आणि सोपी पध्दत आहे.या पध्दतीत याजा केंद्रामार्फत पुरविल्या जाणाऱ्या विविध प्रकारच्या प्रमुख सेवांचा विचार केला जातो.तसेच याजा केंद्रामार्फत पुरविल्या जाणाऱ्या विविध सेवांनाच वेगवेगळी मूल्य निश्चित करून याद्वारे याजा केंद्राचे मोजमाप केले जाते.

२) अप्रत्यक्ष मोजमाप पध्दत

३)विशिष्ट मोजमाप पध्दत

वरील विवेचनावरून खालील प्रमाणे निष्कर्ष काढण्यात आलेले आहेत .

निष्कर्ष .

१) अभ्यास क्षेत्रातील याजा केंद्र निश्चितीकरणासाठी व्यापार व दळणवळण ही सेवा महत्त्वपूर्ण मानली गेली.

२)तसेच वस्तीस्तरावरील व्यवसायात गुंतलेल्या कामगारांचा आधार घेतला आहे. .

संदर्भ ग्रंथ

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नैसर्गिक साधनसंपदा आणि शाश्वत विकास

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नैसर्गिक साधनसंपदाचे प्रकार पृथ्वीतलावर सजीव सृष्टीत मानवप्राणी हा सर्वात हुशार असून त्याने आपल्या सभोवतालच्या पर्यावरणाचा मोठ्या कल्पकतेने उपयोग करून घेतलेला आहे निसर्गात उपलब्ध होणाऱ्या विविध वस्तुंचा वापर करून मानवाने आपल्या अन्न, वस्त्र, निवारा या मुलभूत गरजा भागविल्या आहेत. पर्यावरणात मानवाच्या सभोवताली असलेल्या सर्व बाबींचा उदा. जंगले, नद्या जमिन, पर्वत, पाणी, समुद्र, इमारती, रस्ते, वस्त्या इत्यादींचा समावेश होतो. मुलभूत गरजा सर्वत्र सारख्या असल्या तरी पर्यावरणातील घटकसाधने मात्र सर्वत्र सारखी नाहीत. प्राकृतिक घटकांईतकेच सांस्कृतिक घटक विपुल प्रमाणात अढळतात. आदिमानवापासून युगायुगातल्या मानवापर्यंत गरजा व मागण्यांच्या पुर्तेसाठी मानवाची पर्यावरणात अत्पाहत धडपड सुरु आहे. पर्यावरणातील ज्या पदार्थांचा अथवा वस्तुंचा वापर मानवाद्वारे केला जातो त्यालाच साधनसंपदा असे म्हणतात. मानवि समाजाचा जसजसा विकास होत गेला तसतशा मानवी गरजांमध्ये ही वाढ होत गेली. ह्या गरजा भागविण्यासाठी आवश्यक असणारी संपूर्ण सामुग्री निसर्गात उपलब्ध आहे. परंतु या सामुग्रीचा जो पर्यंत मानवी गरजा भागविण्यासाठी उपयोग केला जात नाही तो पर्यंत ती सामुग्री निसर्गातील इतर वस्तु प्रमाणे एक वस्तु असते, जेव्हा तिचा उपयोग मानवी गरजा पुर्ण करण्यासाठी केला जातो तेव्हाच त्याला साधनसंपदा असे म्हणतात. थोडक्यात पर्यावरणातील ज्या वस्तुंचा अथवा पदार्थांचा वापर मानवाद्वारे केला जातो त्या सर्व पदार्थांना किंवा वस्तुंना साधनसंपदा असे म्हणतात.

साधनसंपदाचे महत्व :

मावाचे जीवन निसर्गावर अवलंबून आहे. मानव आपले जीवन अधिक सुखसोयीचे व सुरक्षित व्हावे यासाठी सतत प्रयत्न करीत असतो. त्यासाठी तो विविध प्रकारच्या वस्तु वापरतो. अशा वस्तु मानव निसर्गातून मिळवितो. निसर्गातून उपलब्ध झालेल्या वस्तु किंवा पदार्थ ही साधन संपदा आहे. पृथ्वीवरील पर्यावरणाविषयीचे मानवाचे ज्ञान वाढत आहे. पर्यावरणातील घटक द्रव्या हा कच्चा माल म्हणून काही विशिष्ट हेतुने वापरला जातो. किंवा तो घटक वापरला जाण्याची शक्यता निर्माण होऊ शकते. जमीन, वणे, कुदणे, प्राणी, मासे, खनिजे इत्यादी घटकांचा मानवाने साधनसंपदा म्हणून वापर केला आहे. हे सर्व घटक पृथ्वीवरील आवरणात उपलब्ध होतात. शीलावरण, जलावरण, वातावरण यातील केणतेही द्रव्य आधिकिदृष्ट्या फायदेशीर होऊ शकते. म्हणूनच ते साधनसंपदा ठरते :

साधनसंपदेचे प्रकार :

साधनसंपदेचे वर्गीरण मुख्यत्वे त्याच्या अस्तित्वावरून करतात. निसर्गामध्ये विविध प्रकारची व विपुल अशी साधनसंपदा आहे. या साधनसंपदेचे पध्दतशीर अभ्यास व्हावा म्हणून साधनसंपदेचे प्रकार पुढील प्रमाणे विषद कराता येतील.

१. पुनर्नवीकरणीय साधन संपदा
२. अपुनर्नवीकरणीय साधन संपदा

१. पुनर्नवीकरणीय साधन संपदा :

ज्या साधन संपदाचा एकदा वापर केल्यास देखील नैसर्गिक चक्राद्वारे किंवा मानवी प्रयत्नाद्वारे त्या साधन संपदेचे पुनर्नवीकरण शक्य असते त्या साधन संपदेला पुनर्नवीकरणीय साधन संपदा असे म्हणतात. उदा. वनस्पतीचा जरी वापर केला तरी मानवी प्रयत्नातून वनस्पतीची आपण पाहिजे तितक्या प्रमाणात पुनर्लागवड करू शकतो. काळीन चक्रातून अर्जेकरीजनची पुनर्निर्मिती होऊ शकते.

२. अपुनर्नवीकरणीय साधन संपदा :

ज्या साधनसंपदेचा एकदा वापर केल्यानंतर ती साधन संपदा कायमची नष्ट होते किंवा या साधन संपदेचे पुनर्नवीकरण करणे अवघड असते अशा साधन संपदेला अपुनर्नवीकरणीय साधन संपदा असे म्हटले जाते.

नैसर्गिक साधन संपदेशी निगडित समस्या :

नैसर्गिक साधन संपदेशी निगडित विविध समस्या पर्यावरणाच्या अभ्यासामध्ये महत्वाच्या मानल्या जातात. त्यामध्ये पुढील नैसर्गिक साधक संपदा आणि त्यांच्या निगडीत समस्या महत्वाच्या आहेत.

- वन संपदा
- जल संपदा
- खनिज संपदा
- अन्नधान्य
- उर्जा संपदा

● भुमी संपदा

मनव व इतर प्राण्यांसाठी वनस्पतीची वित्तांत गरज असते. वनस्पती हे महत्वाचा उत्पादक घटक आहे. गवत, वेली, झाडेझुडपे, मोठे वृक्ष अशा निरनिराळ्या वनस्पती पृथ्वीवर आढळतात. भुतलावर मानवासहित सर्व सजीवांच्या दृष्टीने नैसर्गिक वनस्पती हा प्राण आहे. स्थान, हवामान, भूरचना, गुणधर्म व मृदा या भौगोलिक घटकांचा प्रत्यक्ष व सामुदायिक परिणाम नैसर्गिक वनस्पतींच्या एकुण स्वरूपावर होतो. वनस्पतींचे वितरण, प्रकार, घनता, अस्तित्व प्रामुख्याने हवामान व मृदेवर अवलंबून असते. पृथ्वीवर विविध प्रकारच्या नैसर्गिक वनस्पती आढळतात. यांत उंच वाढणारे वृक्ष, मध्यम उंचीची झाडे, लहान-मोठी झुडपे, पवत वेली, बांबू यांचा समावेश होतो विविध नैसर्गिक वनस्पतींच्या आवरणास जंगल किंवा अरण्य असे म्हणतात. जंगल अरण्य किंवा वन हे तिन्ही शब्द सर्वसाधारण नैसर्गिक वनस्पतींच्या समुदायासाठी वापरले जातात.

वनसंवर्धनासाठी उपाय :

- पर्यावरणाचा एकूण तो सांभाळणारा निसर्गातला हा अनमोल ठेवा जतन करणे मानवाचे अद्ये कर्तव्य आहे.
- जीवनासाठी स्पर्धा वाढल्यावर साहजिकच ऊर्जा, गुरांसाठी चारा अशा प्राथमिक समस्यांसाठी संघर्ष सुरु होतो व उपलब्ध वनांचा संहार सुरु होतो.
- वृक्षरोपाणाचे व्यापक उद्दिष्ट साधण्यासाठी समाजाच्या सर्व स्तरावर पुयत्न व्हायला हवेत. वनस्पतींचे
- सजीवांच्या व मानवाच्या जीवनक्रमातील स्थान अनन्यासाधारण महत्त्वाचे आहे. याचा प्रसार प्रत्येक सुजाण नागरिकाने आपआपल्या परीने जनसामान्यांना पेलवेल इतपत पातळीत जाणीवपूर्वक करणे अगत्याचे आहे.

वनांचे कार्य:

मानव हा सर्वार्थाने वनस्पतीवर अवलंबून आहे. अन्न, वस्त्र, निवारा, व्यवसाय, जळण, अवजारे यासाठी वनस्पती उपयुक्त असतात. वनांची पुढील पाच कार्ये महत्त्वाची मानली जातात.

- नैसर्गिक चक्रे कार्यरत ठेवण्याचे कार्य : निसर्गात विविध प्रकारची नैसर्गिक चक्रे कार्यरत असतात. निसर्गातील विविध घटकांमध्ये संतुलन राखून ऑक्सिजन चक्र, कार्बन चक्र, नायट्रोजन चक्र, यासारखी नैसर्गिक चक्रे सतत कार्यरत ठेवण्यास वनस्पतींचा सहभाग महत्त्वाचा मानला जातो.
- उत्पादक कार्ये : वनांच्या कार्यांमध्ये उत्पादक कार्ये वैशिष्ट्यपूर्ण आहेत. वनांपासून विविध प्रकारची उत्पादने मिळतात. यात फळफळावळे, डिंक, लाख, मेठा, रबर, वनौषधी, उपयुक्त लाकूड, इंधन, रबर, रेझीन, कात, वनस्पती तेल इत्यादींचा समावेश होतो. अशा प्रकारे वनांचे कार्यांमध्ये उत्पादक कार्ये महत्त्वाचे आहे.
- संरक्षणात्मक कार्ये : वनस्पतीपासून अप्रत्यक्षपणे अनेक प्रकारची संरक्षणात्मक कार्ये पार पडतात. उदा. मृदा, जलसंवर्धन, शीत लहरी, उष्ण लहरी, चक्री वादळे, वाळूचे वादळ इत्यादीपासून संरक्षण, वाळवंटीकरणाच्या विस्तारास प्रतिबंध वगैरे महत्त्वाचे आहेत.
- पाण्याची गुणवत्ता व पाण्याचा साठा नियंत्रित कार्य : वनस्पतींचे हे कार्य वैशिष्ट्यपूर्ण मानले जाते. वनस्पतींच्यामुळे पाण्याची गुणवत्ता वाढून पाण्याचा साठा नियंत्रित केला जातो.
- पर्यटन व्यवसायाचे कार्य : बहुतेक पर्यटक स्थळे ही वनांमध्ये असतात. वनांमुळे पर्यटन व्यवसायाला चालना मिळते तसेच त्यामुळे परकीय चलन मिळते.

निष्कर्ष :

- नैसर्गिक साधनसंपदा मानवी गरजा भागविण्यासाठी आवश्यक आहे.
- नैसर्गिक साधनसंपदा ही निसर्गातील इतर वस्तुप्रमाणे ठिक आहे.
- सर्व नैतिक व जैविक घटक मानवी कार्यक्षेत्राशी संबंधीत आहे.
- मानवी आविष्कारासाठी नैतिक सादरसंपदा ही प्राथमिक गरज आहे.
- मानवासहीत सर्व सजीवांसाठी नैतिक सादरसंपदा हा प्राण आहे.
- थोळक्यात नैसर्गिक साधनसंपदा हा विश्वातील अनमोल ठेवा आहे. याचे जतन करणे हे मानवाचे आद्य कर्तव्य आहे.

संदर्भ :-

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इक्कीसवीं सदी के प्रतिनिधि उपन्यासों में पारिस्थितिकी विमर्श

प्रा. एन.बी. एकिले,
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प्रो.डॉ.सदानंद भोसले
प्रोफेसर एवं अध्यक्ष, हिंदी विभाग,
सावित्रीबाई फुले पुणे विश्वविद्यालय, पुणे

भारतीय साहित्य, समाज और सांस्कृतिक चिंतन की परम्परा में पारिस्थितिकी का महत्वपूर्ण स्थान रहा है। साहित्य की कोई भी विधा रही हो पारिस्थितिकी उसमें विद्यमान रही है। हिंदी साहित्यकारों ने हमेशा प्रकृति से प्रेरणा ग्रहण की है। किंतु वर्तमान दौर में मनुष्य की भोगवादी दृष्टि ने विकास एवं प्रगति के नाम पर पारिस्थितिकी का व्यापक ह्रास किया है। जिस प्रकृति की गोद में मनुष्य ने जन्म लेकर आगे बढ़ना सीखा है, आज वही प्रकृति मानव के द्वारा नष्ट की जा रही है। आजादी के बाद से ही दिन—प्रति—दिन आधुनिकीकरण, नगरीकरण और औद्योगिकीकरण के नाम पर पारिस्थितिकी को नष्ट किया जा रहा है। प्रकृति मनुष्य जीवन का प्रधान अंक होते भी आज विकास और उपभोग की लालसा में मनुष्य पारिस्थितिकी का अंधाधुंध दोहन कर प्राकृतिक संरचना के साथ खिलवाड़ कर रहा है। जिससे पारिस्थितिकी संतुलन निरंतर बिगड़ता जा रहा है, पारिस्थितिकी प्रदूषण से समग्र विश्व के सामने विकट समस्या उत्पन्न हो रही है।

पारिस्थितिकी चिन्तन से तात्पर्य है, प्रकृति के प्रत्येक प्राणी के जीवन—क्रम में संतुलन लाना। वर्तमान समय का जो पारिस्थितिक चिन्तन है वह सिर्फ मनुष्य पर ही केन्द्रित नहीं है बल्कि संसार के समस्त जीव—जन्तु के अस्तित्व या संरक्षण पर विचार करता है। आधुनिक युग की पारिस्थितिकी चेतना मनुष्य केन्द्रित है तो समकालीन पारिस्थितिकी चेतना व्यवस्था केन्द्रित है। प्रसिद्ध उत्तर आधुनिक साहित्यिक विमर्शक अजय तिवारी लिखते हैं कि “आज के पर्यावरणवादी सरोकारों ने हमें सचेत कर दिया है कि प्रकृति का विनाश करके मनुष्य भी सुरक्षित नहीं रहेगा। पानी की तंगी, पर्यावरण का प्रदूषण, बढ़ती गर्मी, पिघलती बर्फ आदि मनुष्य समाज के लिए नहीं ब्रम्हाण्ड के समस्त जीवन—जालों और वनस्पतियों के लिए खतरे हैं।”¹

पारिस्थितिकी संकट अपने आप में एक बहुत ही विस्तृत विषय है। जल, जमीन से लेकर मानव, मानवैतर समस्त जगत पारिस्थितिकी का अंग है। सन् १९६२ ई में रेचल कर्सन के द्वारा लिखित ‘साइलेंट स्प्रिंग’ का प्रकाशन हुआ और यही से साहित्य और पारिस्थितिकी के अंतर्संबंधों का प्रस्थान माना जाता है। ‘साइलेंट स्प्रिंग’ में औद्योगिकीकरण के प्रदूषण से किस प्रकार प्रकृति की विभिन्न प्रजातियाँ नष्ट हो रही हैं तथा पारिस्थितिकी का संतुलन किस प्रकार ध्वस्त हो रहा है, इसका चित्रण बड़े प्रभावशाली रूप में चित्रित किया है। डी.डी.टी. जैसा विषैले कीटकनाशक किस प्रकार पारिस्थितिकी को नष्ट कर रहा है, उसकी चिन्ता ‘साइलेंट स्प्रिंग’ का प्रतिपाद्य विषय है। इसके अंतर्गत पारिस्थितिकी के संरक्षण की मांग करते हुए ग्रीन पीस, अर्थ फेस्ट, ट्रेन्ड्स ऑफ अर्थ जैसे संगठन सामने आये हैं।

महात्मा गांधी ने ‘हिन्दस्वराज्य’ के माध्यम से और उनके शिष्य जे.सी. कुमरप्पा ने पाश्चात्य ढंग से विकास के मार्ग का विरोध किया है। सन् 1970 का ‘सैलेंटवैली संरक्षण कानून’ और उत्तर भारत का ‘चिपको आंदोलन’ दोनों भारत में प्रत्यक्ष पारिस्थितिकीय चर्चा के कारण बने हैं। सन् 1990 के प्रारंभ में ही भारत में आर्थिक उदारीकरण और भूमंडलीकरण का दौर शुरू हुआ। भूमण्डलीकरण की रफ्तार के अनुपात में पारिस्थितिकी ह्रास की मात्रा भी बढ़ती गई है। अकाल, सूखा, बाढ़, जलवायु परिवर्तन आदि कई रूपों में पारिस्थितिकी दोहन के लक्षण सामने आने लगे हैं। आज हिंदी साहित्य के इतिहास में पारिस्थितिकी विमर्श दस्तक दे रहा है। पारिस्थितिकी संकट की समस्या पर लिखने वाले हिंदी के समकालीन उपन्यासकारों में नासिरा शर्मा, कमलेश्वर, भालचंद्र जोशी, अलका सरावगी, रत्नेश्वर सिंह, संजीव, महुआ माजी, कुसुम कुमार, एस.आर. हरनोट, नवीन जोशी, अभिमन्यु अनंत आदि अनेक लेखकों का नाम शामिल है।

इक्कीसवीं सदी के हिंदी साहित्य में कई साहित्यिक रचनाएँ पारिस्थितिकी संकट को अभिव्यक्त कर रही हैं। वर्तमान समय की पूँजीवादी व्यवस्था, औद्योगिकीकरण और भूमंडलीकरण आदि के कारण प्राकृतिक पारिस्थितिकी पर, उस पर होनेवाले अतिक्रमण पर हिंदी उपन्यासकारों ने चिन्ता व्यक्त की है। प्रकृति का सबसे महत्वपूर्ण उपादान है जल जो भोगवादी विकास व्यवस्था के कारण आज सबसे अधिक क्षतिग्रस्त

हुआ है। भालचंद्र जोशी कृत 'प्रार्थना में पहाड़' उपन्यास में प्रदूषित नदी के प्रति चिंता प्रकट की है। प्रस्तुत उपन्यास में भिताड़ा गाँव के पहाड़ी आदिवासियों के जीवन का चित्रण किया है। भिताड़ा गाँव के नजदीक एक बहुत बड़े कारोबारी मिस्टर बजाज की शराब की फैक्ट्री है, जिसका वेस्ट लिक्विड जो प्राणघातक अल्कोहोल है। वह प्रति वर्ष पंद्रह या सोलह जून को नदी में छोड़ दिया जाता है ताकि बारिश के पानी के तेज बहाव में यह सारा लिक्विड बह जाए। इस बार भी समय पर बारिश होती तो किसी को कुछ पता नहीं चलता किन्तु इस बार अनुमानित समय पर बारिश नहीं हुई और नदी का पानी वेस्ट लिक्विड के कारण इतना जहरीला हुआ कि जिससे नदी के तट पेपर बसे हुए गाँव के अधिकांश मनुष्य और पशु—पक्षी मौत का शिकार बन गए। जंगल और नदी के किनारे मनुष्य और पशु—पक्षियों की लाशें इधर—उधर बिखरकर पड़ी थी। मृत लोगों की लाशें जलायी जाती हैं, लेकिन नदी में और नदी के किनारे दम तोड़नेवाले जानवरों की लाशें जगह पर ही सड़ने लगी थी। जिससे पुरे गाँव में दुर्गंध फैल जाती है। मरे हुए जानवरों से संक्रमित बीमारी का खतरा बढ़ जाता है। अतः गाँव में सिर्फ रतन और रूपा दो ही लोग जिंदा रहते हैं। पूरा गाँव नदी का जहरीला पानी पीकर या संक्रमित बीमारी की चपेट में आकर मरते हैं। लेखक लिखते हैं “वहाँ नीचे घाटी के नीचे, नदी के किनारे पर आदिवासियों का गाँव बसा है। फैक्ट्री के चौकीदार ने मिस्टर शुक्ला को बताया कि गाँव में तबाही आ गई है। कई जानवर, बच्चे, बुढ़े, जवान.... जिसने भी उस नदी का पानी पिया, जिन्दा नहीं बचा है।”² स्पष्ट है कि लेखक ने नदी में बड़े स्तर पर फैलते प्रदूषण पर अपनी चिंता जाहिर की है। मुख्यतः विकास के मूल में ही असमानता की खाई छिपी हुई है। क्योंकि जहाँ—जहाँ विकास का चक्का घूमा उसने वहाँ के मूल निवासियों को उनके जल, जंगल और जमीन से खदेड़कर हाशिए पर पटक दिया और विकास का संपूर्ण सृजन पूंजीपतियों की सेवा में अर्पण किया है।

आज हमारा देश पाणी के भारी संकट का सामना कर रहा है। यह संकट जो साल—दर—साल और दशक—दर—दशक बढ़ता ही जा रहा है। इसका मुख्य कारण है जल संचयन करनेवाले हमारे सरोवरों एवं नदियों को हमारी स्वार्थी एवं लालसी पीढ़ी ने नष्ट कर दिया है। आज नदी—नाले, कुँएँ सुख रहे हैं। भालचंद्र जोशी लिखते हैं, “पानी भी वे सावधानी और कंजूसी से पी रहे थे क्योंकि कुँएँ का पानी कभी भी खत्म हो सकता था।”³

संजीव के द्वारा लिखित उपन्यास 'रह गई दिशाएँ इसी पार' जीव विज्ञान की पृष्ठभूमि को आधार बनाकर लिखा गया है। इस उपन्यास में लेखक ने एक साथ अनेक मोर्चे खोले हैं, जिसमें टैलीपैथी, लिंग परिवर्तन, सरोगेट मातृत्व, जीस हारमोन्स, व्यक्तित्व परिवर्तन, जीव—जन्तु और समुद्री प्रदूषण आदि का समावेश है। प्रस्तुत उपन्यास में संजीव ने मत्स्य उद्योग में लगी बहुराष्ट्रीय कंपनियों और सीमांत मछुआरों के बीच के संघर्ष को चित्रित किया है। आज पुरे देश के जल, जंगल, जमीन, पहाड़ नदी और प्राकृतिक संपदा को बेरहमी से छीनकर बेचा जा रहा है। उसी प्रकार आठ हजार किलोमीटर सागर तट के अधिकारों को भी स्थानीय मछुआरों से छीनकर बहुराष्ट्रीय कंपनियों को बेचने की साजिश की जा रही है। प्रकृति के संसाधनों पर कब्जा किया जा रहा है। संजीव ने प्रस्तुत उपन्यास में इसी समस्या को व्यापक स्तर पर उठाया है। वे चेतावनी देते हुए लिखते हैं “समुद्र में क्या प्रमाण है कि कौन कहां तक आया... इसलिए प्रतिरोध, पूंजी और विकल्प तीनों चाहिए, इसीलिए एकता चाहिए, सहकारिता चाहिए। जिस तरह पूरे देश के जंगल, पहाड़, नदी जमीन और संपदा को छीनकर बेचा जा रहा है, उसी तरह हमारे आठ हजार किलोमीटर सागर तट के अधिकारों को हमसे छीनकर बड़ी कंपनियों को बेच दिया जाएगा। अब भी वक्त है आप चेत जाइए।”⁴

आज औद्योगिकरण, आधुनिकीकरण और सुंदरीकरण के नाम पर समग्र विश्व का समुद्री वातावरण खतरे में पड़ा है। वर्तमान समय में समुद्र एक डस्टबिन हो गया है। प्लास्टिक का कचरा, रासायनिक अवशेष, कच्चा तेल, मोहार् उद्योग निर्माण, पर्यटन उद्योग, फिल्म उद्योग, बड़ी—बड़ी कंपनियाँ आदि सभी का कचरा समुद्र में छोड़कर उसे प्रदूषित किया जा रहा है। जिससे समुद्र की मछली, अन्य जीवों और पारिस्थितिकी तंत्र के लिए बहुत बड़ा संकट निर्माण हुआ है। संजीव लिखते हैं— “समुद्र एक डस्टबिन हो गया है। कोस्टल रेगुलेटरी जोन पांच सौ किलोमीटर का। सागर तट से पाँच सौ मीटर के अंदर आप कोई निर्माण कार्य नहीं कर सकते लेकिन इसका उल्लंघन सर्वत्र है, खुद सरकार के हाथों ही....। आप यहां ही देख लें, हारबर से भीमली तक विकास आधुनिकीकरण और सुंदरीकरण के नाम पर सरकार ने जगह—जगह वायोलेट किया है। दूसरे, स्टील प्लांट, विद्युत उत्पादन और दूसरी इंडस्ट्रीज का कचरा कहां गिरेगा तो समुद्र में! पूरे शहर का कचरा कहां गिरेगा तो समुद्र में मोटार निर्माण उद्योग, पर्यटन उद्योग, फिल्म उद्योग आ रहे

हैं। इनका कचरा भी समुद्र में ही आयेगा। मछलियाँ जिंदा रहें तो कैसे? मछलियाँ मरेंगी तो मछुआरे मरेंगे।'⁵ स्पष्ट है कि समुद्र मछली, अन्य जीवों और पारिस्थितिकी तंत्र के लिए घर है और आज उसी घर को प्रदूषित किया जा रहा है।

प्रकृति और मानव का संबंध अनादिकाल से है। लेकिन आधुनिक युग में मानव इस संबंध को भूल गया है। मानव और प्रकृति के संबंध में बड़ी खाई उत्पन्न हुई है। इसके फलस्वरूप मानव सहित जगत के सभी जीव—जन्तुओं को अनेकानेक पारिस्थितिकीय संकट भोगने पड़ते हैं। बाढ़, सूखा, अकाल, आँधी, त्सुनामी, बादलों का फटना, भूस्खलन आदि सब मानव निर्मित विभीषिकाएँ हैं। यह प्रकृति पर मानव के अनैतिक दखल का अंजाम है। हिमाचल प्रदेश के मुख्यमंत्री शांता कुमार ने अपने उपन्यास 'वृन्दा' में बड़े ही प्रभावशाली ढंग से एक आंचलिक प्रेम कथा के माध्यम से पारिस्थितिकीय चिंता को चित्रित किया है। लेखक ने स्वयं अपनी आँखों से प्रकृति के इस भयंकर विनाश को देखा था यही कारण है कि उपन्यासकार का चित्रण अत्यंत सजीव और मर्मस्पर्शी हुआ है। लेखक उपन्यास की भूमिका में लिखते हैं— “दो—तीन बार प्रदेश में कुछ स्थानों पर भयंकर वर्षा हुई। उसे अब 'बादल फटना' कहने लगे हैं। एकदम अचानक इतना पानी बहा कि पूरे का पूरा गांव उसकी लपेट में बह गया। मैं देखने गया। उस सर्वनाश को देखकर दिल दहल गया था। पानी के बहाव में तीन मंजिलें पक्के मकान नींव से उखाड़ कर कहीं दूर बिखरें पड़े थे। टनों वजन वाले पत्थर दीवारें तोड़कर कहीं के कहीं पहुंच गए थे। उस दृश्य को देखकर यह सोच पाना कठिन था कि दो ही दिन पहले वहाँ हंसता—खेलता गांव बसा था। मिट्टी व पत्थर मिले पानी के तेज बहाव के तूफान ने देखते—देखते पूरे गांव को श्मशान बना दिया था। बातचीत में कुछ वृद्ध लोगों ने बताया कि बादल फटने की यह घटनाएँ पुराने समय में नहीं होती थीं। जंगल कटे, धरती नंगी हो गई, मिट्टी का स्खलन बढ़ा, प्रकृति छलनी हुई तो अब यह प्रकोप होने लगे हैं।”⁶ लेखक प्रकृति के चीरहरण से क्षुब्ध है। वर्तमान युग में विकास के नाम पर प्रकृति के नाम पर प्रकृति के साथ हो रहे खिलवाड़ की चुभन ही प्रस्तुत उपन्यास लेखन की प्रेरणा रही है। प्रकृति ने करोड़ों सालों में एक अनुशासन और नियंत्रण की व्यवस्था बनाई थी जिसे आज यह मानकर बिगाड़ दिया है कि हम इसका विकल्प बन सकते हैं। गम्भीर बात यह है कि प्रकृति का यह नया संतुलन मानव जीवन के संतुलन को बिगाड़ रहा है। लेखक संपूर्ण मानव जाति को चेतावना देते हैं कि मानव जितनी जल्दी इस बात को समझ ले उतना ही अच्छा होगा अन्यथा हम सभी जानते हैं कि प्रकृति अपना बदला लेती है तो मानव का उस पर कोई वश नहीं चलता।

वर्तमान युग में जल समस्या इतनी विकट हो उठी है कि आकड़ों के अनुसार चालीस प्रतिशत लोगों के पास न्यूनतम स्वच्छतावाला जल नहीं है। संयुक्त राष्ट्रसंघ की यूनेस्को संस्था ने 1993 में 'विश्व जल दिवस' जैसी योजना से पूरे विश्व को जल—संकट के प्रति सचेत करने का प्रयास किया था। हिंदी की चर्चित लेखिका नासिरा शर्मा ने 'कुइयाँजान' के माध्यम से जल—संकट जैसी गम्भीर समस्या को अपने उपन्यास का विषय बनाया है। जल स्रोतों में नदियों का प्रमुख स्थान है। दुनियाभर में इन नदियों ने मनुष्य के जीवन—यापन में महत्वपूर्ण भूमिका का निर्वाह किया है। आज इन नदियों के लिए व्यक्तियों, राज्यों और देशों के बीच में तनाव की स्थिति निर्माण हुई है। इसका मुख्य कारण है 'जल—विवाद'। इस समस्या की ओर लेखिका ने उपन्यास में एक अखबार के संपादकीय 'जल ही जीवन है' के माध्यम से चिंता व्यक्त की है, “सारे विश्व में 261 प्रमुख नदियाँ एक से अधिक देशों से होकर गुजरती हैं। दुनिया के कुल नदी—जल—प्रवाह का 80 प्रतिशत इन्हीं में है। और जिन देशों से होकर ये गुजरती हैं उनमें संसार की 40 प्रतिशत जनसंख्या रहती है। पानी के कारण सामाजिक, आर्थिक, राजनीतिक तनाव पनपते हैं, जैसे भारत और पाकिस्तान, भारत और बांग्लादेश, भारत और नेपाल, सीरिया और तुर्की के बीच स्वयं भारत में कर्नाटक और तमिलनाडू के बीच कावेरी नदी को लेकर तनाव की स्थिति पनप चुकी है।”⁷ स्पष्ट है कि जल की समस्या बहुत विकट हो चुकी है। मनुष्य जल के बूंद—बूंद के लिए तरसने की लिए मजबूर है। वह दिन भी दूर नहीं है, जहाँ पानी के लिए युद्ध और महायुद्ध लड़े जाएँगे।

रत्नेश्वर सिंह के द्वारा लिखित उपन्यास 'रेखना मेरी जान' ग्लोबल वार्मिंग एवं प्राकृतिक आपदा की समस्या को आधार बनाकर लिखा गया है। आज हम इस बात को नकार नहीं सकते हैं कि ग्लोबल वार्मिंग की समस्या मानव की ही देन है। रत्नेश्वर सिंह ने प्रस्तुत उपन्यास में यही दिखाया है कि मार्च और मई महिने के बीच बांग्लादेश में जो भयंकर आंधी चलती है, उसे ही काल बैसाखी कहा जाता है। यही काल बैसाखी ग्लोबल वार्मिंग के रूप में बांग्लादेश में तब्दील हो जाती है। बढ़ते हुए समुद्री जलस्तर के कारण बांग्लादेश के साथ—साथ भारत के भी कुछ समुद्र तटवर्ती इलाके जलमग्न हो जाते हैं। प्रस्तुत

उपन्यास के माध्यम से रत्नेश्वर सिंह यही चेतावनी देना चाहते हैं कि यदि ग्लेशियरों का बड़ा हिस्सा पिघल जाएगा तो ऐसे में अनेक देश समुद्र में समाहित होने के कगार पर खड़े होंगे। लेखक लिखते हैं— “आज सुबह के अखबारों में यह चर्चा सुर्खियों में थी कि अब बांग्लादेश के पास बहुत कम समय बचा है। इस बीच अधिकांश देशों ने बांग्लादेशियों को वीजा देना बंद कर दिया है। हवाई जहाज भी बंद हो गया है। भारत का कहना था कि वह एक करोड़ बांग्लादेशियों को यहां पनाह दे सकता है पर सारे बांग्लादेशियों को यहां देना संभव नहीं है।”⁸

मानव अपने निजी स्वार्थ के लिए पर्यावरण प्रदूषण फैला रहा है। ज्ञान—विज्ञान, अनुसंधान के नाम पर वातावरण को दूषित कर रहा है। हमारे धर्म ग्रन्थ भी धरती की रक्षा करने की सीख देते हैं। ‘अपना मन उपवन’ में अभिमन्यु अनंत ने इसका वर्णन कुछ इस तरह किया है। “हमारे महान ग्रन्थों में कहा गया है कि हमें धरती की रक्षा करनी चाहिए। वातावरण को प्रदूषित होने से रोकना चाहिए। हमें चाहिए कि हम जहरीले तत्वों का विस्तार करने से अपने को रोकें, अनुसंधान और वैज्ञानिक और वैज्ञानिक प्रयोगों को विनाश का साधन न बनाएँ।”⁹ यदि हम इसी प्रकार प्रकृति का विनाश करते रहेंगे, तो प्राकृतिक आपदाओं के माध्यम से प्रकृति अपना प्रकोप दिखाएगी।

निष्कर्षतः

कह सकते हैं कि पारिस्थितिकी को बचाना आज के विश्व की सबसे बड़ी चिंता बन गई है। आज पारिस्थितिकी का विनाश मानवीय सुख—सुविधाओं के लालच के कारण हो रहा है। आज हमें प्रकृति का संतुलन बिगड़ने से कई प्राकृतिक आपदाओं का सामना करना पड़ रहा है। पारिस्थितिकी की चिंता को लेकर इक्कीसवीं सदी में पारिस्थितिकी विमर्श के रूप में कई उपन्यासों का सृजन हुआ है। पारिस्थितिकीय प्रदूषण के विरोध में इक्कीसवीं सदी के उपन्यासकारों ने अपनी आवाज बुलंद की है। इक्कीसवीं सदी के हिंदी उपन्यासकारों ने पारिस्थितिकी प्रदूषण से संबंधित जिन प्रश्नों को समाज के सामने उठाया है। उस पर सभी बुद्धिजीवियों को गंभीरता के साथ विचार—विमर्श करना आवश्यक है।

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पर्यारणातील नैसर्गीक संपदाचा ऱ्हास मानवी विकासास घातक

प्रा. सीमा व्ही. काळणे

(सहाय्यक प्राध्यापक)

विदर्भ महाविद्यालय बुलढाणा

मानव विज्ञान व तंत्रज्ञानात आपल्या बौद्धिक सामर्थ्याने प्रगती करत चालला आहे. मोठमोठाले कारखाने खानी उभारली आहेत. सुखसोयीने युक्त अशा साधनांची निर्मिती त्याने केली आहे. एका बाजूला विज्ञान तंत्रज्ञानातील प्रगती तर दुसऱ्या बाजूला केवळ मानवजातीलाच नव्हे तर सर्व सृष्टीतील चराचराला भेडसावणाऱ्या समस्या प्रकर्षाने समोर येत आहे. औद्योगिकरणामुळे मानवाची जीवनशैली बदलली आहे. त्याच्या प्रयत्नांना नवी दिशा वेगवान गती प्राप्त झाली आहे. परंतु ह्यासामधुन प्राप्त होणाऱ्या आनंदाची सुखसमाधानाची फळे चाखण्याचा काळ त्याच्या जवळ आला असतांनाही तो हा आनंद उपभोगू शकत नाही. कारण पर्यारणाचा ऱ्हास आणि ज्या नैसर्गीक स्रोतांच्या पुरवठ्यावर प्राणीमात्राचे जीवन अवलंबून आहे. त्या स्रोतांचा ऱ्हास ह्या समस्या आज प्रकर्षाने पुढे येत आहे. व्यक्तीच्या सुरक्षित व सोयीस्कर आस्तित्वासाठी पर्यारणातील समतोल आवश्यक बाब आहे. आज नैसर्गीक स्रोतांचा मर्यादित साठा असल्यामुळे मानवाच्या अमर्याद गरजा त्यातून पूर्ण होऊ शकत नाही. त्यामुळे ह्या स्रोतांच्या ऱ्हासाची कारणे जाणून घेणे व हा होणारा ऱ्हास थांबवणे ही काळाची गरज आहे. अन्यथा हा पर्यारणीय समस्या गंभीर स्वरूप धारण करतील.

● **नैसर्गीक साधनसंपत्तीचा ऱ्हास :-** “नैसर्गीक पर्यारणात हवा पाणी भूमि सजीव इ. चा समावेश होतो. यामधील जैविक व अजैविक घटकांमध्ये सतत आंतरक्रीया घडत असतात” (सं.१) आज पाणी, हवा, माती, खनिजे, उर्जा, विविध प्रजाती अशा नैसर्गीक साधनसंपत्तीचा ऱ्हास होत आहे. म्हणजेच पिण्याचे पाणी कमी प्रमाणात उपलब्ध होत आहे. वृक्षतोडी मुळे वने नष्ट होत आहे. / उर्जा देणाऱ्या इंधनांचा तुटवडा. प्राणी प्रजातींचा नाश, नैसर्गीक खनिजे उपलब्ध न होणे. आज आपली लोकसंख्या प्रचंड प्रमाणात वाढत आहे. ह्या वाढत्या लोकसंख्येला ही साधनसामग्री अपुरी पडत आहे. ह्या साधन सामग्रीचा ऱ्हास होत आहे. शाश्वत जीवनशैलीसाठी संपदांचा योग्य वापर आवश्यक आहे.

“पर्यावरण नितीशास्त्र मुख्यतः- पाच समस्यांचा अभ्यास करते १.प्रदुषण २. साधन सामग्रीचा दुरुउपयोग ३. वाढती लोकसंख्या ४. प्राण्यांविषयी माणसाची अभिवृत्ती ५. विविध प्रकारच्या प्रणालीचे स्वयंसिद्ध मुल्य.” ह्या समस्यांचे मानवावर गंभीर परिणाम होतात (सं.२)

● **पाणी या नैसर्गीक स्रोताचा ऱ्हास :-** पाणी हे मानवाचे जीवन आहे. आज आपण ग्रामीण भागात जर पाहिले तर ही गंभीर स्वरूपाची समस्या बनली आहे. ओल्या दुष्काळाची परिस्थिती तिथे निर्माण झाली आहे. पाण्याची उपलब्धता नाही. त्यामुळे पाण्याआभावी निरस जीवन जगावे लागत आहे. याचे कारण म्हणजे

- उपलब्ध पाण्याच्या नियोजनाचा अभाव
- पाणी वापरण्याच्या चुकीच्या सवयी.
- औद्योगिकरणासाठी पाण्याचा अतिरिक्त वापर.
- वृक्षतोड
- वाढती लोकसंख्या
- पाण्याच प्रदुषण
- उत्पादन क्षमता वाढविण्यासाठी पाण्याचा अतिरिक्त वापर
- पाण्याची पातळी वाढण्याच्या योजना विषयी अज्ञान.
- शिक्षणाचा अभाव ह्या कारणांमुळे आज जलसंपदाचा ऱ्हास होत आहे. याचे मानवी जीवनावर गंभीर परिणाम भोगावे लागत आहे.

दुष्काळ / भुजलपातळीत घट / उत्पन्नाचा तुटवडा / पिकांची हानी / रांगराई / जलप्रदुषण / पिण्याच्या पाण्याची गंभीर समस्या निर्माण झाली आहे. त्यामुळे वेगवेगळे आजार उदभवत आहे. डायरिया, अनिबार्थोसिस, पोटदुखी, मळमळ कॉलरा, काविळ यासारखे आजार फैलातात “पृथ्वीचा ७५: भाग हा पाण्याने व्यापलेला आहे. तरी जगभरात तीव्र पाणी टंचाई आहे. जगभरात पडणाऱ्या ४: पाऊस भारतात पडतो तरीही आपल्याला पाण्याची टंचाई सहन करावी लागते कारण पाण्याचे अतिशोषण, अतिवापर व पाण्याचे असमान वितरण यामुळे हे होते” (सं.पान ५६)

● **मृदा संपदेचा ऱ्हास :-** मृदा संपदेचे जतन / संरक्षण संवर्धन म्हणजे ह्या धरती मातेचे पांग फेडणे ह्याची आज अत्यंत आवश्यकता आहे कारण ह्या भुमाते मध्ये असंख्य प्रकारचे प्राणी वनस्पती सुक्ष्मजीव खनिज साठे असतात. पण विविध कारणांमुळे

हया मृदासंपदेचा ऱ्हास होत आहे. पृथ्वीच्या पृष्ठभागावरिल सर्वात वरचा जो थर आहे मृदा याची अवस्था खूप वाईट झाली आहे. वारा व पाऊस हयामुळे ती वाहून जात आहे त्यामुळे त्यातील पोषक घटकही वाहून जातात. शिवाय जमिन क्षारयुक्त बनत आहे. शहरी भागात मोठमोठाले पुल, रस्ते, इमारती यांच्यामुळे मृदासंपत्ती नष्ट होत आहे. मृदासंपत्तीचा परिणाम सर्वात अधिक कृषी क्षेत्रावर होतो. दरवर्षी तेच ते पीक घेत राहिल्यास जमिनीतील पोषक द्रव्याचे प्रमाण कमी होते. कारखान्यातून बाहेर पडणारी विषारी दुय्ये, घरातून बाहेर पडणारे अशुद्ध पाणी, कचरा / आम्ल पर्जन्य हयामुळे मृदासंपदेचा ऱ्हास होतो नापीकी / पुर / क्षाराचे वाढते प्रमाण हे सर्व मृदा ऱ्हासाचे दुष्परिणाम मानवाला भोगावे लागतात.

● **अन्नधान्य संपदाचा तुटवाडा :-** अन्नधान्याचा स्त्रोत म्हणजे शेती विकसनशील देशात व्यावसायाचे आधुनिकीकरण करण्यात आले. रासायनिक खतांचा वापर वाढला पर्यावणाचा समतोल बिघडला व अन्नसमस्थेने जागतीक स्वरूप धारण केले किटकनाशके / जंतुनाशके / तणनाशके यांच्या वापराने जमिनीची सुपिकता नष्ट झाली. कारखान्याच प्रदुषित पाणी शेतीमध्ये आल्यामुळे अन्नधान्ये दुषित झाली क्षाराच प्रमाण वाढल परिणामी अन्नधान्य उत्पादनात घट झाली. म्हणुनच “ पर्यावणाच्या समस्या सोडण्यासाठी समाज गट व्यक्तीस सक्रीय सहभाग घेण्यास संधी उपलब्ध करुन देणे आवश्यक आहे”(सं.४) पर्यावरण शिक्षण आजकाळाची गरज आहे.

● **खनिजे व उर्जा संपत्तीचा ऱ्हास :-** पृथ्वीच्या पृष्ठभागावर अनेक खनिजे अस्तित्वात आहे आयर्न कॉल्सीअम, सोडिअम, पॉटाशिम, पेट्रोल ,केरोसिन शिवाय मौल्यान रत्ने देखील खाणीतुनच मिळतात. कोळसा, खनिज तेल, हे स्त्रोत पुनर्नवीकरणीय नाहित शिवाय त्यांचे साठे मर्यादित आहे.

खनिजापासुन विविध औषधे ,रसायने बनविले जातातत्र वेगवेगळे यंत्र उदयोग वाहनांची निर्मिती बांधकाम, प्रयोगशाळा अशा वेगवेगळ्या ठीकाणी खनिजोचा वापर केला जातो. त्यामुळे मानव जास्तीत जास्त सुखसोयी प्राप्त करण्यासाठी हया साठयांवर तुटुन पडत आहे. त्यामुळे हया उर्जेच्या स्त्रोतांचाही ऱ्हास होत आहे. घरामध्ये विविध विधुत यंत्रांचा वापर तसेच कारखान्यात यंत्रांचा वापर आणि भु,जल, हवा हि वाहतुकीसाठी इंधनाचा वापर हयामुळे उर्जा साधनसंपत्ती नाश पावत आहे. कोळसा, नैसर्गीक वायु, खनिजे यांचे साठेही मर्यादित आहेत. त्यामुळे हया ऱ्हासाच्या समस्येकडे आज गांभिर्याने पाहणे आवश्यक आहे.“पर्यावरणीय घटक व समस्या या बाबतीतील आधुनिक विचारप्रणाली व कार्यक्षम दृष्टीकोन विद्यार्थी तसेच समाजातील सर्व घटकात रुजवुन निसर्गाविषयी कृतज्ञता. संसाधनाचे संधारण शाश्वत विकास व संतुलन यासाठी पर्यावरण शिक्षणाची आज गरज आहे.”(सं.५)

● **मानवी विकासाकरिता पर्यावरणीय संपदांचा योग्य वापर :-** हवा , पाणी ,वनसंपदा, मृदासंपदा, अन्नधान्य संपदा. वन्य प्रजाती संपदा हया निसर्गाने मानवाला मुक्त हस्ताने दिलेल्या संपत्ती आहे. परंतु मानवाने निसर्गाचा अजिबात विचार केला नाही. मानवाच्या आतताई पणामुळे त्याला कुपोषण ,रोगराई, महामारी, पर्जन्यातील घट, प्रदुषण , भुकंप भुमिपात अशा नैसर्गीक आपत्तींना तोंड दयावे लागत आहे. नैसर्गिक संपदाचा ऱ्हास झाल्यामुळे पर्यावरणीय संकट त्याच्यावर ओढावले आहे.मानवाचा आर्थिक / सामाजिक त्याचबरोबर सर्वांगीक विकास होण्यासाठी पर्यावरण संरक्षण गरजेचे आहे. त्याने जर पर्यावरणची काळजी घेतली तर शाश्वत जीवनशैली तयार होईल व त्याचा वर्तमानातीलच नाही तर भविष्यातील पिढीसाठी सुध्दा उपयोग होऊ शकतो

● **वने व वन्य प्रजातींचा ऱ्हास :-** आपल्या स्वार्थासाठी मानवाने पृथ्वीवरच्या सर्व संसाधनांवर घाव घातले आहे. त्यापैकी एक वनसंपदा आहे. मोठयाप्रमाणत जंगलतोड होऊन त्याठीकाणी रस्ते, पुल, धरणे, इमारती बांधल्या जात आहे. इंधनाकरीता, फर्निचर करिता आधुनिक सुखसोयीसाठी वृक्षतेड होत आहे. लोहमार्गासाठी शिवाय खाणकाम करण्यासाठी वनांचा नाश होत आहे. वृक्षतोडीमुळे वन्यजीव व वन्यपशु हयांचे अस्तित्वही नष्ट होत आहे. पृथ्वीवर प्राण्यांच्या व वनस्पतींच्या काटेयावधी प्रजाती आज नष्ट होत आहे ते वन संपत्तीच्या ऱ्हासमुळेच याला मानवाची अनैसर्गीक कृत्येक जबाबदार आहे. कालांतराने तर खरी जंगले नष्ट होऊन कॉक्रीटची जंगले तयार व्हायला वेळ लागणार नाही म्हणुन हया समस्येचा गांभिर्याने विचार हाणे आवश्यक आहे. “औद्योगिकीकरण व उपभोक्तावाद ही नैसर्गिक संसाधनाच्या ऱ्हासाची मुख्य कारणे आहेत प्रदुषणामुळे नैसर्गीक अधिवास नष्ट झाल्यामुळे शेती पशुसंवर्धन जंगली प्राणी व वनस्पती यांच्यावर परिणाम होतो.” (सं.पान ४३)

मानवी अस्तित्व व प्रगती ही निसर्गावर अवलंबुन असते. समाजातील प्रत्येक घटकाला पर्यावरण अनुकूल असायला हवे तसे जर नसेल तर त्याचं प्रतिकुल परिणाम मानवाला भोगावे लागतात त्यामुळे पर्यावरणीय समस्यांची साधक बाधक चर्चा करुन हया समस्यांविषयी जाणिव जागृत होणे आज काळाची गरज आहे. देशाची प्रगती जर करायची असेल प्रगतीच्या मार्गात अडसर बनणाऱ्या समस्या दुर करायला हव्या आज नैसर्गीक स्त्रोतांच्या ऱ्हासाला प्रमुख कारण प्रचंड वाढलेली लोकंख्या हे आहे. इतर ही कारणे आपण पाहली. आज सर्वांना पर्यावरण शिक्षणाची गरज आहे . माणाच्या वर्तनात व दृष्टीत बदल घडविणे आवश्यक आहे. नैसर्गीक संसाधनाचा समतोल वापर झाला पाहिजे नैसर्गीक साधनामुर्गीचे संरक्षण केले तर पर्यावरणीय तयांचे निवारण होईल हया करिता पर्यावरणाचे व्यवस्थापन आवश्यक आहे. : “मानव व निसर्ग यांच्यात समन्वय साधुन पर्यावरणाचे संतुलन बिघडू न देता प्रदुषणविरहीत पर्यावरण राखुन मानवाचे हित साधण्याचा ही शाखा प्रयत्न करते ” (सं.६) या शाखेचा उपयोग मानवी विकासास गती निर्माण करू शकते.

संदर्भ :-

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इंद्रजित भालेराव यांच्या कवितेतील निसर्ग

विश्वास बंडू सुतार

शिक्षण विस्तार अधिकारी, पंचायत समिती, करवीर जि. प. कोल्हापूर
(संशोधन विद्यार्थी, मराठी विभाग शिवाजी विद्यापीठ, कोल्हापूर)

प्रास्ताविक

'निसर्ग आणि साहित्य' यांच्यामधील अनुबंध अधोरेखित करण्याचा प्रमुख उद्देश या शोधनिबंधाचा आहे. खरंतर प्रत्येक साहित्यिक हा आपल्या सभोवतालच्या नैसर्गिक पर्यावरणाचे चित्रण आपल्या साहित्यकृतीतून साकार करत असतो. निसर्गाचा कमालीचा प्रभाव पडलेल्या साहित्यिक- कवींचा आणि त्यांच्या कवितेचा परामर्श घेणे उचित ठरणारे आहे. ज्यांचे मन सतत निसर्गात रमते, असे इंद्रजित भालेराव हे महाराष्ट्रातील एक आघाडीचे कवी म्हणून ओळखले जातात. निसर्गकवी म्हणून संत तुकाराम, केशवसुत, बालकवी, बा. सी. मर्ढेकर, ना. धों. महानोर, बहिणाबाई चौधरी, ना. घ. देशपांडे, विठ्ठल वाघ यांच्या वाटेवर चालून या वाटेचा राजमार्ग करणारे कवी म्हणून इंद्रजित भालेराव यांचा प्रामुख्याने उल्लेख करावा लागतो. त्यांच्या व्यक्तिमत्त्वाची जडणघडण आणि त्यांच्या कवितेतील निसर्ग अभ्यासणे मराठी वाचक, अभ्यासक, विद्यार्थी यांना निश्चितच दिशादर्शक आणि मार्गदर्शक ठरणारे आहे.

निसर्ग संकल्पना

'विश्व हा नैसर्गिक पदार्थांचा एक समुच्चय किंवा व्यवस्था आहे. याचा अर्थ निसर्ग म्हणजे विश्व ठरते आणि निसर्गापलीकडे काहीच असू शकत नाही, हे एक तार्किक सत्य करते.' (रेगे १९७९:पृ.७८०) आपल्या सभोवतालच्या दृश्य- अदृश्य, श्राव्य- अश्राव्य, स्थूल- सूक्ष्म अशा सर्व घटकांचा समावेश निसर्ग या संकल्पनेत होतो.

'माणूस आणि मानवी समाज हाही या निसर्ग व्यवस्थेचा एक भाग आहे... माणसाचे सर्व व्यवहार, मानवी व्यक्तींचे शारीरिक, मानसिक व्यवहार, व्यक्तींच्या गटांचे सामाजिक व्यवहार, मानवी संस्था इत्यादी सर्व गोष्टी निसर्ग व्यवस्थेचा एक भाग आहेत.' (तत्रैव:पृ.७८१)

मात्र मनुष्यप्राणी स्वतःला निसर्ग पर्यावरणाहून वेगळा समजतो. इथेच त्याचा भ्रम होतो. वस्तुतः या सृष्टीचे चलनवलन पंचमहाभूतांच्या संयोगातून होते, असे मानले जाते. सृष्टीतील सजीव व निर्जीव घटकांचे पृथक-पृथक स्वरूप व्यष्टी रूपात व्यक्त होत असले तरी समष्टीच्या स्वरूपाने निसर्गाचे सारे रूप एकसंध दृग्गोचर होते. अशा नैसर्गिक परिसंस्थेचे आणि परिवेशाचे डोळस आकलन होऊन जाणीव जागृती होणे आवश्यक नव्हे; तर अनिवार्य ठरते आहे. साहित्य या कामी पोषक आणि पूरक भूमिका बजावते आहे. साहित्याच्याद्वारा निसर्गातील विविध रूपांचा अविष्कार होतो आणि मानवी मनाचे उन्नयन होते. निसर्गप्रतिचे माणसाचे नाते अधिकच घट्ट होते.

साहित्यातील निसर्ग

निसर्गाच्या सहभागाशिवाय साहित्य अधुरे, अपुरे ठरते. अगदी प्राचीन काळापासूनच्या साहित्यात निसर्गाचे प्रतिबिंब आढळतेच. एकोणिसाव्या शतकात फ्रान्समध्ये साहित्यातील निसर्गवादाचे महत्त्व वाढू लागले. फ्रेंच कादंबरीकार एमिल झोला (१८४०- १९०२) यांनी 'निसर्गवादी साहित्यिक साहित्याच्या प्रयोगशाळेत मानवी प्रकृतीवर आणि समाजजीवनावर प्रयोग करू शकतो' असे नमूद केले आहे. (सरदेसाय, मनोहरराय १९७९:पृ.७८२) यावरून निसर्ग आणि माणूस यांच्यातील साम्य, भेद आणि द्वंद्याचे निरीक्षण साहित्यिक करतो. स्वतः प्रत्यक्ष अनुभूती घेतो. हेच निरीक्षण आणि अनुभव तो शब्दरूपाने कागदावर उतरवतो.

मराठी साहित्यात मारुती चितमपल्ली, ना. धों. महानोर यांनी साहित्यात निसर्ग अक्षरशः जिवंत रेखाटला आहे. आता सलीम मुल्ला, दत्ता मोरसे असे नव्या पिढीचे प्रतिनिधी आपल्या साहित्यात निसर्गाचे बारकावे टिपत आहेत.

कवितेच्या प्रांगणात निसर्ग सहजतेने फुलून येतो. निसर्गकवितेत नवनवीन प्रतिमासृष्टी कवीला साकारता येते. मुंबईतील एका साहित्य संमेलनात बा. सी. मर्ढेकर यांनी एक सिद्धांत मांडताना म्हटले होते- 'काव्यात नवीनता येते ती नवीन प्रतिमासृष्टीमुळे आणि नवीन भावनानिष्ठ समानता (Emotional Equivalence) प्रकट झाल्या की काव्य नवे होते.' (जोग २००७:पृ.४०) यानुसार कवी

आपल्या अनुभव आणि प्रतिभेने निसर्गाची विविध रूपे मानवी जीवनात प्रक्षेपित करतो. मानवी मूल्ये निसर्गातील घटकांच्या आधारे प्रस्थापित करण्याचा प्रयत्न करतो.

इंद्रजित भालेराव यांच्या कवितेत निसर्गातील प्रतिमासृष्टी मुक्तपणे अवतीर्ण होते. त्यांच्या जगण्याच्या प्रेरणाच मुळी निसर्गात असल्याने त्यांचे जीवन आणि निसर्ग असा अतूट बंध त्यांच्या कवितेत आढळतो. इंद्रजित भालेराव यांचे व्यक्तिमत्त्व आणि त्यांच्या कविता या दोन्ही गोष्टी व्यामिश्र रूपात आपल्यासमोर येतात. त्यांना सुटे- सुटे वेगळे करता येत नाही. या अनुषंगाने भालेराव यांचे व्यक्तिमत्त्व समजून घेणेही रोचक ठरणारे आहे.

इंद्रजित भालेराव- जडणघडण

इंद्रजित भालेराव यांचा जन्म हिंगोली जिल्ह्यातील रिधुरा या छोट्याशा गावी झाला. त्यांचे शारीर वय कळावं म्हणून, त्यांचे जन्मसाल १९६२! त्यांचे बालपण रिधुरा या खेडेगावात गेले. गावात पहिली ते चौथीपर्यंत प्राथमिक शाळा. कावळे गुरुजी शिकवायचे. गाव छोटे असल्याने आजूबाजूचा संपूर्ण निसर्ग, पर्यावरण खुणावायचं. मस्त बागडणं व्हायचं. गुरं राखावी लागायची. दुपारच्या वेळी गाईंच्या वासरांना स्वतःची भाकरी खाऊ घालून स्वतः कोवळे गवत खात गाईंच्या मागे धावणारा बाल इंद्रजित नवे निसर्गतत्त्व शोधत होता. शेतातील कामेही करावी लागत. त्यामुळे बालपणातच शेती आणि निसर्गाशी पक्की नाळ जोडली गेली. बालवयातच ग्रामीण संस्कृतीने श्रम संस्काराचा आदर्श पाठ त्यांना घालून दिला. कुमारवयात आईच्या जात्यावरच्या हजारो ओव्या ऐकत ऐकत भालेराव यांचे कान आणि कवीमन प्रगल्भ आणि समृद्ध होत होते.

घरामध्ये महानुभाव संप्रदाय आणि वारकरी परंपरा सुरू असल्याने या दोन्ही संप्रदायांच्या विचारदृष्टीचा प्रभाव भालेराव यांच्या व्यक्तिमत्त्वावर झालेला आहे. धार्मिक वातावरणामुळे वेगवेगळे पोथीग्रंथ त्यांच्या कानावरून बालपणीच गेले होते. मंदिरातील आरत्या, भजने, ओव्या, किर्तन याबरोबरच गावातील म्हाताऱ्या-कोताऱ्या स्त्रियांच्या ओव्यांकडे त्यांचे लक्ष आकृष्ट झाले. मराठवाड्याची विशिष्ट अशी भौगोलिक संस्कृती त्यांनी पाहिली, अनुभवली, रिचवली आणि पचवलीही आहे. ग्रामीण जीवनातील शेतकऱ्यांची दुरवस्था, स्त्रियांचे प्रश्न, त्यांचे हळवे मन, माहेर आणि सासर याविषयीचे स्त्रीयांचे हृदगत, नातेसंबंध, लोकपरंपरा, चालीरीती, रूढी, समजुती या साऱ्यांचे आकलन भालेराव यांना कळत्या वयात कमालीच्या गतीने झाले आहे.

विद्यापीठीय शिक्षणात प्रा. प्रभाकर मांडे यांनी प्रोत्साहन दिल्याने जात्यावरच्या सुमारे दोन हजार ओव्यांचे संकलन भालेराव यांना करता आले. शांताबाई शेळके, पु. ल. देशपांडे, व्यंकटेश माडगूळकर यांनी भालेराव यांच्या कवितेवर पहिल्यांदा लेख लिहिले.

इंद्रजित भालेराव यांच्या साहित्यिक योगदानाबद्दल त्यांना महत्वाचे बावीस पुरस्कार लाभले आहेत. कवितेच्या प्रांतात जिवंतपणी 'समग्र कविता' संपादित होण्याचा स्वान्तसुखाय अनुभव बोरकरांनंतर इंद्रजित भालेरावांना लाभला आहे. परभणीच्या ज्ञानोपासक महाविद्यालयात मराठीचे अध्यापन करत इंद्रजित भालेराव मराठी साहित्य आणि आपल्या कवितांचे सारतत्त्व पुढच्या पिढीकडे संक्रमित करीत आहेत.

इंद्रजित भालेराव यांच्या कवितेतील निसर्गचित्रण

आजमितीला इंद्रजित भालेराव यांचे अकरा कविता संग्रह, एक कादंबरी, सहा ललितबंध व इतर साहित्य संपदा प्रकाशित झाली आहे. या सर्व साहित्य संपदेच्या केंद्रस्थानी अर्थातच निसर्ग आहे. समग्र बी. रघुनाथ चार खंडात प्रकाशित करून भालेराव यांनी उत्कृष्ट संपादनाचा पुरस्कारही प्राप्त केला आहे. त्यांची निसर्गाप्रती असलेली निष्ठा आणि त्यांचे निसर्गावरील अतूट प्रेम त्यांच्या साहित्यात प्रतिबिंबित होताना दिसते.

'पीकपाणी (१९८९), आम्ही काबाडाचे धनी (१९९२), दूर राहिला गाव (१९९४), कोळंबिणीची कहाणी (१९९६), रानमळ्याची वाट (१९९६), गावाकडं (१९९८), पेरा (२००२), टाहो (२००४), मुलुख माझा (२००८), वेचलेल्या कविता (२००९), भूमीचे मार्दव (२०११) या साऱ्या कवितासंग्रहांची शीर्षके पाहिली तरी आपल्या लक्षात येईल की इंद्रजित भालेराव यांच्या साहित्यावर निसर्गाचा प्रकांड प्रभाव दिसून येतो. किंबहुना निसर्गाने ओतप्रोत असलेले साहित्य म्हणून भालेरावांच्या कवितेकडे पाहता येते.

निसर्ग कविता म्हणजे केवळ ग्रामीण कविता नव्हे. तथापि नागर भागापेक्षा ग्रामीण भागात नैसर्गिक पर्यावरण विविधतेने दिसून येते. त्यामुळे भालेराव यांची कविता ग्रामीण दर्शन आणि चित्रण करताना दिसते. ती जशी निसर्गातील विविध घटकांची ओळख करून देते. तशी त्या संदर्भात पुरुष, स्त्री, शेतकरी, प्राणी- पक्षी यांच्याशीही नाळ जोडते. भालेरावांचा 'पीकपाणी' हा पहिला काव्यसंग्रह १९८९ साली प्रकाशित झाला. तथापि त्यांची कविता त्यांच्या बालपणापासूनच त्यांच्या सोबत होती. 'इंद्रजित भालेराव यांनी एके ठिकाणी म्हटले आहे- 'मी माझ्या आईच्या जात्यावरच्या ओव्या डोळ्यासमोर ठेवूनच कविता लिहिल्या आहेत. त्यांच्या आईची ही एक ओवी पाहा-

तिफणं ग बाई तुझं चालणं चंचळ

झाली पेरणी पातळ कणसं पडले कंबळ' (इंद्रजित: २०१३)

आधुनिक शेतीचं तत्त्वज्ञान सांगणारी ही ओवी आहे. तिफण चंचल असल्याने पेरणी पातळ होते. पण पीक जोमदार येते. दोन ओळीत किती दूरदृष्टी आहे! या नमुन्यावरून भालेरावांच्या समग्र कविता पाहिल्या तरी त्यांच्या कवितेवर ओव्यांचा प्रभाव अधिकतर दिसून येतोच.

इंद्रजित भालेराव यांना आपल्या ग्रामीण व शेतीनिष्ठ आविष्काराचा कोणताही न्यूनगंडवाटत नाही. याउलट उच्चरवाने आपल्या कवितेत म्हणतात-

माझ्या कवितेला यावा शेना- मातीचा दर्दळ

तिने करावी जतन काट्याकुट्यात हिर्वळ

माझ्या कवितेने बोल काळजातला बोलावा

उन्हाळ्यात खापराला जसा असतो ओलावा

भालेरावांच्या 'पीकपाणी' (१९८९) या पहिल्या कवितासंग्रहातील ही पहिलीच कविता आहे. त्यानंतर तब्बल बावीस वर्षांनी त्यांनी 'भूमीचे मार्दव' (२०११) या संग्रहात लिहिलेल्या कवितेच्या ओळी अशा आहेत-

शेत माझा ग्रंथ। पीक माझी ओवी।

यमक जुळवी। अध्यात्मासी।

ही वैचारिक प्रगल्भता व समृद्धता डोळस अनुभव, कविता आणि निसर्गावरील निष्ठा व लेखणीच्या निरंतरतेने येते. 'भूमीचे मार्दव' हे शीर्षकच उच्च कोटीच्या परिपक्वतेचे निदर्शक ठरते. इथे भालेरावांच्या विकसनशील जाणिवेचे वर्तुळ पूर्ण झालेले दिसते.

'धत्तुरा' या प्रादेशिक शब्दाचा चपखलपणे वापर 'सांगा माझ्या बापानं नाही केला पेरा' या कवितेत भालेराव करतात. धत्तुरा म्हणजे धोतरा. उपाशीपोटी अन्न नाही मिळालं तर धोतरा खाणं म्हणजे आत्महत्याच. धत्तुराचा दुसरा अर्थ शिव्या, असाही होतो. 'सांगा माझ्या बापानं नाही केला पेरा, तर तुम्ही काय खाल?' धत्तुरा! असा द्विअर्थात्मक प्रश्न विचारून शेतकऱ्याचं महत्त्व अधोरेखित करण्याचा प्रयत्न भालेराव करतात. पुढे याच कवितेत,

'आकाश, माती, पाणी, उजेड, वारा

यांसारखंच शेतकरीही सृष्टीचं सहावं तत्त्व आहे'

असं नवं अध्यात्म मांडून भालेराव आशावादी दृष्टिकोन बाळगतात. निसर्गातील प्रतिमा सृष्टीची पेरणी इंद्रजित भालेराव यांनी आपल्या कवितेत नेमकेपणाने केलेली आहे. रूपकांचा यथोचित वापरही ते करतात. काही प्रातिनिधिक कवितेंच्या ओळी पाहू. कंसात प्रतिमा दिल्या आहेत.

१) माझ्या गावच्या पाण्याचे खोल जमिनीत झरे

कुणी फाकवा रे माती झरे होतील पिसारे (माती, पिसारे)

२) शेतच इमाना शेत माझा मळा।

शपथेचा गळा। शेत माझे।

जळालेली माती। करायला लोणी।

येईल का कोणी। भूमिपुत्र। (इमान, लोणी)

३) साळ पिवळी पिकली, ओल्या भारानं वाकली

सुगंधली ओटीपोटी, जणू चंदनाची उटी

चीक झाला घट्ट घट्ट, जणू साखरेचे पीठ

कुसळाचा करवत, जणू तल्वारीची पातं
आताकोवळ्या हातानं, चिमणीच्या दातानं
नाळ कापावी कापावी, आणि अग्नीला ओपावी
(निसर्ग आणि स्त्री प्रकृती साम्य)

४) ही पृथ्वी

पावसानं न्हावू घातल्यावर
बापानं

नांगरानं विंचरली आहे

माईनं तेलतीट लावून

ओव्या म्हणून

जोजवली आहे

मी मात्र निकरत

भाऊ म्हणून

तिच्यासाठी काहीच करत नाही

अशी तिची तक्रार आहे (विंचरली, तेलतीट)

५) लेणीमधल्या शिल्पाला

केळीसारखा गाभा नाही

इंद्रसभेच्या छताला

केळपानाची आभा नाही

केळपान लावल्याशिवाय

पंगतीला शोभा नाही (केळीचा गाभा, इंद्रसभा छत)

६) स्वर्गातून पृथ्वीवर येताना

गाईच्या खुराला लागून

गवताचं बी पृथ्वीवर आलं

इथल्या मातीचं झालं

म्हणून आई म्हणायची,

गवत गाईच्या माहेरचं आंदण आहे

गाय जेवढी चरत जाईल

तेवढं ते वाढत राहील (गाईचे खूर, गवताचं बी, माहेरचं आंदण)

७) रानोमाळ बसलेले श्रोत्यासारखे दगड

सुळक्याचा वक्ता त्यांना देतो भाषण बोजड (दगड श्रोता, वक्ता)

८) आभाळ दऊत। पावसाची शाई।

सज्ज झाली भुई उफाणून। (दऊत, शाई, भुई)

वरील सर्व कवितांशातील प्रतिमासृष्टी मानवी जीवनाशी कितीतरी निगडीत आहेत. निसर्ग आणि मानवी जीवनाच्या दैनंदिन लयीशी भालेरावांची प्रतिमासृष्टी तादात्म्य पावते. ती तिचा मूळ गाभा आणि आशय शेवटपर्यंत बिघडू देत नाही. चार-साडेचारशे कविता लिहूनही रुपके आणि प्रतिमासृष्टीच्या नावीन्यामुळे भालेरावांची कविता ताजी आणि रसरशीत वाटते. प्रत्येक वेळी ती एकदम काळजाला हात घालते आणि तद्वत विचार प्रवृत्तही करते. शाळेतल्या मुलांना ती गुणगुणावीशी वाटते (बाप). स्त्रियांना ती आपलीशी वाटते (उभ्या उभ्या आडरातर येऊन जाय गं लेकी). तर शरद जोशी, एन.डी.पाटील यांच्या शेतकरी चळवळीचे प्रेरणागीतही भालेरावांची कविता ठरते. (शीक बाबा शीक) निसर्ग नियम आणि मानवी मनाचे कंगोरे इंद्रजित भालेराव सहज भावाने टिपतात. कथात्म निवेदन पद्धतीने ते कवितेत उतरतात.

रानलहू आणि पानलहू
नावाचे जुळे भाऊ गवतातही आहेत
माणसातल्या भावांसारखेच
तेही भिन्नप्रकृती भिन्न स्वभावाचे आहेत
या कवितेत लव्हाळी आणि कुसळी या दोन गवत प्रकारांना थेट लवकुशाच्या रूपात भालेराव सादर करतात. प्रतिकात्मक अर्थ सांगत ही कविता नवं गूढ उकलण्याचा प्रयत्न करते.

'ताडमाड वाढले मी' या कवितेत एक मुलगी निसर्ग नियम स्पष्ट करते. ते असे- उद्या येणार पाहुणे आज काय काय शिकू काल कच्ची होतेआज एकाएकी कशी पिकू'
'उपाय' ही सुद्धा अशीच एक घणाघाती कविता निसर्गाच्या आधारे कथात्मक पद्धतीने येते.
सहा बैलांच्या नांगराशिवाय
यांचं काळीज उकलणार नाही...
यांची पडिक बुद्धी
आपण बटाईनं करूया
खूप मेहनत करून
चांगली पिकवूया...

यांचा मेंदू
गायीच्या शेणामुतात घोळसून
गंगेकाठच्या शेतात
खोल खोल पुरावा
मग त्यांच्या डोक्यात
चांगले विचार उगवतील

याच दृष्टीच्या 'मेघा, मेघा', 'एक बी बेवारस', 'हरळी' अशा कितीतरी कविता वेगवेगळ्या रूपात इंद्रजित भालेराव नव्या रूपबंधात मांडतात. हा रूपबंध कधी अल्पाक्षरी असतो तर कधी दीर्घ स्वरूपात; कधी सरळसोट तर कधी रूपकात्मक.

'पाऊस' हा तर प्रत्येक कवीला आवडीचा आणि हक्काचा विषय. 'पावसा पावसा, पिसारा फुलू दे। कोवळ्या हाताला पागोळ्या झेलू दे।' असे भालेराव म्हणत असले तरी त्यांची अवकाळी पावसावरील कविता विशेषत्वाने समजून घ्यायला हवी. पावसाचा धक्का करणारी कविता भालेरावच लिहू जाणोत. त्याला कारणही तसेच आहे. त्यांच्या अनुभवांची दाहकताच प्रतिभेच्या रूपाने आविष्कारीतहोते. इंद्रजित भालेराव लिहितात,

आज आलं हे आभाळ नाही वारं- वावधान
वन्ही बसलंहाटून खाली फुलोऱ्यात धान..
आलं आलं हे आभाळ आलं सुगीच्या दिसात
माती कालविली यानं हातामधल्या घासात

हातातोंडाशी आलेले पीक अवकाळी पावसाने निघून जाताना शेतकऱ्याच्या मनाची होणारी नेमकी अवस्था या कवितेत मांडलेली दिसून येते.

मराठवाडा ही भालेराव यांची जन्मभूमी. त्यांच्या व्यक्तिमत्त्व, प्रतिभा आणि कवितेला या प्रदेशाची पार्श्वभूमी आहे. दहा चरणांची 'दक्षिण गंगा' शीर्षकाने कविता रचून भालेराव मराठवाड्याप्रती कृतज्ञता व्यक्त करतात. त्यांचे शब्द असे आहेत-
गंगथडीचा मराठवाडा म्हणतो गोदे वरदे
मुलुख माझा मराठवाडा आतून नाद निनादे

शेवटी एका कवितेचा उल्लेख करणे अनिवार्य वाटते. ज्या कवितेने इंद्रजित भालेरावांना सिद्ध आणि प्रसिद्ध केले, ती कविता म्हणजे 'गावाकडं'.

काट्याकुट्यांचा तुडवीत रस्ता
माझ्या गावाकडं चल माझ्या दोस्ता
कशी उन्हात, उन्हात तळतात माणसं
कशी मातीत, मातीत मळतात माणसं
कशी खातात जीवाला खस्ता
माझ्या गावाकडं चल माझ्या दोस्ता

भालेरावांचे हे भावपूर्ण आवाहन महात्मा गांधीजींच्या 'खेड्याकडे चला' चे स्मरण करून पुनरुच्चार करते. यात केवळ उपदेशाचे डोस नाहीत तर वर्तमानातील वास्तवाचे भान दर्शविणे आहे. जागतिकीकरणाच्या पार्श्वभूमीवर गावाकडून शहराकडे जाण्याच्या वाटा मोठ्या होत आहेत. नागरीकरणाचे आकर्षण असलेल्या मुलाला हे संबोधन आहे. शेतकऱ्यांच्या 'घामाचा भाव लय सस्ता' अशा मोजक्या शब्दात भालेरावांनी जोरदारपणे वस्तुस्थिती रेखाटली आहे. भालेरावांना पुढच्या पिढीकडून परिवर्तनाची हिरवी क्रांती अपेक्षित आहे. म्हणून ते पुढच्या पिढीकडून निसर्गाच्या संरक्षण आणि संवर्धनाची अपेक्षा व्यक्त करतात. मात्र हा रस्ता सरळ-सोपा नाही; काट्याकुट्यांचा म्हणजे अडचणी, समस्यांचा आहे हेही स्पष्ट करतात. भालेराव यांची कविता केवळ रंजन, प्रबोधन करित नाही, तर ती काळाच्या पुढे जाऊन नव्या वाटेचे सूचन करते. त्यांच्या सर्व कवितांमध्ये निसर्ग त्यांना हात आणि साथ देतो.

(उमरीकर: २०१६ व शिंदे: २०२१)

उपसंहार

इंद्रजित भालेराव यांच्या कवितेतील निसर्ग चित्रणाचा धांडोळा काही प्रातिनिधिक कवितांच्या आधारे घेण्यात आला आहे. खरंतर भालेराव यांची कविता निसर्ग व्यापून उरते. त्यांची कविता निसर्गाच्या आदर्श पर्यावरणाला कवेत घेते. समग्र पर्यावरणाचा विधायक व सर्जनशील विचार करताना विविध रूपके व प्रतिमांचा वापर भालेराव व्यवच्छेदकतेने करतात. शब्दकळा, भाषाशैली, मराठवाडी भाषेचा सहज वापर यामुळे ही कविता सर्वानाच आपलीशी वाटते.

विनय हर्डीकर यांनी इंद्रजित भालेराव यांच्या व्यक्तिमत्त्व आणि कवितेवर एक कविताच लिहिली आहे. या गौरवपर कवितेतील चार ओळी-

रंग कोरडवाहूचे तुझ्या कवितेत आले
सारे काबाडाचे धनी माझे सोयरेच झाले
तुझ्या शब्दांच्या शेतात वाटा माझाही असू दे
शेतकरी वास्तवाचे भान सजग राहू दे
(हर्डीकर, २०२०: लेख)

नव्या पिढीने भालेरावांच्या कवितेचे समग्र संशोधन आणि अभ्यास करणे आवश्यक वाटते. यापुढेही इंद्रजित भालेराव आपल्या कवितेच्या मळ्यात सकस फुले-फळे रुजवतील, बहरवतील अशी खात्री वाटते.

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पर्यावरण का हिंदी साहित्य में महत्त्व

सौ. रोहिणी गुरुलिंग खंदारे

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प्रस्तावना—

पर्यावरण और मानव का रिश्ता आदिकाल से अटूट रहा है। साहित्य और पर्यावरण का अन्तर्संबंध सृष्टि के आदिकाल से ही स्थापित हो रहा है। साहित्य पर्यावरण की छोटी-छोटी गतिविधियों को भी स्वयं में समाहित किए हुए है। वैदिक साहित्य से लेकर आधुनिक साहित्य तक पर्यावरण उसका अभिन्न अंग रहा है। प्रकृति पर चेतना का आरोप करके कवि उससे बातें करता रहता है। छायावादी कवित सुमित्रानंदन पंतजी का प्रकृति के साथ अविच्छिन्न संबंध है। जिसप्रकार करुणा का नाम लेते ही अपने जीवन में मंदिर के नीरव दीप की भाँति जलती हुई महादेवी की मूर्ति सामने झूलने लगती है उसीप्रकार प्रकृति के प्रसंगमात्र से पंत जी का काव्य साकार होकर अपने रचयिता के साथ आँखों के सामने आ जाता है। पंत और प्रकृति का यह संबंध केवल कवि जीवन का ही साथ नहीं है बल्कि शैशव का संग है। काल के क्रूर हाथों से शीर्ष ही माँ की वात्सल्यमयी गोद छिन जाने पर प्रकृति ने ही तो शिशु पंत को अपने असीम अंचल में लेकर माँ का सा दुलार वत्सलता प्रदान की।

“प्रकृति गोद में छिप क्रीडा प्रिय, तृण तरू की बातें सुनता मन,
विहंगों के पंख पर करता, पार नीलिता से छाया मन ।”

पंत जी जैसे अनेक हिंदी साहित्यकार प्रकृति के साथ अपने सुख-दुख, च्हास-परिहास की बातें करते हैं। प्रकृति उनके साथ हँसती है, रोती है। प्रकृति उनके लिए माँ भी है और प्रियसी भी है—जिसके साथ वे अपने मन की सभी बातें करते हैं। हिंदी साहित्यकारों ने प्रकृति का आलंबन, उद्दीपन, मानवीकरण, अलंकार, लोकशिक्षा तथा उपदेश आदि रूप में चित्रण किया है।

अ) आलंबन के रूप में प्रकृति का चित्रण

जब प्रकृति में किसी प्रकार की भावना का अध्याहार न करके प्रकृति का ज्यों का त्यों वर्णन किया जाता है तो वह आलंबन रूप होता है। जैसे —

१) बिहारी

बिहारी ने प्रकृति का आलंबन रूप में चित्रण करते हुए अनेक मार्मिक दोहे लिखे हैं, जिनसे, प्रकृति का साकार चित्र उपस्थित हो जाता है। गर्मी की प्रचंडता से व्याकुल होकर सर्प और मोर, हिरन और बाघ एक स्थान पर बैठे हैं, लगता है इस भयंकर ग्रीष्म ऋतु ने संसार को तपोवन के समान राग, व्देष से रहित कर दिया है।

“कहलाने एकत बसत अहि, मयूर, मृग बाघ ।
जगत तपोवन सो कियो दीरघ दाघ निदाघ ॥”

२) जयशंकर प्रसाद

‘कामायनी’ में प्रकृति के आलंबन रूप का चित्रण सर्वाधिक हुआ है। इसमें एक ओर प्रातःकाल के वातावरण को समग्रता प्रदान की है तो दूसरी ओर चाक्षुष बिंब उपस्थित किया है।

“सिंधू सेज पर धरा वधू अब, तनिक संकुचित बैठी सी
प्रलय—निशा की हल बल स्मृति में, मान किए—सी ऐठी सी।”

३) सुमित्रानंदन पंत—

पंत जी के काव्य में आलंबन रूप का वर्णन काफी मिलता है। जैसे पर्वत प्रदेश में पावस’ कविता में वर्णन किया है।

“गिरि का गौर व गाकर फर—फर मद में नस—नस उत्तेजित कर
मोति की लड्डियों से सुंदर झरते हैं झाग भरे निझर।”

४) अयोध्यासिंह उपाध्याय हरिऔध

हरिऔध जी ने गोवर्धन पर्वत की शोभा का वर्णन निम्न छंद में किया है।

“ऊँचा शीश सहर्ष शैल करके था देखता व्योम को ।
या होता अति ही सगर्व वह था सर्वोच्चता दर्प से ॥”

ब) उद्दीपन के रूप में प्रकृति का चित्रण

जहाँ प्रकृति मानवीय भावनाओं को उद्दीप्त करती है वहाँ उद्दीपन रूप में प्रकृति चित्रण होता है। संयोग काल में प्रकृति सुख को उद्दीप्त करती है और वियोग काल में विरह वेदना को उद्दीप्त करती है।

१) जायसी—

‘पद्मावत’ में प्रकृति का चित्रण उद्दीपन रूप में प्रमुखता से किया गया है। नागमती की विरह वेदना का निरूपण निम्न पंक्तियों में किया है।

“खडग बीजु चमके चहुं ओरा । बुंद बान बरसै घनघोरा ।
दादुर मोर कोकिला पीऊ । गिरे बीजु घट रहे न जीऊ॥”

२) सुमित्रानंदन पंत

विरहकाव्य तो उद्दीपन के बिना चल ही नहीं सकता । उपवन के खिले हुए फूल एवं उन पर गुंजार करते भ्रमरों को देखकर विरहों के प्राण व्याकुल हो उठते हैं ।

“देखता हूँ जब उपवन पियालो में फूलों के
प्रिये भर भर अपना यौवन पिलाता है मधुकर को
अकेली अकुलती सी प्राण कहीं तब करती मृदु आघात
सिहर उठता कश गात ठहर जाते हैं पग अज्ञान ।”

३) मैथिलीशरण गुप्त

सकित के नवम् सर्ग में उर्मिला का विरह वर्णन कवि बड़े मनोयोग से किया है। शरद ऋतू का आगमन होने पर खंजन पक्षी दिखाई देने लगते हैं, धूप खिल गई है, सरोवर जल से भरे दिखाई दे रहे हैं और ‘स’ उनमें क्रीड़ा कर रहे हैं । विरहणी उर्मिला को शरद के रूप में अपने प्रिय लक्ष्मण के विभिन्न अंगों के दर्शन हो रहे हैं । वह अपनी सखी से कहती है—

“निरख सखी ये खंजन आए ।
फेरे उन मेरे रंजन ने नयन इधर मनभाए ।
फैला उनके तन का आतप मन से सर सरसाए ।
धूमे वे इस ओर वहाँ ये हंस यहाँ उड छाए ।”

४) हरिऔध —

राधा की विरह वेदना ‘प्रियप्रवास’ के षष्ठ वर्ग में चित्रित है। वह पवन को अपना दूत बनाकर प्रियतम श्रीकृष्ण के पास मथुरा भेजती है और पवन से यह अनुरोध करती है कि चरण धूल ला दे । मैं उसी को लगाकर अपने —हृदय को शांत कर लूँगी ।

“छू के प्यारे कमल पग को प्यार के साथ आजा ।
जी जाऊँगी —हृदय तल में मैं तुझी को लगा के ।”

क) मानवीकरण के रूप में प्रकृति का चित्रण

प्रकृति में चेतन सत्ता का आरोपण ही मानवीकरण कहलाता है। छायावादी कवियों ने प्रकृति पर मानवीय चेतना का आरोप करते हुए उसे मानव की भाँति हँसते, रोते एवं विविध क्रिया कलाप करते हुए दिखाया है।

१) जयशंकर प्रसाद

प्रसादजीप्रकृति का मानवीकरण करते हुए उसकी अपूर्व रमणीयता का चित्र अंकित करते हैं।

“संध्या घनमाला की सुंदर,
ओढ रंग—बिरंगी छीट।
गगन चुम्बिनी शैल श्रेणियाँ,
पहने हुए तुषार किरिट ।”

२) सुमित्रानंदन पंत

पंत जी ने छाया, बादल, संध्या, नौका—विहार, चांदनी आदि अनेक कविताओं में प्रकृति का मानवीकरण किया है। गंगा को एक तन्वंगी नायिका के समान बालू रूपी शैया पर थककर लेटा हुआ वे चित्रित करते हैं —

“सैकत शैया पर दुग्ध धवल, तन्वंगी गंगा ग्रीष्म विरल ।
लेटी है श्रान्त कलांत निश्चल ।”

३) रामधारी सिंह दिनकर —

दिनकर जी ने भगवान के डाकिए के रूप में पक्षी और बादल को चित्रित किया गया है, जिनकी लाई चिट्ठियाँ हम मनुष्य नहीं पढ़ पाते हैं ।

“पक्षी और बादल
ये भगवान के डाकिए हैं,
जो एक महादेश से
दूसरे महादेश को जाते हैं ।
हम तो समझ नहीं पाते हैं
मगर उनकी लाई चिट्ठियाँ
पेड़, पौधे, पानी और पहाड़ बॉचते हैं ।

ड) अलंकार के रूप में प्रकृति का चित्रण

इस रूप में प्रकृति का उपयोग अलंकारों के स्थान पर किया जाता है ।

१) घनानंद —

प्रकृति के उपादान पवन को दूत बनाकर प्रिय के पास भेजने की कामना विरहणी करती है और उससे अनुरोध करती है कि प्रिय की चरण धूलि ले आ, जिसे मैं अपनी आँखों में लगाकर कुछ तो शांति पालूँ ।

“विरह बिथा की मूरि आँखिन में राखौँ पूरि
धूरि तिन पायनि की हा—हा नेकु आनि दै ॥”

२) जयशंकर प्रसाद

प्रलयकाल के उपरान्त जब पृथ्वी समुद्र से धीरे—धीरे निकलने लगी तबवह कैसी लग रही है इसका चित्रण रूपक अलंकार द्वारा किया है ।

“सिन्धु सेज पर धरा वधू अब
तनिक संकुचित बैठी—सी ।
प्रलय निशा की हलचल स्मृति में,
मान किए सी ऐंठी—सी ॥”

३) सुमित्रानंदन पंत

पंत जी ने प्रकृति का चित्रण अलंकार निरूपण में भी किया है ।

“मेरा पास ऋतु सा जीवन, मानस—सा उमड़ा अपार मन ।
गहरे धुंधले धुले सांवले मेघों से मेरे भरे नयन ॥”

इ) उपदेश के रूप में प्रकृति का चित्रण

प्रकृति से हमें अनेक प्रकार उपदेश मिलते हैं। प्रकृति की परिवर्तनशीलता हमें यह बताती है कि जीवन परिवर्तनशील है। जीवन में सुख—दुख का चक्र उसीप्रकार चलता रहता है जैसे प्रकृति में वसंत के दिन हमेशा नहीं रहते । प्रकृति के द्वारा बहुत सारा ज्ञान मिलता है ।

१) कबीर दास

मृग की नाभी में कस्तूरी है पर उसे उसका बोध नहीं होता और उस सुगंध की खोज में वह दर—दर जंगल में भटकता रहता है वैसे ही मानव की हालत है। मनुष्य के शरीर में ही परमात्मा का वास है । फिर भी हम उसे कर्मकांड आदि में ढूँढते हैं ।

“कस्तुरी कुंडलि बसै, मृग ढूँढे बन माँहि
ऐसे घटि घटि राम है, दुनिया देखे नाँहि ।”

२) रहीम

परोपकार का महत्त्व बताते हुए रहीम जी ने कहा है कि, वृक्ष फल नहीं खाते, सरोवर पानी नहीं पीते उसी प्रकार परोपकार के लिए ही सज्जन पुरुष संपत्ति का संचयन करते हैं।

“तलवर फल नहीं खात है, सरवर पियही न पान
कहरहीम परकाज हित, संपत्ति संचहि सुजान ।”

३) सुमित्रानंदन पंत —

जीवन और यौवन की नश्वरता को प्रकृति के माध्यम से व्यक्त करते हुए पंत जी कहते हैं कि,

“आज तो सौरभ का मधुमास शिशिर में भरता सूनी सांस ।
वही मधु—ऋतू की गुंजित डाल झुकी थी जो यौवन के भार

अकिंचनता में निज तत्काल सिहर उठी जीवन है भार ।”

४) कुँवर नारायण सिंह

प्रदूषण से नदी, जंगल, हवा, मनुष्य को बचाने के लिए लोगों को सचेत करते हुए कहते हैं कि,
“नदियों को नाला हो जाने से
हवा को धुआँ हो जाने से
खाने को जहर हो जाने से
बचाना है — जंगल को, मरुथल हो जाने से
बचाना है — मनुष्य को, जंगल हो जाने से ।”

५) ब्रम्हजीत कौर

पृथ्वी माता को प्रदूषण से बचाने के लिए उपदेश देते हुए कौर जी कहते हैं कि,
जल, वायु वातावरण देंगे सबको प्राण
रक्षा इनकी कीजिए, मान इन्हें भगवान
माता पृथ्वी जगत की, सब इसकी संतान
दूषित माँ को कर रहे, क्यों बनकर अनजान

निष्कर्ष —

निष्कर्ष के रूप में यह कहा जा सकता है कि, हिंदी साहित्यकारों ने प्रकृति का चित्रण आलंबन, उद्दीपन, मानवीकरण, अलंकार और उपदेश के रूप में किया है ।

- १) आलंबन के रूप में ग्रीष्म ऋतू, यमुना के तट पर खड़े तमाल वृक्ष, पर्वत प्रदेश में पावस, गोवर्धन पर्वत की शोभा आदि का चित्रण किया है ।
- २) उद्दीपन के रूप में पद्मावती का विरह यमुना की शोभा, मनु की मनोदशा, उर्मिला का विरह, राधा का विरह आदि का चित्रण किया है ।
- ३) मानवीकरण के रूप में संध्या, गंगा नदी, वसंत ऋतू, भगवान के डाकिए आदि का चित्रण किया है ।
- ४) अलंकार के रूप में पूर्णमासी दिन, पृथ्वी, पावस ऋतू, पवनदूत आदि का चित्रण किया है ।
- ५) उपदेश के रूप में मृग, वृक्ष, सरोवर, सज्जन पुरुष, प्रदूषण मुक्ति के लिए मानव को संचेत आदि का चित्रण किया है ।

नम्रता, मुसीबतों का सामना, समय का महत्त्व, निःस्वार्थ भावना आदि बातें हमें पर्यावरण से ही सिखने के लिए मिलती हैं। इसलिए हमारे हिंदी साहित्यकारों ने पर्यावरण का विविध रूपों में चित्रण करके पर्यावरण तथा प्रकृति का महत्त्व विशद किया है। इसलिए पर्यावरण और हिंदी साहित्य का अटूट रिश्ता है ।

संदर्भ सूची

१. ८ वी हिंदी पाठ्यपुस्तक —CBSE BOARD
२. १० वी हिंदी पाठ्यपुस्तक —CABSE BOARD
३. १२ वी हिंदी पाठ्यपुस्तक —STATE BOARD
४. आधुनिक कविता — प्रा. रविंद्र
५. प्राचीन काव्य — देसाई—लिमये
६. प्रतियोगिता साहित्य — डॉ. अशोक तिवारी
७. नब्बे छम्ब जन्मजवत शृंखला — करनैल सिंह
८. कामायनी — जयशंकर प्रसाद
९. हिंदी साहित्य का इतिहास

राजर्षी शाहू पूर्व काळातील कोल्हापुरातील शैक्षणिक विकास (सन १८४८-१८९४)

डॉ. खंडेराव शिंदे

इतिहास विभाग, राजर्षी शाहू कला व वाणिज्य महाविद्यालय, रूकडी जि. कोल्हापूर

प्रास्ताविक —

छत्रपती शिवाजी महाराजांनी स्थापन केलेल्या हिंदवी स्वराज्याचे आठराव्या शतकाच्या पहिल्या दशकात महाराणी ताराबाई व छत्रपती शाहू महाराज (सातारा) यांच्यातील संघर्षातून सातारा आणि कोल्हापूर (करवीर) अशी दोन राज्ये निर्माण झाली. सन १७१० मध्ये महाराणी ताराबाईंनी करवीर राज्याची स्थापना केली. हे राज्य १९४८ पर्यंत स्वतंत्र होते.

पण हे कोल्हापूर राज्य १८४४ मध्ये मात्र ब्रिटिश अंमलाखाली गेले. आणि येथील शिक्षण व्यवस्थेत बदल झाला. राजर्षी शाहू पूर्व काळात कोल्हापूर राज्यात पारंपरिक पद्धतीने शिक्षण दिले जात होते. बापाचा व्यवसाय मुलगा आपोआपच शिकत होता. त्यामुळे आधुनिक शिक्षणाचा स्पर्श तत्कालिन समाजाला नव्हता. असे असले तरी शिक्षणाची ज्ञानगंगा बहूजन समाजापर्यंत नेण्याचा प्रयत्न काही शिक्षणप्रेमी मंडळी व ब्रिटिश सरकारने केला होता. तरी पण १८४८ पर्यंत कोल्हापूर राज्यातील शिक्षण क्षेत्रात म्हणावा तसा विकास झाला नव्हता. राजर्षी शाहूंच्या काळात मात्र अमुलाग्र बदल शिक्षण क्षेत्रात झाला. पण राजर्षी शाहू पूर्व काळात कोल्हापूर राज्यातील शिक्षण प्रसार कसा होता हे जाणून घेण्यासाठी 'राजर्षी शाहू पूर्व काळातील कोल्हापुरातील शैक्षणिक विकास (सन १८४४-१८९४) जाणून घेण्यासाठी हा विषय संशोधन पेपरसाठी निवडला आहे.

शिक्षण प्रसार —

कोल्हापूर राज्यात सन १८४८ मध्ये कोल्हापूर, पन्हाळा, आळते व शिरोळ या चार ठिकाणी शाळा सुरू झाल्या. याशिवाय कोल्हापूर शहरी कोल्हापूर राज्यातील पहिली इंग्रजी शाळा सन १८५१ मध्ये सुरू झाली. या इंग्रजी शाळेत सुरूवातीस १९ विद्यार्थ्यांनी प्रवेश घेतला होता.^१ सन १८५३ मध्ये कोल्हापूर शहरी मुलींची पहिली शाळा सुरू झाली पण या शाळेत मुलींनी प्रवेश न घेतल्याने पुढे ही शाळा बंद झाली होती.^२ याचा अर्थ मुलींच्या पालकांची मुलींच्या शिक्षणाबद्दल अनास्था होती. हे स्पष्ट होते.

सन १८५३ नंतरची शैक्षणिक प्रगती —

सन १८५३ नंतर कोल्हापूर राज्यातील शिक्षण क्षेत्रात फार मोठी प्रगती होत गेली. सन १८५४ मध्ये राज्यात शाळांची संख्या ९ होती तर सन १८५५ मध्ये शाळांची संख्या १५ झाली असून ७०७ विद्यार्थी शिक्षण घेत होते. सन १८५५ मध्ये कोल्हापूर शहरी बालक्रिडा एक मंदिर व एक उर्दू शाळा सुरू झाली. याशिवाय गारगोटी येथे मुलींची शाळा सुरू झाली. सन १८५९ मध्ये कोल्हापूर राज्यात शाळांची संख्या १७ पेक्षा जास्त असून यामध्ये ११७३ विद्यार्थी शिक्षण घेत होते.^३

कोल्हापूर राज्यातील सरदारांच्या मुलांना शिक्षण देण्यासाठी सन १८६३ मध्ये एक शाळा सुरू करण्यात आली. त्यामध्ये २४ सरदारपुत्र शिक्षण घेत होते.^४ छत्रपती बाबासाहेब महाराजांनी सन १८६३ मध्ये कोल्हापूर राज्याची सुत्रे हाती घेतली तेव्हा त्यांनीही शिक्षण प्रसारावर भर दिला होता. या सुमारास श्री. बाळ परशुराम पंडित यांची कोल्हापूर राज्याचे 'पहिले डेप्युटी एज्युकेशनल इन्स्पेक्टर' म्हणून नेमणूक झाली होती.^५

राजाराम हायस्कूल व कॉलेज —

कर्नल अंडरसन हे कोल्हापूरचे पोलिटिकल एजंट असताना सन १८६७ मध्ये कोल्हापूर शहरात हायस्कूलची स्थापना झाली. या हायस्कूलची इमारत जुन्या राजवाड्याला लागून असून ती राजस्थानी शैलीची आहे. या इमारतीचा पहिला दगड छत्रपती राजाराम महाराज (सन १८६६ — ७०) यांनी बसवला. या हायस्कूलची इमारत सन १८७१ मध्ये पूर्ण झाली. पण ही इमारत पूर्ण होण्याअगोदरच राजाराम महाराजांचे निधन झाले. म्हणून त्यांच्या स्मरणार्थ या हायस्कूलला 'राजाराम

हायस्कूल' नाव देण्यात आले.^६ या हायस्कूलचे पहिले मुख्याध्यापक श्री. महादेव मोरेश्वर कुंटे हे होते. याच हायस्कूलमध्ये नामदार गोपाळकृष्ण गोखले व न्यायमूर्ती महादेव गोविंद रानडे यांनी शिक्षण घेतले होते. पुढे सन १८८० मध्ये या हायस्कूलमध्ये राजाराम कॉलेज सुरू झाले. प्राचार्य सी.एच. कॅंडी हे पहिले प्राचार्य होते.

सन १८७२ मध्ये कोल्हापूर राज्यात शाळांची संख्या १०१ असून ४८७२ विद्यार्थी शिक्षण घेत होते. सन १८८४ — ८५ मध्ये २०२ शाळा असून १२७४०४ विद्यार्थी शिक्षण घेत होते. सन १८९३ — ९४ मध्ये शाळांची संख्या २२४ असून १४,८१९ विद्यार्थी शिकत होते.^७

शिक्षकांसाठी प्रशिक्षण वर्ग —

विद्यार्थ्यांना शिक्षण देणारा शिक्षक हा प्रशिक्षित असावा यासाठी कोल्हापूर राज्यात सन १८६७ मध्ये ट्रेनिंग वर्ग सुरू करण्यात आला. शिक्षक प्रशिक्षण अभ्यासक्रम तीन वर्षांचा होता. या वर्गात सरासरी १० विद्यार्थी शिक्षक होऊन बाहेर पडत. स्त्री शिक्षकांना प्रशिक्षण देण्यासाठी सन १८८२ मध्ये स्त्रियांचा ट्रेनिंग वर्ग सुरू करण्यात आला.^८

मुलींसाठी शाळा —

कोल्हापुरात मुलींसाठी सन १८५३ मध्ये पहिली शाळा सुरू झाली. या शाळेत कशिदयाचे काम, अंगारखे, पेरणी व चोळया शिवण्याचे शिक्षण दिले जात होते. सन १८८६ — ८७ मध्ये मुलींना वैद्यकीय व परिचारिका शिक्षण देण्यासाठी अल्बर्ट एडवर्ड हॉस्पिटलच्या आवारात वैद्यकीय विद्यालय सुरू केले होते. सन १८८९ — ९० मध्ये सुईणकाम वर्गही सुरू केला. सन १८९३ — ९४ मध्ये कोल्हापूर राज्यात मुलींच्या शाळा २६ असून १४९९ मुली शिकत होत्या.^९

मजूर — कारागिरांसाठी रात्रशाळा —

कुणबी, मजूर, कारागीर यांना दिवसा काम करून रात्री शिक्षण घेता यावे म्हणून सन १८७१ मध्ये कोल्हापुरात पहिली रात्र शाळा सुरू झाली. सन १८८३ मध्ये कोल्हापूर राज्यात १९ रात्रशाळा होत्या. या शाळांची वेळ रात्री ७—९ अशी होती. याशिवाय मध्यवर्ती तुरुंगातील कैद्यांना शिक्षण देण्यासाठीही रात्रशाळा सुरू केली होती. सन १८९३—९४ मध्ये कोल्हापूर राज्यात रात्रशाळांची संख्या चार असून ११५ विद्यार्थी शिकत होते.^{१०}

याशिवाय कोल्हापूर राज्यात मुस्लीम धर्मियांना शिक्षण देण्यासाठी तीन शाळा होत्या. मागासवर्गीय मुलांना शिक्षण देण्यासाठी चार शाळा असून १७२ विद्यार्थी शिकत होते. चांभार जातीच्या मुलांसाठी कोल्हापूर येथे एक शाळा होती. त्या शाळेत ६० विद्यार्थी शिकत होते. सन १८९१ — ९२ मध्ये मागासवर्गीय शाळेत १५६ विद्यार्थी शिकत होते.^{११}

समारोप —

शिक्षण हे विकासाचे साधन आहे याची जाणीव कोल्हापूर राज्यातील जनतेला होऊलागल्याने व शिक्षणप्रेमी मंडळींमळे सन १८४४ पासून १८९४ पर्यंत शाळा व विद्यार्थी संख्येत सतत वाढ होत गेली. यामुळे लोकांमध्ये शिक्षणाबद्दल आवड निर्माण झाली. तसेच ब्रिटिश सरकारनेही शिक्षण प्रसारासाठी प्रयत्न केला. म्हणूनच सन १८९४ ला २२४ शाळा असून १४,८१९ विद्यार्थी शिकत होते.

राजर्षी शाहू महाराजांनी आपल्या कारकिर्दीत तर शिक्षणावर फार मोठा भर दिला. कोल्हापूर शहरी प्रत्येक जातीच्या मुलांसाठी वसतीगृहे सुरू करून व अनेक सवलती देऊन शिक्षण प्रसार केला. म्हणूनच राजर्षी शाहूंच्या काळातही मोठ्या प्रमाणावर शिक्षण प्रसार झाला.

संदर्भ —

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- २) कित्ता पृ — ४३४
- ३) कित्ता
- ४) Administration Report of the Kolhapur state for the year 1893 -94 P&95
- ५) भिडे ग.र.देशपांडे पु.ल. — कोल्हापूर दर्शन पृ — ३४६ — ४७

- ६) गर्गे स.मा.— करवीर रियासत पृ —५७६
७) कित्ता पृ—५११
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वित जीम लमंत १८८३ .८४ च्च८०
९) Administration Report for the year 1893-94 P-142
१०) कोल्हापूर गॅझेटिअर पृ — ४२६



शासकीय आदिवासीविकास योजना व आदिवासी जमातींचा शाश्वत विकास
(विशेष संदर्भ - हिंगोली जिल्हा)

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शोध सारांश —

मनव संसाधन विकासामध्ये शाश्वत विकास हा शब्द सातत्याने वापरला जातो. अगदी जागतिक पातळीपासून ते ग्रामपंचायत विकास आराखडा करण्यापर्यंत या शब्दाचा वापर करण्यात येतो. आदिवासी जमातीच्या भौतिक विकासाच्या सार्वजनिक योजना आणि शाश्वत विकासास सहाय्यभूत ठरणाऱ्या योजना, उपक्रम व प्रकल्प यांचा समावेश असणारा आराखडा म्हणजे आदिवासी विकासाचा संपूर्ण आराखडा होय. सध्या उपलब्ध असलेली जमीन, पाणी, वने यांना सुरक्षित ठेवून त्यांची गुणवत्ता म्हणजेच जमीनीची उत्पादकता, पाण्याची गुणवत्ता आणि उपलब्ध वनक्षेत्र यांबाबत दक्ष राहून त्यांची पुढील पिढ्यांसाठी जपणूक करणे महत्वाचे आहे. त्यांच्या गुणवत्तेत सुधारणा करण्याचे उपाय योजना, सौर, पवन व जैविक उर्जेचा उपयोग वाढविणे म्हणजेच शाश्वत विकासाचा विचार करणे होय. आदिवासी जमातीच्या शाश्वत विकासाच्या योजना राबविण्यासाठी एकात्मिक आदिवासी विकास व एकात्मिक ग्रामीण विकास कार्यक्रमांची विस्तृत योजना आखून त्यांतर्गत आदिवासी भागात आदिवासी करिता त्यांची कार्यवाही व अंमलबजावणी केली जात आहे.

आदिवासी जमातीच्या लोकसंख्येबाबतचा तपशील(आकडे हजारात)

अ.क्र.	क्षेत्र	एकूण लोकसंख्या	आदिवासी लोकसंख्या	टक्केवारी
१	भारत देश	१२१०५६९	१०४२८१	८.६१
२	म्हाराष्ट्र राज्य	११२३७४	१०५१०	९.३५
३	हिंगोली जिल्हा	११७७	११२	९.५२

शोध संज्ञा —

आदिवासी :-

एका विशिष्ट भूप्रदेशावर राहणारा समान बोली बोलणारा व समान सांस्कृतिक जीवन जगणारा पण अक्षर ओळख नसलेल्या स्थानिय गटांच्या समुच्चयाला आदिवासी म्हणतात. भारतीय संविधानात आदिवासी जमातीची व्याख्या आढळून येत नाही, तथापी राज्यघटनेत त्यांचा “आदिवासी जमात” या नावाने उल्लेख करण्यात आलेला आहे.

शाश्वत विकास :- शाश्वत विकास म्हणजे, सध्याच्या पिढ्यांचा गरजा भागविताना पुढच्या पिढ्यांना त्यांच्या गरजा भागविण्यासाठी संसाधने (जल, जंगल, जमीन, पर्यावरण) शिल्लक राहतील अशा पद्धतीने विकास योजना राबविणे म्हणजे शाश्वत विकास होय.

आदिवासी उपयोजना :-सन १९७५-७६ साली राज्यात आदिवासी उपयोजना लागू झाली. त्यामुळे विकास कार्याची दिशा केवळ कल्याणकारी योजना अशी न रहाता ती आदिवासी विकास योजना अशी करण्यात आली. या आदिवासी उपयोजनांमध्ये महाराष्ट्रातील १५ जिल्ह्यातील ६८ तालुक्यातील ६९६२ गावे व १२ शहरे यांचा समावेश आहे.

शोधनिबंधाचे उद्दीष्ट:-शाश्वत विकासाचा साधा अर्थ आहे टिकाऊ विकास. तात्पुरत्या लाभाचा केवळ भौतिक सुविधा वाढवून लोभाच्या हव्यासापोटी केला जाणारा व नैसर्गिक संसाधनांचा गैरवापर करून त्याचे कायमचे नुकसान करणारा विकास हा शाश्वत विकास नसतो.

शाश्वत विकास आणि त्याचा आदिवासी विकासाशी असणारा संबंध तसेच आदिवासी जमातीच्या शाश्वत विकासाकरिता राबविण्यात येणाऱ्या विविध शासकीय योजनांचा संक्षिप्त आढावा सदर शोधनिबंधाद्वारे घेण्यात आला आहे.

साहित्य परिक्षण :-प्रस्तुत संशोधन विषयात अध्ययनासाठी विविध आदिवासी लाभार्थी यांच्या प्रतिक्रिया, शासकिय वार्षिक प्रशासन अहवाल (Administrative Report), शासकिय वार्षिक मुल्यांकन अहवाल (Evaluation Report) तसेच शासकिय उपायोजनांची अंमलबजावणी व त्यांचे अंतीम परिणामाबाबत तज्ञ व्यक्तींचे लिखित साहित्य, लेख वएकात्मिक आदिवासी विकास प्रकल्प, कळमनुरी, जि.हिंगोली या कार्यालयातील विषयाशी संबंधित माहिती अहवाल इ. साहित्य संशोधनाचे दृष्टीने समाविष्ट करण्यात आले आहे.

प्रस्तावना :-

आदिवासी क्षेत्राच्या पायाभूत विकासाच्या योजनांवर शासनाकडून बराच निधी खर्च करण्यात येतो. आदिवासी क्षेत्राच्या तसेच या क्षेत्रामध्ये राहणाऱ्या आदिवासींच्या सर्वांगीण विकासाकरीता केंद्र शासनाने केलेल्या सूचना व मार्गदर्शक तत्वानुसार, राज्यशासनाने आदिवासी विकासासाठी अनेक योजना व उपयोजना राबविल्या आहेत. सध्यास्थितीत आदिवासी जमातीच्या भौतिक विकासाबरोबरच शाश्वत विकास साध्य करणे अत्यंत आवश्यक आहे.

आदिवासी जमातीची क्षेत्रनिहाय स्थिती

अ.क्र	क्षेत्र	आदिवासी जमाती
१	भारत देश	७०५
२	महाराष्ट्र राज्य	४५
३	हिंगोली जिल्हा	०३

शाश्वत विकास साध्य करण्यासाठी दोन पातळ्यांवर प्रयत्न व्हावे लागतील. प्रथमतः आदिवासी गावाच्या विकास कार्यासाठी भौतिक सुविधा निर्माण कराव्या लागतील ज्यामध्ये सार्वजनिक उपयोगाच्या बाबी असतील जसे सार्वजनिक संस्था, इमारती, रस्ते, वीज, पाणीपुरवठा तसेच आरोग्याच्या सुविधा यांचा समावेश असायला हवा.

कोणताही विकास हा माणूस घडवून आणतो. म्हणून मानवाचा विकास हा देखील अत्यंत महत्वाचा आहे. मानव विकास निर्देशांकात सुधारणा होण्याच्या दृष्टीने आरोग्य, शिक्षण इ. क्षेत्रातील उपक्रम व शाश्वत विकासाची उद्दीष्ट्ये साध्य करण्यासाठी दारिद्र्य निर्मुलन,स्वास्थ्य, गुणवत्तापूर्ण शिक्षण, लिंगभाव समानता, स्वच्छ पाणी, शाश्वत व हरीत उर्जा, शाश्वत शहरे व समाज, न्याय व शांतता, सर्वसमावेशक विकास इ. बाबींवर आदिवासी विकास आराखड्यात भर देण्यात आला पाहिजे.

शाश्वत विकासाची ध्येय :-

संयुक्त राष्ट्रसंघाने आपल्या सभासद राष्ट्रांसाठी शाश्वत विकास ध्येये २००३ असा एक आराखडा सप्टेबर २०१५ मध्ये तयार केला. त्यामध्ये जगातल्या सर्वच देशांनी शाश्वत विकासाची एकूण १७ ध्येय २०३० पूर्ण करायची आहेत असे ठरविण्यात आले आहे.

१. दारिद्र्य निर्मुलन	२. भूकमुक्त समाज
३. चांगले आरोग्य व स्वास्थ्य	४. गुणवत्तापूर्ण शिक्षण
५. लिंगभाव समानता	६. स्वच्छ व सुरक्षित पाणी
७. शाश्वत/ हरीत उर्जा (सौर,पवन,जैव)	८. रोजगार व आर्थिक प्रगती
९. उद्योग	१०. संरचना
११. विषमता कमी करणे	१२. शाश्वत शहरे व समाज
१३. वतावरण बदलावर कृती	१४. पाण्याखालील जीवन सुरक्षा
१५. जमिनीवरील जीवन सुरक्षा	१६. न्याय व शांतता
१७. सर्वसमावेशक विकास व त्यासाठी संस्थात्मक भागीदारी	

शासकीय आदिवासी विकास योजना व आदिवासी जमातींचा शाश्वत विकास :-

आदिवासी उपयोजनांमध्ये महाराष्ट्रातील १५ जिल्ह्यातील ६८ तालुक्यातील ६९६२ गावे व १२ शहरे यांचा समावेश आहे.हिंगोली जिल्ह्यातील एकुण ०५ तालुक्यापैकी कळमनुरी, औढानागनाथ, हिंगोली हे ०३ तालुके आदिवासी उपयोजना क्षेत्र असलेले तालुके आहेत. आदिवासी जमातीच्या शाश्वत विकासाकरीता

उपयोजना तयार करणे व तिच्या अंमलबजावणीचे संनियंत्रण करण्याची जबाबदारी आदिवासी विकास विभागाकडे आहे. या सर्व योजना राबविण्यासाठी एकात्मिक आदिवासी विकास व एकात्मिक ग्रामीण विकास कार्यक्रमांची विस्तृत योजना आखून त्याअंतर्गत आदिवासी भागात शाश्वत आदिवासी विकासाकरीता योजनांची अंमलबजावणी केली जात आहे.

शासनाच्या विविध विभागांकडून ग्रामपंचायतीच्या शाश्वत विकासाकरीता विविध प्रकारच्या जवळपास १८३ योजनांद्वारे निधी दिला जातो. त्याचे विभागवार विवरण खालील प्रमाणे आहे.

अ.क्र.	शासकीय विभाग	योजना
१	ग्रामपंचायत विभाग	१६
२	महिला व बालकल्याण विभाग	०८
३	पाणीपुरवठा व स्वच्छता विभाग	१४
४	पशुसंवर्धन विभाग	१३
५	शिक्षण विभाग	३९
६	कृषी विभाग	१९
७	आदिवासी विभाग	१२
८	महा. राज्य ग्रामीण जीवनोन्नती अभियान	०७
९	ग्रामपंचायत प्रशासन विभाग	०९
१०	समाजकल्याण विभाग	०७
११	आरोग्य विभाग	३०
१२	कौशल्य विकास विभाग	०६

आदिवासी जमातीच्या शाश्वत विकासाकरीता प्रभावीपणे राबविल्या जाणाऱ्या काही शासकीय योजना खालील प्रमाणे आहेत

१. औद्योगिक व व्यापारी उपयोगासाठी लागणाऱ्या वन झाडांच्या जातीच्या लागवडीची योजना –

औद्योगिक व व्यापारी उपयोगासाठी आवश्यक असणाऱ्या इमारती लाकूड, बांबुचा पुरवठा करण्यासाठी त्या प्रजातीची वृक्ष लागवड करणे, आदिवासींना रोजगाराची संधी उपलब्ध करणे, तसेच कमी प्रतीच्या वनांचे आर्थिक दृष्ट्या सबळ वनांमध्ये परिवर्तन करणे ही योजनेची उद्दीष्ट्ये आहेत.

२. निकृष्ट वनांचे पुनर्वनीकरण— निकृष्ट वनांचा दर्जा उत्कृष्ट होणे आणि घनता वाढविणे ही या योजनेची उद्दीष्ट्ये आहेत.

३. किरकोळ जंगल उत्पन्नाचा विकास— वनक्षेत्रात फळझाडांचे प्रमाण वाढविणे, वनक्षेत्रात हिरडा, चंदन, खैर इत्यादी औषधी वनस्पतींचे प्रमाण वाढविणे तसेच वनक्षेत्रांतर्गत असलेल्या आदिवासी वनवासींना रोजगाराची संधी उपलब्ध करून देणे ही या योजनेची उद्दीष्ट्ये आहेत.

४. संयुक्त वन व्यवस्थापन — लोकांच्या सहभागाने वनांचे संरक्षण, संवर्धन करणे , वनांचा दर्जा वाढविणे, लोकांना यासाठी उद्बुद्ध करण्याकरीता लोकोपयोगी कामे घेणे ही योजनेची उद्दीष्ट्ये आहेत.

५. लागवड कार्यक्रम— वनीकरणाच्या विविध योजनांचे एकीकरण करून रोपवन कार्यक्रम ही योजना राबविण्याचे शासनाचे प्रयोजन आहे.

६. अग्नीपासून वनांचे संरक्षण— अवैध वृक्षतोडीपासून व अग्नीपासून वनांचे संरक्षण करणे, वन्यप्राण्यांना संरक्षण देणे आणि अवैध उत्खनन, अतिक्रमण या बाबींना आळा घालण्याकरीता सदर योजना राबविण्यात येते.

७. आदिवासी क्षेत्रातील मृद व जलसंधारण— आदिवासी क्षेत्रामध्ये सिंचनाच्या तुटपुंज्या सोई असल्यामुळे तेथील आदिवासी प्रामुख्याने पर्जन्याश्रयी शेती व्यवस्थेवर अवलंबून असतात. विद्यमान शेती पद्धतीत सुधारणा करण्याकरीता पाणलोट विकास कार्यक्रम हा निर्णायक स्वरूपी कार्यक्रम आहे.

८. वन हक्क कायदा अधिनियम, २००६ (FRA)& अनुसूचित जमाती व इतर पारंपरिक वन निवासी (वन हक्काची मान्यता) अधिनियम, २००६ व नियम २००८ आणि सुधारित नियम, २०१२ नुसार अनुसूचित जमाती व इतर पारंपरिक वन निवासी यांना वैयक्तिक व सामुहिक वनहक्क किंवा दोहोंचे धारणाधिकार मिळण्याचे अधिकार प्राप्त झालेले आहेत. त्यामध्ये अनुसूचित जमाती आणि इतर पारंपरिक वन निवासी यांना स्वतःच्या उपजीविकेकरीता शेती कसण्यासाठी वन जमिनी धारण करण्याचा व त्यामध्ये राहण्याचा हक्क, निस्तार सारखे हक्क, गावाच्या सीमांतर्गत किंवा सीमेबाहेर पारंपारिकरित्या गोळा केले जाणारे गौण

वनोत्पादन गोळा करणे, त्याचा वापर करणे किंवा त्याची विल्हेवाट लावणे यासाठी स्वामित्व हक्क, पाण्यामधील मत्स्य व अन्य उत्पादन, चराई करणे, पारंपारिक मोसमी साधन संपत्ती करण्यात आलेल्या कोणत्याही सामाजिक वनस्त्रोताचे संरक्षण, पुनर्निर्माण, संवर्धन, व्यवस्थापन करण्याचे हक्क इ. विविध वनहक्क प्राप्त झाले आहेत.

वन हक्क कायदा अधिनियम, २००६ नुसार वन हक्क दाव्यांचा तपशील

Sr. No	Total claims	Individual Claims	%	Community Claims	%
1	Received	352989		11730	
2	Disposed off	337833	95.71	8405	71.65
3	Approved	107806		6581	
4	Rejected	230027		1824	
5	Pending	15156		3325	

हिंगोली जिल्ह्यातील FRA अंतर्गत असलेल्या प्रकरणांची माहिती

अ.क्र.	वनक्षेत्राचे नाव	एकूण प्रकरणे संख्या
१	वसमत	९१
२	सेनगाव	०४
३	हिंगोली	४४
४	औढा	९५
	एकूण	२३४

FRA अंतर्गत हिंगोली जिल्ह्यात अनुसूचित जमातीची एकूण ११ प्रकरणे मंजूर करण्यात आली असून वाटप करण्यात आलेले क्षेत्र ८.५६ हे. आहे

‘पेसा’ कायद्याचा आदिवासी जीवनपद्धतीवरील परिणाम

समाजाच्या मुख्य प्रवाहापासून आजही दूर असलेल्या आदिवासी भागातील नागरिकांच्या सर्वांगीण विकासासाठी, त्या भागाच्या सामाजिक, नैसर्गिक आणि भौगोलिक संपन्नतेसाठी करण्यात आलेला पंचायत विस्तार (अनुसूचित क्षेत्र) अधिनियम (पेसा) कायदा १९९६ म्हणजे आदिवासी लोकांच्या आयुष्यात सकारात्मक परिणाम करणारा आहे.

आदिवासींची संस्कृती, प्रथा, परंपरा यांचे जतन व संवर्धन करून ग्रामसभेच्या माध्यमातून आदिवासींची स्वशासन व्यवस्था बळकट करणे या उद्देशाने पंचायत विस्तार अधिनियम १९९६ मध्ये अस्तित्वात आला. त्यानुसार संबंधित गावामध्ये एखादी योजना राबविणे, प्रकल्प किंवा कार्यक्रम हाती घेणे, शासनाच्या निधीचा विनययोग करणे, विविध योजनांसाठी लाभार्थी निवड, मादक द्रव्य विक्री किंवा सेवन प्रतिबंध या सर्व गोष्टींसाठी ग्रामसभेची मान्यता घेणे बंधनकारक करण्यात आले आहे.

या कायद्यान्वये आदिवासी भागातील नागरिकांना सर्वात महत्वाचा अधिकार मिळाला आहे, तो म्हणजे त्यांच्या विविध प्रकारच्या नैसर्गिक संपत्तीबाबत तसेच जमिनीबाबत निर्णय घेण्याचे स्वातंत्र्य. या कायद्यान्वये गावासाठीच्या योजना व प्रकल्पांकरिता सर्व ग्रामसभांची मान्यता मिळवणे बंधनकारक करण्यात आले आहे. जलस्रोत, सिंचन, खाण—खनिजे आणि गौण वनोत्पादन यांचे व्यवस्थापन हेही ग्रामसभेकडे विहित करण्यात आले आहे. अनुसूचित जमातीतील व्यक्तींची कोणतीही जमीन बिगर आदिवासींकडे बेकायदेशीरपणे हस्तांतर होणार नाही, याची ग्रामसभा सुनिश्चिती करेल.

आदिवासी महिला सक्षमीकरण

महिलांचे सक्षमीकरण याकडे देखील या कायद्यात प्राधान्याने लक्ष देण्यात आलेले आहे. ग्रामसभेने त्यांचा कारभार चालविण्यासाठी तयार केलेल्या विविध समित्यांवर ५० टक्के स्त्रियांना प्रतिनिधित्व देण्याचा नियम यामध्ये करण्यात आला आहे. त्यामुळे आदिवासी समाजातील वर्षेनुवर्षे मागे राहिलेल्या महिलांना पुढे येण्यासाठी एक व्यासपीठ मिळणार आहे.

आदिवासी जमाती व मानव्य विकास —

आदिवासींच्या शाश्वत विकास घडवून आणण्यासाठी इतक्या सान्या योजना आहेत. तरी देखील आदिवासींची स्थिती दयनीय राहिली आहे. शासकीय योजनांचा लाभ ते स्वतःच्या पदरात पाडून घेण्यास

असमर्थ ठरतात.महाराष्ट्र शासनाच्या 'यशदा' या संस्थेने जो 'मानव्य विकास अहवाल' २०१२ मध्ये तयार केला होता. त्यामध्ये महाराष्ट्रातल्या ३५ जिल्ह्यांमध्ये नंदुरबार आणि गडचिरोली हे आदिवासी जिल्हे सर्वात तळाला होते. (यशदा, २०१२)याच संस्थेच्या प्रकाशित माहितीवरून असे दिसते की, ३६५ तालुक्यांचा जो मानव्य विकास निर्देशांक (ह्युमन डेव्हलपमेंट इंडेक्स) काढला होता. त्याच्या तळाशी असणारे २० तालुके हे आदिवासी-बहुल होते. त्यामुळे विविध आदिवासी योजना या दऱ्या-खाऱ्यातील, पाड्यावरील सर्वसामान्य आदिवासीपर्यंत पोहचल्या पाहिजेत व अधिक प्रभाविपणे आदिवासी जमातींचा शाश्वत विकास केला गेला पाहिजे.

निष्कर्ष :-

- आदिवासी जमातीच्या शाश्वत विकासाच्या दृष्टीने आदिवासी क्षेत्रामध्ये शेती आणि जंगलावर आधारीत, पर्यावरणाला कोणतीही हानी न पोचता उद्योग निर्मिती करण्यासाठी आदिवासींना तयार करावे लागेल. तशा प्रकारच्या प्रशिक्षणाची, प्रशिक्षण संस्थांची व्यवस्था करणे अधिक हितकारक ठरेल.
- आदिवासी स्वशासन कायदा, सामुहीक वनहक्क कायद्याची प्रभावी अंमलबजावणी करण्यासाठी आदिवासी समुहांना प्रशिक्षण द्यायला हवे.
- शाश्वत विकासाच्या दृष्टीने, आदिवासी संस्कृतीचे महत्व इतर समाजापर्यंत पोहचवण्यासाठी आदिवासी भागामध्ये पर्यटनासाठी आवश्यक सोई-सुविधा उपलब्ध केल्यास निर्माण होणाऱ्या रोजगाराचा फायदा आदिवासी जमातींना होईल.
- आदिवासी जमातीच्या शाश्वत विकासाच्या दृष्टीने पेसा व वनहक्क कायद्याची प्रभावी अंमलबजावणी करण्यासाठी गावागावातप्रशिक्षीत अभ्यासगटाची निर्मिती करणे अधिक फायदेशीर ठरेल.
- शाश्वत विकासाच्या दृष्टीने, आदिवासी जमातीच्या तरुणांना कौशल्य विकासाचे प्रशिक्षण देणे व त्याकरीता प्रोत्साहित करणे महत्वाचे वाटते.

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भारतातील शाश्वत शेतीचा विकास**डॉ.बंडे मोहन व्यंकटराव**

सहयोगी प्राध्यापक, अर्थशास्त्र विभाग प्रमुख,

मास्टर दीनानाथ मंगेशकर महाविद्यालय, औराद शहाजानी जि.लातूर- 413522

सारांश :

परिसराचा, परिसंस्थेचा न्हास करून साध्य केलेल्या विकासामुळे किंवा निर्माण केलेल्या वर्चस्वामुळे शाश्वतेचा बळी जातो.हा प्रचलीत नियम आहे आणि तो आधुनिक शेतीलाही लागू होतो.संसाधनाची प्रचंड भूक असलेली ही शेती दिर्घ काळाचा विचार करता, शाश्वत ठरू शकत नाही.जगात व भारतात या विषयावर विचारमंथन सुरू आहे.संयुक्त राष्ट्रसंघाने सस्टेनेबल डेव्हलपमेंट गोल्स निश्चित करताना शाश्वत कृषी विकासावर भर दिला आहे.त्यात प्रामुख्याने पर्यावरणाच्या संरक्षणाचा विचार केला आहे. त्यात पर्यावरण पुरक शेती पद्धती परिसरातील जैवविविधता आणि जंगलाचे संवर्धन, वृक्षतोडीवर निर्बंध याचबरोबरीने सुपीक जमिनीची धुप रोखणे या बाबी महत्वाच्या आहेत. हे साध्य करण्यासाठी पारंपारिक शेती विज्ञान, पर्यावरणपुरक पीक व्यवसाय पद्धतीचा अवलंब करावा लागणार या बाबी महत्वाच्या आहेत. त्यासाठी ऊर्जा, कार्बन आणि पाण्याच्या सुयोग्य वापरावर भर द्यावा लागेल. त्यातूनच शाश्वत शेतीची संकल्पना पुढे आली. शाश्वत शेती ही नैसर्गिक संसाधनाचे संवर्धन करणारी पर्यावरणाची गुणवत्ता अबाधित ठेवणारी आणि शेतकऱ्यांना स्थैर्य देणारी शेती पद्धती आहे.

प्रस्तावना :

आपल्या पृथ्वीच वय आहे सुमारे साडेचार अब्ज वर्ष. साधारणपणे बारा वर्षांपूर्वी मानवाने शेतीला सुरुवात केली.पण ती पारंपारीक पद्धतीने होती.साधारण आठ हजार वर्षांपूर्वी खऱ्या अर्थाने नियोजित शेतीला सुरुवात झाली.परंतू पुरेसे अन्नधान्य व जनावरांना चारा याच गोष्टीवर भर देण्यात आला होता.नंतर यामधूनच टप्पाटप्प्याने आधुनिक शेतीची सुरुवात झाली.पुढे लोकसंख्या जशी वाढत गेली तशी अन्यधान्याची मागणी वाढत गेली.रिकाडोने सांगितल्याप्रमाणे लोकसंख्या वाढल्यास अन्नधान्याची वाढती मागणी ती पूर्ण करण्यासाठी कमी सुपीक जमीन लागवडीखाली आणली जाते.पुरक व्यवसायाची गती ही वाढू लागली.आधुनिक काळात शेती व्यवसायपण व पशुपालनाची नव्याने मांडणी करण्यास सुरुवात झाली.शेती पद्धतीत मोठया प्रमाणात यश आले.परंतू या शेती पद्धतीस रासायनिक खत आणि कीटकनाशकांचा खूप मोठया प्रमाणात वापर केला गेला.त्यामुळे नैसर्गिक संसाधनाचा न्हास आणि पर्यावरणाचे अति नुकसान होवू लागले.शिवाय पिकांच्या जैवविविधतेलाच नख लागली.

गृहितके :-

1. रासायनिक खते व किडनाशकांच्या अति वापरामुळे शेतीचे गुणधर्म लय पावतात
2. शेतीच्या शाश्वत विकासासाठी नैसर्गिक पद्धतीने शेती करणे आवश्यक आहे.

उद्दिष्टे :-

1. शाश्वत शेतीचा अर्थ समजावणे.
2. रासायनिक खताचा वापरामुळे होणाऱ्या नुकसानीचा अभ्यास करणे.
3. शाश्वत शेतीसाठी उपाय सुचविणे.

शाश्वत शेतीची संकल्पना :-

शाश्वत शेतीच्या संकल्पनेबाबत अनेक धारणा आहेत. बऱ्याच वेळा शाश्वत शेती आणि सेंद्रिय शेती एकच आहेत अशी मांडणी केली जाते.वास्तविक ती चुकीची आहे.परंतू शाश्वत शेती बाबत लवचिकपणा आहे.माती आणि पर्यावरणावर विपरीत परीणाम होणार नाही.इतक्या मर्यादित प्रमाणात तीचा वापर करण्यास शाश्वतशेतीमध्ये अडकाठी नाही.निविष्टांच्या आवश्यकतेनुसार, गरजे इतकाच आणि अतिशय विवकाने वापर करावा अशी शाश्वत विकासाची भूमिका आहे.म्हणजे शाश्वत शेती ही अधिक व्यापक संकल्पना आहे.काटेकोर शेती, नैसर्ग शेती, नैसर्गिक शेती, क्वायतशीर शेती, संवर्धित शेती, एकात्मिक शेती या सगळ्या शेती

पध्दतीचा समावेश शाश्वत शेतीमध्ये होतो. थोडक्यात नैसर्गिक साधनांचे जतन, पर्यावरणाची गुणवत्ता अबाधित ठेवणे, बदलत्या मानवी गरजांची पूर्तता करण्यासाठी संसाधनाचा सुयोग्य वापर करून केलेली शेती म्हणजे शाश्वत शेती होय.

समृद्ध जनुकसाठा धोक्यात :-

शाश्वत शेती ही काळाची गरज आहे. कारण रासायनिक खते आणि किडनाशकांची वाढती भूक असणाऱ्या आधुनिक शेतीमुळे अनेक प्रश्न निर्माण झाले आहेत. रासायनिक शेतीमध्ये जास्त उत्पादन देणाऱ्या ठराविक संकरित जातीलाच प्राधान्य दिले जाते. त्यामुळे देशी वाण संपुष्टात येत आहे. दहा वर्षांपूर्वी महाराष्ट्रात सोयाबीन पीक माहित नव्हते. आता प्रत्येक शेतकरी सोयाबीनचा पेर करत आहे. त्यामुळे उडीद, मुग, तीळ, सुर्यफुल ही पीक नामशेष राहिली आहेत. रासायनिक शेतीमुळे देशी वाणांवर आलेली कुन्हाड निसर्गातील समृद्ध जनुकीय साठ्याचा न्हास करणारी आहे. वास्तविक निसर्गात पिकांच्या विविध जातींची ही समृद्धी निर्माण होण्यासाठी शेकडो वर्षांचा कालावधी जावा लागत आहे. आपण शेतीपध्दती बदलल्यामुळे हा ठेव नष्ट झाला तर तो पुन्हा अस्तित्वात येण्यासाठी खूप प्रदिर्घ कालावधी लागेल.

माती आणि पाणी :-

रासायनिक शेतीमुळे झालेले दुसरे नुकसान म्हणजे मातीची धूप, खतांचा अतिरेकी वापर झाल्यामुळे मातीच्या कणांची रचना विस्कळीत झाली आहे. परिणामी पाणी आणि वारा यामुळे मातीचा वरचा सुपीक थर वाहून जातो. तसेच रासायनिक खतांच्या वापरामुळे जमीनीत आम्लाचे प्रमाण वाढते. यामुळे जिवानुंची क्रिया मंदावते. जमीनीच्या पोटातून पाण्याचा अनियंत्रित उपसा सुरू असल्यामुळे भुजल पातळी खालावते. जंगले वेगाने आंकुचन पावत आहेत. त्यामुळे जगातील तापमानात वाढ होत आहे.

शाश्वत शेती व्यवस्थापन पध्दत :-

रासायनिक शेती ही व्यक्ती व निसर्गासाठी अहीतकारक आहे. त्याला योग्य पर्याय म्हणजे शाश्वत शेती आहे. रासायनिक शेतीपेक्षा शाश्वत शेतीच्या व्यवस्थापन पध्दती वेगळी आहे. पीक जैवविविधतेचे जतन, पाणलोट व्यवस्थापन, पाण्याचा कार्यक्षम वापर, एकात्मिक खत व्यवस्थापन, एकात्मिक पीक संरक्षण आणि पीक बदल या गोष्टींचा त्यात समावेश आहे. जमिनीची सुपीकता कायम ठेवणे, तिचे संवर्धन करणे या बाबीला शाश्वत शेतीमध्ये अत्यंत महत्वाचे स्थान आहे. नैसर्गिक संसाधने पर्यावरण जैवविविधता यांचे जतन करण्यासाठी, पोषक द्रव्यांनी युक्त अन्नधान्य उत्पादनासाठी आणि शेतकऱ्यांना आर्थिक – मानसिक – सामाजिक स्थैर्य देण्यासाठी शाश्वत शेती ही काळाची गरज आहे.

परस्पर विरोधी प्रवाह :-

वाढत्या अन्नधान्यांच्या मागणीमुळे जंगलतोड होवून जास्तीतजास्त जमिन लागवडीखाली आणण्यासाठी स्पर्धा सुरू झाली परंतू हे जंगल परिसरातील आद्रता, पाणीसाठा राखून ठेवण्यासाठी आणि जमिनीची धूप थांबविण्यासाठी अत्यंत महत्वाची असते. याचा आपल्याला विसर पडत चालाला आहे. जंगल हे जैवविविधतेचे भंडार आहे. त्याच्यावर घात घातला आहे. शेती आणि पर्यावरणाच्या दृष्टीने हे धोकादायक आहे. मानवी हस्तक्षेपामुळे हरीतगृह वायुंचा धोका वाढत आहे. घटलेले पर्जन्यमान सुपीक जमीनीचा नाश, पाण्याची कमतरता, वाढते तापमान आणि हवेतील ऑक्सीजन, नायट्रोजन आणि कार्बन डाय ऑक्साईडच्या प्रमाणात झालेला बदल ही सगळी त्याचीच लक्षणे आहेत. त्याचा थेट परिणाम वनस्पती, मानवी जीवन आणि पशुपालन यावर होतो.

शाश्वत कृषी विकास :-

शाश्वत कृषी विकासाच्या उद्दिष्ट्यांनुसार प्रामुख्याने पर्यावरणाच्या संरक्षणावर भर दिलेला आहे. अफ्रिका खंडातील शेतीत खतांची कमतरता आहे. तर दुसऱ्या बाजूला विकसित देशांमध्ये खतांच्या अतिरिक्त वापरामुळे जमिनीची सुपीकता पीक उत्पादन आणि गुणवत्तेवर विपरीत परिणाम होत आहे. भारतातही खतांचा अतिरिक्त वापर होत असल्याने समस्या निर्माण होत आहे. येत्या काळात पर्यावरणाला धोका न पोहचविता पीक उत्पादन शेतकऱ्यांना परवडेल अशी व्यवस्थापन पध्दती आणि ग्राहकांची मागणी पुरवणाऱ्या पर्यावरणपुरक साखळीची गरज आहे. म्हणजेच आर्थिकदृष्ट्या परवडणारी निसर्गपुरक आणि समाजासाठी उपयुक्त अशी शेती व्यवस्थापन पध्दती अंगीकारणे आता गरजेचे आहे. अन्नधान्याची गुणवत्ता, सुरक्षा आणि फळे, भाजीपाल्याच्या वितरण प्रणालीत सुधारणा यावर भर याकडे अधिक लक्ष देणे गरजेचे आहे.

शेतीच्या माध्यातून शाश्वत विकास करण्यासाठी पुढील उपाययोजनांची नितांत आवश्यकता आहे.

- उपलब्ध साधनसंपत्तीचा योग्य वापर करणे.
- नैसर्गिक परिसंस्थांचे संवर्धन करणे आणि त्यांच्या वाढीसाठी प्रयत्न करणे.

- परिसंस्थांच्या विकासामध्ये लोकांचा थेट सहभाग वाढविणे.
- ग्रामीण भागात लोकांचा सामाजिक स्तर उंचावण्यासाठी प्रयत्न करणे.
- शेतीची उत्पादकता वाढविण्यासाठी उत्पादन खर्च कमी झाला पाहिजे. त्यासाठी सामुहिक शेती व बहुपिक पध्दतीचा वापर यावर अधिक भर दिला पाहिजे.
- पर्यावरणाच्या रक्षणासाठी नैसर्गिक आणि मानवी यंत्रणामधील चांगला कार्यान्वयाचा अवलंब करणे.

समारोप :-

भारतीय शेतीचा वापर शेती व्यवस्थापनातील अडचणी, पायाभूत सुविधांचा अभाव या महत्वाच्या आडचणी आहेत. एका बाजूला कुपोषण आणि दुसऱ्या बाजूला अन्नधान्याची नासाडी हे चित्र बदलणे आवश्यक आहे. दुध आणि साखर उत्पादनाबाबतीत आपण आघाडीवर आहोत. तर अन्नधान्य व फळांच्या उत्पादनात आपला दुसरा क्रमांक आहे. दुसऱ्या बाजूला देशातले सुमारे चाळीस कोटी लोक गरिबी रेषेखाली आहेत. पाच वर्षांखालील मुलांपैकी जवळपास निम्मं मुले कुपोषित आहेत. हा विरोधाभास आणि विषमतेचे चित्र बदलायचे असेल तर, त्यासाठी शाश्वत शेतीचा विचार करण्याशिवाय तरणोपाय नाही.

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भारतीय साहित्य मे पर्यावरण

डॉ. संतोष बबनराव माने

शिवराज महाविद्यालय गडहिंगलज (कोल्हापूर)

पर्यावरण और मानव का गहरा संबंध है । पर्यावरण संसार की सभी वस्तु, जीवों को प्रभावित करता रहा है । भारतीय साहित्य के चिंतन में मानव की तरह पर्यावरण भी मुख्य आकर्षण है । पर्यावरण अपने नियमों में निश्चित है जैसे मानव जीवन में भी नियमों का महत्त्व रहा है । प्रकृति के इस नियमों में बाधा आनेपर पर्यावरण और मानव का नुकसान निश्चित है । फिर भी बुद्धी के बल पर मानव ने प्रकृति के नियमों में बाधा लाने का प्रयास किया है। साहित्य यह मानव जीवन इतिहास का वृत्त है। प्राचीन काल से साहित्य के माध्यम से प्रकृति के नियमों का महत्त्व बताकर मानव को जागृत बनाने का चिरंतन प्रयास हुआ है । साहित्य के माध्यम से हमेशा विश्वमंगल की कामना रही है । पर्यावरण संतुलन रखना यह प्रश्न मानव जीव का नहीं बल्कि सभी जीवों के लिए आवश्यक है। फिर भी इन सभी जीवों में बुद्धी का प्रतिक जीव मनुष्य से ही पर्यावरण को हानी पहुँची है। भारतीय साहित्य किसी भाषा विशेष का साहित्य न होकर विविध भाषाओं का साहित्य है। विविध भाषाओं की साहित्यिक धाराएँ भारतीय साहित्य रुपी समुद्र में समाहित है । प्राचीन तत्र साहित्य वेद से लेकर वर्तमान तक का साहित्य भारतीय साहित्य है । भारतीय साहित्य किसी एक भाषा, एक क्षेत्र, एक जाति या एक काल का साहित्य नहीं अपितु भारतीय संस्कृति की भाँती है ।

विश्व के प्रतिबिंब को साहित्य में देखा जा सकता है । प्रेमचंद लिखते हैं ‘साहित्य वह जादू की लकड़ी है जो पशुओं में, ईट-पत्थरों में, पेड़-पौधों में विश्व की आत्मा का दर्शन करा देती है।’ साहित्य यह विश्व की छाया के बराबर है । प्रकृति में पर्यावरण और जीवों का गहरा संबंध है। पर्यावरण और जीवों के कार्य एकदूसरे पर असर करते रहते हैं । भारतीय साहित्य जो विभिन्न भाषाओं में होकर भी एक है जिसमें प्रकृति के इन विशेष बातों को देखा जा सकता है । साहित्य का संबंध भाषा से न होकर समाज से होता है इसीलिए साहित्य को समाज का दर्पण कहा है । किसी भी भारतीय भाषा में भारत के समाज और जनजीवन से संबंध विषय पर रचित साहित्य भारतीय साहित्य है ।

२ साहित्य यह पूर्व रूप भावना है । जैसे आदिम युग से इस भावना का प्रसार होता गया और धीरे-धीरे भारतीयता की भावना विकसित हुई । यह भावनाएँ सांस्कृतिक, सामाजिक विकास का कारण ही है । भारतीयता शब्द प्राचीन है जो वैदिक और महाभारत काल के समय से रहा है । रामायण और महाभारत के अनुवाद विविध प्राचीन भारतीय भाषाओं में उपलब्ध है । अखण्ड भारत की कल्पना प्राचीन काल से साहित्य में रही है । भारतीय साहित्य का सामाजिक जीवन मूल्यों के साथ संबंध है। एक ओर साहित्य अपने समय के सामाजिक जीवन मूल्यों, मनुष्यके कर्तव्यों, रुढ़ियों को प्रतिबिंबित करता है तो दूसरी ओर समाज की समीक्षा करके उसके रूप को समाज को एक नयी दिशा देने प्रेरक बन जाता है।

भारतीय साहित्य का मूल प्रयोजन जीवन रुपी समाज की बुराईयों को हटाकर सुंदर, आनंदमय जीवन को जागृत करना है । भारतीय साहित्य में प्रथम साहित्य वेद ग्रंथों में यही भावना रही है । पौराणिक युग तथा पश्चात के बौद्ध, जैन धर्मों में मानवतावादी प्रवृत्ति ही रही है। महाभारत में सत्य, क्षमता, पवित्रता, मैत्री आदि आदर्श हैं तो रामायण में सत्य अहिंसा, तप, त्याग, सेवा को बल देकर सभी प्राणियों, जीवों के प्रति दया को ही सर्वश्रेष्ठ बनाने का प्रयास किया है । पर्यावरण में भाषा, भूगोल, जीवन के विकास और परिणाम महत्त्वपूर्ण साबित है । प्राचीन युग के साहित्य में सामाजिक समस्याओं को दिखाकर नीति मूल्यों को स्थापित करने का प्रयास हुआ है ।

आधुनिक युग में पर्यावरण की बात आनेपर प्राचीन काल से वर्तमान काल तक पर्यावरण में —हास होता देखा है । यह काल सक्रमण काल रहा है । मानवी नैतिक मूल्यों में विश्वास और आस्था कम होती रही है । वर्तमान में वैज्ञानिक प्रगति में मानव अपने भौतिक साधनों को प्राप्त करते-करते अपने नीति मूल्यों से दूर होता गया है । अपनी स्वार्थ रुपी कामना करने दौड़ने वाला मनुष्य जीवन की सजीवता से दूर होता हुआ एक यंत्र बना है यह उसे शायद पता भी नहीं है । इस स्वार्थी अंधी दौड़ में वह मानव से अमानव होकर पर्यावरण का सबसे बड़ा दुश्मन हुआ है । पर्यावरण में फैली प्रदूषणता से भयावह मनुष्य मनुष्यता से खोया खोया है । आज हर एक मनुष्य यह आदर्श मूल्य भोर का तारा बन चुका है । इन सारी कठिन परिस्थितियों को दूर करना है तो हमें भारतीय साहित्य के मूल्यों को अपनाना प्रथम आवश्यकता है ।

प्रदूषण की भयावहता से दूर होना है तो हमें यंत्र रूप से दूर होकर सजीव होना आवश्यक है । इस संसार में प्रकृति ने जीवों के प्रति हमेशा सहयोग ही स्थापित किया है । पुरातन साहित्य में प्रकृति को ३ वंदनीय माना है फिर उसमें अग्नि हो, या वायू, आकाश, धरती, पानी भी है । प्रकृति के यह विविध रूप जीवन प्रदान करने की प्रेरणा रही है परंतु आज का मनुष्य बुद्धिहीन होकर इन रूपों के मूल्यों को त्यागकर शैतान रूपी प्रकृति का निर्माण कर रहा है अपितु उसपर अपने ही सगे-संबंधी को बली देकर अपने आप को मिटा रहा है । आज विश्व के हर जीव के लिए खास मनुष्य के लिए पर्यावरण संरक्षण महत्त्वपूर्ण उद्देश्य होना आवश्यक है । आज पर्यावरण को बचाने यंत्र नहीं तंत्र की आवश्यकता है ।

प्रकृति में पर्यावरण के कारण ही जीवों की व्युत्पत्ति है । इन्हीं में से मनुष्य जीव ने पर्यावरण को खतरे में लाया है । इस वैज्ञानिक युग में मनुष्य ने अंधी दौड़ अपनायी है । निरर्थक भौतिक साधनों से मोहित होकर प्रकृति के महत्त्व से दूर होकर जीवन के दायित्व से दूर होता मानव जीवन है । पर्यावरण के संरक्षण के लिए उसे जागृत होना होगा । पर्यावरण में परि शब्द उपसर्ग है जिसका अर्थ चारों ओर है । चारों ओर के आवरण से प्रकृति का सुंदर रूप है । इन्हीं आवरणों को खत्म करनेवाले मानव को आज सावधान होना आवश्यक है । एकमात्र भारतीय साहित्य के माध्यम से पर्यावरण वादी विचारों को अपनाना सुखमय जीवन का स्रोत बन चुका है । प्रत्येक जीव का अपना एक पर्यावरण होता है । प्रत्येक जीव पर्यावरण में पैदा होता है, और जीवन यापन करता है । मानव के लिए निर्जीव पाच उपघटकों क्षितिज, जल, पावक गगन तथा समीर व सजीव घटकों में छोटे-बड़े जीव जंतु और पेड़-पौधे पर्यावरण के अंग हैं । इन सभी अंगों का प्रभाव मानव जीवन पर होता रहा है ।

अतः वर्तमान काल पर्यावरण को हानी हो रही है और इसका कारण हमारी जीवन शैली है । पर्यावरण के प्रदूषण का परिणाम मानव जीवन शैली पर हावी हो रहा है । आज सारा विश्व इस प्रदूषण की चिंता से ग्रस्त है । परंतु पर्यावरण संरक्षण को लेकर प्राचीन काल से भारतीय साहित्य में महत्त्व है । संरक्षण संबंधी विचार, तत्वों को साहित्य से खोज निकालकर हमारी जीवन शैली में उसे लाना आवश्यक है तभी इस सृष्टि की सुंदरता प्रकट होगी । भारतीय संस्कृति में पर्यावरण को लेकर सर्वमंगल की भावना प्रकट है,

“सर्वे भवन्तु सुखिनः सर्व सन्तु निरामया : ।

सर्वे भद्राणि पश्यन्तु मा कश्चिद् दुःखभाव भवेत् ॥”

अर्थात् संपूर्ण सृष्टि सुखी और स्वस्थ तभी होगी जब हमारा पर्यावरण स्वच्छ, सुंदर होगा । इसलिए अभी से यह साकार करने के लिए संकल्प लेना आवश्यक है ।



शास्वत विकास ध्येयपुर्ती संदर्भात भारताची प्रगती आणि अडथळे

शंकर सुदामराव पवार

पूज्य साने गुरुजी विद्या प्रसारक मंडळाचे
कला, विज्ञान व वाणिज्य महाविद्यालय, शहादा

गोषवारा

गेल्या काही काळात विशेषतः जुलै हज्जमास मध्ये पश्चिम महाराष्ट्र आणि आणि त्यापूर्वी ऑगस्ट २०१९ मधील कोल्हापूर, सांगली मधील महापूर तसेच कोकणमधील वारंवार येऊ लागलेली वादळे या घटना आपणास हवामान बदलाकडे अंगुलीनिर्देश करतात. किंबहुना तो हवामान बदलाचाच परिणाम आहे असे म्हटले तरी अतिशयोक्ती ठरणार नाही. विकासाच्या नावाखाली पर्यावरणामध्ये मानवी हस्तक्षेप वाढल्याने जैवविविधतेचा र्हास, हवामान बदल, जागतिक तापमानवाढ यांसारख्या विश्वव्यापी समस्या निर्माण झाल्या. न्ह्यमते, सध्या जागतिक तापमानवाढीमुळे पृथ्वीवरील परिस्थितिकी तंत्रावर विपरीत परिणाम घडून आल्याने जागतिक पातळीवर गरीब व श्रीमंत अशा दोहोंनाही गंभीर परिणाम भोगावे लागणार आहेत. परिणामी विकसित व विकसनशील राष्ट्रांनी हवामान बदलाच्या समस्येवर प्रयत्न करावेत. हज्ज्या शतकाच्या मध्यापर्यंत पर्यावरण प्रदूषणाच्या समस्येने सर्वांचे लक्ष वेधून घेतले. आजची विकासाची संकल्पना आर्थिक बळाशी जोडलेली आहे. विकसनशील देशांसाठी अर्थव्यवस्थेचा आकार वाढणे किंवा राष्ट्रीय सकल उत्पन्नाच्या वाढीचा दर सातत्याने चढा असणे महत्वाचे मानले जाते. पण काही 'विकसित' देशांमध्येही बेघर, भुकेल्या, बेरोजगार, दारिद्र्यरेषेखालील लोकांची संख्या लक्षणीय आहे. यापैकी काही देशांत वर्णभेद, वंशभेद, लिंगभेद, धर्मभेद, इ.च्या प्रभावाखाली महिला, मूळ निवासी, स्थलांतरित, अल्पसंख्याक, वैचारिक विरोधक, इ.चे दमन केले जाते. सर्वच विकसित देशांनी अनेक स्थानिक आणि जागतिक पर्यावरणीय समस्या निर्माण करून ठेवल्या आहेत. असे असूनही इतर देशही याच मार्गाने चालले आहेत. मर्यादित ग्रहावर अमर्यादित विकास शक्य नाही, ही वस्तुस्थिती तत्त्वतः सर्वांना मान्य आहेय मात्र विकासासाठी जो काही अवकाश पृथ्वीवर उपलब्ध आहे, तो आपल्याला जास्तीत जास्त कसा व्यापता येईल, यासाठी सर्व देशांची धडपड चाललेली दिसते. प्रस्तुत शोधनिबंधात शास्वत विकासाची संकल्पना, शास्वत विकासाची ध्येये, शास्वत विकासाच्या ध्येयपुर्तीसंदर्भात भारताची प्रगती आणि भारतीय अर्थव्यवस्थेला असलेले अडथळे यांचा परामर्श घेतला आहे. तसेच धोरणात्मक निर्णयासाठी काही शिफारशी सुचविल्या आहेत.

प्रस्तावना:

हा एक विचित्र तिढा आहे. यामुळे एकीकडे आता आपण अशाश्वततेकडे वाटचाल करत आहोतय तर दुसरीकडे संसाधनांच्या वापराबाबत पराकोटीची विषमता निर्माण झाली आहे. देशाच्या अर्थव्यवस्थेचा आकार आणि नागरिकांचे जीवन समाधानी असणे यांचा थेट संबंध नाही. ज्या देशांमध्ये शिक्षण, आरोग्य, प्रदूषणरहित पर्यावरण, सामाजिक सुरक्षा, इ. गोष्टींमध्ये शासन गुंतवणूक करते, त्या देशांतील नागरिकांचे जीवन अधिक समानतेचे, समृद्धीचे, समाधानाचे आहे, हे अनेक अभ्यासांमधून दिसते आहे. संसाधनांचा अधिकाधिक वापर, पैशांची अधिकाधिक उलाढाल म्हणजे विकास हा खोल रुजलेला विचार बदलणे आणि त्याद्वारे जागतिक अर्थव्यवस्था बदलणे, ही केवळ आदर्शवादी भूमिका नाहीय तर हे शक्य आहे. आणि पृथ्वीवर मानवी अस्तित्व दीर्घकाळ टिकवण्यासाठी आवश्यकही आहे.

मध्ये योहान रॉकस्ट्रम यांनी पृथ्वीवर टिकून राहण्यासाठी आपण काही पर्यावरणीय लक्ष्मणरेषांचे पालन केले पाहिजे हा विचार मांडला. हज्ज्या दशकात शास्वत विकासाच्या ध्येयांबाबत ऊहापोह चालू होता आणि त्यातून चांगले जीवन (गुड लाइफ) कशाला म्हणायचे त्यासाठी संसाधने व पर्यावरणीय सेवांची दरडोई उपलब्धता किती असायला हवी, याचेही गणित मांडले जाऊ लागले. हज्ज्या साली अर्थशास्त्री केट रावर्थ यांनी हे दोन्ही विचार एकत्र करून 'डोनट अर्थशास्त्र' हा सिद्धान्त मांडला. या सिद्धान्तानुसार जागतिक अर्थकारण हे पर्यावरणीय लक्ष्मणरेषांच्या खाली, पण सर्व माणसांना चांगले जीवन जगण्यासाठी आवश्यक इतक्या संसाधन वापराच्या किमान पातळ्यांच्या वर, असे असायला हवे. म्हणजे पर्यावरणीय मर्यादांचे बाहेरचे वर्तुळ आणि समानताधिष्ठित सामाजिक मर्यादांचे आतले वर्तुळ यांच्या मधल्या अवकाशात जगाची, देशांची राज्यांची, शहरांची, गावांची, समूहांची अर्थव्यवस्था असायला हवी. हे चित्र मध्यभागी भोक असलेल्या वर्तुळाकार चकतीसारखे किंवा डोनट या पदार्थासारखे दिसते, म्हणून या सिद्धान्ताला 'डोनट अर्थशास्त्र' म्हणतात.

अध्ययनाची उद्दिष्टे:

१. शाश्वत विकास संकल्पनेचे अध्ययन करणे.
२. शाश्वत विकासाची ध्येये अभ्यासने
३. शाश्वत विकासाच्या ध्येयपूर्तीसाठी भारताच्या वाटचालीचा आढावा घेणे.
४. शाश्वत विकास ध्येयपूर्तीमधील भारतापुढील अडथळे यांचा अभ्यास करणे.

संशोधन पद्धती:

प्रस्तुत शोधनिबंधाचा अभ्यासविषय हा शाश्वत विकास ध्येये असल्यामुळे अध्ययनासाठी प्रामुख्याने दुय्यम स्रोतांद्वारे उपलब्ध झालेल्या माहिती व आकडेवारीचा वापर केला आहे. यामध्ये विविध संदर्भग्रंथ, शासकीय अहवाल, नियतकालिके, संशोधनपर लेख, विविध संकेतस्थळे, वर्तमानपत्रीय लेख या स्रोतांचा वापर करून निष्कर्ष काढले आहेत.

शाश्वत विकासाची संकल्पना

शाश्वत विकास म्हणजे आजच्या गरजा आपण अशाप्रकारे पूर्ण केल्या पाहिजेत कि पुढील पिढ्यांना देखील त्यांच्या गरजा कोणत्याही तडजोडीविना पूर्ण करता आल्या पाहिजेत. येथे विशेष नमूद करण्यासारखे म्हणजे आजच्या गरजादेखील पूर्ण होणे अपेक्षित आहे. आजच्या गरजांमध्ये तडजोड करून भविष्याची तरतूद करा असे म्हणणे योग्य होणार नाही. जीवनाकडे पाहण्याच्या भोगवादी दृष्टीकोनाचा त्याग करावा लागेल. योग्य गरजा योग्य पद्धतीने, आणि पर्यावरण पूरक विकल्पांनी पूर्ण करणे हा सुवर्णमध्य होऊ शकतो. शाश्वत विकास कठीण वाटत असला तरी, त्याचे मूळ स्थायी पाणी उपलब्धता, पुरवठा यांच्याशी निगडीत आहे हे कोणी दुर्लक्ष करू शकणार नाही. साध्या परंतु महत्वाच्या कितीतरी गोष्टी असतात जे लक्षात येत नाही आपल्या बुद्धीच्या जोरावर नैसर्गिक साधनसंपत्तीचा वापर करताना माणूस हा निसर्गचक्राचा एक घटक आहे याची जाणीव शाश्वत विकास या संकल्पनेत आहे. पृथ्वीवरील इतर कोणताही सजीव आपल्या गरजेपेक्षा जास्त संसाधनांचा वापर करत नाही. जीवो जीवस्य जीवनम हे निसर्गचक्र आहे. माणसाच्या सतत अधिक काही मिळवण्याच्या इच्छेमुळे तो सतत अधिकाधिक संसाधनांचा वापर करत असतो.

शाश्वत विकास ध्येये (एस.डी.जी.)

हा भविष्यकालीन विकासाशी संबंधित ध्येयांचा संच आहे. ही ध्येये युनायटेड नेशन्सने बनविली असून त्यांची शाश्वत विकासासाठीची जागतिक ध्येये अशी बढती करण्यात आलेली आहे. या ध्येयांनी, सहस्र (मिलेनिअर) विकास ध्येये ज्यांची मुदत वर्ष २०१५ च्या शेवटी संपली, २५ ते २७ सप्टेंबर २०१५ मध्ये संयुक्त राष्ट्रांच्या आमसभेने एकूण १७ उद्दिष्टे असणारा २०३० साठीचा शाश्वत विकास अजेंडा स्वीकारला. ही १७ उद्दिष्टे सदस्य राष्ट्रांनी २०१६ ते २०३० या कालावधीत साध्य करायची आहेत. २०१५ च्या ऑगस्ट मध्ये १९३ देशांनी खालील १७ ध्येयांना मान्यता दिली आहे.

१. सर्व प्रकारच्या गरिबीचे निर्मूलन करणे.
२. भूक संपवणे, अन्न सुरक्षा व सुधारित पोषणआहार उपलब्ध करून देणे आणि शाश्वत शेतीला प्राधान्य देणे.
३. आरोग्यपूर्ण आयुष्य सुनिश्चित करणे व सर्व वयोगटातील नागरिकांचे कल्याण साधणे.
४. सर्वसमावेशक व गुणवत्तापूर्ण शिक्षण उपलब्ध करणे.
५. लिंगभावाधिष्ठित समानता व महिला आणि मुलींचे सक्षमीकरण साधणे.
६. पाण्याची व स्वच्छतेच्या संसाधनाची उपलब्धता सुनिश्चित करणे.
७. सर्वाना अल्पखर्चीक विश्वासार्ह, शाश्वत आणि आधुनिक ऊर्जा साधने उपलब्ध करून देणे.
८. शाश्वत, सर्वसमावेशक आर्थिक वाढ आणि उत्पादक रोजगार उपलब्ध करणे.
९. पायाभूत सोयीसुविधांची निर्मिती करणे, सर्वसमावेशक आणि शाश्वत औद्योगिकीकरण करणे आणि कल्पकतेला वाव देणे.
१०. विविध देशांमधील असमानता दूर करणे.
११. शहरे आणि मानवी वस्त्या अधिक समावेशक, सुरक्षित, संवेदनशील आणि शाश्वत करणे.
१२. उत्पादन आणि उपभोगाच्या पद्धती शाश्वत रूपात आणणे.
१३. हवामान बदल आणि त्याच्या दुष्परिणामांना रोखण्यासाठी त्वरित उपाययोजना करणे.
१४. महासागर व समूहांचे संवर्धन करणे तसेच त्यांच्याशी संबंधित संसाधनांचा शाश्वतपणे वापर करणे.

१५. परिस्थितिकीय व्यवस्थान शाश्वत पध्दतीने वापर करणे. वनाचे शाश्वत व्यवस्थापन, वाळवंटीकरणाशी मुकाबला करणे, जमिनीचा कस कमी होण्याची प्रक्रिया आणि जैवविविधतेची हानी रोखणे.
१६. शांततापूर्ण आणि सर्वसमावेशक समाजव्यवस्थांना प्रोत्साहन देणे. त्यांची शाश्वत विकासाच्या दिशेने वाटचाल निश्चित करणे, सर्वांची न्यायापर्यंत पोहोच स्थापित करण्यासाठी विविध पातळ्यांवर परिणामकारक, उत्तरदायी आणि सर्वसमावेशक संस्था उभ्या करणे.
१७. चिरस्थायी विकासासाठी भागीदार निर्माण व्हावी यासाठी अंमलबजावणीची साधने विकसित करणे.

शाश्वत विकास ध्येयपूर्ती संदर्भात भारताची प्रगती आणि अडथळे

शाश्वत विकासाची १७ ध्येये आहेत. यातील निवडक ध्येयांच्या वाटचालीचा आढावा घेताना भारताच्या संदर्भात हरित अर्थसंकल्पाचा विचार करायचा झाल्यास, पर्यावरण व त्याचे संवर्धन याबाबत भारतात जरी जागरूकता असली, तरीदेखील ख-या अर्थाने त्या दिशेने उचलेले गेलेले पहिले पाऊल म्हणजे २०११-१२ च्या आर्थिक सर्वेक्षणात शाश्वत विकास व हवामान बदल हे वेगळे प्रकरण तत्कालीन आर्थिक सल्लागार कौशिक बसू यांनी अंतर्भूत केले. त्यामुळे पर्यावरणाचे असंतुलन, त्याचा वेगवेगळ्या आर्थिक व सामाजिक घटकांवर (पाणी, हवा, शेती, हवामान, जैव-विविधता इ.) होणारे परिणाम व त्यानुसार ते टाळण्यासाठी करावयाच्या उपाययोजना यांचा साकल्याने विचार सुरू झाला आणि त्यानंतरच्या सर्व अर्थसंकल्पांमध्ये अर्थव्यवस्था जास्तीत जास्त हरित करण्यासाठी तरतुदी केल्या गेल्या, त्यातील काही पुढीलप्रमाणे

१. २०१५-१६ अर्थसंकल्पात पर्यावरणाच्या संदर्भात कोळसा स्वच्छ ऊर्जा अधिभार प्रतिमेट्रिक टन रु १०० वरून रु २०० केला गेला. या मार्गाने १३११८ कोटी रूपये कराच्या रूपाने जमा झाले. १०० स्मार्ट शहरे विकसित करण्यासाठी आणखी ६०८२ कोटींची तरतूद केली गेली. जल मंत्रालयाला ४२३२ कोटी रूपये दिले गेले. हवामान बदलाचा सर्वात जास्त दुष्परिणाम कृषी क्षेत्रावर होईल, असे भाकीत ब-याच अर्थतज्ञांनी केल्यामुळे जल व जमीन संवर्धनासाठी ७०७ कोटी, तर पूर निवारणासाठी २४५ कोटी रूपये इतकी तरतूद केली.
२. २०१६-१७ च्या अर्थसंकल्पातही हरित दृष्टिकोनाच्या खुणा दिसतात. १४व्या वित्त आयोगाने (२०१५-२०२०) केंद्राकडून राज्यांना हस्तांतरित केल्या जाणा-या निधीचे निकष ठरविताना पर्यावरणीय घटकांना प्राधान्य देण्यासाठी वन-आच्छादन हा घटक आता अंतर्भूत केला आहे. म्हणजेच राज्यांना केंद्राकडून जास्त निधी मिळवायचा असेल तर राज्यांनाही शाश्वत विकास करणे अत्यावश्यक आहे. एकूणच भारताच्या शाश्वत विकासात आगामी काळात अर्थसंकल्पातील हरितता महत्त्वाची भूमिका बजावणार हे निश्चितपणे नमूद करता येईल.
३. पंतप्रधान नरेंद्र मोदी यांच्या सरकारचा पहिला अर्थसंकल्प २०१४-१५ हा अल्प-कार्बन अर्थव्यवस्थेच्या दिशेने असलेला पहिला अर्थसंकल्प मानता येईल. यात केवळ वने व पर्यावरण मंत्रालयाला १३८४ कोटी रूपये, तर ऊर्जा मंत्रालयाला १३४९ कोटी रूपये दिले गेले. त्यापैकी नवीन व पुनर्निर्माण ऊर्जेसाठी सुमारे ९५६ कोटी रूपयांची तरतूद केली गेली. १०० स्मार्ट शहरे विकसित करण्यासाठी ७०६० कोटी इतकी तरतूद केली. ३८४४ कोटींचा निधी जलस्रोतांसाठी पुरविण्यात आला.

शाश्वत विकास आणि आर्थिक सुधारणा:

केंद्र सरकारने केलेल्या आर्थिक संरचनात्मक सुधारणांमुळे भारतीय अर्थव्यवस्थेची वाटचाल भक्कम, शाश्वत आणि समतोल विकासाकडे सुरू झाली आहे. विमुद्रीकरण, वस्तू आणि सेवा कराच्या अंमलबजावणीनंतर विकास दराची मंदावलेली गती हा तात्पुरता परिणाम होता आणि भारतीय अर्थव्यवस्था आता प्रगतीच्या मार्गावर आहे. १ जुलै २०१७ पासून जीएसटी लागू होणे ही सरकारने टप्प्याटप्प्याने केलेल्या वित्तीय सुधारणांमधली महत्त्वाची पायरी होती. त्या आधी केलेले विमुद्रीकरण आणि इतर संरचनात्मक सुधारणांशी हा निर्णय सुसंगतच होता, या सुधारणांमुळे अर्थव्यवस्थेचा मार्ग आणि गती दोन्ही सुरळीत झाली. गेल्या वर्षात भारतात थेट परदेशी गुंतवणुकीचा ओघ वाढला असून भारतीय अर्थव्यवस्थेविषयी जागतिक स्तरावर विश्वास वाढल्याचे हे निदर्शक आहे.

जुलै २०१७ मध्ये भारताने शाश्वत विकासाच्या उद्दिष्टसंदर्भात राष्ट्रीय पातळीवर एक सर्वेक्षण पूर्ण केले. संयुक्त राष्ट्रांचा २०३० चा अजेंडा आपण सर्वांनी तीन वर्षांपूर्वी स्विकारला आणि शाश्वत विकासाची

१७ उद्दिष्टे गाठण्याच्या दृष्टीने एकत्रित कृती करण्याची गरज आहे. सर्वसमावेशक विकास शाश्वत विकासाचे उद्दिष्ट साध्य करण्यासाठी भारताने कल्याणकारी योजनांशी त्याची सांगड घातली आहे. केंद्र आणि राज्य सरकार राबवत असलेल्या सर्व योजनांच्या माध्यमातून शाश्वत विकास गाठण्याचे प्रयत्न आहेत. शाश्वत विकासाच्या धोरणांवर संसदेतही साधकबाधक चर्चा झाली. प्राधान्यक्रमाने ठरवण्यात आलेली उद्दिष्टे गाठण्यासाठी, योजना कालबद्धरीत्या पूर्ण करण्यावर भर देण्यात येत आहे. एक उदाहरण दयायचे झाल्यास, बँकींग व्यवस्थेत नसलेल्या नागरिकांना खाते उघडण्याची संधी देणे, प्रत्येकाला बायोमेट्रिक ओळखपत्र देणे आणि त्याच्याशी मोबाईल क्रमांक जोडून, लाभार्थ्यांना योजनेचे लाभ मिळतील अशी व्यवस्था करणारी त्रिसूत्री योजना भारताने सुरू केली. या योजनेच्या मदतीने, पहिल्यांदाच, ३६ कोटी लोकांपर्यंत थेट लाभ हस्तांतरणाच्या माध्यमातून योजनेचे थेट लाभ पोहोचवण्यात भारत यशस्वी झाला.

भारताच्या विकासाच्या इच्छा आकांक्षा पूर्ण करतांनाच, इतर विकसनशील राष्ट्रांसोबत भागीदारीची भारताला दीर्घ परंपरा आहे. प्रत्येक पावलावर विविध क्षेत्रातले भारताचे अनुभव आणि स्रोत, इतर भागीदारांना दिले आहेत. मग ते लोकशाही व्यवस्था अधिक मजबूत करण्यापासून ते जनकल्याणसाठी अत्याधुनिक तंत्रज्ञान देण्यापर्यंत कुठलीही मदत असो, भारताने भागीदार राष्ट्रांना अशी सर्व मदत केली. २०१८ वर्षाच्या सुरुवातीला भारताने एक दक्षिण आशियाई उपग्रह अवकाशात प्रक्षेपित केला. भारताच्या शेजारच्या राष्ट्रांना, शिक्षण, आरोग्य, दळणवळण आणि आपत्ती व्यवस्थापन अशा विविध क्षेत्रात विकास करण्यासाठी या उपग्रहाची मदत होईल. गेल्या अर्ध्या शतकापासून भारताच्या पथदर्शी उपक्रमांमध्ये भारतीय तंत्रज्ञान आणि वित्तीय सहकार्य, आय टीईसीने आशिया, आफ्रिका, पूर्व युरोप, लॅटीन अमेरिका, करेबियन आणि प्रशांत महासागरातील बेटांवरच्या राष्ट्रांसह १६१ राष्ट्रांना प्रशिक्षण आणि कौशल्य विकासासाठी मदत केली आहे. आयटीईसीने एकट्या आफ्रिकेतल्या २५ हजारहून अधिक विद्यार्थ्यांना प्रशिक्षण दिले आहे. २०१५ साली झालेल्या तिस-या भारत-आफ्रिका मंच शिखर परिषदेत ५४ आफ्रिकन देशांसोबत, भारताने ही शिष्यवृत्ती पुढच्या पाच वर्षात दुपटीने वाढवण्याचा निर्णय घेतला, आणि ती संख्या ५० हजार विद्यार्थ्यांपर्यंत वाढवण्याचे उद्दिष्ट ठेवले आहे. भारतात प्रशिक्षण घेतलेले आफ्रिकेतील सोलर मामास आफ्रिका खंडातल्या हजारो घरांमध्ये वीजपुरवठा करून प्रकाश देत आहेत. आफ्रिकी देशांसोबत अधिक दृढझालेल्या आमच्या संबंधांची परिणीती म्हणजे, आफ्रिकन विकास बँकेची यावर्षाची सर्वसाधारण सभा इतिहासात पहिल्यांदाच आफ्रिका खंडाच्या बाहेर, भारतात झाली. भागीदारीतून उभारण्यात आलेल्या आपल्या विकास प्रकल्पांमुळे जगभरातल्या डझनाहून जास्त देशांमध्ये पाणी, वीज, रस्ते, आरोग्य, टेली-मेडिसिन आणि पायाभूत सुविधा उपलब्ध होत आहेत. या सगळ्याच्या पलीकडे, भारताच्या विनाअट सहकार्याच्या धोरणानुसार, भारताने केवळ भारताच्या भागीदार राष्ट्रांच्या गरजा आणि प्राधान्यक्रमाला महत्व दिले आहे.

शिफारशी

हे दशक आपल्यासाठी सुवर्ण दशक ठरू शकेल. या दिशेने आपण एक कृतीशील प्रतिसाद, धोरणे आणि कृती आराखडा ठरवायला हवा, त्यासाठी पुढील शिफारशी सुचविता येतील.

१. एका समान जगाची निर्मितीसाठी, सर्वांना समान संधी देणे, लैंगिक भेदभाव दूर करणे.
२. आजारांचे पूर्ण उच्चाटन करण्यासाठी तसेच, सर्वांना परवडणारी आरोग्य व्यवस्था उभारण्यासाठी संशोधन आणि विकास क्षेत्रात सहकार्य वाढवणे.
३. एक सर्वसमावेशक जग निर्माण करण्यासाठी बँकिंग आणि इतर वित्त व्यवस्थांमध्ये अधिकाधिक लोकांना समाविष्ट करून हे उद्दिष्ट साध्य करता येईल.
४. एक हरित जग निर्माण करणे आणि हवामान बदलाचा सामना करण्यासाठी एक ठोस कृती करणे, ज्यात आंतरराष्ट्रीय सौर ऊर्जा सहकार्य सारख्या गोष्टींचा समावेश असेल.
५. जगतिक कार्यक्षमता, अर्थव्यवस्था आणि परिणामकारकता वाढवण्यासाठी परस्पर सहकार्य आणि आवश्यक त्या तंत्रज्ञानाची मदत एकमेकांना करणे.
६. डिजिटल जगाची निर्मिती करण्यासाठी अर्थव्यवस्थेच्या आत आणि बाहेरही असलेली डिजिटल दरी भरून काढण्यासाठी प्रयत्न करणे.
७. कुशन जगाची निर्मिती करण्यासाठी जगातल्या लक्षावधी युवकांना, भविष्यात उपयोगी ठरतील अशी कौशल्ये शिकवून, कुशन मनुष्यबळ तयार करणे.
८. एकमेकांशी जोडलेले जग निर्माण करण्यासाठी, सगळीकडे माल, व्यक्ती आणि सेवांचा मुक्त पुरवठा होईल, अशी व्यवस्था निर्माण करणे. कृती कार्यक्रम आणि त्यावरची कृतीशील वाटचाल, यामुळे भारत जागतिक समुदायाच्या कल्याणासाठी भरीव योगदान देऊ शकतो.

समारोपः

आज आपण स्वतःच्या स्वार्थासाठी निर्सगाला हानी पोहोचवत आहोत. हा विकास आहे का? हा प्रश्न आपण स्वतःला विचारला पाहिजे. वातावरण बदलाचे आज मानवतेसमोर मोठे आव्हान आहे. सध्या हवामान बदल हा मोठा विषय आहे. आकृष्टक महासागरातील हिमपर्वत हळूहळू वितळत आहेत. ही एक चिंतेची बात आहे. सद्यस्थितीत भारताची शाश्वत विकासाची ध्येयपूर्ती संदर्भात विचार करायचा झाल्यास एक निष्कर्ष निघतो की, भारतासमोरील आव्हानांचा विचार केल्यास २०३० पर्यंत ही ध्येये पूर्ण होतील असा विश्वास बाळगणे साहसाचे ठरेल.

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शाश्वत विकास आणि शेती

प्रा. डॉ. पी. डी. हुडेकर

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प्रस्तावना :

अन्न, वस्त्र, निवारा या मानवाच्या प्राथमिक व मूलभूत गरजा आहेत. मानवाला मिळणारे अन्न प्रामुख्याने शेतीमधूनच मिळते. त्यामुळे शेतीचा विकास वेगवेगळ्या संशोधनातून होणे आवश्यक आहे. अन्नधान्याचे उत्पादन वाढत असले तरी वाढत्या लोकसंख्येला अन्नधान्य पुरविणे हे जगाच्या समोरील आव्हान आहे. सन २०२५ मध्ये जगाची लोकसंख्या ८५० कोटी होईल पण जमीन मात्र तेवढीच राहणार आहे. वाढते उद्योगधंदे, वाढत्या लोकसंख्येला घरे इ. गरजा भागविण्यास कृषिक्षेत्रातूनच जमिनीचा वापर केला जाईल. त्यामुळे शेतीसाठी वापरात असलेले क्षेत्र कमी कमी होईल. मानवी जातीच्या सर्वांगीन विकासासाठी शेती आवश्यक आहे. शाश्वत विकास ही बहु आयामी व परस्परावलंबी संकल्पना आहे. या संकल्पनेत वर्तमान काळातील पिढीबरोबरच भविष्यातील पिढीचा विचार केला जातो.

१) शोधनिबंधाची उद्दिष्टे :

- शाश्वत विकासाची संकल्पनेचा अभ्यास करणे.
- हरित क्रांतीचा अभ्यास करणे.
- जलसिंचन प्रणालीचा अभ्यास करणे.
- खते - रासायनिक व सेंद्रीय याचा अभ्यास करणे.
- कृषिरसायनांचा अभ्यास करणे.
- कीटकनाशकाचा पर्यावरण, शेती आणि मानवावरील परिणाम अभ्यासणे.

२) संशोधन पद्धती :

प्रस्तुत शोध निबंध हा दृश्यक सामग्रीवर आधारलेला आहे.

३) शाश्वत विकास संकल्पना :

शाश्वत विकास म्हणजे असा विकास की, जो भविष्यकालीन पिढ्यांच्या गरजा भागविण्याच्या क्षमतेला कोणताही धो न पत्करता लोकांच्या वर्तमान गरजा पूर्ण करणे होय. भावी पिढ्यांच्या गरजा भागविण्याच्या क्षमतेला कोणताही धो न पत्करता लोकांच्या वर्तमान गरजा पूर्ण करणे म्हणजे शाश्वत विकास होय.

रॉबर्ट अलन असे म्हणतात की, "शाश्वत विकास असा असतो की, मानवी गरजांचे चिरकाल टिकणारे साधन आणि मानवी जीवनाच्या दर्जात सुधारणा साध्य करणारा असतो. कृषी साधनधनाच्या आणि पुनर्निर्माण क्षमता यावर शाश्वत विकास आधारित असतो."

४) शाश्वत विकासाची आवश्यकता:

विकास हा मानवाचा नैसर्गिक हक्क आहे या हक्काचा उपयोग शेतीच्या अतिवापर, त्यावर वेगवेगळे प्रयोग, त्यामुळे त्याचा पोत कमी होणे, वाढती लोकसंख्या, वाढते उद्योगधंदे यामुळे वाढते घरे यातूनच जमिनीचे क्षेत्र कमी कमी होणे. याचा अनिष्ट परिणाम मानव जातीवर होत आहे. याची जाणीव करून देण्यासाठीच शाश्वत विकासाची नितांत आवश्यकता आहे. भारताच्या संदर्भात विचार केल्यास दारिद्र्य निर्मुलन करण्यासाठी, हरितक्रांती करण्यासाठी, जलसंचयन प्रणाली विकसित करण्यासाठी, खते, रासायनिक व सेंद्रीय यांचे संशोधनासाठी त्यातून मानवी जीवनशैली बदलण्यासाठी, आरोग्याचा गुणात्मक दर्जा सुधारण्यासाठी, गांधीच्या विचारातील स्वराज्याचे स्वराज्यात रुपांतर करण्यासाठी शाश्वत विकासाची संकल्पना विकसित होणे आवश्यक आहे. या शाश्वत विकासाची संकल्पना शेतीमध्ये प्रयोग करून शाश्वत शेतीची गरज आणि उत्पन्न वाढविण्यासाठी कसा करता येईल यासाठी वेगवेगळ्या माध्यमातून प्रयोग करणे गरजेचे आहे.

हरितक्रांती :

स्वातंत्र्यानंतर भारतात विविध योजना राबवूनही अन्नधान्याची गरज पूर्ण करता येत नव्हती. उपासमारीमुळे बळींची संख्या कमी होत नव्हती. सन १९५० मध्ये मेक्सिको देशात डॉ. नॉर्मन बोरलॉग यांनी गव्हाच्या पिकांवर संशोधन केले. उंचीने कमी म्हणजेच खुज्या परंतु गव्हाचे अधिक उत्पादन देणाऱ्या कोलंबिया आणि मेक्सिकोच्या गव्हाची जात शोधून काढली. या रोपामध्ये रोपांच्या उंचीची उर्जा धान्यासाठी वापरली गेली. त्यामुळे उत्पादन हे ४०० पटींनी वाढले. डॉ. एम. एस. स्वामिनाथन यांनी मेक्सिकन जात भारतात आणली. १९६१ पासून मेक्सिकन जातीच्या गव्हाच्या लागवडीची शिफारस करण्यात आली. त्यामुळे स्वामिनाथन यांना भारतीय हरितक्रांतीचे जनक म्हणतात. स्वामिनाथन यांच्या शब्दात हरित क्रांतीचे महत्त्व सांगायचे झाल्यास "आजच्या तांदूळ व गहू यांच्या उत्पादना इतके

उत्पादन घ्यायचे झाल्यास पारंपारिक शेती पध्दतीसाठी ७०० लक्ष हेक्टर क्षेत्र आणखी वापरावे लागले असते." त्यामुळे हरितक्रांती म्हणजे, वने व भूमी वाचविणारी आधुनिक शेती" असे संबोधले जाते.

५) **हरितक्रांती शाश्वत आहे का ? त्याचे परिणाम :**

हरित क्रांतीच्या तंत्रज्ञानाचा वापर करून उत्पादनात वाढ झाली परंतु त्याचा वापर सतत करावा का ? ही शाश्वत शेती आहे का ? त्यासाठी त्यांचा परिणामांचा विचार करणे आवश्यक आहे. त्यात-

i) **पिक पध्दतीमध्ये बदल झाला.**

तांदूळ व गहू या पिकांना हरित क्रांतीमुळे यश मिळाले. त्यामुळे गव्हाचा पिकावरील क्षेत्रामध्ये दुप्पट वाढ झाली. तर तांदूळ पिकाखालील क्षेत्र पाच पटिनी वाढले परंतु कडधान्याखालील पिकांचे क्षेत्र निम्म्याने घटले. गहू व तांदळाच्या पिकांमुळे मृदेचे शोषण होते व मृदा खराब होते. मात्र कडधान्याच्या पिकांमुळे नैसर्गिक नत्रांचा पुरवठा होतो. मृदेची उत्पादन क्षमता वाढते. परंतु याच कडधान्याच्या पिकाचे क्षेत्र कमी झाले आहे.

ii) **रासायनिक खतांचा वापर वाढला -**

एकाच प्रकारची पिके त्याच त्याच शेतात घेतली तर मृदेतील पोषणद्रव्यांचे शोषण होते. जमिनीतील नत्र स्फुरद पालाश यांचे प्रमाण कमी होते. या घटकांची पूर्तता करण्यासाठी रासायनिक खताचा अवलंब करावा लागतो.

iii) **मृदेच्या पोषण क्षमतेत घट -**

हरित क्रांतीतील जलसिंचन हा महत्वाचा घटक आहे. अतिरीक्त पाण्यामुळे फ्ल्युराईडचे प्रमाण वाढते. पाण्याचे बाष्पीभवन झाले. जी मृदेतील खालच्या थरातील क्षार वर येतात व मृदा नापीक होते.

iv) **जनुकांच्या विविधतेत न्हास -**

पारंपारिक शेतीमुळे गहू, हरभरा, मका, भरडधान्ये, लाल ज्वारी, द्वीदल वर्गीय पिके, तेलबिया यासारखी पिके आलटून पालटून घेतली जात. परंतु हरितक्रांतीमुळे सुधारित बि-बियाने जे बाहेरच्या हवामानात तयार केलेले असतात. त्याचाच अवलंब केला जातो. हरित क्रांतीच्या या प्रयोगात एकच पिक घेतले जाते ते म्हणजे गहू वा तांदूळ त्यामुळे स्थानिक वान वा बियाने यांची विविधता कमी झाली.

v) **पाण्याचा अतिरीक्त वापर -**

जलसिंचन हा देखील हरित क्रांतीचा घटक आहे. भूमिगत पाण्याचा वापर प्रामुख्याने जलसिंचनासाठी केला जातो. राष्ट्रीय पाण्याचा सरासरी वापर ७०% आहे जर पंजाबमध्ये ९०% भूमिगत पाण्याचा वापर होतो. म्हणजे राष्ट्रीय पाणी वापरापेक्षा २० टक्यांनी अधिक आहे. भारतातील ५० लक्ष हेक्टर क्षेत्र जलवा - जलसिंचनाने बिघडले आहे. तर २५ दशलक्ष हेक्टर क्षेत्र खारवट होण्याचा धोका आहे.

vi) **ज्ञानाचा न्हास -**

शेतकऱ्याचे शेतीचे ज्ञान हे महत्वाचे आदान आहे. प्रत्येक शेतकऱ्याच्या ज्ञानाचा वारसा एका, पिढीकडून दुसऱ्या पिढीकडे आपोआप जातो. बियाणांची साठवणूक, पेरणी लागवड कोणत्या वेळी करायची, कोणत्या पिकाबरोबर कोणते पिक घ्यायचे, पिकांचे संगोपण, कापणी, काढणी इत्यादीचे ज्ञान ज्या कुटुंबाला पिढ्यान्-पिढ्या माहित आहे. ते पुढे चालू राहिले पाहिजे. शेतकऱ्याच्या महिलेचा या कामात मोठा वाटा आहे. महिलांचा शेतीतील सहभाग संपूर्ण जगातच दिसतो. या महिलांचे ज्ञान हरितक्रांतीमुळे संपुष्टात आले आहे. आधुनिक संशोधनाच्या तुलनेत पारंपारिक शेतकरी हा मागासलेला आहे. त्याची जुनाट व अनुत्पादक पध्दती आहे असेच मानले जाते.

vii) **हरित क्रांतीचे सामाजिक व आर्थिक परिणाम -**

हरित क्रांतीचा लाभ घेणारा शेतकरी हा सधनवर्ग व लाभ न घेणारा हा पारंपारिक असे दोन वर्ग झाले. स्त्रियांपेक्षा पुरुषांचा सहभाग अधिक वाढला. खुरवणी करणे, लामण करणे, पिकांची कापणी करणे ही सर्वकामे महिला करित होत्या ती सर्व कामे यंत्र करू लागले. त्यामुळे स्त्रियांच्या रोजगाराची संधी कमी झाली. उत्पादनाच्या दृष्टीने विचार करता उत्पादनात वाढ झाली. परंतु महिलांचा जैवविविधतेमध्ये मोठा वाटा आहे. अल्पभूधारक शेतकरी केवळ गहू आणि तांदूळ यासारखी पिके घेत नसून शेतीचा विविध हेतूने उपयोग करतो. भाताच्या पेंढ्याचा उपयोग घराच्या छतासाठी, चट्या विणणे, जनावरांचा चारा, कोंबड्याचे खाद्य, इंधन म्हणूनही उपयोग होतो. त्यामुळे शेती ही केवळ चरितार्थ नसून भांडवल निर्मिती, अथार्जन यासाठीही उपयोग होते.

६) **जलसिंचन प्रजाली - विहीरी, कालवे, तलाव हे जलसिंचनाचे प्रमुख स्रोत आहे.**

अ) **जलवे -** धरणाच्या पाण्याच्या पातळीपासून कालवाने व पाटाच्या सहाय्याने शेतीपर्यंत पाण्याचा पुरवठा केला जातो. ज्या क्षेत्रापर्यंत पाणी पोहोचते त्या सर्व क्षेत्रास कालव्याचे लाभक्षेत्र म्हणतात.

ब) **उपसा जलसिंचन -** पाण्याच्या साठ्यापासून पाणी जेथे न्यायचे ते क्षेत्र अधिक उंचवर असेल तर पंपाच्या वा इंजिनच्या सहाय्याने शेतीला पाणी दिले जाते. त्यास उपसा जलसिंचन म्हणतात. विहीरी, तळे, धरणे यामधून पाणी हे उपसले जाते.

ज) तुषार सिंचन - जमिनीच्या खालून किंवा जमिनीवरच पाईप टाकले जातात. मोठ्या पाईपांना लहान पाईप जोडून त्याला नोडाल वापरून कारंजाच्या स्वरूपात पाणीपुरवठा केला जातो. वेलवर्गीय पिजे, फळबाजा यांना यामार्फत पाणीपुरवठा केला जातो.

ड) ठिबक सिंचन - कमी व्यासाच्या तळ्यामार्फत पिकांच्या थेट मुळाशी थेंब थेंब पाण्याचा पुरवठा केला जातो. पाणी थेंब थेंब जावे यासाठी छिद्र असलेले निपल वापरतात या सिंचनामुळे पाणी हे वाहून जात नाही मुळाशिच पाणीपुरवठा असल्याने बाष्पिभवन होत नाही. पिकांच्या मुळांशी पाण्यातून खतांचा पुरवठा केला जातो. आजूबाजूच्या जमिनीला अनावश्यक पाणी मिळत नसल्याने तन वाढत नाही. पाण्याची बचत होते. ही उत्कृष्ट जलसिंचन पद्धती असल्याने तिचा अवलंब करणे आवश्यक आहे.

मडका पद्धती - मडक्यातून पाणी झिरपते कारण ते सच्छिद्र असते पाण्याने भरलेले मडके जमिनीमध्ये गाडले जाते व त्यामधून मुळांना पाण्याचा पुरवठा होतो पाण्याची बचत होते व पिके घेता येतात. पाण्याच्या बचतीचे व काटकसरीचे अनेक मार्ग शेतकरी अवलंबीत असतात.

७) रासायनिक खते : जी खत कारखान्यात तयार होतात त्यांना रासायनिक खते म्हणतात. उदा. युरिया, गंधक, अमोनियम सरफेस रासायनिक खतांचे महत्व :

- ती स्वस्त असतात.
 - शेतकऱ्यांना वापरास व हाताळण्यास सुलभ आहे.
 - त्यांचे आकारमान कमी असल्याने वाहतूक सुलभ
 - खते साठविण्यासाठी जागा कमी लागते.
 - रासायनिक खते चटकन पिकांना परिणाम देतात.
- परंतु रासायनिक खतांचा अतिरिक्त वापर केल्याने जैविक घटकांचा नायनाट होतो.

८) सेंद्रीय जते : जी खते वनस्पती व प्राणी यांच्या विघटनातून तयार होतात त्यांना सेंद्रीय खते म्हणतात. त्याचे लाभ -

- मृदेची उत्पादनक्षमता प्रदीर्घकाळ टिकविली जाते.
- मृदेची भौतिक स्थिती स्थिर ठेवली जाते.
- मृदेतील सच्छिद्रता टिकविली जाते.
- खतांचा घातक परिणाम होत नाही.

९) किटकनाशके :

i) किटकनाशके व जंतुनाशके याचा वापर कशासाठी करावा -

किटकांच्या लाखो प्रजाती आहे. त्यापैकी २०,००० जाती धाण्याचा नाश करतात. टोळधाड. एका दिवसात ३०० टन तयार पिक फस्त करतात. धान्य खानाऱ्या अनेक किटकांच्या जाती असल्या तरी किटकांना खानारेही किटक असतात.

ii) जीवशास्त्रीय किटक नियंत्रण -

जीवशास्त्रीय किड नियंत्रण म्हणजे किटकांचा किटकनाशक म्हणून उपयोग करणे. भात शेतीमध्ये बांबू रोवले जातात. त्यामुळे पक्षांना बांबूवर बसायला जागा मिळते. पक्षी उंचावरून किटकांची हालचाल टिपतात व त्यांना फस्त करतात हे जैविक नियंत्रण आहे.

१०) कृषी रसायने - पर्यावरणावरील परिणाम -

रासायनिक खते व किटकनाशके याच पर्यावरणावर दीर्घकालीन परिणाम होतो. त्यासाठी कृषी रसायनांचा वापर करतांना पर्यावरणाचा विचार करणे आवश्यक आहे.

रासायनिक खते आणि पर्यावरण -

रासायनिक खते पाण्यात विरघळतात व पाण्याबरोबर जमिनीच्या खालच्या थरात जातात. एकूण खताच्या वापरपैजी ३० टक्के रासायनिक खते वाहून जातात. जोखर्च अनाठाई वाया जातो. ही खते मृदेचा पोत बिघडवते व मृदेतील गांडूळ, सुक्ष्म जिवाणू नष्ट होतात.

११) रासायनिक खतांचा परिसंस्थेवर परिणाम :

पाज्यामध्ये नत्र व स्फुरद यांचे प्रमाण वाढल्यास त्यामध्ये जलपर्णीची वाढ होते. पाण्यातील ऑक्सिजनचे प्रमाण कमी होते व जल शेवाळाची वाढ होते. म्हणजेच परिसंस्थेतील कार्यपद्धती बदलते.

१२) कटकनाशके व पर्यावरण :

जुही दशलक्ष कीडीपैकी आपण १०,००० कटकांवरच कटकनाशके फवारू शकतो.

१३) कटकनाशकांचा परिसंस्थावरील परिणाम :

कटकनाशकांचा वापर केल्यानंतर त्यासाठी वापरलेली भांडी पाण्यात विसळली जातात. त्याचा परिणाम जलसृष्टीवर होतो. मासे, बेडूक हे जलचर प्राणी नष्ट होतात. जनावरांच्या चाऱ्यावर त्याची फवारणी केल्याने कटकनाशकाचा अंश त्या पिकात राहते. हा चारा प्राण्याच्या शरिरात जातो त्यांचा प्राण्यांच्या शरिरावर परिणाम होतो.

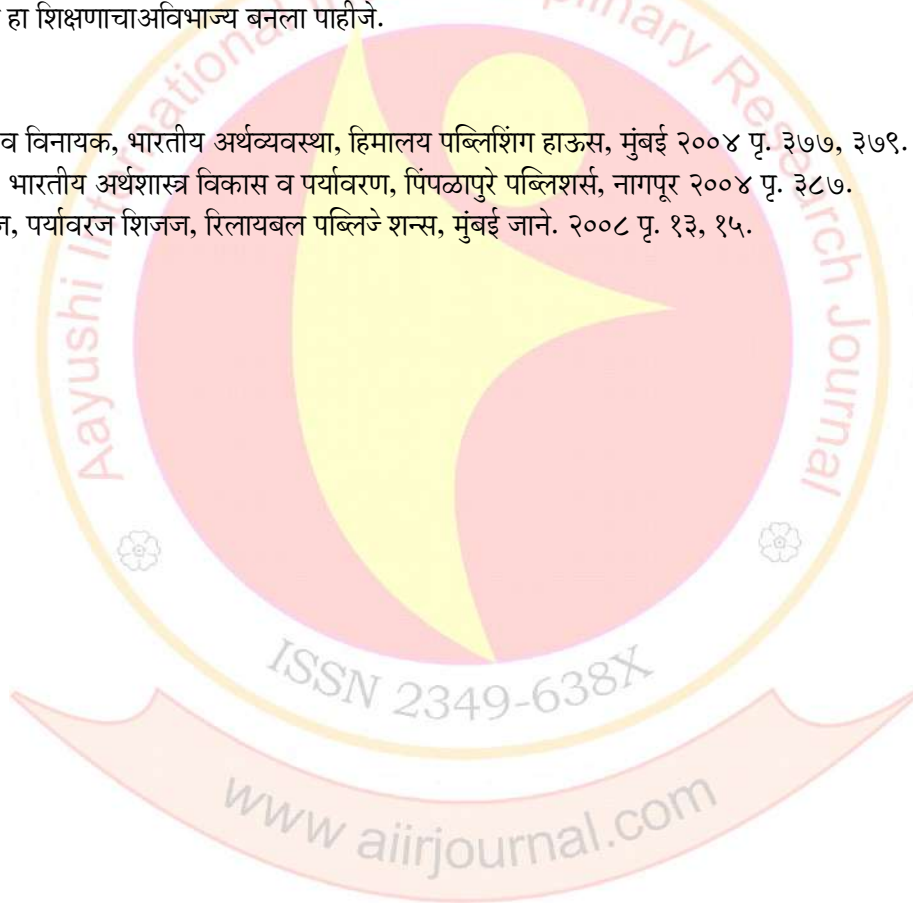
१४) कटकनाशकाचा मानवावरील परिणाम :

प्रत्यक्ष मानवी शरिरामध्ये या कटकनाशकाचा प्रवेश झाला तर कदाचित मृत्यूही संभवतो. रातअंधळेपणा, अर्धांगवायू, अंधत्व येजे, विस्मृती होते.

थोडक्यात - शाश्वत शेतीची गरज असली तरी त्याचे दृष्टीरिणाम पर्यावरणावर, मानवजातीवर परिसंस्थेवर होतो. परंतु नवनवीन संशोधनाचा शाश्वत शेतीमध्ये बदलाच्या काळानुसार जे रनेही गरजेचे आहे. हे नाकारता येत नाही. त्यासाठी शाश्वत विकासाची संकल्पना विकसित होणे आवश्यक आहे. आज भारतात शाश्वत विकासाच्या दृष्टीने खूप प्रयत्न केले जातात. पण सामुदायिक भावनेतून हे प्रयत्न कमी पडत आहेत. त्यासाठी मानवी दृष्टीकोन, कल्याणकारी विचार, कौशल्य आणि प्रशिक्षण यामध्ये परिवर्तन अपेक्षित आहे. यासाठी पर्यावरण शिक्षण हा शिक्षणाचा अविभाज्य बनला पाहिजे.

संदर्भ :

- १) देशपांडे श्रीधर व विनायक, भारतीय अर्थव्यवस्था, हिमालय पब्लिशिंग हाऊस, मुंबई २००४ पृ. ३७७, ३७९.
- २) झामरे श्री. एन. भारतीय अर्थशास्त्र विकास व पर्यावरण, पिंपळापुरे पब्लिशर्स, नागपूर २००४ पृ. ३८७.
- ३) मालसुरे लज्जत, पर्यावरण शिज्ज, रिलायबल पब्लिजे शन्स, मुंबई जाने. २००८ पृ. १३, १५.



‘झाडाझडती : नैसर्गिक संसाधने आणि धरणग्रस्तांच्या न्हासाचा आलेख’

डॉ. लता पांडुरंग मोरे,

मराठी विभाग प्रमुख, राजर्षी शाहू कला आणि वाणिज्य महाविद्यालय, रुकडी

प्रास्ताविक :-

माणसाला जगण्यासाठी जितकी अन्नाची गरज आहे तितकीच पाण्याची आहे. पाण्यासाठी माणसाने केलेला प्रवास संस्कृतीच्या उदयापासूनचा आहे. पाणी मिळावे म्हणून प्रसंगी रक्ताचे पाट वाहिले आहेत. पाण्यासाठी जगभरात सर्वत्र संघर्ष सुरू आहे. हे पाणी जर सहज उपलब्ध झाले नाही तर माणसाची वणवण सुरू होते. ही वणवण म्हणजे झाडाझडती असते. परंतु ज्यांच्याकडे पाण्याची कमतरता नसताना धरण बांधण्यासाठी म्हणून विस्थापित व्हावे लागते त्यांची झाडाझडती आणखी जीवघेणी होते. धरणामुळे मानवी जीवनात सुबत्ता येते. पण त्यासाठी काही लोकांना, गावांना, वाड्या-वस्त्यांना विस्थापित व्हावे लागते. त्यांच्यासाठी ‘धरण हे मरण’ वाटते. अशाच जांभळी बुद्रुक या धरणाने विस्थापित झालेल्या गावातील अनुभव या कादंबरीमध्ये आला आहे. ‘झाडाझडती’ ही आधुनिक मराठी साहित्यातील मैलाचा दगड ठरलेली सामाजिक व राजकीय विषयावर आधारित महत्त्वपूर्ण कादंबरी आहे. धरण हा तिचा मुख्य विषय आहे. या धरणाभोवतीच ही कादंबरी फिरते या कादंबरीत धरणाच्या निमित्ताने होणारा नैसर्गिक संसाधनांचा न्हास याबरोबरच धरणग्रस्तांचा होत जाणारा न्हासही रेखाटला आहे.

भारत हा शेतीप्रधान देश. पण शेती लहरी पावसावर अवलंबून. त्यामुळे देश स्वतंत्र झाल्यानंतर पंतप्रधान पंडित नेहरू आणि त्यांच्या पक्षाने पावसावर उपाय म्हणून छोटी-मोठी धरणे बांधण्याचा निर्णय घेतला. परिणामी धरणांची संख्या देशभरात वाढू लागली. पण यातूनच धरणग्रस्तांच्या पुनर्वसनाचा प्रश्न निर्माण झाला. हे पुनर्वसन म्हणजे गुंतागुंतीची गोष्ट. गुजरातमधील सरदार सरोवराच्या निमित्ताने विस्थापितांचा प्रश्न सोडविण्यासाठी मेधा पाटकर यांच्या नेतृत्वाखाली लढा उभा राहिला. त्यातून पुनर्वसनाचा कायदाही झाला. तरीही विस्थापितांचे प्रश्न सुटले नाहीत. सरकारी धोरण, राजकारण, स्वार्थी प्रवृत्ती, सरकारी अधिकाऱ्यांचे चाल-ढकलीचे धोरण अशा अनेक कारणांमुळे धरणग्रस्तांच्या पुनर्वसनात अनेक त्रुटी राहतात. त्यामुळे ‘धरणग्रस्त’ नावाच्या एक नव्या अल्पसंख्यांक गटाची निर्मिती होत आहे. या पार्श्वभूमीवर धरणग्रस्तांच्या प्रश्नांना चांगले व्यासपीठ मिळवून देण्याचा प्रयत्न ‘झाडाझडती’मध्ये विश्वास पाटील यांनी केला आहे.

धरण हा या कादंबरीचा मुख्य विषय आहे. देशाच्या विकासासाठी एक राजकीय धोरण म्हणून ही गोष्ट फार मोठी नसली तरी जांभळीच्या ग्रामस्थांसाठी ते घोंगावणारे वादळ होते. या वादळाने या गावाला झोडपले. या धरणामुळे अन्न, वस्त्र, निवारा या प्राथमिक गरजा भागविण्यासाठी त्यांची लढाई सुरू झाली.

या कादंबरीत नायक-नायिका नाहीत. जांभळी गावातील अठरापगड जातीचे लोक म्हणजे या कादंबरीतील पात्रे आहेत. या गावकऱ्यांच्या जीवनातील साधारण बारा-पंधरा वर्षांचा कालखंड या कादंबरीत आला आहे. हा कालखंड तसा खूप लहान आहे. पण या कालखंडामध्ये धरणग्रस्तांच्या आयुष्यात प्रचंड मोठी उलथापालथ झाली. त्यांचे जगणे असह्य आणि लाजिरवाणे झाले. या माणसांचे दुःख, दारिद्र्य, त्यांचे प्रश्न काळजाचा ठाव घेणारे आहेत.

जांभळीकरांना गाव धरणाखाली जाणार ही बातमी येऊन धडकते. पण ते कधी होईल किंवा होईल की नाही याविषयी शंका वाटते. ही बातमी एखाद्या वावटलीसारखी निघून जाईल असे वाटत असतानाच धरणाच्या कामाची सूत्रे हलू लागतात. त्यामुळे जांभळीसह इतर पाच-सहा गावातील लोकांचे धाबे दणाणते, जीवाची उलघाल होते. सगळीकडून आपण ओरबाडले जातोय ही वस्तुस्थिती पचवणे अवघड जाते.

या कादंबरीतील जांभळी आणि परिसरातील गावांच्या ठिकाणी धरणाला मंजुरी मिळाली. धरण होणार, दुष्काळ संपणार, भूमी सुजलाम सुफलाम होणार या कल्पनेमुळे दुष्काळी भागातील माणसांना आनंद झाला. वाघेठान परिसरात दुष्काळामुळे टँकरचे पाणी सुरू होते. जांभळी धरण योजना झाली तर वाघेठान बरोबरच परिसरातील इतर गावांचा पिण्याच्या व शेतीच्या पाण्याचा प्रश्न संपणार होता. जांभळी धरणामुळे खैरापूर, ऐनापूर, वाजगाव आणि लाभक्षेत्रातील अठरा हजार हेक्टर जमीन ओलिताखाली येणार होती. त्यामुळे हे धरण म्हणजे वाघेपूर तालुक्याला वरदान होते. म्हणूनच अनेक वर्षे धूळ खात पडलेली ही योजना पूर्ण झाली पाहिजे अशी शिंगाडे-पाटील खासदारांची मागणी होती. या धरणाच्या भूमिपूजनाचा मुहूर्त तीनवेळा झाला आणि प्रत्येकवेळी जांभळी गावाने उधळून लावला.

या धरणामध्ये पाच गावे पूर्ण आणि चार गावे अंशतः उठणार होती. त्या गावांचे पुनर्वसन करून देण्याची आश्वासने दिली जात होती. धरणग्रस्त लोकांसाठी भूसंपादनाचे काम सुरू केले आहे, त्यांना चांगल्या प्रतीच्या जमिनी मिळणार, त्यांच्यासाठी अत्याधुनिक पद्धतीने गावठाण बांधले जाणार, नळपाणी योजना, समाज मंदिरासाठी जागा, चावडी, राहण्यासाठी भूखंड, घरबांधणीसाठी कर्जपुरवठा अशा अनेक आश्वासनांची खैरात सांगितली जात असे. पण कागदोपत्री असणारी ही योजना प्रत्यक्षात कशी व कधी येईल याविषयी शंका असल्यामुळे जांभळी आणि परिसरातील धरणग्रस्त लोकांनी या योजनेला विरोध केला.

या मोठ्या धरणामुळे नऊ गावातील लोकांना विस्थापित व्हावे लागत होते. त्यामुळे जांभळी गावातील खैरमोडे गुरुजी या धरणा ऐवजी तीन लहान- लहान धरणे बांधावीत. त्यामुळे एकाही गावाला विस्थापित व्हावे लागणार नाही; शिवाय मोठ्या धरणा इतकाच लाभ या तीन धरणामुळे होईल हा विचार पटवून देत होते. पण गुरुजींचे हे धोरण इतरांना पटत नव्हते कारण 'मोठे धरण म्हणजे मोठे पाणी! मोठे पाणी म्हणजे मोठा विकास' हेच योग्य असे शासनाला, अधिकाऱ्यांना तसेच लाभक्षेत्रातील सर्वांना वाटत होते. त्यामुळे गुरुजींच्या फेरमांडणीला अवसर न देता खासदार शिंगाडे आहे त्या परिस्थितीत कोडे सोडवण्यासाठी बलिदानाचा विचार सांगत गुरुजींची समजूत घालतात.

धरणग्रस्तांचे पुनर्वसन नीट झाले नाही तर त्यांच्या आयुष्यात संकटांची मालिका तयार होते. एका ठिकाणाहून दुसऱ्या ठिकाणी काही वर्षासाठी बदली झाली तरी कितीतरी प्रश्नांना तोंड द्यावे लागते; इथे धरण क्षेत्रातील लोक जिथे सुखा-समाधानाने नांदत होते, त्या ठिकाणाहून हाकलले जात होते. एक हसते खेळते जीवन दुसऱ्यांच्या सुखासाठी सोडायचे ही गोष्ट वाटते तितकी सोपी नसते. म्हणूनच खैरमोडे गुरुजी या धरणाला विरोध करतात. खैरमोडे गुरुजींनी कोयना धरण प्रकल्पामुळे विस्थापित झालेल्या लोकांचे दुःख जवळून अनुभवले होते. कोयना धरणग्रस्त लोकांना अजूनही न्याय मिळालेला नव्हता. अनेक प्रश्न घेऊन त्या लोकांची जीवनाची लढाई सुरू असताना आपण या जांभळी धरणासाठी कडाडून विरोध करायचा हा त्यांचा विचार गावकऱ्यांनाही पटला होता. पण सरकारी रेट्यापुढे त्यांची ताकद अपुरी पडली.

धरणाला विरोध म्हणून विकास कामांना खीळ :-

जांभळीला धरण होणार म्हणून या भागातील अनेक विकास कामांना खीळ बसली. धरणाला होणारा गावकऱ्यांचा वाढता विरोध पाहून सरकारने गावाची कोंडी केली. धरण होणार म्हणून वरच्या भागाच्या रस्त्याचे काम थांबवले, दहावर्षांपासून शाळेची इमारत पडली ती बांधली नाही तसेच तेथे शिक्षकांची भरती केली नाही, परिणामी शाळा बंद पडली. जांभळीला सरकारी दवाखाना मंजूर झाला होता पण तोही रद्द झाला. या सर्वांचे कारण एकच ते म्हणजे धरण. धरण झाल्यावर हे सर्व पाण्याखाली जाणार आहे; तर उगीच खर्च कशाला करायचा म्हणून प्रत्येक काम थांबले. त्यामुळे जांभळीकरांचे हाल होऊ लागले. रस्ते, वीज, पाणी, शाळा अशा अनेक गैरसोयीमध्ये जांभळीवासीय जगू लागले.

धरणापूर्वीचे सुखी गाव :-

जांभळी हे सुखाने नांदणारे गाव होते. जांभळीची शेतजमीन कसदार, चांगल्या पोताची. इथले शेतकरी केळी, पेरूची विक्री करत वाघेठाणच्या बाजारापासून ते अंबेपूर, पुण्यापर्यंत जात होते. त्यांच्या हातात कायम पैसा खुळखुळत असायचा. बलुतेदारांना शेतीतून भरपूर काम मिळायचे. त्यामुळे सर्व गाव सुखी, समाधानी व आनंदी होता. त्यामुळेच धरण झाले तर त्यांच्या पुढचा प्रश्न होता, "ही नांदती घरं, नांदता गाव मोडायचा आणि उद्या कोणाच्या वळचणीला अवघडून उभे राह्यचं?" (पृष्ठ १४) त्यामुळेच गावकरी धरणाला विरोध करत होते.

राजकीय इच्छाशक्ती आणि धरणाची गरज :-

पुणे आणि सातारा या जिल्ह्यांच्यामध्ये आंबेपूर जिल्हा येतो. या जिल्ह्यातील वाघेठाण तालुक्याची भौगोलिक परिस्थिती फार विचित्र होती. या तालुक्याच्या पश्चिमेला असणाऱ्या सह्याद्री पर्वताच्या डोंगर रांगामुळे तेथे प्रचंड पाऊस पडतो तर तालुक्याच्या पूर्वेला अतिशय कमी पाऊस. त्यामुळे दुष्काळ त्यांच्या पाचवीला पुजलेला. ही परिस्थिती बदलण्यासाठी धरण बांधणे ही खासदार बाबुराव शिंगाडे पाटील यांची इच्छा. या धरणामुळे त्यांच्या विकासाबरोबरच मतदारसंघाचा विकासही साधणार होता. शिंगाडे पाटील यांची खैरापूरमध्ये दीडशे एकर जमीन पाण्याविना नापीक म्हणून पडीक होती. जांभळी धरणामुळे ही सर्व जमीन ओलिताखाली येणार होती. त्यामुळेच हे धरण व्हावे ही खासदार बाबुराव शिंगाडे यांची खूप मोठी इच्छा होती.

खासदार शिंगाडे यांचा मुलगा सर्जेराव वकील झाला आणि त्याने वडिलांकडे साखर कारखान्याचा प्रस्ताव ठेवला. पण साखर कारखान्यासाठी परिसरात उसाचे क्षेत्र दाखवणे गरजेचे होते. यासाठी रखडत चाललेल्या जांभळी धरणाचे काम मार्गी लागणे आवश्यक होते. स्वार्थ आणि परमार्थ दोन्ही साध्य करण्यासाठी खासदारानी पुन्हा एकदा कंबर कसली. त्यांनी केलेले उपोषण

पथ्यावर पडले. खासदारांच्या उपोषणामुळे पाटबंधारे मंत्री वाघेठानला आले आणि धरणाच्या कामाने उचल खाल्ली. मंत्र्यांनी आदेश दिले, “विरोध, प्रतिकार काही असेल तो मोडून काढा. प्रसंगी चार कुटुंबे उघड्यावर पडली तरी बेहतर पण विकासाला विरोध करणाऱ्या शक्ती समूळ उपटून काढा.” (पृष्ठ २९) मंत्र्यांच्या या आदेशाप्रमाणे केवळ चार नव्हे तर अकरा हजार लोक, पाच पूर्ण गावे आणि अंशतः चार गावे धरणाच्या पाण्यात गटांगळ्या खाणारा होती. पण राजकारण्यांच्या मोठ्या इच्छाशक्तीपुढे जांभळी ग्रामस्थांचे चालणार नव्हते.

मोठे धरण- मोठा विकास आणि नैसर्गिक संसाधनांचा -हास :-

पृथ्वीवर उपलब्ध असलेली नैसर्गिक संसाधने मर्यादित आहेत. पण त्यांचा वापर वेगाने होत आहे. त्यामुळे भविष्यात अनेक संसाधने नष्ट होण्याचा धोका आहे. नैसर्गिक संसाधनांचा वापर योग्य पद्धतीने झाला तर पर्यावरणाचा समतोल राहणार आहे. अन्यथा सजीव सृष्टीबरोबरच मानवाचे अस्तित्वही धोक्यात येणार आहे. पण विकासाच्या नावाखाली नैसर्गिक संसाधनांचा -हास केला जातो. धरणाच्या बाबतीतही हेच घडते. मोठे धरण बांधले की मोठा पाणीसाठा होणार, त्यामुळे मोठा विकास होणार हे गृहीत धरले जाते. पण या धरणांखाली अनेक गावे, वाड्या, वस्त्यातील लोकांची घरे-दारे तसेच पिकाऊ जमिनीचा नाश होतो. याशिवाय आजूबाजूच्या जंगल संपत्तीचा नाश होतो.

या कादंबरीमध्ये मोठमोठ्या नेत्यांपासून ते ठेकेदार, दलालापर्यंत सर्वजन नैसर्गिक साधन संपत्तीची लूट करतात. जांभळीगावचा लाला जाधव (तालुका पंचायतीचा उपसभापती) राजकीय दबाव आणून जांभळी भोवतीचे जंगल तोडून अमाप पैसा मिळवतो. जांभळीच्या घनदाट जंगलात साग, ऐन, जांभूळ, हिरडा, बेहडा अशी हजारो जातीची झाडे होती. पैशाच्या हव्यासापोटी लाला जाधव रात्रंदिवस जंगलतोड करतो. जांभळी, इरलेवाडीपासून मसणमाळापर्यंतच्या हद्दीतील कोळशाच्या भट्ट्या पेटवतो. जंगलाचा कोळसा करून अमाप पैसा कमावणाऱ्या लाला जाधव प्रमाणेच इतरही आमदार-खासदारांच्या नात्यागोत्याचे लोक जांभळीच्या जंगलाकडे वळतात. वाघजाईतील जंगलाची दिवसाढवळ्या कत्तल करतात. फॉरेस्ट ऑफिसरना हप्ते मिळत असल्यामुळे तेही इकडे दुर्लक्ष करतात. त्यामुळे या जंगलतोडीला अंत रहात नाही.

जांभळी धरणाखाली जाणार म्हणून तिथल्या लोकांचे विस्थापन करण्यासाठी त्यांना स्थावर-जंगम मालमत्ता हलविण्याचे आदेश दिले. त्यामुळे जांभळीकर रानातली झाडे तोडतात. ही झाडे तोडली नाहीत तर धरणाखाली जाणार होती. ही झाडे वाहून नेणे धरणग्रस्तांना शक्य नव्हते. त्यामुळे शहरातले वखारवाले, स्वामिलवाले यांची चंगळ झाली.

धरण योजनेला जांभळी आणि परिसरातील लोकांनी खूप विरोध केला. पण सरकारी यंत्रणापुढे त्यांची ताकद अपुरी पडली. या धरणामध्ये जांभळी सोबत बिबेवाडी, कानडेवाडी, पळसवाडी, इरलेवाडी आणि जांभळी खुर्द ही गावे बुडणार होती. या गावाने जांभळीच्या मदतीला जाऊ नये म्हणून सरकारने सापळा लावला. सशस्त्र पोलिस तैनात केले. शिवाय अडवणाऱ्यावर १४० कलम लावून अटक करण्याची धमकी दिली. खैरमोडे गुरुजी आणि विरोध करणाऱ्या जांभळीकरांना तुरुंगात टाकून या कामाचे उद्धाटन झाले.

धरणग्रस्तांच्या जीवनाचा -हास :- ज्या आवडाईने धरणाच्या उद्धाटनावेळी आरतीचे ताट उडवून लावले होते; तिचे शेत व घर धरणाचा पाया होते. त्यामुळे तिच्या शेतापासून धरण कामाचा प्रारंभ झाला. राक्षसी ताकतीची बुलडोजर रणगाड्यासारखी पुढे सरसावली आणि आवडाईच्या बागेतील झाडे जमीनदोस्त होऊ लागली. आंब्या – फणसाची प्रचंड मोठी झाडे, जुनाट बाभळी, नारळाची झाडे यांचा क्षणात -हास झाला. डोझरमुळे घराच्या भिंती एका क्षणात नाहीशा झाल्या आणि घराची जागा स्मशानासारखी झाली. बुलडोझरचा नंगा नाच पाहून गावकऱ्यांची अवस्था बकऱ्याला पाण्यात सुरी दिसावी तशी झाली.

गाव सोडून जातानाची धरणग्रस्तांची मनस्थिती :- धरणाच्या कामाला सुरुवात झाल्यामुळे नाईलाजाने जांभळीकरांना घरदार सोडून शासनाने तात्पुरता निवारा म्हणून दिलेल्या खैरापूरच्या माळावर जावे लागले. आवडाईला लग्नाला आलेला मुलगा हैबतीचे लग्न लावून मग गाव सोडायचे होते. पण हे शक्य होईल की नाही ही शंका येत असल्यामुळे जांभळीची ग्रामदेवता काळूबाईला हात जोडत आवडाई मागणे मागते, “आई लेकराला बाशिंग बांधू दे. मग धरणाला कवाबी चूड लागू दे.” (पृष्ठ १५) आवडाईच्या प्रार्थनेतून मुलाच्या लग्नाची काळजी आणि धरणाविषयीचा संताप व्यक्त झाला आहे. आवडाईसारखच हे दुःख सगळ्या जांभळीकरांचे आहे. या दुःखाला कारणीभूत आहे धरण आणि धरणापासून मिळणारे पाणी.

धरणामुळे निर्माण झालेले धरणग्रस्तांचे प्रश्न :- जांभळी धरणामुळे वाघापुर तालुक्याची हजारो हेक्टर जमीन पाण्याखाली येणार असली तरी धरणग्रस्त जांभळीकरांचे प्रचंड नुकसान होणार होते. पुनर्वसन होणाऱ्या जागेवर परमुलखात आपल्या जनावरांची आबाळ व्हायला नको म्हणून जांभळीकरांनी जनावरे विकण्याचा निर्णय घेतला. पण बाजारात मोठ्या संख्येने आलेली जनावरे आणि

त्यामागील हतबलता लक्षात घेवून व्यापाऱ्यांनी जनावरांचे भाव पाडले. असेच झाडांच्याबाबतीतही घडले. अडचणीत सापडलेल्या धरणग्रस्तांची मोठमोठी हजार-पाचशेची झाडे व्यापाऱ्यांनी अवघ्या चाळीस-पन्नास रुपयांना घेण्यास सुरुवात केली.

धरणग्रस्तांचे सामान पोहोच करण्यासाठी शासनाने ट्रकांची सोय केली. पावसाळा सुरू होण्याच्या आधी सामानासह पुनर्वसन केलेल्या ठिकाणी जाण्यासाठी धरणग्रस्तांची घाई सुरू असताना पुढाऱ्यांनी मात्र गरीब धरणग्रस्तांना बाजूला ठेवून आपले नियमात न बसणारे साहित्य पोहोचवण्याचा धडाका लावला. यातच ट्रकावल्यांनी लवकर नंबर लावण्यासाठी जादा रक्कमेच्या मागण्या सुरू केल्या. पावसात सामान भिजून वाया जाण्यापेक्षा चार पैसे लाच देऊन सामान सुरक्षित पोचविण्यासाठी धरणग्रस्तांना प्रयत्न करावे लागले. या लाच प्रकरणाचा हैबतीला संताप येतो. आपला संताप गुणवंताजवळ व्यक्त करताना तो म्हणतो, “काय म्हणून जिथे तिथे पैसे मोजायचं सुक्काळीच्याना? धरण बांधा म्हणून आम्ही काय आवातणं घेला गेलतो काय?” (पृष्ठ १४६)

धरणग्रस्तांचे सामान खैरापूरच्या माळावर आणल्यानंतर त्यांचे प्रश्न संपले नाहीत. एकत्रित पडलेल्या या सामानावर दारूड्यांचा आणि चोरट्यांचा डोळा गेला. खैरापूरचा पोपट्या पापुड्याने तर दादू येसकराचा तांब्याचा मोठा हंडा पळवला. हैबतीच्या सावधानतेमुळे तो रंगेहात सापडला. त्या दोघांमध्ये लागलेल्या भांडणात चोर असून ही शिरजोरी करणाऱ्या पोपट्या म्हणतो, “च्यामारी, खासदार आबांनी ही कुठनं कारवानं आणली? आमच्या जमनी काढून ह्या डोंबाऱ्यांना द्यायच्या? इथ न्हायाचं तर नीट न्हायाचं न्हायतर ह्या पोपट्या संगं गाठ हाय...” (पृष्ठ १६७) अशा हेटाळणीयुक्त वागणुकीमुळे धरणग्रस्त जांभळीकर यांच्या प्रश्नात आणि चिंतेत भर पडत होती.

धरणग्रस्तांच्या पुनर्वसनासाठी खैरापूर गावालागतची माळरानाची नोंद केली पण प्रत्यक्षात त्या जागेवर अॅड. सर्जेराव शिंगाडे यांनी साखर कारखान्यासाठी परवाना आणला. त्यामुळे धरणग्रस्तांसाठी खैरापूरपासून खूप दूर सखलाटाची जागा मिळाली. धरणग्रस्तांचे पुनर्वसन व्यवस्थित व्हावे, त्यांना सोयी सुविधा मिळाव्यात म्हणून शासनाने भरपूर फंड उपलब्ध करून दिला. पण तो फंड धरणग्रस्तांपर्यंत पोहोचला नाही. पुढारी, ठेकेदार, सरकारी ऑफिसर यांच्या भ्रष्टाचारी वृत्तीमुळे पुनर्वसनाचे काम निकृष्ट दर्जाचे झाले. निकृष्ट रस्ते, समाजमंदिर, शाळा यांचे निकृष्ट बांधकाम, नळपाणी योजना, वीज या गोष्टी अर्धवट सोडल्या. त्यामुळे अनेक अडचणी सोबत धरणग्रस्तांना जगावे लागत होते. म्हणजे सरकारी मदतीमध्ये भ्रष्टाचार केल्यामुळे धरणग्रस्तांच्या जीवनात अनेक अडचणी निर्माण झाल्या

धरणग्रस्तांना स्मशानभूमी नसल्यामुळे मरणानंतरही प्रश्न होता. पांडू वेताळाचा नातू राजाचा मृत्यू ऐन पावसाळ्यात झाला. त्याचे दफन कोठे करायचे हा प्रश्न निर्माण झाला. ओढ्याच्याकडेला असणाऱ्या शेतात दफन करताना शेतमालक भाऊ शिंदे कडाडला, “कुठं बी वड्यावगळीत पांजरपोळात नीऊन टाका पन आमच्या रानात पुरून देणार न्हाय.” (पृष्ठ २९०) या उद्गारातून धरणग्रस्तांकडे पाहण्याची असंवेदनशील वृत्ती दिसते. हक्काची स्मशानभूमी नसल्यामुळे खैरमोडेगुरुजी तसेच इतर लोकांच्या अंत्यविधीची अडचण कायम राहिली.

धरणाच्या उद्धाटनावेळी धरणग्रस्तांसाठी भूसंपादन व्यवस्थित झाले नाही तर स्वतःची नदीकाठची कसदार जमीन देण्याचे आश्वासन देणाऱ्या खास. शिंगाडे पाटलांनी उद्धाटनानंतर कोणतीच सोय पाहिली नाही. त्यामुळे भूसंपादनात अत्यंत निकृष्ट जमिनी मिळाल्या. अत्यंत कष्टाने धरणग्रस्तानी त्या जमिनी पिकाऊ केल्या. पण या जमिनी बळकावण्याची लालसा मूळ जमीन मालकांच्यामध्ये वाढली. त्यामुळे धरणग्रस्तांना पळवून मूळ जमीन परत मिळविण्यासाठी जमीन मालकांनी गुंडगिरी सुरू केली. या शेताच्या वादामध्ये आवडाईच्या हैबतीला जीव गमवावा लागला.

धरणग्रस्तांच्या संकटामध्ये भ्रष्टाचारी वृत्तीमुळे जशी भर पडली तशीच सरकारी कर्मचाऱ्यांच्या अनास्थेमुळेही भर पडली. कलेक्टर अनील देशमुख यांचा अपवाद वगळल्यास धरणग्रस्तांच्या प्रश्नाविषयी कोणत्याही अधिकाऱ्यांनी आस्था दाखविली नाही. धरणग्रस्तांकडून न्यायासाठी आलेल्या प्रकरणांची विल्हेवाट लावण्याच्या पद्धतीविषयी भोसलेसाहेब म्हणतात, “पाठवतो, पाठवतो म्हणून प्रकरण इथं ठेवायचं. नवा साहेब आला की हवं तसं पाठवता येईल ते. धरणापेक्षा आणि धोरणापेक्षा धरणग्रस्त मोठे की काय?” (पृष्ठ ३३९) अधिकाऱ्यांच्या अशा कामाच्या पद्धतीमुळे धरणग्रस्तांना तसेच सामान्य जनतेला लवकर न्याय मिळू शकत नाही.

शासनाने धरणग्रस्तांसाठी सरकारी नोकऱ्यांमध्ये पाच टक्के आरक्षण मंजूर केले; पण खऱ्या धरणग्रस्तांना याचा लाभ मिळाला नाही. जे पुढाऱ्यांच्या मर्जीत होते आणि परिस्थितीने श्रीमंत होते त्यांनी धरणग्रस्तांचे खोटे दाखले मिळवून नोकरी मिळविली. अशा घाणेरड्या राजकारणामुळे आवडाईच्या हैबतीला शेवटपर्यंत परमनंट नोकरी मिळाली नाही. परमनंट होण्याच्या अपेक्षेने मिळेल ते काम गोड मानून उभे तारुण्य संपलेल्या हैबतीच्या पदरात निराशा आली. या निराशेतूनच तो म्हणतो, “हे पाणी, या

दऱ्या, हे डोंगर, ही हवा सारंच आम्हा धरणग्रस्तांचे वैरी..... लाडकी हवीशी वाटणारी रूपा, माया करणारा म्हातारा बाप, खैरापूरच्या धडशा घराच स्वप्न, औतासाठी एका बैलाचं स्वप्न, हक्काची नोकरी साऱ्यांनीच दगा दिला तर जगायचं कशासाठी?” (पृष्ठ ३८०)

धरणावर काम करणारा शिवराम डोझर खाली सापडून मरतो. तो कायमचा कामगार नाही म्हणून त्याला कुठलीच सरकारी मदत मिळत नाही, जमीन मिळत नाही. त्याची पत्नी नकुसा आणि त्याचा लहानगा मुलगा एका क्षणात उघड्यावर पडतात.

धरणग्रस्तांचे असे दुःख आवडाईची सून साळू दळताना आपल्या ओव्यामधून व्यक्त करते,

“बांधीलं धरण बुडलं माह्यार
सये आता कसलं आह्यार माह्यार?
बांधीलं धरण पाणी त्येचं गळ्यापाशी
सावळा बंधुराया झाला माझा दरवेशी
माय एका वाटला, बंधुची दुजी वाट
काळ बसला डोईवरी देवा - माणसाची ताटातूट
उरावरी धरण ग बाई रोजचं मरण..” (पृष्ठ १९६)

या ओव्यावरून दया पवार यांच्या ‘बाई मी धरण बांधते, माझ मरण कांडते’ या गीताची आठवण होते.

कादंबरीच्या शेवटच्या टप्प्यात धरण पर्यटन स्थळ होते. तिथे श्रीमंतांसाठी स्वर्गसूख उभे राहते. पण धरणग्रस्ताना न्याय मिळत नाही. नाईलाजाने अनेक धरणग्रस्त स्त्रिया धुणी-भांडी करतात. कुशापाराजासारख्या ४०-५० एकर बागायत शेतीवाल्याला वॉचमनची नोकरी करावी लागते. अशीच अन्य धरणग्रस्तांची अवस्था होते. धरणामुळे उद्ध्वलेल्या अशा झाडाझडतीविषयी मीरा धाराशिवकर म्हणतात, “राजकीय नियतीच्या अमर्याद ताकदीमुळे सामान्यांना ही झाडाझडती द्यावी लागते.” (अजरामर जलसाहित्य कृती, ७) धरण बांधताना हजारवेळा विचार करायला लावणारी ही कादंबरी मन हेलवून टाकणारी आहे. नैसर्गिक संसाधना बरोबरच माणूसकी जपायला शिकविणारी ही कादंबरी मराठीतील महत्त्वपूर्ण कलाकृती आहे.

संदर्भ :-

- १) विश्वास पाटील, ‘झाडाझडती’, राजहंस प्रकाशन, पुणे, २३ वी आवृत्ती, २०१७.
- २) जलसंवाद (मासिक) - अजरामर जलसाहित्यकृती.

डॉ. बाबासाहेब आंबेडकर यांचे जलव्यवस्थापन**प्रा. अजित जयराम जाधव**

सहायक प्राध्यापक, मराठी

आठल्ये-सप्रे-पिरे स्वायत्त महाविद्यालय, देवरुख, जि. रत्नागिरी

भारतीय राज्यघटनेचे शिल्पकार, समाजसुधारक, कायदेपंडित, अर्थतज्ज्ञमहामानव डॉ. बाबासाहेब आंबेडकर यांचे देशाच्या उभारणीत मोलाचे असे योगदान सर्वश्रुत आहे. परंतु नैसर्गिक स्रोत म्हणजेच देशातील अफाट जलसंपत्तीचा बाबासाहेबांनी केलेला विकास पाहिला की, त्यांचा दूरदृष्टीचा प्रत्यय येतो. डॉ. बाबासाहेब आंबेडकर यांचेप्रगत औद्योगिक जलविकास आणि विद्युत ऊर्जा विकास धोरण यांनी भारत देश बलशाली झाला आहे.

स्वातंत्र्यपूर्व काळात म्हणजेच १९४२-४७मध्ये व्हाईसरॉयच्या मंत्रिमंडळात डॉ. बाबासाहेब आंबेडकर यांनी मजूर मंत्री म्हणून प्रवेश केला. त्यावेळी त्यांच्याकडे श्रम, जलसिंचन आणि ऊर्जाखात्याची जबाबदारी आल्यामुळे भारतातील जलविद्युत साधनसामग्री विकालाला चालना मिळाली. वीज, पाणी, पाटबंधारे, वाहतूक आणि तंत्रज्ञान अशी जलसंधारण विभागाची महत्त्वाची जबाबदारी यामध्ये होती.जलसंधारणक्षेत्रात पूरनियंत्रण, सिंचन, विद्युतनिर्मिती, नौकाविहार, उद्योग इत्यादी उद्देश साध्य करण्यासाठी देशात प्रथमच साकार झालेला बहुउद्देशीय नदी- खोरे विकास हा महत्त्वाचा पैलू मानला जातो. भारतातील नद्याजोड प्रकल्प हा बाबासाहेबांच्या जलविषयक चिंतनाचा विषय होता.जलव्यवस्थापनाबाबत बाबासाहेब म्हणतात, “ मनुष्य अतिरिक्त पाण्यापेक्षा त्याच्या अभावामुळे अधिक त्रास सहन करतो. जल ही संपत्ती आहे, या वस्तुस्थितीत बदल करता येत नाही. जल ही सर्व लोकांची संपत्ती आहे.आणि तिचे वितरण निश्चित झाले पाहिजे.” बाबासाहेबांच्या या विचारातून पाण्याचे महत्त्व विषद केले आहे.

डॉ. बाबासाहेब आंबेडकर मंत्री असताना ४ एप्रिल १९४७ रोजी ‘जल आयोगाची ’ स्थापना केली. त्यानुसार दामोदर, हिराकुंड, व सोन नद्यांवरीलबहुउद्देशीय धरणांच्या प्रकल्पांची सुरुवात झाली. या नद्यांवरील धरणाबाबत पंडित नेहरू म्हणाले, “ ही धरणे भारताची आधुनिक मंदिरे आहेत.” याचाच अर्थ ही धरणे म्हणजे बाबासाहेबांच्या कार्य कर्तृत्वाची प्रतीके आहेत. या धरणांच्या पायाभरणीचे काम सन १९४५-४७ या काळात केले गेले. या महत्त्वाकांक्षी प्राधिकरणाचे महत्त्व पुढीलप्रमाणे-

१. दामोदर नदी-खोरे प्राधिकरण –

प. बंगालच्या टेकड्यांमधून उगम पावलेली दामोदर नदी ओरिसातून बिहारकडे वेगाने येते आणि कोलकात्यापासून खाली हुगळी नदीला जाऊन मिळते. या एकूण ५४० किलोमीटर लांबीच्या प्रवासात बिहारात पूर यायचा त्यामुळे अतोनात नुकसान होत असे. हे जेव्हा डॉ. बाबासाहेब आंबेडकर यांनी पाहिले तेव्हा या पाण्याचा साठा करून त्याचा उपयोग मानवकल्याणासाठी कसा करता येईल. या महत्त्वाकांक्षी विचाराने डॉ. बाबासाहेब आंबेडकर यांनी दामोदर नदी-खोरे प्रा- धिकरणाची निर्मिती करून १९४७ मध्ये बिल सादर केले. मात्र प्रत्यक्षात ७ जुलै १९४८ ला हे प्राधिकरण स्थापन झाले. या बहुउद्देशीय विकास योजनेबाबतीत कलकत्ता येथे एका परिषदेचे २३ ऑगस्ट १९९४५ रोजी आयोजन केले होते. केद्र सरकार, बंगाल आणि बिहारची राज्य सरकारे यांचे प्रतिनिधी या परिषदेत हजर होते. याप्रसंगी बाबासाहेब म्हणतात, “ दामोदर नदी पूर नियंत्रण समितीच्या परिषदेत आमच्या समोर या नदीचा पूर थोपविण्यापुरतीच योजना नव्हती तर; वीज निर्मिती, सिंचन आणि जलविकास यांचेसुद्धा नियोजन करावे असा होता. त्यामुळेच ही बहुउद्देशीय योजना आखण्यात आवश्यक माहिती व आकडेवारी गोळा करणारी यंत्रणा निर्माण करण्यात आली. भारत सरकारच्या वतीने मी या पायाभूत कार्याकरिता तांत्रिक विशेषज्ञांचे संपूर्ण सहकार्य देऊ केले.”डॉ. बाबासाहेबांचे जलसंपत्तीविषयक धोरण हे राष्ट्राच्या उभारणीस किती महत्त्वाचे होते. हे यावरून लक्षात येते.

२. हिराकुंडधरण

ओरिसा राज्य हे मुबलक नैसर्गिक साधन संपत्ती आणि जलसंपत्ती असणारे राज्य. यातील प्रमुख नद्या म्हणजे महानदी, ब्राम्हणी आणि वैतारणी या होत. या नद्यांचे एकूण क्षेत्रफळ एक लाख ७९ हजार चौरस किलोमीटर असून एकट्या महानदीचे क्षेत्रफळ एक लाख ३२ हजार चौरस किलोमीटर आहे. असे असूनही ओरिसा राज्य मागासलेले आणि दरिद्री राहिले याचे कारण डॉ. बाबासाहेब स्पष्ट करतात ते असे की, ओरिसा राज्याने जलसंधारणाचा योग्य वापर करण्याची पद्धत अवलंबिली नाही. तेव्हा ओरिसा राज्याने डॉ. बाबासाहेबांशी संपर्क केल्यानंतर दामोदर नदी प्रकल्पाप्रमाणे महानदीवरही विकास प्रकल्प उभारण्यावर चर्चा झाली. त्यानुसार ८ नोव्हेंबर १९४५ रोजी ओरिसा राज्याचे प्रतिनिधी, पूर्वेकडील राज्य व केद्र शासनाच्या प्रतिनिधींची परिषद बोलवली. या

परिषदेमध्ये महानदीवर हिराकुंड धरण प्रकल्प उभारण्याचे निश्चित करण्यात आले. या धरणाने तेथील जनेतेचे जीवनमान तर उंचावलेच शिवाय मोठ्या प्रमाणावर वीज निर्मिती होईल, कारखानदारी वाढेल असा आशावाद डॉ. बाबासाहेब आंबेडकर यांनी व्यक्त केला. या धरणामुळे आज ओरिसा राज्याचा विकास होताना दिसत आहे. याचे श्रेय बाबासाहेबांच्या दूरदृष्टीला जाते.

३. भाक्रानांगलधरण

पंजाब सरकारने सन १९०८ पासून भाक्रानांगल धरणाची योजना आखली असली तरी प्रत्यक्षात सुरुवात डॉ. बाबासाहेब आंबेडकर व्हाईसरॉयच्या मंत्रिमंडळात असताना केली गेली. स्टेट प्रॅबिटी धरण बांधण्याचा व १५० मेगावॉट विजनिर्मिती केंद्राचा प्रस्ताव डॉ. बाबासाहेबांनी पारित केला. मोठा जलाशय आणि मोठे फायदे हे या धरणापासून मिळणार होते. पंजाब, हरियाणा व राजस्थान या तीन राज्यांच्या संयुक्त विद्यमाने हा धरण प्रकल्प सुरु करण्यात आला होता. हिमाचल प्रदेशातील सतलज नदीवर भाक्रा-नांगल येथे धरण बांधण्यात आले. हे धरण आशिया खंडात सर्वात उंच आहे. भाक्रा-नांगल हा प्रकल्प सिंचनासाठी तयार केला असला तरी हा प्रकल्प बहुदेशीय प्रकल्प कसा करता येईल, यासाठी डॉ. बाबासाहेब आंबेडकर स्वतः कार्यरत होते. इ. स. १९४८ मध्ये सुरु झालेला हा प्रकल्प इ. स. १९६३ मध्ये पूर्ण झाला. तर इ.स. १९६९ मध्ये मध्ये येथील वीज प्रकल्प पूर्ण झाला.

४. सोन नदी प्रकल्प

सोन नदी ही मध्य प्रदेशात उगम पावते आणि मध्य प्रदेशातून वाहत जाऊन मध्य प्रदेशातून वाहत जाऊन गंगेला मिळते. या नदीवरील प्रकल्पाने अनेक फायदे होतील या उद्देशाने १० मार्च १९४५ रोजीच्या परिषदेत डॉ. बाबासाहेब आंबेडकर यांनी सोन नदी खोरे प्रकल्प बहुदेशीय नदी-खोरे व्यवस्थापन योजना अंमलात आणण्यासाठी आपले मत व्यक्त केले. या योजनेने उत्तर प्रदेश, बिहार, मध्य भारतातील राज्ये यांना आर्थिक विकासात हा प्रकल्प कसा महत्त्वाचा आहे याचे विवेचन केले आहे. नदीतून उपलब्ध होणारा जलसाठा सिंचनासाठी, जलविद्युत निर्मितीसाठी, जलवाहतुकीसाठी, औद्योगिक व शहरी वापरासाठी, उपसासिंचन योजनांसाठी इ. वापरणे अभिप्रेत आहे. बहुदेशीय वापर संकल्पनेचा संबंध हा संपूर्ण खोऱ्याच्या विकासासाठी जोडलेला असल्याने पादेशिक नियोजनाच्या दृष्टीने अंमल करावा अशी शिफारस करण्यात आली. त्यानुसार पाण्याचा वापर कसा करावा यासाठी १ मार्च १९८० मध्ये भारत सरकारने सोन नदी आयोग नेमला गेला.

डॉ. बाबासाहेबांनी जलव्यवस्थापनासाठी वरीलप्रमाणे मोठ्या प्रमाणावर प्रकल्प हाती घेतले. या प्रकल्पांमुळे जलसिंचन, वीजनिर्मिती, कुपनलिकांना वीजपुरवठा, औद्योगिक क्षेत्राला वीजपुरवठा, जलवाहतुकीस वीजपुरवठा, तसेच पूरनियंत्रण असे फायदे मिळत आहेत. आपला देश पाणी, वीज, उद्योग, शेती यामध्ये परिपूर्ण व्हावा यासाठी बाबासाहेबांनी भरीव कार्य केले आहे. असे असूनही इ.स. १९४२ मध्ये नदीजोड प्रकल्पाच्या माध्यमातून जलव्यवस्थापन धोरण राबवून संपूर्ण भारत सिंचनाखाली आणण्याचा संकल्प करणाऱ्या डॉ. बाबासाहेब आंबेडकरांचे स्वप्न पूर्ण झाले नाही. पुढील काळात म्हणजे सन १९७२ पासून हा विषय चर्चिला जात आहे परंतु त्याला यश येत नाही. नदीजोड प्रकल्प यशस्वी झाला असता तर आज पाण्याचा प्रश्न बिकट झाला नसता.

डॉ. बाबासाहेब आंबेडकर या देशातील तमाम दलित, उपेक्षित, शोषित, वंचितांसाठी जसे संवेदनशील होते; त्याचप्रमाणे पाणी आणि त्याचे नियोजन याबाबतीतही संवेदनशील असल्याचे दिसून येते. प्रो. एस. सी. टाई यांनी आपल्या 'न्यू इंडिया रिव्हर्स' ह्या ग्रंथात भारतीय जल आणि ऊर्जा नियोजनाचे जनक म्हणून पायाभरणीचे संपूर्ण श्रेय डॉ. बाबासाहेब आंबेडकरांना दिले आहे. बाबासाहेबांचे जलव्यवस्थापनाचे विचार, कार्य आजही देशाला दीपस्तंभाप्रमाणे मार्गदर्शक आहेत.

संदर्भ ग्रंथ –

१. सुखदेव थोरात, 'डॉ. बाबासाहेब आंबेडकर : नियोजन, जल व विद्युत विकास : भूमिका व योगदान', सुगावा प्रकाशन पुणे.
२. डॉ. शंकर लेखने, प्रा. ज्ञानेश्वर भोसले (संपादक), 'जलव्यवस्थापन: काल आज आणि उद्या', ज्ञानार्णव प्रकाशन, पुणे.
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४. धनंजय कीर, 'डॉ. बाबासाहेब आंबेडकर, प्यॉपुलर प्रकाशन, मुंबई.

डॉ. एस आर. रंगनाथन एक जागतिक कीर्तीचे ग्रंथालय शास्त्रज्ञ

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ग्रंथपाल, इन्स्टिट्यूट ऑफ मॅनेजमेंट अँड रिसर्च, औरंगाबाद

सारांश:

सुसंस्कृत समाज निर्मितीसाठी शालेय आणि महाविद्यालयीन शिक्षणाबरोबरच निरंतर शिक्षण देखील आवश्यक असते. याचे महत्त्व डॉ. रंगनाथन यांनी समाजाला पटवून दिले. त्यासाठी ग्रंथालयाचा विकास झाला पाहिजे आणि प्रसार झाला पाहिजे देशातील सर्वसामान्य जणांसाठी ज्ञानाची दारे विनामूल्य खुली झाली पाहिजे त्याचप्रमाणे वाचनसंस्कृती रुजविण्यासाठी जनतेने प्रयत्न केले पाहिजे यासाठी आपले उभे आयुष्य खर्च करणारे डॉ. शियाली रामामृत रंगनाथन. प्रस्तुत अध्ययनात डॉ. एस. आर. रंगनाथन यांचे जीवन चरित्र, शिक्षण, ग्रंथालय चळवळ आणि ग्रंथालय शास्त्रातील योगदान, डॉ. रंगनाथन यांचे लेखन आणि त्यांना मिळालेले राष्ट्रीय आणि आंतरराष्ट्रीय स्तरावर मिळालेले पुरस्कार, मान आणि सन्मान विषयी चर्चा केली आहे. प्रस्तुत अध्ययनासाठी द्वितीयक माहिती स्रोतांचा संदर्भ घेतला आहे त्यासाठी विविध संदर्भ साहित्य, विविध संकेतस्थळांचा संशोधन नैतिकतेचा विचार करून आधार घेतला आहे. अध्ययनांती डॉ. एस. आर. रंगनाथन यांचे राष्ट्रीय आणि आंतरराष्ट्रीय स्तरावरील योगदान अमूल्य असून त्यांच्या अष्टपैलू कार्यामुळे भारतातील ग्रंथालय क्षेत्राला एका विशिष्ट उंचीवर जाता आले.

प्रास्ताविक:

भारत देश हा प्राचीन काळापासूनच बौद्धिक ज्ञानाचे भांडार म्हणून ओळखला जातो. नालंदा, तक्षशिला, कौशाम्बी, वल्लभी, विक्रमशिला, उज्जैन ही प्राचीन काळातील ग्रंथालये जगप्रसिद्ध आहेत. मात्र आधुनिक काळाचा विचार करता भारत हा पाश्चात्याच्या तुलनेत अतिशय मागे राहिला असे म्हटले तर अतिशयोक्ती होणार नाही. इसवी सन 1800 नंतर खऱ्या अर्थाने भारतात आधुनिक ग्रंथालये आणि ग्रंथालय सेवांची आवश्यकता भासू लागली. इसवी सन 1800 नंतर अनेक घटना घडल्या आहेत त्यांचे खऱ्या अर्थाने त्या घटनांचे ग्रंथालय चळवळीतील योगदान उल्लेखनीय आहे. आंतरराष्ट्रीय स्तरावर डॉ. मेलविलड्युई, पॉल ऑटलेट, अँथनी पानिझी, एफ. रायडर, जे. एच. शेरा, एच. ए. ब्लिस, सी. ए. कटर, अँडरसन बर्नार्ड या ग्रंथालय तज्ञांचे योगदान उल्लेखनीय आहे तर भारतात सयाजीराव गायकवाड तिसरे डॉ. एस आर. रंगनाथन, पी. एन. पनिकर, पी. एन. कौला, बी. एस. केशवन यांचे योगदान अतिशय महत्वाचे आहे, प्रस्तुत प्रकरणात डॉ. एस. आर. रंगनाथन यांचे जीवन, शिक्षण, आणि ग्रंथालय चळवळ आणि ग्रंथालयशास्त्राच्या विकासातील योगदान विषयी चर्चा केली आहे. ग्रंथालय शास्त्राचे जनक डॉ. एस. आर. रंगनाथन यांचे कार्य जागतिक स्तरावर परिचित आहे. डॉ. एस. आर. रंगनाथन हे एक जागतिक कीर्तीचे ग्रंथालयशास्त्रज्ञ आणि भारतीय ग्रंथालय चळवळीचे प्रणेते आणि जनक होते. एकूण 70 पेक्षा अधिक ग्रंथ आणि 3000 पेक्षा अधिक शोध निबंध लिहून ग्रंथालय शास्त्राचे साहित्य अधिक समृद्ध केले आहे. सन 1957 या वर्षी त्यांच्या कार्याचा गौरव केंद्र सरकारने त्यांना पद्मश्री पुरस्कार प्रदान करून केला आहे. डॉ. एस. आर. रंगनाथन यांचे जीवन, शिक्षण आणि ग्रंथालय चळवळ आणि ग्रंथालय शास्त्रातील योगदान विषयक अनेक अध्ययन आणि संशोधने झाली आहेत मराठी या मातृभाषेत डॉ. रंगनाथन यांचे कार्य परिचित करण्याचा हा एक प्रयत्न.

अध्यायाचे उद्देश:

1. डॉ. एस. आर. रंगनाथन यांचे जीवन आणि शिक्षण विषयक आढावा घेणे
2. डॉ. रंगनाथन यांचे ग्रंथालय चळवळ आणि ग्रंथालय शास्त्रातील योगदानाची चर्चा करणे.
3. ग्रंथालय शास्त्रातील साहित्य समृद्ध करण्यामागील रंगनाथन यांच्या योगदानाची चर्चा करणे.

अध्ययन पद्धती:

सामाजिक शास्त्र, नैसर्गिक शास्त्रातील अध्ययनासाठी पूर्व तयारी म्हणून प्राथमिक आणि द्वितीयक माहिती साधनांची आवश्यकता असते. प्रस्तुत अध्ययन हे चरित्रात्मक असल्यामुळे द्वितीयक माहिती साधनांचे संदर्भ संशोधन नैतिकतेच्या अधीन राहून वापरले आहेत.

जीवन, शिक्षण आणि विशेष कार्य:

डॉ. एस. आर. रंगनाथन यांचा जन्म तामिळनाडूतील तंजावर जिल्ह्यातील शियाली या गावात 12 ऑगस्ट 1982 या वर्षी झाला. आताचे तामिळनाडू म्हणजेच स्वातंत्र्य पूर्व काळातील मद्रास प्रांत होय. त्यांचे बी. ए. पर्यंतचे शिक्षण मद्रास येथील ख्रिश्चन महाविद्यालयातून झाले असून ते इंग्रजी विषयातील पदवीधर आहेत. सन 1916 मध्ये गणित या विषयातून त्यांनी एम. ए. ची पदवी प्राप्त केली तदनंतर त्यांनी एल. टी. ही अध्यापन शास्त्रातील पदवी घेतली आणि पुढे त्यांनी सहा वर्षे गणिताचे प्राध्यापक म्हणून कार्य केले होते.

ग्रंथालय शास्त्र आणि ग्रंथालय चळवळीतील योगदान:

मद्रास विद्यापीठातील योगदान: सन 1924 मध्ये डॉ. रंगनाथन यांची चेन्नई विद्यापीठाचे ग्रंथपाल म्हणून नेमणूक करण्यात आली आणि ग्रंथालय शास्त्राचे शास्त्रशुद्ध प्रशिक्षण घेण्यासाठी चेन्नई विद्यापीठाने स्वतःच्या खर्चाने ब्रिटन मधील लंडन येथील स्कूल ऑफ लायब्रेरियनशिप मध्ये पाठविण्यात आले होते. तेथे त्यांनी एक वर्षाचा ग्रंथपालन चा अभ्यासक्रम पूर्ण केला व पुन्हा चेन्नई ला परत आले. ब्रिटन मधील क्रॉयडन येथील सार्वजनिक ग्रंथालयात काही दिवस काम केले आणि ग्रंथालय व्यवस्थापनातील अनेक पद्धतीचे तुलनात्मक अध्ययन केले होते. त्या ठिकाणी अनेक वर्गीकरण आणि तालिकीकरण संहितेचे अध्ययन केले तेव्हाच द्विबिंदू वर्गीकरण पद्धतीची कल्पना तयार झाली होती. भारतात परतत असताना बोटीवरील प्रवासातच त्यांनी द्विबिंदू या जागतिक वर्गीकरण पद्धतीचा आराखडा तयार केला होता. सन 1925 ते 1945 दरम्यान चेन्नई विद्यापीठाचे ग्रंथपाल म्हणून कार्य केले. मद्रास विद्यापीठात ग्रंथालयशास्त्राचे अध्यासन निर्माण करण्यासाठी त्यांनी त्या काळात एक लाख रुपयाची देणगी दिली होती त्यावरून त्यांची ग्रंथालय शिक्षणाविषयीची तळमळ लक्षात येते.

बनारस विद्यापीठातील योगदान: डॉ. राधाकृष्णन सर्वपल्ली हे 1945 च्या दरम्यान बनारस विद्यापीठाचे कुलगुरू होते त्यांच्या विनंतीवरून 1945 ते 1946 दरम्यान त्यांनी बनारस विद्यापीठाचे विद्यापीठ ग्रंथपाल म्हणून कार्य केले होते.

दिल्ली विद्यापीठातील योगदान: दिल्ली विद्यापीठामध्ये डॉ. एस. आर. रंगनाथन यांची त्यावेळेसच्या दिल्ली विद्यापीठाचे उपकुलगुरू सर मॉरिस ग्वायीर यांनी रंगनाथन यांची दिल्ली विद्यापीठात ग्रंथालय शास्त्राचे प्राध्यापक आणि सल्लागार म्हणून निवड करण्यात आली होती. दिल्ली विद्यापीठात रंगनाथन यांनी स्वतंत्र ग्रंथालय आणि माहिती शास्त्र विभाग स्थापन केला होता. दिल्ली विद्यापीठात त्यांनी पदविका, पदवी आणि पदव्युत्तर स्तरावरील अभ्यासक्रम सुरु करून ते अपेक्षित वळणावर पोहचवले त्यांच्या कार्याचा गौरव म्हणून 1948 मध्ये दिल्ली विद्यापीठाने त्यांना डी. लिट. या बहुमानाच्या पदवीने सन्मानित केले.

विक्रम विद्यापीठातील योगदान: उज्जैन येथील विक्रम विद्यापीठात 1957 साली स्वतंत्र ग्रंथालयशास्त्र विभाग सुरु केला होता. विक्रम विद्यापीठात ग्रंथालय शास्त्राच्या विकासासाठी अनेक प्रयत्न केले आहेत अनेक स्तरीय प्रशिक्षण अभ्यासक्रम सुरु करून ग्रंथालय शास्त्राच्या विकासात योगदान दिले आहे.

ग्रंथालयाचे मौलिक सिद्धांत: ग्रंथालय शास्त्रातील मूलभूत संशोधनातील त्यांचे योगदान उल्लेखनीय आहे, सन 1928 मध्ये त्यांनी फाईव्ह लॉज ऑफ लायब्ररी सायन्स नावाचा ग्रंथ लिहून पूर्ण केला तो सन 1931 मध्ये प्रसिद्ध झाला होता. ग्रंथ हे उपयोगासाठीच असतात, प्रत्येक वाचकांसाठी ग्रंथ, प्रत्येक ग्रंथासाठी वाचक, वाचक आणि ग्रंथालय कर्मचारी यांच्या वेळेची बचत आणि ग्रंथालय हि एक वर्धिष्णू संस्था आहे हीच ती जगप्रसिद्ध आणि जगमान्य ग्रंथालय शास्त्राची पंचसूत्री होय. ग्रंथालय शास्त्रातील डॉ. रंगनाथन यांचे पंचसूत्रीचे योगदान आंतरराष्ट्रीय स्तरावर मान्य झाले असून संगर विकास ते ग्रंथालय व्यवस्थापना तील अनेक कार्यात मार्गदर्शक ठरली आहे. आज आपण पाहतो की केंद्र सरकार आणि राज्ये सरकारांनी अध्ययन अध्यापनासाठी अनेक डिजिटल उपक्रम सुरु केले आहेत आणि तो या ग्रंथालय शास्त्राच्या पंचसूत्रीचे फलित आहे.

ग्रंथ निवडीचा सिद्धांत: दर्जेदार ग्रंथसंग्रह हाच निकष कोणत्याही ग्रंथालयाच्या उत्पादनशीलतेचा मूळ पाय असतो. ग्रंथालयात ग्रंथ खरेदी, देणगी आणि ग्रंथ अदलाबदल या मार्गाने येत असतात. ग्रंथ खरेदीसाठी मर्यादित वित्तीय साधने असतात त्यामुळे कोणतेही ग्रंथालय सर्व प्रकारची माहिती साधने खरेदी करू शकत नाही मात्र नेमकी माहिती साधने खरेदी करू शकते. ज्ञानाच्या क्षेत्रात दररोज सातत्याने मोठ्या संख्येने वाढ होत आहे. त्यामुळेच आजच्या काळात माहितीचा विस्फोट झाला आहे. तेव्हा वाचकांच्या गरजेनुसार आणि ग्रंथालयाच्या प्रकारानुसार ग्रंथ निवड करणे आवश्यक आहे. ग्रंथ निवडीचे एफ. के. डब्ल्यू. ड्युरी, जॉन मॅककॉल्विन, डॉ. मेल्बॅरील ड्यूर्यु आणि डॉ. रंगनाथन यांची ग्रंथ निवडीची सिद्धांत प्रसिद्ध आहेत. ग्रंथ हे उपयोगासाठीच असतात, प्रत्येक वाचकांसाठी

ग्रंथ आणि प्रत्येक ग्रंथासाठी वाचक ही ग्रंथालय शास्त्राची तीन सूत्रे समोर ठेवूनच ग्रंथ निवड करावी असे डॉ. रंगनाथन यांनी ग्रंथ निवडीसंदर्भात सांगितले आहे.

ग्रंथालय वर्गीकरणातील योगदान: ग्रंथालय वर्गीकरण नुसार पुस्तकांची पद्धतशीर मांडणी केली जाते, मद्रास विद्यापीठाचे पहिले ग्रंथपाल डॉ. एस. आर. रंगनाथन हे ब्रिटन ला ग्रंथपालनाचे शिक्षण घेण्यासाठी गेले होते. तेथे शिकत असताना डॉ. रंगनाथन यांनी ग्रंथ वर्गीकरणाच्या अनेक पद्धतीचा तुलनात्मक अभ्यास केला त्यांचे शिक्षण पूर्ण झाल्यानंतर भारतात परत येताना परतीच्या प्रवासात एका नाविन्यपूर्ण ग्रंथ वर्गीकरण पद्धतीचा आराखडा तयार केला होता. डॉ. रंगनाथन यांनी १९३३ मध्ये द्विबिंदू वर्गीकरण पद्धतीचे जगासमोर सादरीकरण केले. संपूर्ण जगातील मोजक्या ग्रंथ वर्गीकरण पद्धतीमध्ये द्विबिंदू वर्गीकरण पद्धतीची गणना केली जाते ही भारतीयांसाठी अभिमानाची गोष्ट आहे. संपूर्ण द्विबिंदू वर्गीकरण पद्धतीची विभागणी चार परिमंडल आणि ५४ मुख्य वर्गामध्ये केली आहे आणि मिश्र चिन्हांकन पद्धतीचा वापर केला आहे. या वर्गीकरण पद्धतीचे महत्वाचे वैशिष्ट्य म्हणजे आथित्यशीलता आणि लवचिकता होय. द्विबिंदू वर्गीकरण पद्धतीत संकीर्ण वर्ग, स्वरूप वर्ग, आणि निर्देश या उपविभागाचा समावेश होतो. द्विबिंदू वर्गीकरण पद्धतीच्या आजपर्यंत सात आवृत्त्या प्रकाशित झाल्या आहेत. अनुक्रमे सन १९३८ मध्ये दुसरी, सन १९५० मध्ये तिसरी, सन १९५२ मध्ये चौथी, सन १९५७ मध्ये पाचवी आवृत्ती, सन १९६३ मध्ये सहावी आवृत्ती आणि सहाव्या आवृत्तीचे पुनर्मुद्रण १९६५ मध्ये, तर सन १९८७ मध्ये सातवी आवृत्ती प्रकाशित झाली.

ग्रंथालय तालिकीकरणातील योगदान: ग्रंथालय तालिका या खऱ्या अर्थाने ग्रंथालयाचा आरसा असतात सन १९३४ पूर्वी तालिकीकरणाच्या अनेक संहिता अस्तित्वात होत्या. आधुनिक काळात विविध ज्ञानशाखांचा झपाट्याने विकास होत आहे वाचन साहित्य निर्मिती आणि ग्रंथनिर्मिती मध्ये मोठ्या प्रमाणात वाढ होऊ लागली यातूनच वाचकांकडून सूक्ष्म स्वरूपातील आणि नेमक्या माहितीची मागणी होत होती आणि या प्रकारच्या वाचकांच्या गरजांची पूर्तता कोषतालिके द्वारे पूर्ण होत नव्हती यातूनच वर्गीकृत तालिकेची डॉ. एस. आर. रंगनाथन यांनी केली आहे. या तालिकेची पहिली संहिता सन १९३४ मध्ये प्रकाशित झाली त्यानंतर अनुक्रमे १९४५ मध्ये दुसरी, १९५१ साली तिसरी, सन १९५८ साली चौथी आणि सन १९६४ साली पाचवी आवृत्ती प्रकाशित झाली. एखाद्या विषयातील ग्रंथसंग्रह किती आहे हे कोष तालिकेद्वारे स्पष्ट होत नव्हते म्हणून रंगनाथन यांनी वर्गीकृत तालिका संहितेची निर्मिती केली. वर्गीकृत तालिका अंहिते मुले एका विशिष्ट विषयातील ग्रंथ संग्रहाचा अंदाज येतो.

ग्रंथालय चळवळीतील योगदान: डॉ. एस. आर. रंगनाथन यांच्या नेतृत्वाखाली सन १९२८ साली मद्रास ग्रंथालय संघाची स्थापना करण्यात आली होती. डॉ. रंगनाथन यांच्या नेतृत्वात दरम्यानच्या काळात ग्रंथालय विकासाचे अनेक यशस्वी प्रयत्न करण्यात आले होते. मद्रास ग्रंथालयाच्या वतीने १९३१ साली फिरत्या ग्रंथालयाची सेवा उपलब्ध करून देण्यात आली त्यास रंगनाथन यांनी मोबाईल लायब्ररी असे नाव दिले होते. तुरुंगात आणि दवाखान्यात ग्रंथालय सेवा या नावीन्य उपक्रमाची ओळख त्यांनी करून ती लोकप्रिय केली. मद्रास ग्रंथालय संघाच्या वतीने राज्य आणि राष्ट्रीय स्तरावरील चर्चासत्रे, कार्यशाळा आयोजित केल्या आणि त्याबरोबरच ग्रंथालय प्रशिक्षण वर्ग ही सुरु केले होत्र.

ग्रंथालय कायदेनिर्मितीतील योगदान: ब्रिटिश म्युझियम चे श्री एडवर्ड एडवर्ड्स यांच्या प्रयत्नामुळे ब्रिटन मध्ये राष्ट्रीय ग्रंथालय कायदा करण्यात आला होता तत्पूर्वी १८४६ मध्ये जगातील पहिला ग्रंथालय कायदा अमेरिकेत करण्यात आला होता. या कायद्याने सार्वजनिक ग्रंथालय व्यवस्था निर्माण करणे ही सरकारची जबाबदारी असल्याची तरतूद करण्यात आली होती. भारतात आज रोजी जवळपास १९ घटकराज्यात राज्यस्तरीय कायदे करण्यात आले आहेत मात्र राष्ट्रीय स्तरावरून कायदेनिर्मिती झाली नाही. डॉ. एस. आर. रंगनाथन यांनी भारतात कायदे निर्मिती अनेक प्रयत्न केले होते. सन १९३० मध्ये बनारस येथे आयोजित "ऑल एशिया एज्युकेशनल कॉन्फरन्स" आदर्श ग्रंथालय कायद्याचा आराखडा सादर केला होता. विविध देशातील आणि आणि राज्यातील ग्रंथालय कायद्याचा तुलनात्मक अध्ययन करून हा आदर्श ग्रंथालय कायदा आराखडा तयार केला होता. राष्ट्रीय ग्रंथालय कायदा तयार करण्यामागे संपूर्ण देशात ग्रंथालय जाळे निर्माण करणे हा त्यांचा मूळ हेतू होता. डॉ. रंगनाथन यांनी १९४८ मध्ये ३० वर्ष कालावधीसाठीचा ग्रंथालय विकासाचा आराखडा तयार केला होता. त्यांच्या प्रयत्नामुळे कोल्हापूर संस्थानात ग्रंथालय कायदा संमत करण्यात आला होता तो १९४७ पर्यंत लागू होता.

ग्रंथालय अंदाजपत्रक विषयक विचार: एखाद्या संस्थेतील विशिष्ट कालावधीतील उत्पन्न आणि अपेक्षित खर्च यांचा अंदाज व्यक्त करणारा आराखडा म्हणजेच अर्थसंकल्प होय. ग्रंथालय अंदाजपत्रकाचे कोण कोणते घटक असायला पाहिजे आणि त्या घटकानुसार खर्च करण्याचे प्रमाण किती असायला पाहिजे याविषयी डॉ. रंगनाथन यांनी सविस्तर विचार मांडले आहेत. भारत सरकारने १९५७ साली एक ग्रंथालय समिती नेमली होती त्या समितीच्या शिफारशी पुढील प्रमाणे. ग्रंथालयीन कर्मचाऱ्यांचे वेतन

५०%, वाचनसाहित्य २०%, नियतकालिके आणि वृत्तपत्रे ५%, ग्रंथाबांधणी ५%, ग्रंथाची निगा राखणे २%, ग्रंथालय विमा आणि इमारत भाडे ५%, लेखन साहित्य आणि मुद्रण उपकरणे १३%, डॉ. एस. आर. रंगनाथन यांनीही ग्रंथालय अंदाजपत्रकाच्या ५०% रक्कम ग्रंथालय कर्मचाऱ्यांच्या वेतनावर खर्च करण्याची शिफारस केली आहे. ग्रंथालय अंदाजपत्रक तयार करण्याची एक प्रमाणित पद्धत डॉ. रंगनाथन यांनी प्रतिपादित केली आहे. सर्व विभागाच्या माहिती साधन विषयक गरज लक्षात घेऊन खर्चाची तरतूद करावी ती ग्रंथालय समिती समोर ठेवून त्यास मंजूरी घेण्याचे निर्देश दिले आहेत.

प्रलेखनातील योगदान: आज संपूर्ण जगात नवनवीन शोध लागत आहेत सातत्याने नवनवीन तंत्रज्ञान येत आहे, हे सर्व संशोधनांमुळे शक्य झाले आहे. संशोधनाच्या विकासाबरोबरच प्रलेखन तंत्राचाही विकास होत असतो. प्रलेखनात माहितीचा संग्रह आणि त्या माहितीचे संघटन, व्यवस्थापन या बाबी महत्वाच्या असतात त्यासाठी ग्रंथसूची तयार करणे, संघ तालिकेचा अवलंब करणे, निर्देशन तंत्राचा वापर करणे, सरलेखन करणे, निवडक माहितीचे प्रसारण, प्रचलित जागरूकता सेवा या तंत्राचा उपयोग प्रलेखनात करणे आवश्यक असते. भारतात सी एस आय आर, इन्सडॉक, डी आर डी ओ, या राष्ट्रीय स्तरावरील संस्थांनी प्रलेखनाच्या विकासात योगदान दिले आहे. सन १९५९ मध्ये रंगनाथन समिती नेमण्यात आली होती त्या समितीने प्रलेखन विकासाच्या संदर्भातील तरतुदी महत्वपूर्ण आहेत. पुढे 1962 या वर्षी बेंगलोर येथे डॉक्युमेंटेशन रिसर्च अँड ट्रेनिंग सेन्टर सुरु केले आणि शेवटपर्यंत याच संस्थेत प्राध्यापक म्हणून कार्य केले होते. **आंतरराष्ट्रीय योगदान:** सन 1948 या वर्षी ब्रिटिश कॉन्सिल चे अतिथी म्हणून त्यांनी फ्रांस, हॉलंड, नॉर्वे आणि स्वीडन या युरोपियन देशांचा आणि 1950 या वर्षी रॉकफेलर फौंडेशन चे अतिथी म्हणून त्यांनी अमेरिका या देशाचा अभ्यास दौरा केला होता.

सन्मान आणि पुरस्कार:

राष्ट्रीय पुरस्कार: सन 1935 साली त्यांना रावसाहेब या पदवीने गौरवविण्यात आले होते. डॉ. रंगनाथन यांचे ग्रंथालय चळवळ आणि शिक्षणातील कार्याचा सन्मान म्हणून त्यांना 1957 साली पद्मश्री पुरस्काराने सन्मानित केले होते. सन 1948 या वर्षी दिल्ली विद्यापीठाने आणि

आंतरराष्ट्रीय पुरस्कार: १९६२ या वर्षी अमेरिकेतील पिट्सबर्ग विद्यापीठाने डॉ. रंगनाथन यांना द. लिट. पदवी बहाल करून त्यांचा सन्मान केला होता. ग्रंथालय वर्गीकरण आणि ग्रंथालय तालिकीकरण या विषयावरील कार्याचा गौरव म्हणून अमेरिकन ग्रंथालय संघाचा अतिशय मनाचा मागरेट मान या पारितोषिकाने सन्मानित करण्यात आले. हा सन्मान मिळविणारे ते पहिले आणि एकमेव भारतीय आहेत. त्यांचे ग्रंथालय शास्त्रातील कार्य बघून भारत सरकारने त्यांची ग्रंथालय शास्त्राचे राष्ट्रीय प्राध्यापक म्हणून नेमणूक केली होती.

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समारोप:

ग्रंथालय शास्त्रात त्यांनी केलेल्या भरीव कामगिरी मुले आज आपणास सुसज्ज ग्रंथालये आणि स्वतंत्र ग्रंथालय विभाग पाहायला मिळतो. त्यांनी ग्रंथालय चळवळ आणि ग्रंथालय शास्त्रात केलेल्या कार्यामुळे त्यांना भारतीय ग्रंथालय शास्त्राचे जनक म्हणून संबोधले जाते. 27 सप्टेंबर 1972 रोजी बेंगलोर येथे ते कालवश झाले.

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भारतीय शेती आणि शाश्वत विकास

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Abstract :-

भारत हा एक शेती प्रधान देश आहे. देशातील बहुसंख्य लोक उपजिविकेसाठी शेतीवर अवलंबून आहेत. भारताच्या अर्थव्यवस्थेत शेती हे महत्वाचे क्षेत्र असून शेती क्षेत्रात घडणा-या गोष्टींची, बदलांचा परिणाम एकंदर अर्थव्यवस्थेवर होत असतो. भारतातील मागस शेती पासून तर आजच्या आधुनिक शेती क्षेत्रात झालेली हरित क्रांती व त्यातून झालेली उत्पादन वाढ यामुळे अन्न धान्य उत्पादनात भारत स्वयंपूर्ण झाला. त्यातून उपलब्ध स्थानिक संसाधनांचा वापर करून उत्पादनवाढीत माती महत्वाची असते. जमिनीची सुपीकता शाश्वत पध्दतीने टिकून राहण्यासाठी प्रयत्न होणे आवश्यक आहे.

प्रस्तावना :-

मागील ६०- ७० वर्षांत शेतीत अनेक चांगले-वाईट बदल झाले. परंतु शाश्वत शेतीचं उद्दीष्ट ससाध्य झालं. नाही. अजूनही शेतक-यांना आत्महत्या करावी लागते शेतीच्या शाश्वत विकासासाठी प्रयत्न चाललेले आहेतच पण त्या ते पुरेसे नाहीत. शाश्वत विकास म्हणजे ही जबाबदारी फक्त सरकारची नाही, तर नागरिकांचीही आहे. शाश्वत विकास हा शब्द आपण ब-याच वेळा ऐकतोय पण नेमकं याचा काय अर्थ आहे हे सांगणे कठीण आहे.शाश्वत विकासाची निश्चित अशी व्याख्या नाही. पण निसर्ग आणि मानव यांच्या सहअस्तित्वातून विकास करणं. म्हणजे शाश्वत विकास असे म्हटले जाते.

मानवाचा विकास म्हणजे दारिद्र्य दूर करणं, भूक निर्मूलन, चांगले आरोग्य देणे, चांगले शिक्षण देणे, ऊर्जा पुरवठा करणे अशी अनेक ध्येयं मानवाच्या कल्याणासाठी आखली जातात. पण हे करतांना पर्यावरणाचा नाश होणार नाही याची काळजी घेवून अशा रीतीनं विकास करणं म्हणजे शाश्वत विकास. परंतु शेतीच्या बाबतीत विचार करायचा तर त्याच्या मुळापर्यंत जावून शेतीचा उदय आणि विकास याची पार्श्वभूमी लक्षात घेतली पाहिजे. मानवाच्या मुलभुत व्यवसायांपैकी शेती हा एक व्यवसाय समजला जातो. माणसाच्या भटक्या जीवनाला शेती मुळे स्थिरता आली. हा कायम चालणारा व्यवसाय आहे. संपूर्ण राष्ट्राची अर्थव्यवस्था या व्यवसायावर अवलंबून असते ज्या राष्ट्रांकडे मुबलक व सुपी जमीन, तसेच भरपूर पाणी असते ती राष्ट्र कृषीप्रधान बनतात. भारत हा देखील त्यापैकी एक आहे. प्रतिकूल परिस्थितीही तंत्रज्ञान. सहकार्य, व जिद्द यांच्या सहाय्याने हा व्यवसाय प्रगतीकडे नेता येतो. हे इस्त्राइलसारख्या लहानशा देशाने दाखवून दिले आहे.

जगात शेतीचा शोध साधारणतः दहा हजार वर्षांपूर्वी प्रथम मध्यपूर्वेत लागला, असं मानल जात. मध्यपूर्वेतील शोधानंतर शेतीपध्दती भारतात जवळपास साडेतीन हजार वर्षांनंतर पोचली असं मानलं. तर भारतीय शेतीला किमार साडेसहा हजार वर्षांचा इतिहासस आहे.अगदी सुरवातीच्या काळात स्थलांतरीत पध्दतीची शेती होती. नंतर नद्यांच्या काठावर शेती प्रगत झाली. थोडक्यात पाण्याच्या बाजूला शेती असे दृश्य होते. आता शेत जमिनीकडे पाणी असे दिसते. जमिनीची मशागत करून पीक काढणे म्हणजे शेती असा मर्यादित अर्थ शेतीचा लावला जात होता. नंतर या क्षेत्रात पशुपालन, कुक्कुटपालन, दुग्ध व्यवसाय आणि वनशेतीच्या समावेश झाल्याचे दिसून येते. त्यातच शेतीची वर्गिकरण करण्यात आले. मागस शेती व प्रगत शेती होय. त्यानंतरच्या काळात शेतीत सतत बदल होत गेले दिसून येतात.

इंग्रजांची राजवट सुरू होण्याआधीच जवळपास २ हजार वर्षांच्या काळात २२ मोठे दुष्काळ देशात येऊन गेले तरी फार मोठ्या प्रमाणात मनुष्यहानी झाल्याच्या नोंदी आपल्याला इतिहासात दिसत नाहीत. आणि इंग्रजांच्या राजवटीआधी आपली खेडी स्वायत्त व स्वयंपूर्ण होती. कोणते पिक घ्यायचे याचा निर्णय घेण्याचे स्वातंत्र्य शेतक-यांना होत. मुस्लीम राजवटीच्या काळातही ते होत. इंग्रजांनी अन्नधान्याच्या पिकापेक्षा कापूस, नीळ, ऊस, भूईमूग अशा नगदी पिकांवर भर दिला. त्यामुळे शेतक-यांवर परिणाम झाला. त्यापेक्षाही इंग्रजांनी शेतजमिनीवर शेतसारा लावला त्याचा फटका शेतक-यांना जास्त बसला. कारण पिक येवोत अथवा न येवोत शेतसारा जबरदस्तीने वसून केला जायचा त्यामुळेच सावकार,जमीनदारांचे फावले. फावले म्हणून या काळात ग्रामीण भागात गरीबी प्रचंड वाढली.

स्वातंत्र्यानंतर भारतात राज्यकर्त्यापुढे शेती विषयक धोरण व वेगळ्या प्रकारची आव्हानं होती. शेतीशिक्षणाचा पाया विस्तृत करून, कृषि खात्याद्वारे गावांमध्ये शेती सुधारणेसाठी विस्तार कार्यक्रमाची मदत घेऊन, ग्रामीण भागात सेंद्रिय खत निर्मितीला प्रेरणा देऊन धान्य उत्पादन वाढविण्यासाठीचे प्रयत्न झालेत.

दुष्काळाच्या काळात लोकांना पुरेल इतकं अन्न देशात निर्माण होत नसल्यामुळे अमेरिकेसारख्या बलाढ्य राष्ट्रांपुढे धान्य मदतीसाठी याचना करून आणि त्यांच्या अटींवर धान्याची मदत मिळवावी लागत होती. भारतीय अस्मितेसाठी हे अपमानास्पद होते. यावर उपाय म्हणून मागील शतकाच्या साठव्या दशकाच्या मध्यात देशाला अन्नधान्य निर्मितीत स्वयंपूर्ण करण्यासाठी 'हरितक्रांती तंत्रज्ञान' आण स्वीकारलं. आणि हरितक्रांतीच्या तंत्रज्ञानामध्ये जास्त उत्पादन देणारी संकरीत बियाणं, रासायनिक खतं व रासायनिक कीटकनाशक अशा 'त्रिसूत्रीचा' समावेश होता.

शोधनिबंधाची उद्दीष्टे

१. शेती व्यवसायाची पार्श्वभूमी अभ्यासणे
२. हरितक्रांतीचा शेतीवर झालेल्या परिणामांचा अभ्यास करणे
३. शेती व्यवसायात शाश्वत विकासाचा अभ्यास करणे.

संशोधनपध्दती

भारतात शेती या व्यवसायाचा उदय आणि विकास होत असतांना प्रारंभापासून शेती करण्याच्या पध्दती व आजची आधुनिक शेती या पर्यायतः शेती क्षेत्रातील विकासाचा आढावा व आजची शाश्वत शेतीची संकल्पना याचा आढावा घेतला असतो शेती व्यवसायात शाश्वत विकासाची गरज निर्माण झालेली दिसून येते. त्यासाठी दुय्यम स्रोतांचा वापर करण्यात आले आहे.

हरितक्रांतीने, तंत्रज्ञानाचे दुष्परिणामदेखील गेल्या काही काळात मोठ्या प्रमाणात दिसून आलेत. त्यात आर्थिक, सामाजिक आणि पर्यावरणीय अशा तिन्ही प्रकारचे आहेत. बाजारात मिळणा-या बियाणांचे गुणधर्म केवळ एकाच पिढीपुरतेच एकत्र राहतात. त्यामुळे शेतक-यांना दरवर्षी बाजारातून पिकांचं नांव वाण वितकत घेणं आवश्यक झालं.

आधी शेतकरी स्थानिक परिस्थितीशी सुसंगत अशा काटक बियाणांचा वापर करत असे. मातीची पोत आणि पिकांची जैवविविधता जपून ठेवत होता. पिकांचा फेरपालट. मिश्रपीक पध्दती मानवाने आपल्या अनुभवातून विकसित केल्या होत्या. शिवाय चांगल्या शेतीसाठी पाणी माती आणि जंगल राखायला पाहिजेत याची जाणीव देखिल होती. पण आता ती जाणीव तितकीशी राहिली नाही. शेतीत शाश्वतता आलीय हे समजून घेतांना शेतमालांचं उत्पादन एका विशिष्ट पातळीवर दीर्घकाळ स्थिर राहणे म्हणजेच उत्पादनात दरवर्षी होणारे उतार-चढावर कमी होणं, नफा कमाल पातळीवर स्थिरावणं, शेतीतील आर्थिक धोका कमी होणं. कुटुंबाच्या पोषणविषयक गरजांची पूर्ती होणं. जमिनीची धूप न होता शेतातून निघणा-या जैवभाराचे नीट नियोजन होऊन तिची नैसर्गिक सुपीकता दीर्घकाळ टिकून राहणं, ही शेतीच्या शाश्वततेची लक्षण दिसून येतात.

निष्कर्ष

भारतीये मागास शेतीची प्रकत शेतीत रूपांतर झाले. हरितक्रांतीमुळे गहू आणि तांदुळ या दोन पिकांची उत्पादनं वाढली. रोखीची व व्यापारी पिके घेता येऊन उद्योगांना कच्चा माल मिळणे शक्य झाले. हरितक्रांती तंत्रज्ञानाच्या स्वीकारामुळे भारतातील अन्नधान्याच्या उत्पादनात प्रचंड वाढ झाली. वाढल्या लोकसंख्येला पुरेल एवढे धान्य आपण उत्पादित करू शकतो आहोत.

दुष्काळ:- पूर यासारख्या नैसर्गिक आपत्तीच्या परिस्थितीवर देखील देशातील राखीव अन्नसाठ्यामुळे आपण मात करू शकलो आहोत. तंत्रज्ञानाचे दुष्परिणामदेखील गेल्या काही काळात मोठ्या प्रमाणात दिसून आलेत. ते. आर्थिक, सामाजिक आणि पर्यावरणीय अशा तिन्ही प्रकारचे आहेत

नविन तंत्रज्ञानाचा उपयोग हा मोठे शेतकरी, मोठे बागायतदार, जमिनदार यांना झालेला दिसतो मात्र देशातील बहुसंख्य शेतकरी ही गरीब अल्प भूधारक अल्प भूधारक असून त्यांना हे तंत्रज्ञान न परवडणारे झाले. शेतकरी बियाणांच्या वापराआधी हंगामावर कापणीच्या वेळी आपल्या शेतातील पिकामधून पुढील हंगामासाठी बियाणं गोळा करायचे आता मात्र शेतक-यांना दरवर्षी बियाण खरेदीचा भुदंड बसून लागलाय

जास्त उत्पादन देणा—या वाणाला पोषकद्रव्यांच्या सहज पुरवठा व्हावा म्हणून रासायनिक खतांचा उपयोग अनिवार्य झाला. त्याचा अतिरिक्त खर्च शेतक—यांवर पडला. पिक गरजेपेक्षा जास्त पोषक द्रव्यं जमिनीत दिलेल्या रासायनिक खतांमधून उचलून घेत असल्यामुळे त्यांच्यावर पटकन रोग पडतात. यावर उपया म्हणून किटकनाशकांचा वापर गरजेचा झाला हवामानाच्या लहरीपणामुळे बहुविध पीक पध्दतीमध्ये कोणतं ना कोणतं पीक आपल्या हाती येईल असे शेतक—यांना वाटत होते मात्र ही सुरक्षितता कमी झाली. मातीतील सेंद्रीय कर्बाच्या प्रमाणावरून मातीची सुपीकता मोजतात. आपल्यासारख्या उष्ण कटिबंधीय देशात हे प्रमाण किमान १ टक्का या पातळीवर असावयास हवं. परंतु ते आता जवळपास ०.४ टक्क्यांपर्यंत घसरलं. आहे.

शेतीसाठी पाणी हवं.त्यासाठी लोकसहभागातून गावपातळीवर पाणलोट क्षेत्र विकास करण्यावर दयायला पाहीजे. पाण्याचा वापर कार्यक्षम पध्दतीने होण्यासाठी योग्य पिकाची निवड आणि सिंचनाच्या योग्य पध्दती हव्याच पण मातीच्या बाबतीतही जनजागृती होणे आवश्यक आहे.

शाश्वत शेतीपध्दतीची लक्षणं आपल्या पारंपारीक सेंद्रीय शेतीतही आहेत. मग पारंपारिक पध्दतीनं. केली जाणारी सेंद्रीय शेती ही देखील शाश्वत शेतीपध्दती असली तरी आजच्या काळात ती न परवडणारी आहे

या सर्व बाबींचा अपरिहार्य परिणाम शेतीतील नफा मी होण्यात आणि कर्जबाजारणीपणा वाढण्यात झाला. वेळीच कर्जफेड करू न शकल्यामुळे शेवटी आत्महत्या करायला प्रवृत्त होतात.

शिफारशी

शाश्वत शेतीसाठी आपल्या कडून काही जाणीव पूर्वक प्रयत्न होणे ही काळाची गरज आहे. आपल्या देशातील अल्पभूधारक शेतक—यांना ही शेतीपध्दती जास्त उपयोगाची आहे. उपलब्ध स्थानीय संसाधनांचा वापर करून उत्पादनवाढीत माती महत्वाची असते. जमिनीची सुपीकता शाश्वत पध्दतीने टिकून राहण्यासाठी प्रयत्न होणे आवश्यक आहे.

मातीच्या सुधारणेकडे लक्ष देऊन पीक उत्पादनवाढीचे लक्ष्य असायला पाहिजे त्यासाठी तंत्रज्ञान विकसित केले जात आहे. मात्र हे तंत्रज्ञान गरीब, अल्प भूधारक यांना परवडेल असे असावे रासायनिक खताविना आणि किटकनाशकांविना उत्पादन वाढेल, असे काही करता येणे महत्वाचे आहे. रासायनिक शेतीच्या तुलनेत जैविक पध्दतीने केलेल्या शेतीमधून प्रत्यक्षात जास्त उत्पादन मिळू शकेल काय यावर संशोधन होणे आवश्यक आहे.

अनेक शेतक—यांनी सभोवतालच्या निसर्ग निरीक्षणातून, सतत प्रयोगशील राहून, आपल्या अनुभवातून शाश्वत शेतीची वेगवेगळी प्रयोग केले आहेत हे प्रयोग केवळ त्यांचे पुरते मर्यादित न ठेवता सर्वसामान्य शेतक—यांनी अवलंबिली तर होणारा परिणाम अधिक फायदेशिर होईल अस वाटत. त्यासाठी शाश्वत शेती हा एकमेव उपाय होवू शकतो.

कोणतही नव तंत्रज्ञान स्वीकारतांना ते अल्पखर्चिक, पूर्ण भरवशांच आणि शेतक—यांचे दूरगामी हिताचं असेल यावर भर दयायला हवा. जितके शेतकरी यात सहभागी होतील तितका परिणाम मोठा दिसेल. त्यासाठी चळवळच करावी लागणार आहे आणि शेतक—यात जागृती निर्माण करणं आवश्यक आहे.

शेतीसाठी पाणी हवं त्यासाठी लोकसहभागातून गावपातळीवर पाणलोट क्षेत्र विकास करण्यावर भर दयायला पाहीजे. माती परिक्षणाच्या बाबतीतही जनजागृती होणे आवश्यक आहे.

मातीतलं सेंद्रीय कर्बाचे प्रमाण जेवढं जास्त. तेवढं मातीतल्या जीवांचे पोषण उत्तम. पूर्वी जैविक कचरा, नदी—तलावातला गाळ शेतात टाकण्याची पध्दत होती, ती पुन्हा सुरू करायला हवी.

संदर्भ ग्रंथ

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शाश्वत विकासातून पर्यावरणीय व्यवस्थापन

प्रा. मुनेश्वर जमईवार

मराठी विभाग प्रमुख विदर्भ महाविद्यालय, बुलडाणा

प्रस्तावना :

मानवाने आपल्या बुद्धीमत्तेच्या जोरावर विविध क्षेत्रात प्रगती केली आहे. माहिती, तंत्रज्ञान, अभियांत्रिकी तसेच अणुऊर्जा या क्षेत्रात मानव वेगाने प्रगती करित आहे. विज्ञान आणि तंत्रज्ञान यांच्या मदतीने मानवाने आपले जीवन सुखकारक करण्याचा प्रयत्न केला आहे. मानवाच्या गरजा भागातील इतकी संपत्ती या निसर्गात दडलेली आहे. फार पूर्वी मानव हा निसर्गावर पूर्णपणे अवलंबून होता. त्यामुळे मानव आणि पर्यावरणाचा घनिष्ट संबंध आहे. निसर्गात असलेल्या नैसर्गिक साधनसंपत्तीचा वापर मानव फार मोठ्या प्रमाणात करू लागला आहे. त्यामुळे पर्यावरणातील घटकांचा समतोल बिघडत चालला आहे. हा समतोल राखण्यासाठी तसेच नैसर्गिक साधनसंपत्तीचे जतन होण्यासाठी त्यांचे संरक्षण करणे, नवीन साधनसंपत्ती, तसेच पर्यायी साधनसंपत्तीचा शोध घेणे अत्यावश्यक आहे.

यासाठी पर्यावरणातील सर्व घटकांचा विचार करून योजनाबद्ध पावले टाकली पाहिजेत म्हणजेच पर्यावरणाचे नियोजन व व्यवस्थापन केले पाहिजे.

१) पर्यावरण व्यवस्थापनाची गरज :

मानवाच्या स्वैर व अनिर्बंध क्रियांमुळे अनेक समस्या निर्माण झाल्या आहेत. आर्थिक प्रगतीमुळे जीवन व राहणीमानाचा दर्जा उंचावतो. या हव्यासापायी नैसर्गिक साधनसंपत्तीचा वापर मात्र मोठ्या प्रमाणात होऊ लागला. नैसर्गिक साधनसंपत्तीचे इतके शोषण होऊनही मानवी गरजा पूर्ण होत नाहीत. याकलट पर्यावरणावर त्याचा परिणाम होऊन अनेक समस्या निर्माण होऊ लागल्या आहेत.

- प्रदुषण (वायू, जल, भूमी, ध्वनी, किरणोत्सर्जीय)
- ओझोन थरास गळती
- आम्ल वर्षा
- हरितगृह परिणाम
- वाळवंटीकरण
- जैव विविधतेचा न्हास

मानवाला अशा अनेक समस्यांना सामोरे जावे लागत आहे. पर्यावरणाचा न्हास होण्यास मानवच कारणीभूत आहे. अवाजवी रसायनाचा वापर, रासायनिक खते, किटकनाशके त्यामुळे जमीनीचा कस कमी होऊ लागला आहे. लोकसंख्येच्या भस्मासुरामुळे अनेक समस्या निर्माण होत आहेत. जमीनीवर मोठ्या प्रमाणात ताण वाढत आहे. आपल्या स्वार्थासाठी मानवाने झाडे तोडली. जंगलावर आक्रमण केले आणि मृदेची धूप, पर्जन्यात घट, प्राण्यांच्या संख्येत घट इत्यादी समस्या निर्माण झाल्या. या सर्व गोष्टींचा विचार केल्यास आज पर्यावरणाचा होणारा न्हास थांबवणे व त्याचे संरक्षण करणे गरजेचे आहे. या सर्व समस्यांना तोंड देण्यासाठी योग्य व्यवस्थापन जे ले पाहिजे. नैसर्गिक साधनसंपत्तीचा नियोजनबद्ध वापर केला पाहिजे. टाकावू पदार्थांचे पुनःवापर केले पाहिजे. कमी प्रमाणात असलेली साधनसंपत्ती जपून वापरावी. या सर्व पर्यावरणीय घटकांचा विचार करून सुसुत्रपणे, नियोजनबद्ध कृती करणे म्हणजेच पर्यावरण व्यवस्थापन हा एकमेव व योग्य उपाय आहे.

२) पर्यावरण व्यवस्थापन :

पर्यावरणीय तत्वांच्या आधारे पर्यावरण संतुलनात काही बिघाड होणार नाही अशाप्रकारे साधन संपत्तीचे स्वरूप व उपलब्धता विचारात घेऊन मानवी क्रियांची नियंत्रितरित्या मांडणी करणे म्हणजे पर्यावरण व्यवस्थापन.

उपलब्ध साधनसंपदा व उपयुक्तता यांची शास्त्रीय दृष्टीकोनातून केलेली चिकित्सात्मक रचना म्हणजे पर्यावरण व्यवस्थापन होय.

नैसर्गिक आपत्तींचे संकेत तंत्रज्ञान आल्यामुळे होणारी जिवित व वित्तीय हानी आपण टाळू शकतो. उदा. भूकंपाचे धक्के, त्याची नोंद्याची माहिती भूगर्भाशास्त्र विभागातून मिळते. हवामान खात्यामार्फत सागरामध्ये येणाऱ्या तुफानाची पूर्व सूचना मिळते. अशाप्रकारे तंत्रज्ञानामुळे अनेक उपकरणांचा शोध लागत आहे. त्यामुळे मानवी विकास होत आहे. मानवी जीवनमानाचा दर्जा सुधारतो आहे. पर्यायी साधनसंपत्ती शोधण्यास मदत होत आहे. अशाप्रचरे पर्यावरणाचा दर्जा टिकविण्यासाठी कार्यक्षम तंत्रज्ञान उपयोगी पडते. मात्र त्याचा दुष्परिणाम पर्यावरणावर झाला तर नवीन समस्यांना तोंड द्यावे लागेल. याची काळजी मानवाने घेणे गरजेचे आहे. पर्यावरण व्यवस्थापनात जास्तीत जास्त लोकांचा लोकांचा सहभाग होणे आवश्यक आहे. पर्यावरणाचे नियोजन जेवढे चांगले व योग्य प्रकारे होईल तेवढे भविष्यकाळात पर्यावरणाचे उद्भवजारचे धोजे जमीन रता येतील. त्यासाठी सर्वांनीच पर्यावरण व्यवस्थापनात अग्रत्यक्षरित्या सहभाग घेणे आवश्यक आहे. आपले घर, घरा शेजारील जागा प्रत्येकाने स्वच्छ ठेवल्यास एखादा विभाग स्वच्छ होईल. गाव स्वच्छ

होईल, शहर स्वच्छ होईल. यासाठी प्रत्येकाने स्वच्छता ठेवणे, प्रदूषण कमीत कमी होईल याची काळजी घेतली तर पर्यावरण व्यवस्थापनात मदत होईल.

३) पर्यावरण व्यवस्थापनाचा हेतू :

- प्रदूषण नियंत्रणासाठी उपाययोजना करणे.
- पर्यावरण व्यवस्थापनात पर्यावरणाच्या संतुलनात बाधा येणार नाही याची काळजी घेणे.
- मानवी जि यांमुळे पर्यावरणावर होणारे दुष्परिणाम जमीन व हवा पर्यावरण व्यवस्थापनाचा मुख्य हेतू आहे.

म्हणजेच पर्यावरण व्यवस्थापनामध्ये पर्यावरणातील संपदांचा नियोजनबद्ध वापर करणे, संपदांची व मानवी क्रियांची नियंत्रित मांडणी व संपदांचे संवर्धन या गोष्टींचा समावेश होतो.

४) पर्यावरण व्यवस्थापनाचे स्वरूप :

पर्यावरणामध्ये अनेक घटकांचा समावेश होतो. पर्यावरण व्यवस्थापनाच्या विविध घटकांमध्ये साधनसंपत्तीचे व्यवस्थापन महत्वाचे आहे. साधनसंपत्तीची एकूण उपलब्धता, वितरण, उपयोग या सर्व गोष्टींचा विचार पर्यावरण व्यवस्थापनेत केला जातो. पर्यावरणाचा समतोल राखण्यासाठी विचारपूर्वक नियोजनबद्ध कार्यक्रम आखणे आवश्यक आहे. हे नियोजन करताना नैसर्गिक व सामाजिक असे दोन्ही विचारात घेतले पाहिजेत उदा. पाणी हे मानवाचे जीवन आहे. मानवाला पाणी पिण्यासाठी, स्वच्छतेसाठी, वीज निर्मितीसाठी, कारखान्यासाठी आवश्यक आहे. या पाण्याच्या साठ्यांचा विनियोग योग्य रितीने होणे आवश्यक आहे. पाण्याचा सुयोग्य नियोजनपूर्वक वापर करणे जरूरीचे आहे. वाया जाणाऱ्या पुरेपूर विनियोग करावा. अनावश्यक वापर टाळावा. पावसाचे पाणी साठविणे, पाण्याच्या शुद्धीकरणासाठी नियोजन करणे, कमी पर्जन्य असलेल्या प्रदेशांना धरणांमार्फत पाणी पुरविणे. जलवाहतूक, जल विद्युत निर्मिती प्रकल्प उभे करणे, ठिबकसिंचन योजना, जलसिंचनाच्या सुयोग्य पद्धतीचा अवलंब करणे, भूजलाची पातळी वाढविणे, भूजल प्रदूषण नियंत्रण इत्यादी प्रकारच्या योजना राबवून पाण्याचा वापर सर्व प्रदेशांना मिळू शकेल व पाण्याच्या साठ्यांचा योग्य वापर, योग्य वितरण हा सर्व अभ्यास पर्यावरण होणारा परिणामांचा अभ्यास करणे गरजेचे आहे.

५) पर्यावरण व्यवस्थापन दृष्टीकोन :

i) पर्यावरण संरक्षण कायदा :

१९ नोव्हेंबर १९८६ रोजी पर्यावरण संरक्षण कायद्याची अंमलबजावणी करण्यात आली.

भाज १ मध्ये पर्यावरण, पर्यावरणीय प्रदूषण, घातक वस्तू यांच्या व्याख्या दिल्या आहेत. या कायद्यामध्ये केंद्र शासनाचे सर्वसामान्य अधिकार दिले आहेत. पर्यावरणाय प्रदूषण नियंत्रण, पर्यावरणीय सुधारणा आणि कृती याविषयीचा तक्ता ज रून ज ार्य माची आखणी दिली आहे. भाग २ मध्ये अधिकाऱ्यांचे अधिकार, त्यांची जबाबदारी तसेच प्रदूषण करणारा कारखाना बंद करणे. सुरक्षा प्रदूषण घातक पदार्थांची हाताळणी यांचा समावेश आहे. भाज ३ मध्ये पर्यावरण प्रदूषणाचे प्रतिबंध, नियंत्रण व सुधारणा यासंबंधीच्या तरतूदी आहेत. भाग ४ मध्ये पर्यावरणासंबंधातील गुन्हा दाखल करण्याविषयी माहिती देण्यात आली आहे.

ii) जल प्रदूषण कायदा :

जल प्रदूषण प्रतिबंध आणि नियंत्रण कायदा इ. स. १९७४ साली भारतीय संविधान कलम २५२ नुसार संमत करण्यात आला. या कायद्यामध्ये ६४ कलमांचा समावेश आहे. यामध्ये जलप्रदूषणाशी निगडित काही संज्ञांचा समावेश केला आहे. उदा. प्रदूषण, ओढे, राज्य प्रदूषण मंडळे इ. ३ ते १२ कलमांमध्ये, केंद्र व राज्य प्रदूषण मंडळाची स्थापना, अधिकाऱ्यांचे अधिकार, कर्तव्य नियम यांची माहिती देण्यात आली आहे.

iii) वायू प्रदूषण कायदा :

हवा प्रदूषणासाठी उपाययोजना करण्याच्या दृष्टीने तसेच हवेची गुणवत्ता कायम ठेवण्यासाठी १९८१ मध्ये केंद्र सरकारने प्रदूषण नियंत्रण कायदा अस्तित्वात आणला आहे. या कायद्याअंतर्गत केंद्र आणि राज्य स्तरावर मंडळे निर्माण करून वायू प्रदूषण रोखण्यासाठी महत्वपूर्ण पाऊल उचलण्यात आले. एखाद्या कारखान्याने हवा प्रदूषकांच्या निर्धारित मानदंडांपेक्षा अधिक प्रमाणात हवा प्रदूषण वातावरणात सोडल्यास या गुन्ह्यासाठी दीड वर्षांपर्यंतचा कारावास होऊ शकतो.

iv) वन संवर्धन कायदा :

या कायद्याअंतर्गत वन संरक्षणासाठी, वनांसाठी आरक्षित जागा इतर कोणत्याही कारणासाठी न वापरण्याची बंधने घालण्यात आली आहेत. जंगलासाठी आरक्षित भूभागाचा गैरमार्गाने वापर करून कोणत्याही खाजगी व्यक्तीस हस्तांतरित न करण्याबाबत अथवा अशासकीय संस्थांना न देण्याबाबत तरतूद करण्यात आली आहे. जंगलातील झाडे तोडण्यास बंदी घालण्यात आली आहे. हा कायदा जम्मू व काश्मीर सोडून सर्व राज्ये व केंद्रशासित प्रदेशांना लागू करण्यात आला आहे.

६) नैतिक दृष्टीकोन :

कोणत्याही परिस्थितीत व्यवस्थेमध्ये जैविक आणि अजैविक घटकांचा समावेश असतो. हे दोन्ही घटक पृथ्वीवर असल्यामुळे पृथ्वीवर जीवसृष्टीचे अस्तित्व टिकून आहे. सजीव सृष्टीमधील घटकांचे परस्परांशी संबंध असतात. चराचर सृष्टीमध्ये एक नैसर्गिक संतुलन असते. परंतु मानवाच्या अवाजवी हस्तक्षेपामुळे पर्यावरणाचे संतुलन बिघडत चालले आहे. त्यामुळे विविध आपत्ती निर्माण होत आहेत. या मानव निर्मित समस्यांना तोंड देण्यासाठी पर्यावरण व्यवस्थापनाची गरज निर्माण झाली. सातत्याने वाढणारी मानवी लोकसंख्या व साधनसंपत्तीचा उपभोग या घटकांमध्ये योग्य प्रमाणन राहिल्यामुळे प्रदूषण, परिस्थितीकी असंतुलन, साधनसंपत्तीचा तुटवडा इत्यादी समस्या निर्माण झाल्या. पृथ्वीवरील साधनसंपत्तीचा एकीकडे वापर स्वैरपणे करून मानव त्याचा उपभोग घेऊ लागला. या समस्यांचे निराकरण करण्यासाठी व्यवस्थापन व नियोजन यांची गरज निर्माण झाली.

७) सामाजिक दृष्टीकोन :

विविध प्रदेशातील लोकांच्या राहणीमानातील भिन्नता आपण नेहमीच पाहतो. या सामाजिक रचनेत विविध प्रकारच्या मानवी क्रियांचाच समावेश असतो. विज्ञान तंत्रज्ञानाच्या प्रभावामुळे मानवी जीवनाचे राहणीमान बदलत चालले आहे. या बदलत्या राहणीमानाचा, मानवी क्रियांचा, पर्यावरणावर ताण वाढत आहे. याचा परिणाम मानव आणि पर्यावरण यांच्या संतुलनावर होत आहे. यासाठी आपल्या जीवन पद्धतीचा, वर्तणुकीचा अभ्यास प्रत्येकाने केला पाहिजे. या सामुदायिक जबाबदारीची जाणीव पर्यावरण शिक्षणाद्वारे दिली पाहिजे. तरच पर्यावरणाचे संरक्षण होईल.

पर्यावरण संरक्षणामध्ये समाज सुध्दा फार महत्वाची भूमिका आहे. भारतीय संस्कृतीमध्ये अनेक सज-उत्सव साजरे केले जातात. त्यातील बऱ्याच सणांचा संबंध प्राणी आणि वनस्पतींशी आहे. प्रत्येक ऋतूमध्ये येणारे सण वेगवेगळे आहेत. वटपौर्णिमा हा सण वनस्पतीशी संबंधीत आहे. वड, पिंपळ, तुळस, औदुंबर, आंबा, रुई या वनस्पतींना धार्मिक महत्त्व प्राप्त झाले आहे. हे सण, उत्सव, अंधश्रद्धा न मानता त्यामागची भावना लोकांना पटवून देणे आज गरजेचे आहे. जेणेकरून पर्यावरणाविषयी आदर आणि श्रद्धा मानवाच्या मनात टिकून राहील.

८) आर्थिक दृष्टीकोन :

प्रत्येक प्रदेशामध्ये सर्व प्रकारच्या साधनसंपत्तीचा साठा आढळत नाही. आर्थिक व्यवस्था ही जागतिक बाजारपेठेशी बांधली गेली आहे. आजच्या जागतिकीकरणामध्ये सर्व राष्ट्रे एकमेकांवर अवलंबून आहेत. मानवाच्या कुवतीनुसार, क्षमतेनुसार सभोवतालच्या पर्यावरणाशी मानवाने आर्थिक नाते जुळून येते. कोणत्याही प्रदेशाच्या विकासावर त्या प्रदेशाच्या भौगोलिक परिस्थितीचा, खनिज संपत्ती, हवामान, जमीन या नैसर्गिक घटकांचा प्रभाव पडत असतो. या घटकांच्या विविधतेमुळे आर्थिक विकासात भिन्नता आढळून येते.

शेती व्यवसायात विविध किटकनाशके, जंतूनाशकांचा वापर, रासायनिक खतांचा वापर जास्त घेण्यासाठी केला जातो. अशा खतांचा व जंतूनाशकांचा वापर अतिरिक्त होऊन वायुप्रदूषण व भूमिप्रदूषण होते. यामुळे जमिनीचा कस कमी होत जातो व शेवटी जमीन नापीक बनते. मोठ्या प्रमाणात होणाऱ्या जंगलतोडीमुळे जमिनीची धूप मोठ्या प्रमाणात होत आहे. या अशा अनेक कारणांमुळे शेती उत्पादनात घट होऊ लागली व हा व्यवसाय न परवडल्यामुळे ग्रामीण जनता नोजरी शोषण्यासाठी शहराकडे धाव घेऊ लागली. खेड्यातून शहराकडे होणाऱ्या स्थलांतरात वाढ होऊ लागली आहे व शहरातील लोकसंख्या प्रचंड वाढून अनेक शहरी समस्या निर्माण होऊ लागल्या आहेत. या कारजाने दोन्हीकडील पर्यावरणाचा समतोल बिघडला आहे. आर्थिक प्रगती करीत असताना आपण निसर्गातील समतोलपणाचा नीट विचार करणे आवश्यक आहे.

पर्यावरणाची काळजी घेतली नाही तर पृथ्वीवरील सजीवांचे अस्तित्व धोक्यात येईल. यासाठी पर्यावरणाचे योग्य नियोजन, पर्यावरण व्यवस्थापन व पर्यावरणाचा समतोल राखून आर्थिक विकास मानवाने केला पाहिजे, अन्यथा पर्यावरणाला व पर्यायाने मानवी जीवनाला हितावह ठरणार आहे.

९) पर्यावरणीय व्यवस्थापनाची तांत्रिक बाजू :

विज्ञान आणि तंत्रज्ञानामुळे औद्योगिकरण झाले. विविध उत्पादनांची निर्मिती झाली. त्यामुळे आर्थिक विकास झाला. सर्वच क्षेत्रात संगणकाचा वापर फार मोठ्या प्रमाणात होऊ लागला आहे. शेती व्यवसाय आधुनिक पद्धतीने होत आहे. विविध यंत्रसामुग्रीचा वापर शेतीत केल्यामुळे शेतकी उत्पादनात वाढ होते, तसेच उत्पादनाचा दर्जा वाढतो. जमिनीच्या आकारमानानुसार, तेथील हवामानानुसार, मातीच्या प्रकारानुसार पिकांना किती पाणी द्यावे, कोणती खते वापरावीत, याचे मोजमाप संगणकाद्वारे होऊ लागले आहे. तसेच दुधाचे फॅट्स तपासणे, त्यापासून अनेक दुग्धोपादक उत्पादने तयार करताना तंत्रज्ञानाचा फायदा होतो. अशाप्रकारे तंत्रज्ञानामुळे अचुकता येते, दर्जा सुधारतो. संगणकाने नकाशे तयार होऊ लागले. हवाई छायाचित्रण, दूरसंदेशवहन, दूरदर्शन, कृत्रीम उपग्रह इत्यादी माध्यमांच्याद्वारे माहिती उपलब्ध होऊ लागली.

पर्यावरण व्यवस्थापनेत तंत्रज्ञानाचा फार मोठा उपयोग होतो. विविध उपकरणांद्वारे प्रयोगशाळेत संशोधन करून समस्यांवर मात करण्यासाठी उपाययोजना करता येते. उदा. प्रदूषण मापन यंत्राद्वारे विभागातील प्रदूषणाचे मापन करून त्याचे प्रमाण लक्षात घेऊन त्यावर उपाययोजना करणे शक्य होते.

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शास्वत विकास : एक दृष्टीक्षेप

डॉ. डी. एम. कदम

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गोषवारा(Abtract) :

जगातील बहुसंख्य राष्ट्र अविकसीत, मागासलेले असल्यामुळे एक मोठा प्रश्न उभा राहिला. प्रत्येक देशासमोर अनेक प्रकारच्या अडचणी निर्माण होत असताना दिसून येतात. अनेक देशात गरीबी, उपासमारी, दारिद्र्य, आर्थिक-सामाजिक विषमता, दरडोई उत्पन्न कमी मागासलेले औद्योगिक क्षेत्र बेकारी अशा अनेक समस्या प्रत्येक देशासमोर होत्या. यावर मात करण्यासाठी कुठली तरी प्रभावी उपाय योजना करणे आवश्यक होते असे समोर आले. यातून सामुहिक शास्वतविकासाची कल्पना रुजली व खऱ्या अर्थाने शास्वतविकासाला सुरुवात झाली. जागतीक पातळीवरील मानवी विकासासंबंधीचा हा पहिलाच एकत्रित प्रयत्न होता. मानवी आयुष्याच्या सर्व अंगांचा विचार करून तसेच पृथ्वीवरील विविध प्राणीमात्र आणि निसर्ग यांच्या संरक्षणासाठीचे महत्त्व लक्षात घेऊन संकल्पनेला सुरुवात करण्यात आली.

प्रस्तावना (Introduction):

भटके जीवन जगत असताना एकेकाळी मानव स्थिर झाला. आपल्या विविध प्रयत्नातून गेल्या हजारो वर्षात त्याने जीवनाचे विविध भागात नेत्रदिपक प्रगती केली, तर काही भाग अजूनही त्याच्या आकलनाबाहेर राहिला आहे. परंतु हा सर्व विकास होत असताना काही देश जगाला आपल्या मुठीत ठेवण्याच्या विचाराच्या विस्तारवादी वृत्तीने जगातील बहुतेक देशांना पारतंत्र्यात लोटले तिथल्या नैसर्गिक साधनांची व अन्य संपत्तीची लुट केली गेली. या काळात अनेकवेळा जग विनाशाच्या उंबरठ्यावरही पोहोचले. संयुक्त राष्ट्रांची स्थापना झाल्यावर सर्वाना एकत्रित आणून जगाचा एकत्रित विचार करायचे प्रयत्न झाले. खऱ्या अर्थाने विकासासाठी, पर्यावरण संरक्षणासाठी आणि मानवी स्वातंत्र्य अबाधित राखण्यासाठी जगाने एकत्रित प्रयत्न करावयाची सुरुवात 20 व्या शतकाच्या उत्तरार्धात केली.

संशोधनाची उद्दिष्ट्ये (Objectives) :

1. शास्वत विकास संकल्पना जाणून घेणे.
2. शास्वत विकास संकल्पनेचा अभ्यास करणे.
3. शास्वत विकास संकल्पना कितपत यशस्वी झाली याचा आढावा घेणे.
4. शास्वत विकास संकल्पनाच्या उद्दिष्ट्यांच्या अंमलबजावणीचा आढावा घेणे.

गृहितके (Hypothesis):

1. शास्वत विकास संकल्पना सर्वच देशात प्रभावी पणे राबविण्यात आली नाही.
2. शास्वत विकास संकल्पनेची संपूर्ण उद्दिष्ट्ये साध्य झाली नाही.
3. शास्वत विकास संकल्पनेचा फायदा काही देशानाच झाला आहे.

संशोधन पद्धत :

शास्वत विकास संकल्पनेचा अभ्यास करण्यासाठी दुय्यम स्रोताच्या आधारे वर्णनात्मक व विश्लेषणात्मक पद्धतीचा वापर करून शोध निबंधाची मांडणी एकत्रित करण्यासाठी संदर्भात वेगवेगळ्या वेबसाईट, अलिकडील संशोधन पेपर प्रकाशित व उपलब्ध वर्तमानपत्रे यातून घेण्यात आली.

ग्राम विकासामध्ये शास्वत विकास हा शब्द सातत्याने वापरण्यात येतो. अगदी जागतिक पातळीपासून ते ग्रामपंचायतीच्या विकास आराखडा करण्यापर्यंत या शब्दांचा वापर करण्यात येतो. मात्र शास्वत विकास म्हणजे काय ? त्याचा नेमका अर्थ काय ? जगात, राष्ट्रीय पातळीवर, राज्याच्या संदर्भात तसेच जिल्हा तालुका व गावपातळीवर

शास्वत विकास करायचा म्हणजे काय करायचे ? शास्वत विकासाचे ध्येय लक्षात घेऊन ग्रामविकास आराखडा तयार करावा असे शासन निर्णयात आदेश दिले आहेत.

शास्वत विकासाचा साधा अर्थ आहे कायमस्वरूपी किंवा टीकाऊ विकास तात्पुरत्या लाभाचा केवळ भौतिक सुविधा वाढवून पैशाच्या लोभाच्या हव्यासापोटी केला जाणारा, नैसर्गिक संसाधनांना ओरबडणारा आणि त्याचे कायमचे नुकसान करणारा विकास हा शास्वत विकास नसतो.

थोडक्यात सध्याच्या पिढ्याच्या गरजा भागविताना पुढच्या पिढ्यांना त्यांच्या गरजा भागविण्यासाठी संसाधने (पाणी, जंगल, जमीन, पर्यावरण) शिल्लक राहतील अशा पद्धतीने विकास आराखडा तयार करणे म्हणजे शास्वत विकास होय.

संयुक्त राष्ट्र संघाने आपल्या सभासद राष्ट्रांसाठी शास्वत विकास ध्येय 2030 असा एक आराखडा सप्टेंबर 2015 मध्ये तयार केला. त्यामध्ये जगातल्या सर्वच देशांनी विकासाची एकूण 17 ध्येय 2030 पर्यंत पूर्ण करावयाची आहेत असे ठरविण्यात आले आहे.

गावचा शास्वत विकास साध्य करण्यासाठी दोन पातळ्यावर प्रयत्न करावे जागतील प्रथमतः गावच्या विकास कार्यासाठी भौतिक सुविधा निर्माण कराव्या लागतील. यामध्ये सार्वजनिक संस्था, इमारती, रस्ते, विज, पाणीपुरवठा आरोग्य सुविधा, कोणताही विकास हा माणुस घडवून आणतो म्हणुन मानवाचा विकास हाही महत्त्वाचा आहे. मानव विकास निर्देशकात सुधारणा होण्याच्या दृष्टीने आरोग्य, शिक्षण व उपजिविका या क्षेत्रातील उपक्रम व शास्वत विकासाची उद्दिष्टे साध्य करण्यासाठी दारिद्र्य निर्मुलन, लिंगभाव समानता, स्वच्छ पिण्याचे पाणी, स्वच्छता, शांतता न्याय, सर्वसमावेशक विकास, समानता, उद्योजगता, मुलभूत सुविधा, शिक्षण, प्रशिक्षण इ. बाबींवर विकास आराखड्यात भर द्यावा.

विषय स्पष्टीकरण :

१९९२ साली ब्राझिलमधील रिओ शहरात भरलेल्या पर्यावरणविषयक जागतिक परिषदेनंतर याला गती मिळाली. यानंतर अनेक विषयांसंबंधी जागतिक पातळीवर एकमत तयार करण्यात आले. यातील ज्यांची नावे ऐकली असतील, असे म्हणजे जागतिक व्यापार करार, हवामान बदलासंबंधी जागतिक संधी इत्यादी. यामुळे अनेक प्रश्नासंबंधी जगभरात एकत्रित प्रयत्न सुरू झाले, त्यांना गती मिळाली. जगातील मोठ्या परिसरात वन्य जीव, सागरी जीव यांना संरक्षण मिळाले, पृथ्वीभोवती जो ओझोन आहे, त्याला हानी पोहोचवणाऱ्या पदार्थांचा वापर अत्यंत कमी झाला, पर्यावरण रक्षणासाठी आर्थिक मदत पुरवणारी जागतिक व्यवस्था तयार झाली हे अशा प्रयत्नांचे महत्त्वाचे यश आहे.

पण यातील बरेच प्रयत्न विशिष्ट प्रश्नांबद्दल होते. उदा. देवमासे वाचवणे, ओझोन छिद्र किंवा स्थलांतरित पक्ष्यांचा अभ्यास इत्यादी. मानवी जीवनातील रोजच्या गोष्टींशी त्याचा संबंध मर्यादित स्वरूपातच यायचा. त्यामुळे अशा प्रयत्नांचे यश मर्यादितच राहिले. बरेचदा 'विकसित देशातील पोट भरलेल्या लोकांचे चोचले' अशाच दृष्टीकोनातून याकडे बघितले गेले. याचे एक महत्त्वाचे कारण म्हणजे विकसनशील आणि अविकसित देशातील महत्त्वाच्या प्रश्नांचा यात समावेश नव्हता. त्यामुळे लोकांच्या रोजच्या जीवनात फार फरक पडला नाही.

एकविसावे शतक सुरू होत असताना संयुक्त राष्ट्रांच्या माध्यमातून एक विशेष प्रयत्न सुरू झाला. जगातील सर्व लोकांचे जीवनमान सुधारावे, सगळ्या मानव जातीला किमान सोयी मिळाव्यात, आरोग्याचे प्रश्न कमी व्हावेत अशा उद्देशांनी सगळ्या देशांची मिळून सहस्रक विकास उद्दिष्टे ठरवण्यात आली.

सप्टेंबर २००० मधील संयुक्त राष्ट्रांच्या आमसभेत ही उद्दिष्टे सगळ्या जगाने स्वीकारली. सन २०१५ पर्यंत जगातील गरिबी व भूक संपवणे, सर्वांना प्राथमिक शिक्षण उपलब्ध करणे, महिला सक्षमीकरण, बालमृत्यू कमी करणे, माता आरोग्य सुधारणे, एड्स, मलेरिया, टी.बी. यासारख्या रोगांवर नियंत्रण आणणे, पर्यावरण रक्षण आणि हे करण्यासाठी जागतिक सहकार्य व्यवस्था उभारणे अशी उद्दिष्टे ठेवण्यात आली. ही उद्दिष्टे मोजली जावी यासाठी त्याचे लक्ष्य ठरवण्यात आले. प्रत्येक देशाने सुद्धा स्वतःचे लक्ष्य ठरवले.

जागतिक पातळीवर मानवी विकासासंबंधीचा हा पहिलाच एकत्रित प्रयत्न होता. यातून मूलभूत प्रश्नाविषयी जागतिक मत तयार व्हायला, ते सोडवण्यासाठी विकसनशील आणि अविकसित देशांना आर्थिक मदत मिळायला, प्रश्नांच्या सोडवणुकीसाठी गरजेची माहिती गोळा करण्याच्या व्यवस्था तयार व्हायला मदत झाली. जागतिक पातळीवरून प्रश्न सोडवण्यासाठी दबाव तयार झाला. यातून प्रत्येक देशसुद्धा या प्रश्नांकडे नव्याने बघू लागला. नवनवीन उपाय करू लागला. याचाच परिणाम म्हणून

१९९०च्या पातळीपेक्षा जागतिक गरिबी निम्म्याने कमी झाली आहे.कुपोषित मुलांचे प्रमाण १२%पर्यंत कमी झाले.प्राथमिक शिक्षण सोई वाढल्या आहेत.शेतीबाह्य कामामध्ये महिलांचा सहभाग वाढला आहे.विविध देशांतील संसदेत महिलांचे प्रतिनिधित्व वाढले आहे. 5 वर्षांखालील मुलांचा मृत्युदर ५०%नी कमी झाला आहे.मलेरियासारख्या रोगाने होणारे लाखो मृत्यू रोखण्यात यश आले आहे.नव्याने एड्स होण्याचे प्रमाण कमी झाले आहे.ओझोन वायू कमी करणाऱ्या पदार्थांचा वापर पूर्णपणे थांबल्यामुळे भविष्यात ओझोन छिद्र बंद होणार आहे.

जगभर या कामातील अनुभव, त्यातून मिळालेली दिशा, तयार झालेल्या व्यवस्था याचा अभ्यास सुरू झाला. यातून कमी पडलेल्या गोष्टी लक्षात आल्या. त्याचबरोबर विकासाची उद्दिष्टे साध्य करत असताना शिक्षणातील गुणवत्तेचे महत्त्व, शेतीची शाश्वतता, आर्थिक विकास होताना लोकांना काम मिळणे व कामामध्ये सन्मान असणे, मानवी उपभोगाच्या मर्यादा, विकासाच्या कामात लोकांचा सक्रिय सहभाग असणे याचाही विचार केला पाहिजे, असे लक्षात आले. पृथ्वीवरील इतर प्राणिमात्रांचे रक्षण करणे, त्यासाठी गरजेच्या परिसंस्था वाचवणे याची निकडसुद्धा अधोरेखित झाली. विकासाची रूपरेखा आखताना, त्यासाठी गरजेची साधने, तंत्रज्ञान वापरताना त्याच्या भविष्यात होणाऱ्या परिणामांचा विचार करणे आणि ते विचारात घेऊन आपले कार्यक्रम, धोरणे ठरवणे गरजेचे आहे, हेसुद्धा लक्षात आले.

२०१०पासूनच सहस्रक उद्दिष्टे पूर्ण करण्यासाठीच्या अडचणींची चर्चा व्हायला लागली होती. २०१२ सालच्या रिओ येथील संयुक्त राष्ट्र शाश्वत विकास परिषदेत '२०१५नंतर काय?' याची चर्चा सुरू होणार होती. कोलंबिया देशाने शाश्वत उद्दिष्टांची कल्पना २०११पासून मांडायला सुरुवात केली. हळूहळू या कल्पनेला अनेक देशांनी पाठिंबा दिला. भारताने यासंबंधी केलेली मदत महत्त्वाची ठरली. या प्रयत्नातून २०१२ सालच्या 'रिओ +२०' या परिषदेत शाश्वत विकास उद्दिष्टांची संकल्पना २०१५नंतरच्या आपल्या एकत्रित वाटचालीची मार्गदर्शक असेल, यावर सर्व देशांनी शिक्कामोर्तब केले. यानंतर संयुक्त राष्ट्रांनी राजकीय व तांत्रिक अशा दोन्ही पातळ्यांवर या उद्दिष्टांची चर्चा सुरू केली. सर्व देशांतील सरकारे, स्वयंसेवी संस्था, जागतिक पातळीवरील विविध संस्था, संघटना, उद्योग विश्व आदी विविध गटांची मते ऐकून घेण्यात आली. या प्रयत्नांतून २०३०पर्यंत काय साध्य केले पाहिजे, यासाठी कोणती तत्त्वे स्वीकारली पाहिजेत असे सांगणारा एक कार्यक्रम तयार झाला.

शास्वत विकासाचे उद्दिष्टे :

१. सर्व प्रकारच्या गरिबीचे निर्मूलन करणे.
२. उपासमारी नष्ट करूनअन्न सुरक्षा व सुधारित पोषणआहार उपलब्ध करून देणे आणि शास्वतशेतीला प्राधान्य देणे.
३. आरोग्यसुदृढ बनवणे, महिला व बालमृत्यूचे प्रमाण कमी करणे
४. दर्जेदार, सर्वसमावेशक व गुणवत्तापूर्ण शिक्षण उपलब्ध करणे.
५. लैंगिक समानता, स्त्री-पुरुष समानता व महिला आणि मुलींचे सक्षमीकरण साधणे.
६. स्वच्छ पिण्याचे पाणी वआरोग्यदायक, स्वच्छतेच्या संसाधनाचीनिर्मिती करणे.
७. सर्वानापरवडणारी विश्वासार्ह, शास्वतआणि आधुनिक ऊर्जा साधने उपलब्ध करून देणे.
८. आर्थिक वाढ, उत्पादक रोजगार उपलब्ध करणे.
- ९.पायाभूत सोयीसुविधांची निर्मिती करणे,उद्योगांनाशास्वतऔद्योगिकीकरण करणे.
१०. विविध देशांमधील विषमता दूर करणे.
११. शहरे आणि मानवी वस्त्यानिर्माण करून सुरक्षित इमारती व पक्की घरे बांधणे.

१२. उत्पादन आणि उपभोगाच्या पद्धती शास्वतरूपात आणणे.
१३. हवामान बदल आणि त्याच्या दुष्परिणामांना रोखण्यासाठी त्वरित उपाययोजना करणे.
१४. महासागर व समूहांचे संवर्धन करणे तसेच त्यांच्याशी संबंधित संसाधनांचा शाश्वतपणे वापर करणे. पृथ्वीवरील पर्यावरणाचे संरक्षण करणे, वाळवंट विकसीत करणे, जैवीक विविधतेचे संरक्षण करणे.
१५. परिस्थितिकीय व्यवस्थांचा (Ecosystem) शाश्वतपद्धतीने वापर करणे. वनाचे शाश्वतव्यवस्थापन, वाळवंटीकरणाशी मुकाबला करणे, जमिनीचा धूप थांबविण्याची प्रक्रिया आणि जैवविविधतेची हानी रोखणे.
१६. शांततापूर्ण आणि सर्वसमावेशक समाजव्यवस्थांना प्रोत्साहन देणे. त्यांची शाश्वतविकासाच्या दिशेने वाटचाल निश्चित करणे, सर्वांना न्याय मिळवून देणे, विविध पातळ्यांवर परिणामकारक, उत्तरदायी आणि सर्वसमावेशक संस्था उभ्या करणे.
१७. चिरस्थायी विकासासाठी वैश्विक भागीदारी निर्माण व्हावी यासाठी अंमलबजावणीची साधने विकसित करणे.

विकास करताना पर्यावरणाचे रक्षण करणे गरजेचे असते. अर्थातच विकासाची व्याख्या पुरेशी व्यापक असेल, तर दोन्हीचा समतोल राखणे सोपे जाते. गेल्या पाच वर्षांतील विकास पाहता पुण्यातील टेकडी फोडून रस्ता बनविण्याचा प्रस्ताव, मुंबईतील मेट्रो कारशेडसाठी आरे वसाहतीतील पेटलेला वाद, खारफुटीच्या जंगलाची हानी, मुंबईचा समुद्रकिनारी रस्ता (कोस्टल रोड), तर नाशिकमधील विकास आराखड्यात ओतलेला ध्वनिवाहक रंग अर्थात बांधकामाच्या नावाखाली शेते कमी करून वाढविलेले रहिवासी क्षेत्र हे सर्व प्रकल्प विकास नाहीत तर भकास भविष्याची सुरुवात आहेत. निसर्गाची हानी करून कधीही विकास साध्य होत नाही. हा सर्व आटापिटा रस्ते अथवा बांधकामे यासाठी चालू आहे. या सर्व शहरांच्या आराखड्यात मुळातच हरित पट्टे अथवा हरित क्षेत्रे कमी असताना, अस्तित्वातील हरित क्षेत्र संवर्धन करणे आवश्यक आहे. ही महानगरपालिकांची जबाबदारी आहे आणि त्याचे उल्लंघन होत असल्यास नगरविकास खात्याने शहरांची योग्य ती कानउघडणी करणे आवश्यक होते. याशिवाय नव्याने निर्माण झालेल्या पुणे आणि नाशिक विकास प्राधिकरणासमोर रस्ते आणि बांधकामे यांचा पुरवठा करतानाच नैसर्गिक संपत्तीचे संवर्धन करण्याची मोठी जबाबदारी आहे. मग प्रश्न असा येतो की, हे भव्य रस्ते प्रकल्प झाले नाहीत तर वाहतुकीचे काय? याला उत्तरही शाश्वतविकासाच्या मुद्द्यांमधे दिले आहे- ते म्हणजे 'सक्षम सार्वजनिक वाहतूक'! मोठ्या शहरातील वाढती लोकसंख्या आणि वाहतूक यांची सांगड घालण्यासाठी पुणे, नागपूर आणि मुंबई येथे मेट्रोची कामे गेल्या पाच वर्षांत वेगाने होत असल्याचे चित्र आहे. परंतु या तिन्ही शहरांत मेट्रो करताना, त्याच जोडीने बस सेवा सक्षम करण्याचे शहराचे प्रयत्न दुबळे पडले आहेत. पुण्यात एकीकडे पीएमपीएमएलची आणि त्याच जोडीने बीआरटी मार्गाची महानगरपालिकेकडून हेळसांड होत असल्याने एकंदर सार्वजनिक वाहतूक सक्षम होणार की नाही यावर प्रश्नचिन्ह आहे. अर्थातच विकास आराखड्यात बीआरटी मार्ग अधोरेखित केले आहेत; परंतु ते सक्षम केले नाहीत तर मेट्रो होऊन देखील एकंदर वाहतुकीचे चित्र बदलणार नाही. अफाट रस्ता रुंदी आणि बेसुमार उड्डणपूल यांचे उदाहरण म्हणजे पिंपरी चिंचवड! रुंद रस्ते आणि उड्डणपूल म्हणजे विकास अशी व्याख्या या शहराने केली असली तरीही ८-१० लेनचे रस्ते असलेल्या गुरुग्रामची दररोजची वाहतूक कोंडी पाहता, पिंपरी चिंचवडमधील रस्तेदेखील लवकरच वाहनांनी व्यापले जातील यात शंका नाही. येथील मोटारगाड्यांसाठी रुंद पण पदपथ नसलेले रस्ते म्हणजे विकास नसून अशाश्वततेचे उदाहरण आहे.

निष्कर्ष (Conclusion) :

शाश्वत विकासाची संकल्पना राबविल्यामुळे जवळ-जवळ सर्वच देशांना त्याचा भरीव फायदा झाला. देशातील निर्माण झालेली आर्थिक सामाजिक परिस्थिती सुधारण्यास मदत झाली. प्रत्येक देशातील शेतीविषयक सुधारणा होऊन उत्पन्न वाढले. पर्यावरणात्मक समस्या सुटण्यास मदत झाली. प्रत्येक देशाचा औद्योगिक विकास होण्यासाठी चालना मिळाली. काही देशाचे प्रस्थ जरी वाढले असेल तरी त्यांचा तेवढा परिणाम दिसून आला नाही. कोणतेही कार्य करीत असताना काही त्रुटी राहून जातात असे शाश्वत विकासाचे दिसून आले.

शिफारशी (Recommendations) :

सर्वच देशाना सोबत घेऊन सर्वांगीन विकास साध्य करण्याचा प्रयत्न करावा. कोणत्याही देशाने आपले वर्चस्व निर्माण करण्याचे स्वप्न पाहू नये. प्रत्येक देशाने आपापल्या देशात पायाभूत सुविधा निर्माण करण्याचा प्रयत्न करावा. ग्रामीण भागामध्ये जास्तीत जास्त सुविधा उपलब्ध करून देण्याचा प्रयत्न करावा. मागासलेल्या समाजासाठी जास्तीत जास्त योजना राबवाव्यात.

विश्वातील अखंड मानवजातीचे कल्याण हे शास्वत विकासाच्या संकल्पनेत दडलेले आहे. शास्वत विकासाचे गमक ज्या देशांना कळले त्यांनी त्या दिशेने हळुहळु का होईना पावल टाकण्यास सुरुवात केली. म्हणून शास्वत विकासाकडे दुर्लक्ष करून चालत नाही.

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सारांशः

आर्थिक विकास ही एक निरंतर प्रक्रिया आहे. प्रत्येक देशाला उच्चतम विकासाच्या दृष्टीने विविध विकासाच्या टप्प्यातून प्रसार व्हावे लागते.भारताचा आर्थिक विकास ही सिंधू संस्कृतीची सुरुवात मानली जाते. लोकांच्या आर्थिक स्थिती आणि भविष्यातील जीवनमान सुधारण्याच्या उद्देशाने नैसर्गिक संसाधने जपून केले जाणारे सर्व प्रयत्न हे आर्थिक शाश्वत विकासाच्या संकल्पनेत मोडतात. सध्याच्या काळातील सर्वात महत्वाची समस्या म्हणजे 'आर्थिक विकास' व संसाधनांचा प्रसार ही होय. पर्यावरण आणि आर्थिक विकास एकमेकांशी संबंधित आहेत, दुसरीकडे एखाद्या देशाच्या आर्थिक प्रगतीचा देखील पर्यावरणावर परिणाम होतो. त्याचप्रमाणे पर्यावरणीय संसाधनांचा न्हासदेखील आर्थिक विकासावर परिणाम करते. अशी अनेक पर्यावरणीय धोरणे आहेत ज्याचा अवलंब करून आपण आपले पर्यावरण देखील वाचवू शकतो आणि आपली आर्थिक प्रगती देखील सुनिश्चित करू शकतो. प्रत्येक देशाच्या शाश्वत आर्थिक विकासाच्या पार्श्वभूमीवर असे काही पर्यावरणीय घटक असतात ज्यावर त्या देशाचा शाश्वत आर्थिक विकास अवलंबून असतो. राजकीय स्वातंत्र्याचा आर्थिक स्वातंत्र्याशिवाय उपयोग होत नाही. विकासाच्या या महत्त्वामुळे अर्थव्यवस्थेमध्ये विकासाचे अर्थशास्त्र नावाचा वेगळा विषय उदयास आला.प्रस्तुत शोधपत्रात भारतातील शाश्वत आर्थिक विकास व विकासात होणारे बदल यावर प्रकाश टाकण्यात आलेला आहे.

सूचक शब्द – शाश्वत विकास, आर्थिक विकास, नियोजन, पर्यावरण

उद्देश्यः

- भारतीय शाश्वत आर्थिक विकासाची पार्श्वभूमी अभ्यासणे.
- भारतीय शाश्वत आर्थिक विकासात होणारे बदल अभ्यासणे.
- भारतीय शाश्वत आर्थिक विकासाच्या दृष्टीने झालेले प्रयत्न अभ्यासणे.
- भारतीय शाश्वत आर्थिक विकासाची सद्यस्थिती अभ्यासणे.

गृहीतके:

- पर्यावरणीय संसाधनांचा न्हासदेखील आर्थिक विकासावर परिणाम करते.
- भारतीय शाश्वत आर्थिक विकासाच्या दृष्टीने प्रयत्न सरकार करीत आहेत.
- एखाद्या देशाच्या आर्थिक प्रगतीचा देखील पर्यावरणावर परिणाम होतो.
- भारत प्राचीन व मध्ययुगीन जगातील सर्वात मोठी अर्थव्यवस्था म्हणून गणले जाते.

प्रस्तावना:

सिंधू संस्कृतीची अर्थव्यवस्था मुख्यतः व्यापारावर आधारित होती. ई.पू. 600 च्या सुमारास चिन्हांकित नाणी बनविण्यास सुरुवात केली गेली. या वेळेस व्यावसायिक क्रिया आणि शहरी विकास म्हणून चिन्हांकित केले आहे. मौर्य काळाने भारतीय पूर्वखंड 300 ईसापूर्व पासून एकीकृत केले. राजकीय एकात्मता आणि लष्करी सुरक्षेमुळे शेतीची उत्पादकता वाढली, व्यापार आणि वाणिज्य यामुळे सामान्य आर्थिक प्रणालीला चालना मिळाली. त्यानंतरच्या 1500 वर्षांत भारतातील राष्ट्रकूट, होईसल आणि पश्चिम गंगा यासारख्या संस्कृतींचा विकास झाला. या काळात भारत हे प्राचीन व 17 व्या शतकापर्यंत मध्ययुगीन जगातील सर्वात मोठी अर्थव्यवस्था म्हणून गणले जाते. मराठा साम्राज्य वाटा जगातील एकूण संपत्तीच्या एक तृतीयांश ते एक चतुर्थांश होता, युरोपियन वसाहतवादाच्या काळात ते झपाट्याने कमी झाले. ऐतिहासिकदृष्ट्या, भारत हा एक अतिशय विकसित देश होता व जगातील इतर भागांशी मजबूत व्यापार संबंध होते. वसाहती युगात ब्रिटीशांनी स्वस्त दरात भारताकडून कच्चा माल विकत घेतला आणि तयार

वस्तू भारतीय बाजारपेठेतल्या सामान्य किंमतीपेक्षा जास्त किंमतीत विकल्या गेल्या. या काळात, जगातील उत्पन्नातील भारताचा वाटा 1700 एडी मधील 22.3 टक्के वरून घसरून 1952 मध्ये 3.8 टक्के झाला. भारताच्या स्वातंत्र्यानंतर 1947 मध्ये अर्थव्यवस्थेची पुनर्बांधणी प्रक्रिया सुरू झाली. या उद्देशाने, पंचवार्षिक योजनांच्या माध्यमातून विविध धोरणे आणि योजना तयार केल्या आणि अंमलात आणल्या गेल्या. 1991 मध्ये भारत सरकारने लक्षणीय आर्थिक सुधारणांची सुरुवात केली, ज्यामध्ये परदेशी व्यापार उदारीकरण, आर्थिक उदारीकरण, कर सुधारणे आणि विदेशी गुंतवणूकीच्या विनंत्यांचा समावेश या अर्थाने एक प्रमुख प्रयत्न होता. या उपाययोजनांमुळे भारतीय अर्थव्यवस्थेला गती मिळाली. त्यानंतर भारतीय अर्थव्यवस्था पुढे गेली आहे. 1951-91 च्या कालावधीत सकल देशांतर्गत उत्पादनाचा सरासरी विकास दर 4.34 वाढून तो 1991-2001 मध्ये 6.2 टक्के झाला. 2015 मध्ये भारतीय अर्थव्यवस्था अमेरिकेच्या दोन अब्ज डॉलर्सच्या पुढे गेली. दीर्घकालीन वसाहती नियमांमुळे भारताच्या स्वातंत्र्यानंतर, अर्थव्यवस्थेचा वारसा प्राप्त झाला ज्यामध्ये मर्यादित औद्योगिकीकरण, कमी शेती उत्पादन, दरडोई उत्पन्न कमी आणि आर्थिक वाढ कमी होण्यासारखी नकारात्मक वैशिष्ट्ये होती. निरक्षरता, विरोधाभास आणि सामाजिक विषमता ही इतर प्रमुख घटक होती.

शाश्वत विकास:

शाश्वत विकास, पर्यावरण आणि विकास या जागतिक आयोगाच्या अहवालानुसार टिकाऊ विकास हा एक विकास आहे ज्यात सध्याच्या पिढीच्या गरजा भागविल्या जातात. जे भविष्यातील पिढ्यांच्या गरजा भागविण्याच्या क्षमतेवर तडजोड न करता विकास करतात म्हणूनच विकास टिकाऊ होऊ शकत नाही. पर्यावरणीय संरक्षणाशिवाय, म्हणजेच, भविष्यातील पिढ्यांच्या गरजा लक्षात ठेवून, सध्याच्या काळात नैसर्गिक स्रोतांचा कसा उपयोग करावा याचा विचार करत नाहीत. जेणेकरून आर्थिक विकास आणि पर्यावरण संरक्षण यांच्यात इच्छित संतुलन स्थापित केले जाऊ शकेल.

टिकावपणा हा पर्यावरणाचा संदर्भ देते की विविधता टिकवून ठेवताना जैविक प्रणाली दीर्घ कालावधीसाठी उत्पादन कसे चालू ठेवू शकते. दीर्घकालीन कार्यशील आणि जैविक दृष्ट्या निरोगी जमीन आणि जंगले ही उदाहरणे आहेत. शाश्वतपणाचा अर्थ असा आहे की मर्यादित नैसर्गिक संसाधने अशा प्रकारे वापरली पाहिजेत की ती भविष्यात आपल्यासाठी थकणार नाहीत. संसाधनाचा टिकाव टिकवून ठेवतांना मानवी विकासाच्या संकल्पनेला टिकाऊ विकास म्हणतात आणि त्या अभ्यासाला टिकाव विज्ञान म्हणतात. शाश्वत ही संकल्पना मानवी-पर्यावरणीय संबंधांच्या एका साध्या तत्त्वावर आधारित आहे की आपल्या अस्तित्वासाठी आणि मानवी कल्याणासाठी जे काही आवश्यक आहे ते आपल्याला आपल्या नैसर्गिक वातावरणापासून काही ना काही प्रमाणात प्राप्त होते. तर संसाधने टिकवून ठेवणे हे आहे की मनुष्य आणि त्याचे वातावरण निरोगी आणि सुसंगत पद्धतीने गुंफलेले आहे आणि ही उत्पादक परिस्थिती आणि विविधता दीर्घ काळासाठी टिकवून ठेवली पाहिजे. या अर्थाने टिकाव ही संसाधनांच्या वापराचे एक मार्गदर्शक तत्त्व आहे जेणेकरून आपल्या पृथ्वी आणि नैसर्गिक वातावरणाची विविधता, नैसर्गिक उत्पादकता क्षमता टिकेल आणि मानवी जीवन दीर्घकाळ टिकेल. टिकाव आणि टिकाऊ विकासासारख्या पदांचा उपयोग 80 च्या दशकापासून प्रचलित झाला तेव्हापासून जेव्हा 20 मार्च 1987 रोजी संयुक्त राष्ट्र संघाचा ब्रँडलँड रिपोर्ट प्रसिद्ध झाला आणि त्यात शाश्वत विकासाचा उल्लेख करण्यात आला. शाश्वत विकास यासारख्या पदांची वाढती लोकप्रियता असूनही, पर्यावरणीय च्यास, उपभोग प्रवृत्ती आणि आर्थिक समृद्धीची शर्यत आणि स्पर्धा विचारात घेतल्यास, मानवी सभ्यता टिकून राहण्यास सक्षम होईल की नाही याबद्दल अद्याप प्रश्नचिन्हे आहेत.

शाश्वत आर्थिक विकासाची उद्दिष्ट्ये:

स्वातंत्र्यानंतर राजकीय नेतृत्वाने परिस्थिती आणि आकांक्षा लक्षात घेऊन विकासाची चार उद्दिष्टे जाहीर केली, ती अशी-

- आयात आणि परदेशी मदतीवरील भारताचे अवलंबित्व कमी करणे.
- भांडवल निर्मिती आणि संसाधनांचा प्रसार व टिकाव.
- सामाजिक आणि प्रादेशिक असमानता दूर करणे.
- सर्वसामान्यांसाठी पुरेसा आणि किमान जीवनमान साध्य करणे.

वरील उद्दिष्टे साध्य करण्यासाठी, राजकीय नेतृत्वाकडे भांडवलशाही आणि साम्यवादी आधारित शासन प्रणाली दोन विचारांचा अवलंब करण्याचे पर्याय होते, परंतु भांडवलशाही व्यवस्थेतील विषमता आणि कम्युनिस्ट राजवटीच्या लोकशाहीने

भारतीय नेतृत्वाला तिसरा मार्ग निवडण्यास उद्युक्त केले. जवाहरलाल नेहरूंच्या प्रभावाखाली लोकशाही व्यवस्थेत आर्थिक नियोजन राबविण्याचा नवीन प्रयोग करण्याचा निर्णय घेण्यात आला, ज्यामध्ये शांततापूर्ण मार्गाने विकास आणि समतेची उद्दीष्टे साध्य करायची होती.

प्रारंभिक नियोजन:

जवाहरलाल नेहरू यांच्या अध्यक्षतेखाली काँग्रेसने 1938 मध्ये राष्ट्रीय नियोजन समिती स्थापन केली. समितीने तयार केलेल्या अनेक अहवालांमध्ये मूलभूत उद्योगांच्या सार्वजनिक मालकी, मोठ्या आणि लघु उद्योगांमधील समन्वय, भरपाई देऊन जमींदारी प्रणालीचे उच्चाटन, कृषी क्षेत्राचा सहकार शेतीचा समावेश आणि विस्तार इत्यादी संदर्भात शिफारसी करण्यात आल्या. 1944 मध्ये भारताच्या आठ बड्या उद्योगपतींनी बॉम्बे प्लॅन नावाच्या आर्थिक विकासाचे कागदपत्र तयार केले.

नियोजनाचे विविध सामाजिक-आर्थिक उद्दीष्टे आहेत, ज्याचे वर्णन विविध पंचवार्षिक योजना स्वरूपात केले गेले आहे. नियोजन करण्याचे उद्दिष्टे अशी

- ❖ मूलभूत औद्योगिक पायाभूत सुविधा बांधकाम
- ❖ कृषी उत्पादनात वाढ आणि सुधारणा
- ❖ राष्ट्रीय नैसर्गिक संपत्तीची वाढ आणि वितरण
- ❖ स्वावलंबी आणि उत्स्फूर्त राष्ट्रीय अर्थव्यवस्थेची स्थापना
- ❖ गरीबी आणि बेरोजगारी निर्मूलन
- ❖ सामाजिक न्यायाला प्रोत्साहन
- ❖ रोग आणि निरक्षरतेचा अंत
- ❖ व्यापार आणि वाणिज्य विस्तार
- ❖ आयात प्रतिस्थापना आणि निर्यात-देणार्या उत्पादनासाठी उद्योजकांना आर्थिक प्रोत्साहन
- ❖ भारतीय अर्थव्यवस्थेचे आधुनिक, प्रभावी आणि स्पर्धात्मक स्वरूपात रूपांतर.

स्वातंत्र्यानंतर अर्थव्यवस्थेत घडलेले बदल:

वसाहती काळापासून भारताची अर्थव्यवस्था 2.7 लाख कोटी रुपयांवरून 57 लाख कोटी रुपयांवर गेली. देशातील परकीय चलन साठादेखील 300 अब्ज डॉलर्सवर पोचला आहे, ज्यामुळे अर्थव्यवस्थेला बाह्य शक्तीशी लढायला मदत झाली. रस्ते, बंदरे बनवून अन्नधान्याच्या उत्पादनात स्वयंपूर्ण झाल्याने, देशाने अर्थव्यवस्थेला विकासाच्या उच्च मार्गावर आणण्याच्या दिशेने प्रगती केली आहे. अशाच प्रकारे भारत आता डाव्यांचे सर्वात मोठे उत्पादक आणि ग्राहक राष्ट्र बनले आहे. हे साखर उत्पादनात दुसऱ्या क्रमांकाचे आणि कापसाचे तिसरे सर्वात मोठे उत्पादक आहे.

1991 पासून शाश्वत आर्थिक सुधारणेच्या दिशेने घेतल्या गेलेली काही प्रमुख पावले खालीलप्रमाणे आहेत.

- औद्योगिक परवाना प्रथा रद्द करणे.
- आयात शुल्क कमी करा आणि टप्प्याटप्प्याने प्रमाण व पद्धती काढणे.
- बाजारपेठेद्वारे विनिमय दर निश्चित करणे.
- आर्थिक क्षेत्रात सुधारणा
- भांडवल बाजार उदारीकरण,
- खासगी क्षेत्रातील सार्वजनिक क्षेत्रात प्रवेश करणे,
- खाजगीकरण,

- अबकारी शुल्कात कपात,
- आयकर आणि महानगरपालिकेच्या करात कपात,
- सेवा कर लागू करणे,
- नागरी सुधारणा,
- शासकीय कर्मचाऱ्यांची संख्या कमी करणे
- पेन्शन क्षेत्रात सुधारणा,
- मूल्यवर्धित कर लागू करणे,
- अनुदानाची कपात,
- वित्तीय जबाबदारी व अंदाजपत्रक व्यवस्थापन कायदा २००३ पारित करणे.

पर्यावरण आणि शाश्वत विकास:

शाश्वत विकासाची संकल्पना 1987 मध्ये स्थापन झालेल्या ब्रिटलंड कमिशनमधून उद्भवली आहे. या वाक्यांशानुसार, शाश्वत विकास हा एक असा विकास आहे ज्या अंतर्गत सध्याची पिढी आपल्या गरजा पूर्ण करते, परंतु त्याच वेळी संसाधनांची पुरेशी सुरक्षा सुनिश्चित करते. जेणेकरून येण्याऱ्या पिढ्यांच्या मागण्या देखील आगामी काळात पूर्ण होऊ शकतील. संयुक्त राष्ट्र शाश्वत विकास शिखर परिषदेत (यू.एन. शाश्वत विकास शिखर परिषद) जगातील नेत्यांनी शाश्वत विकासासाठी काही उद्दिष्टे निश्चित केली आहेत, ती खालीलप्रमाणे आहेत-

- जगभरातून दारिद्र्य निर्मूलन केले पाहिजे.
- सर्वांना पूर्ण रोजगार व चांगली कामे देऊन शाश्वत आर्थिक विकासास चालना देणे.
- महिलांच्या समानता व सबलीकरणाचे उद्दिष्ट साध्य करणे.
- पाण्याचे स्रोत टिकवून ठेवणे आणि सर्वांसाठी स्वच्छताविषयक उपाय सुनिश्चित करणे.
- कोणत्याही वयाचा भेदभाव न करता सर्वांसाठी निरोगी जीवन.
- सर्वांसाठी आजीवन शिकण्याच्या संधींना प्रोत्साहन देणे.
- शाश्वत शेती प्रणालींचा प्रचार करणे आणि सर्वांसाठी पौष्टिक अन्नाची उपलब्धता सुनिश्चित करणे.
- देशांमधील असमानता कमी करणे.
- सर्वांसाठी सुरक्षित आणि टिकाऊ मानवी गृहनिर्माण प्रदान करणे.
- जलसंपत्तीचे संरक्षण आणि त्यांचे शाश्वत विकास.
- टिकाऊ विकासासाठी जागतिक भागीदारी पुनर्संचयित करणे.
- योग्य प्रकारे उत्पादनाचे उत्पादन आणि सेवन करणे.
- सर्वांना शाश्वत ऊर्जा प्रदान करणे.
- नवीनतेला चालना देणे आणि शाश्वत औद्योगिकीकरण करणे.
- हवामान बदलांचा सामना करण्यासाठी उपाययोजनांचा अवलंब करणे.
- स्थलीय आणि वन परिसंस्था पुनर्संचयित केली जावी, ज्यामुळे मातीचे न्हास थांबू शकेल.
- प्रभावी आणि जबाबदार संस्था निर्माण करणे, जेणेकरून प्रत्येकाला प्रत्येक स्तरावर न्याय मिळेल.

समारोप:

शाश्वत विकासाची संकल्पना संसाधनांच्या वापराशी संबंधित आहे. जर नैसर्गिक संसाधने वेगाने वापरणे चालू ठेवल्या तर हे आपल्या पर्यावरणाची पातळी पूर्णपणे बिघडवेल आणि जर आता त्याची दखल घेतली गेली नाही तर या प्रदूषणामुळे आपली नैसर्गिक संसाधने पुरेशा प्रमाणात वाचणार नाहीत, यामुळे येण्याच्या काळात हे आपल्या विनाशाचे कारण बनतील. म्हणूनच जेव्हा आपण आपले वातावरण लक्षात ठेवून शाश्वत विकासाचे उद्दीष्ट साध्य करण्याचा प्रयत्न करतो ते फार महत्वाचे आहे. आर्थिक विकासाचा आनंद घेण्यासाठी आपण पर्यावरण संसाधनांच्या संवर्धनाला विशेष महत्त्व देणे फार महत्वाचे आहे. पर्यावरण आणि आर्थिक विकासाचा समतोल साधणे खूप महत्वाचे आहे, आपण केवळ आर्थिक या मार्गाने मिळवलेल्या प्रगतीचा आनंद घेऊ शकणार नाही तर आपल्या भविष्यातील पिढ्यांनाही त्याचा फायदा होईल असे शाश्वत विकास धोरण अवलंबिले पाहिजे .

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निमशिरगांव गावातील महिला शेतमजुरांचा आर्थिक व सामाजिक एक चिकित्सक अभ्यास

प्रा.डॉ.प्रभाकर तानाजी माने

सहाय्यक प्राध्यापक, अर्थशास्त्र विभाग प्रमुख जयसिंगपूर कॉलेज, जयसिंगपूर ता. शिरोळ जि. कोल्हापूर

१. प्रस्तावना :

शिरोळ तालुक्यातील डोंगराच्या कुशित वसलेले गांव म्हणजे निमशिरगांव असून ते अगदी ग्रामीण भाग आहे. या गावातील लोक शेती या व्यवसायात मोठ्या प्रमाणात गुंतलेली आहेत. निमशिरगांव गावाच्या नावाचे वैशिष्ट्य म्हणजे असे की फार वर्षापूर्वी दोन भागात गांव होते. ते दोन भाग म्हणजे खालसा आणि धुमाला म्हणजे गावात आधीपासून रहिवासी असणारे लोक आणि खालसा म्हणजे बाहेरून आलेले लोक. या दोन भागांमुळे या गावाचे नांव निमशिरगांव असे झाले.

निमशिरगांवमध्ये प्रामुख्याने शेती व शेतमजुरी मोठ्या प्रमाणात चालते. आर्थिकदृष्ट्या सक्षम नसल्यामुळे महिला वर्ग सुध्दा शेतमजुरी करण्याकडे वळलेल्या दिसून येतात. अशा या शेतमजुरी करणाऱ्या स्त्रियांच्या जीवनातील व त्यांना येणाऱ्या समस्या जाणून घेण्याच्या तसेच किती प्रमाणात स्त्रिया सक्षम आहेत हे पाहणी करण्याच्या दृष्टीने आम्ही शेतमजूर स्त्रियांचा संशोधनात्मक अभ्यास केला आहे.

सन २०११च्या शिरगणती प्रमाणे निमशिरगांव गांवची एकूण लोकसंख्या ही ४,८५७ इतकी आहे. तर स्त्रियांची संख्या २,३४५ इतकी आहे. तसेच ०६ ते ६ या वयातील बालकांची संख्या ४८४ इतकी आहे. एकूण लोकसंख्येपैकी २.२५१ इतके कामगार आहेत. त्यामध्ये पुरुष कामगार १५३६ आहे तर एकूण महिला या १,००० इतक्या आहेत. महिला शेतमजुरीच्या आर्थिक आणि सामाजिक परिस्थिती समजून घेण्यासाठी आम्ही '२०' महिला शेतमजुरीची संशोधन केले आहे.

२. विषय निवडीचे कारण :

महिला सबलीकरण खूप महत्वाचा भाग आहे. महिलांचे सक्षमीकरण अभ्यासण्यासाठी निमशिरगांव गावातील महिला शेतमजुरांचा सामाजिक व आर्थिक अभ्यास हा विषय निवडला आहे.

३. उद्दिष्टे :

१. महिलांची सामाजिक स्थिती अभ्यासणे.
२. शेतमजूर स्त्रियांची आर्थिक परिस्थिती अभ्यासणे, ३. महिलांचे सक्षमीकरण अभ्यासणे.
४. शेतमजूर स्त्रियांच्या समस्या जाणून घेवून उपाय सुचविणे.

४. संशोधन साहित्याचा स्रोत :

प्राथमिक स्रोत – प्राथमिक स्रोतमध्ये आम्ही प्रश्नावली, मुलाखत, निरीक्षण आणि सामूहिक चर्चा यांचा वापर केला आहे. दुय्यम स्रोत दुय्यम स्रोतमध्ये आम्ही इंटरनेटचा वापर केला आहे.

५. संशोधनाचे महत्व :

भारतामध्ये पुरुषप्रधान संस्कृती असल्यामुळे स्त्रियांना गौण स्थान दिले जाते. स्त्रियांना देखिल पुरुषांपेक्षा सक्षम असतात. देशाच्या आर्थिक, सामाजिक विकासात स्त्रियांचे हे स्थान उंचावण्यासाठी स्त्रियांच्या आर्थिक व सामाजिक स्तर उंचावणे आवश्यक आहे. यासाठी स्त्रियांचा आंतरराष्ट्रीय पातळीवर स्तर सुधारणे जेवढा आवश्यक आहे. तेवढाच तो स्तर स्थानिक पातळीवर वाढणेदेखिल महत्वाचा आहे. याकरिता हा विषय संशोधन पेपरसाठी महत्वाचा आहे.

६. संशोधनाचा कालावधी :

सदर संशोधन पेपरसाठीचा कालावधी सन २०१९-२०२० निश्चित करण्यात आला आहे.

७. शेतमजूर महिलांचा आर्थिक व सामाजिक अभ्यास:

शेतमजुरी करणाऱ्या महिलांचा आर्थिक आणि सामाजिक अभ्यास करण्यासाठी आम्ही निमशिरगांवगावातील शेतमजूर महिलांचे संशोधन केले आहे ते पुढील तक्त्यावरून दर्शविले आहे.

तक्ता क्र.- ०१

शेतमजुरी करणाऱ्या महिलांचे वयोगटानुसार वर्गीकरण

शेतमजुरी करणाऱ्या महिलांचे वयोगटानुसार वर्गीकरण खालील तक्त्यामध्ये शेतमजुरी करणाऱ्या महिलांचे वयोगटानुसार वर्गीकरण दर्शविले आहे.

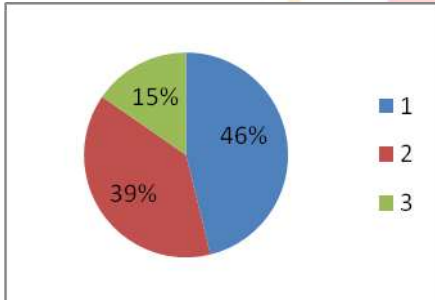
वयोगट	संख्या	टक्केवारी(%)
२०-३०	--	०
३०-४०	--	०
४०-५०	१३	६५
५०-६०	०२	१०
६० च्या पुढील	०५	२५

स्त्रोत- प्राथमिक

उपरोक्त तक्ता क्र. १ मध्ये वयोगटानुसार शेतमजुरी करणाऱ्या महिलांचे प्रमाणे दाखविले आहे. एकूण महिलांमध्ये ४०-५० वयोगटातील म्हणजेच प्रौढ महिलांचे प्रमाण अधिक असून ते १३ (६५%) इतके आहे. त्यानंतर ५०-६० वयोगटातील महिलांचे प्रमाण ०२ (१०%) इतके आहे. तसेच ६० वर्षांपेक्षा अधिक असणाऱ्या महिलांचे प्रमाण ०५ (२५%) इतके आहे.

निष्कर्ष:

४० ते ५० वयोगटातील महिलांचे प्रमाण १३ (६५%) इतके असून ५०-६० वयोगटातील महिलांचे प्रमाण सर्वात कमी असून २ (१०%) इतके आहे.



६५%	४०-५० वर्षे
१० %	५०-६० वर्षे
२५%	६० वर्षे च्या पुढील

तक्ता क्र.- ०२

शेतमजुरी करणाऱ्या महिलांचे शिक्षणानुसार वर्गीकरण खालील तक्त्यामध्ये शेतमजुरी करणाऱ्या महिलांचे शिक्षणानुसार वर्गीकरणदर्शविले आहे.

शिक्षण	संख्या	टक्केवारी(%)
प्राथमिक	०६	३०
माध्यमिक	०५	२५
उच्च माध्यमिक	०२	१०
पदवी	--	--
निरक्षर	०७	३५

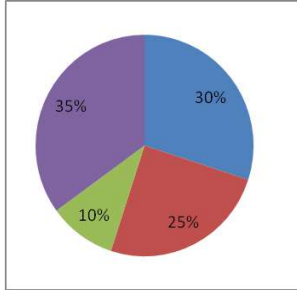
स्त्रोत- प्राथमिक

उपरोक्त तक्ता क्र. २ मध्ये शेतमजुरी करणाऱ्या महिलांच्या शिक्षणाचे प्रमाणे दर्शविले आहे. एकूण महिलांमध्ये प्राथमिक शिक्षण झालेल्या ०६ (३०%) महिला आहे. तर निरक्षर ०७ (३५%) महिला आहेत. तसेच माध्यमिक शिक्षण झालेल्या ०५ (२५%) महिला असून उच्च माध्यमिक शिक्षण झालेल्या महिला ०२ (१०%) आहेत.

निष्कर्ष :

वरील तक्त्यावरून असे दिसून येते की, ०७ (३५%) निरक्षरमहिलांचे प्रमाणे आहे.

शेतमजुरी करणाऱ्या महिलांच्या शिक्षणाचे प्रमाण



शिक्षण	टक्केवारी(%)
प्राथमिक	३०
माध्यमिक	२५
उच्च माध्यमिक	१०
निरक्षर	३५

तक्ता क्र.- ०३

कुटुंबाचा प्रकार

खालील तक्त्यामध्ये शेतमजुरी करणाऱ्या महिलांच्या कुटुंब प्रकाराचे वर्गीकरण दर्शविले आहे.

प्रकार	संख्या	टक्केवारी %
एकत्र	१४	७०
विभक्त	०६	३०

स्रोत : प्राथमिक

उपरोक्त तक्ता क्र. ३ मध्ये शेतमजुरी करणाऱ्या महिलांच्या कुटुंबाचे प्रकार दर्शविले आहे. एकूण महिलांमध्ये १४ (७०%) महिला एकत्र कुटुंबातील असून ०६ (३०%) महिला विभक्त कुटुंबातील आहेत.

निष्कर्ष :-

वरील तक्त्यावरून असे दिसून येते की, १४ (७०%) महिला या एकत्र कुटुंबातील आहेत तर ०६ (३०%) महिला या विभक्त कुटुंबातील आहेत.

तक्ता क्र.- ०४

स्वमालकी शेतीचे वर्गीकरण : खालील तक्त्यामध्ये शेतमजुर महिलांच्या स्वमालकीच्या शेतीचे वर्गीकरण दर्शविले आहे.

शेती मालकीत्व	संख्या	टक्केवारी %
भूमीहीन	८	४०
१-२ एकर	७	३५
२-३ एकर	१	०५
३-४ एकर	२	१०
४-५ एकर	२	१०

स्रोत : प्राथमिक

उपरोक्त तक्ता क्र. ४ मध्ये स्वमालकीची शेतजमीन असणाऱ्या शेतमजुर महिलांचे प्रमाण दर्शविले आहे. भूमीहीन महिलांची संख्या ०८ (४०%) आहे तर ४-५ एकर शेती असणाऱ्या महिलांची संख्या ०२ (१०%) आहे.

निष्कर्ष :-

स्वमालकीची शेती नसलेल्या महिला ०८ (४०%) आहेत. त्यामुळे त्या शेतमजुरीकडे वळलेल्या आहेत.

तक्ता क्र.- ०५

अनुभव वर्गीकरण : खालील तक्त्यामध्ये शेतमजुर महिलांचे त्यांच्या अनुभवानुसार वर्गीकरण केले आहे.

अनुभव वर्षे	संख्या	टक्केवारी (%)
०१ - १०	०८	४०
१०-२०	०३	१५

२०-३०	०४	२०
३० - ४०	०५	२५

स्त्रोत - प्राथमिक

उपरोक्त तक्ता क्र. ५ मध्ये शेतमजुरी करणाऱ्या महिलांच्या अनुभवानुसार वर्गीकरण केलेले आहे. एकूण महिलांमध्ये १ - १० वर्षे अनुभव असणाऱ्या महिलांचे प्रमाण ०८ (४०%) आहे. सर्वात कमी अनुभव असणाऱ्या महिलांची संख्या ०३ (१५%) आहे.

निष्कर्ष :-

१ ते १० वर्षे अनुभव असणाऱ्या महिलांचे प्रमाण ०८ (४०%) आहे.

तक्ता क्र. ०६

कर्जे घेण्याची पध्दत :खालील तक्त्यामध्ये कर्ज घेण्याच्या पध्दतीनुसार महिला शेतमजुरांचे वर्गीकरण केले आहे.

कर्ज	संख्या	टक्केवारी (%)
विकास बँका	२	१०
पतसंस्था	९	४५
सहकारी बँका	४	२०
राष्ट्रीयकृत बँका	१	०५
सावकार	४	२०

स्त्रोत : प्राथमिक

उपरोक्त तक्ता क्र. ६ मध्ये शेतमजूर महिला घेत असलेल्या कर्जाचे वर्गीकरण केले आहे. पतसंस्थांकडून कर्जे घेणाऱ्या महिलांचे संख्या ०९ (४५%) आहे. तर राष्ट्रीयकृत बँकेतून कर्ज घेणाऱ्या महिलांची संख्या ०२ (१०%) आहे.

निष्कर्ष :

वरील तक्त्यावरून असे दिसून येते की पतसंस्थेकडून कर्ज घेणाऱ्या महिलांचे प्रमाण ०९ (५०%) इतके आहे. अजूनही सावकारकडून कर्जे घेण्याची पध्दत दिसून येते.

तक्ता क्र.- ०७

वार्षिक उत्पन्नाचे प्रमाण

खालील तक्त्यामध्ये शेतमजूर महिलांच्या वार्षिक उत्पन्नाचे प्रमाणे दर्शविले आहे.

उत्पन्न प्रमाण	संख्या	टक्केवारी (%)
२०,००० ३०,०००	--	--
३०,००० ४०,०००	--	--
४०,००० - ५०,०००	०५	२५
५०,००० - १,००,०००	११	५५
१,००,०००- २,००,०००	०२	१०
२,००,००० पेक्षा अधिक	०२	१०

स्त्रोत प्राथमिक

उपरोक्त तक्ता क्र. ७ मध्ये शेतमजूर महिलांच्या वार्षिक उत्पन्नाचे प्रमाण दर्शविले आहे. ५०,००० ते १,००,००० याप्रमाणात उत्पन्न असणारा महिला वर्ग सर्वात जास्त असून त्याचे प्रमाण ११ (५५%) इतके आहे. तर १,००,००० ते २,००,००० आणि २,००,००० पेक्षा अधिक उत्पन्न असणाऱ्या महिलांचे प्रमाण ०२ (१०%) इतके आहे.

निष्कर्ष :-

वरील तक्त्यावरून असे दिसून येते की, ११ (५५%) महिलांचे वार्षिक उत्पन्न ५०,००० ते १,००,००० इतके आहे.

तक्ता क्र.- ०८ :

रेशन कार्डधारक

खालील तक्त्यामध्ये रेशन कार्ड धारक शेतमजूर महिलांचे वर्गीकरण दर्शविले आहे.

रेशन कार्ड प्रकार	संख्या	टक्केवारी (%)
पिवळे कार्ड	०८	४०
केशरी कार्ड	१२	६०
पांढरे कार्ड	--	--
केशरी कार्ड नसलेले	--	--

स्त्रोत प्राथमिक

उपरोक्त तक्ता क्र. ८ मध्ये शेतमजूर महिला वापरत असलेल्या रेशनकार्डचे वर्गीकरण केले आहे. पिवळे रेशन कार्ड वापरत असलेल्या महिलांचे संख्या ०८ (४०%) असून केशरी रेशन कार्ड वापरत असलेल्या महिलांची संख्या १२ (६०%) आहे.

निष्कर्ष :-

वरील तक्त्यावरून असे दिसून येते की केशरी रेशन कार्ड असलेल्या महिलांचे प्रमाण १२ (६०%) आहे व दारिद्र्य रेषेखालील पिवळे रेशन कार्ड वापरणाऱ्या महिलांचे प्रमाण ०८ (४०%) आहे.

तक्ता क्र.- ०९

घराचे स्वरूप

खालील तक्त्यामध्ये महिला शेतमजूरानांच्या घराचे स्वरूपानुसार वर्गीकरण केले आहे.

घराचे स्वरूप	संख्या	टक्केवारी (%)
झोपडी	५	२५
कौलारू	१०	५०
बंगला	५	२५

स्त्रोत – प्राथमिक

उपरोक्त तक्ता क्र. ९ मध्ये शेतमजूर महिला वापरत असलेल्या घराच्या स्वरूपाचे वर्गीकरण केले आहे. झोपडीत राहत असणाऱ्या महिलांची संख्या ५ (२५%) असून कौलारू घरात राहत असलेल्या महिलांची संख्या १० (५०%) इतकी आहे.

निष्कर्ष :-

कौलारू घरात राहणाऱ्या महिला शेतमजूरानांची संख्या सर्वात जास्त म्हणजे १० (५०%) इतकी आहे व बंगल्यात राहणाऱ्या महिला शेतमजूरानांची संख्या ०५ (२५%) आहे.

तक्ता क्र. १०

वाहनांचे स्वरूप

खालील तक्त्यामध्ये महिला शेतमजूर वापरणाऱ्या वाहनांच्या स्वरूपाचे वर्गीकरण केले आहे.

वाहनाचे स्वरूप	संख्या	टक्केवारी (%)
दुचाकी	०८	४०
चारचाकी	०४	२०
कोणतेही वाहन नाही	०८	४०

स्त्रोत प्राथमिक

उपरोक्त तक्ता क्र. १० मध्ये शेतमजूर महिला वापरत असलेल्या वाहनांचे वर्गीकरण केले आहे. दुचाकी वाहन वापरणाऱ्या महिलांची संख्या ०८ (४०%) आहे तर चारचाकी वाहन वापरणाऱ्या महिलांची संख्या कमी म्हणजे ०४ (२०%) इतकी आहे.

निष्कर्ष :-

०८ (४०%) महिला शेतमजूर दुचाकी वाहनांचा वापर करतात तर ०८ (४०%) महिला वाहनांचा वापर करत नाहीत.

शेतमजूर महिलांच्या समस्या:

- १.सामाजिक दृष्ट्या सहकार्याचा अभाव
- २.महिलांसाठी प्रबोधनात्मक कार्यक्रमांचा अभाव
- ३.आर्थिकदृष्ट्या दुर्बल
- ४.कुटुंबाकडून सहकार्याचा अभाव
- ५.पुरुषांच्या तुलनेत महिलांना कमी वेतन असते.

शेतमजूर महिलांच्या समस्यांवरील उपाययोजना:

- आर्थिक व सामाजिक दृष्ट्या महिलांचे महत्वपूर्णकार्य पटवून देणे.
- महिलांसाठी प्रबोधनात्मक कार्यक्रम घेणे.
- महिला सक्षमीकरणाचे महत्व पटवून देणे.
- देशाच्या आर्थिक स्थितीत व महिलांचे योगदाननिदर्शनास आणणे.
- महिलांसाठी प्रोत्साहनात्मक कार्यक्रम व महिला बचत गटाच्या माध्यमातून सर्वांगीण विकास साधणे

निष्कर्ष:

निमशिरगांव गावातील महिला शेतमजुरांचा आर्थिक व सामाजिकअभ्यास करताना घेतलेले तत्तेनिहाय निष्कर्ष खालीलप्रमाणे आहेत.

तक्ता नं. १ – सदर तक्त्यावरून असे दिसून येते की, ४० ते ५० वयोगटातील महिलांचे प्रमाण १३ (६५%) इतके असून ५०-६० वयोगटातील महिलांचे प्रमाण सर्वात कमी असून २ (१०%) इतके आहे.

तक्ता नं. २ सदर तक्त्यावरून असे दिसून येते की, ०७ (३५%) निरक्षरमहिलांचे प्रमाण आहे

तक्ता नं. ३ सदर तक्त्यावरून असे दिसून येते की, १४ (७०%) महिला या एकत्र कुटुंबातील आहेत तर ०६ (३०%) महिला या विभक्त कुटुंबातील आहेत.

तक्ता नं. ४ सदर तक्त्यावरून असे दिसून येते की, स्वमालकीची शेतीनसलेल्या महिला ०८ (४०%) आहेत. त्यामुळे त्या शेतमजुरीकडे वळलेल्या आहेत.

तक्ता नं. ५ सदर तक्त्यावरून असे दिसून येते की, १ ते १० वर्षे अनुभवअसणाऱ्या महिलांचे प्रमाण ०८ (४०%) आहे.

तक्ता नं. ६ सदर तक्त्यावरून असे दिसून येते की, पतसंस्थेकडून कर्ज घेणाऱ्या महिलांचे प्रमाण ०१ (५%) इतके आहे. अजूनही सावकारकडून कर्ज घेण्याची पध्दत दिसून येते.

तक्ता नं. ७ सदर तक्त्यावरून असे दिसून येते की, ११ (५५%) महिलांचेवार्षिक उत्पन्न ५०,००० ते १,००,००० इतके आहे.

तक्ता नं. ८ सदर तक्त्यावरून असे दिसून येते की, केशरी रेशन कार्ड असलेल्या महिलांचे प्रमाण (६०%) आहे व दारिद्र्य रेषेखालील पिवळे रेशन कार्ड वापरणाऱ्या महिलांचे प्रमाण ०८ (४०%) आहे.

तक्ता नं. ९ सदर तक्त्यावरून असे दिसून येते की, कौलारू घरात राहणाऱ्या महिला शेतमजुरांची संख्या सर्वात जास्त म्हणजे १० (५०%) इतकी आहे व बंगल्यात राहणाऱ्या महिला शेतमजुरांची संख्या ०५ (२५%) आहे.

तक्ता नं. १० - सदर तक्त्यावरून असे दिसून येते की, ०८ (४०%) महिला शेतमजूर दुचाकी वाहनांचा वापर करतात तर ०८ (४०%) महिला वाहनांचा वापर करत नाहीत.

उपरोक्त निष्कर्षावरून निमशिरगाव गावातील महिला शेत मजुरांची आर्थिक व सामाजिक परिस्थिती अत्यंत बिकट असून शासनाने महिला सक्षमीकरण करण्यासाठी व महिलांना प्रोत्साहन देण्यासाठी विविध कार्यक्रमाच्या माध्यमातून बळ देण्याची आवश्यकता आहे हे संशोधनात्मक अभ्यासांती स्पष्ट होते.

संदर्भ ग्रंथ -

1. <https://en.m.wikipedia.org/wiki/women.in.agriculture.in.india>.

लोकशाही व शाश्वत विकास

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१) प्रस्तावना :-

सर्वसाधारणपणे 'शाश्वत विकास' ही संकल्पना जागतिक पर्यावरण व विकास आणि विकास आयोग;(१९८७) ची देन आहे. या संकल्पनेत हा संकेत दिला होता कि पृथ्वीवरील नैसर्गिक साधने ही अक्षय नाहीत त्यामुळे वर्तमान पिढीला या साधनांचा जपून वापर करावयास पाहिजे. जेणेकरून भावी पिढीला सुद्धा या साधनांचा वापर करता यावा. ही संकल्पना जगातील सर्व देशांतील लोकांमध्ये रुजणे आवश्यक आहे. म्हणून जे.एच. मिचलमैनने आपल्या ' out from underdevelopment ' या ग्रंथामध्ये विकास म्हणजे सामाजिक उद्दिष्टपुर्तीसाठी नैसर्गिक आणि मानवी संसाधनांच्या क्षमतेमध्ये वृद्धी करणे होय, असे नमूद केले आहे. ज्या देशामध्ये लोकशाही आहे, तेथील लोक आपल्या समाजाचा विवेकनिष्ठ विकास करण्यासाठी नैसर्गिक आणि मानवी संसाधनांचा सर्वोत्तम उपयोग करू शकतात. उदा. भारताने नवीकरणीय उर्जा स्रोत वाढविण्यावर भर दिला आहे. लोकशाही मध्ये न्याय, स्वातंत्र्य, समता व बंधुता या तत्वावर जोर दिला जातो. आणि ही तत्वे साध्य करण्यासाठी शाश्वत विकास साधने गरजेचे आहे. त्यामुळे लोकशाही आणि शाश्वत विकास या दोन संकल्पना ह्या परस्परांशी निगडित आहेत. लोकशाही मध्ये जगा आणि जगू ह्या हे तत्व देखील स्विकारलेले आहे. म्हणून मनुष्याने आपल्या कल्याणासाठी निसर्गाचे पोषण केले पाहिजे, तिचे शोषण नाही. त्यामुळे शाश्वत विकास साध्य करण्यासाठी लोकशाहीचे विचार अतिशय उपयुक्त आहेत.

२) उद्देश :-

१. शाश्वत विकास या संकल्पनेचा अभ्यास करणे.
२. लोकशाही आणि शाश्वत विकास या संकल्पनांची लोकांना जाणीव करून देणे.
३. शाश्वत विकास करण्यासाठी आवश्यक गोष्टींचा शोध करणे.

३) संशोधन पद्धती :-

सदर संशोधन लेख लिहिण्यासाठी दुय्यम साधनांचा वापर केला आहे. यामध्ये संदर्भ पुस्तके, क्रमिक पुस्तके, व माहितीजाल यांचा वापर केला आहे.

४) शाश्वत विकासाची संकल्पना :-

शाश्वत विकासाची संकल्पना जागतिक पर्यावरण व विकास आयोगाची (world commission on Enviornment and Development) (१९८७) देन आहे. या आयोगाच्या अध्यक्षा ग्रे ब्रुटलॅंड यांच्या नावावरून या आयोगाच्या अहवालास ब्रुटलॅंड अहवाल असे म्हटले जाते. हा अहवाल श्वनत बवउउवद निजनतमश या शीर्षकाने प्रसिद्ध झाला होता. या अंतर्गत हा संकेत दिला होता की, संसारात नैसर्गिक संसाधनांचा अक्षय साठा नाही. त्यामुळे वर्तमान पिढीला आपल्या गरजा अशा पद्धतीने पूर्ण करावयास पाहिजेत ज्यामुळे भावी पिढीला त्यांच्या गरजा पूर्ण करण्यासाठी अडथळे येऊ नयेत.

ब्रुटलॅंड अहवाला अंतर्गत वर्तमान व भविष्याच्या गरजांना महत्व देऊन याचा स्वीकार केला होता की, विशाल मानवतेच्या मुलभूत गरजा पूर्ण करण्यासाठी जागतिक स्तरावर गरीबीचे निराकरण करणे जरूरीचे आहे. त्याचबरोबर असे घटक की जे आर्थिक व सामाजीक विकासाचा चालना तर देतीलच, परंतु पर्यावरणाचा न्हास, अतिशोषण किंवा प्रदूषण यास कारणीभूत ठरणार नाहीत.या उद्दिष्टांच्या पुर्तीसाठी पर्यावरणवादी अशा प्रकारचे शिक्षण देण्याचा पर्याय सुचवितात त्यामुळे आपल्या उपभोगावर मर्यादा येतात व आपआपल्या गरजापेक्षा जास्त उत्पादन करण्याचे प्रयत्न केले जातील. या संदर्भात महात्मा गांधीजींच्या शरीरश्रम सिद्धांतामध्ये ही शिकवण दिली जाते की, प्रत्येक मनुष्याने आपल्या शरीरासाठी आवश्यक असणारे श्रम केलेच पाहिजेत, ज्यामुळे तो आपल्या दैनंदिन गरजांचे उत्पादन स्वतः करू शकेल. अशा विचारांतून देखील गांधीजींच्या विचारांचे मूल्य समजून येते.

या दृष्टीकोनानुसार, आधुनिक समाज नैसर्गिक संसाधनांच्या शोषणावर अवलंबून आहे. मनुष्य व निसर्ग यांच्या या तुटलेल्या संबंधांना पुन्हा जोडण्यासाठी मनुष्याला परात्म केले आहे. लोकसंख्या नियंत्रणावर विशेष लक्ष देण्याची गरज आहे. कारण त्यांची लोकसंख्या अगोदरच मर्यादेबाहेर गेलेली आहे. कारण तेथील लोकसंख्या कमी आहे, परंतु उपभोगाचा स्तर एवढा उच्च आहे की, त्यामुळे त्याचा पर्यावरणावर विपरीत परिणाम होतो.

औद्योगिक प्रणाली अंतर्गत गेल्या २०० वर्षा पासून अशा नैसर्गिक संसाधनांचा सातत्याने —हास होवू लागला आहे. ज्यांचे पुनर्निर्माण शक्य नाही. दुस—या जागतीक महायुद्धा नंतर अल्पविकसीत देशांना आर्थिक विकासाचा जो मार्ग दाखवला जाऊ लागला आहे, त्या अंतर्गत उत्पादन व्यवस्थेसाठी मृदा, पाणी, वनसंपदा, पर्वते व खनिजे अशा स्रोतांचा अंदाधूंद वापर करणे आवश्यक बनते. एवढेच नाही तर ही व्यवस्था निसर्गातील मौल्यवान व आरोग्यदायी स्रोतांना नष्ट करून वातावरणात प्रदूषण पसरवणा—या पदार्थांची उत्सर्जन करते. त्यामुळे जीवनदायी शक्ती व तत्वांचा विनाश होतो, उदा. याच प्रदूषणा मुळे वातावरणातील ओझोनच्या स्तराला छिद्र पडू लागले आहे.

या बरोबरच, उद्योगपती आपल्या फायद्यासाठी जो माल तयार करून बाजारात पाठवतात त्याकडे ग्राहकांना आकर्षित करण्यासाठी ते त्यांच्या मनामध्ये कृत्रिम गरजा व इच्छा उत्तेजित करतात. अशा प्रकारच्या इच्छांच्या समाधानामुळे अणण्यपूर्ण उपभोगांमध्ये वाढ होते. या सर्व बाबी मानवाच्या भविष्यासाठी घातक व विनाशकारी आहेत. यांना रोखण्यासाठी शाश्वत विकास, चिरंतन विकास किंवा अक्षय विकास ही संकल्पना आपल्यासमोर पर्यावरणाने ठेवली आहे.

शाश्वत विकास साध्य करण्यासाठी मनुष्याने पर्यावरणाच्या रक्षणासाठी औद्योगिक पूर्व समाजाच्या चालीरीतीकडे परत गेले पाहिजे, जेव्हा कमी पैशात सर्व कामे पूर्ण होत होती. यासाठी मनुष्याच्या प्राथमिक गरजांना त्यांच्या दुय्यम गरजांच्या तुलनेत प्राथमिकता दिली पाहिजे.

५) लोकशाही :-

लोकशाहीमध्ये जनतेचे सार्वभौमत्व मान्य केले जाते. भारताचे उदाहरणघेतल्यास भारतीय घटनेने लोकशाहीचा अर्थ संकुचित दृष्टीकोनातून घेतलेला नाही. घटनाकारांनी राजकीय लोकशाहीतून सामाजिक लोकशाही प्रस्थापित करण्याचे उद्दिष्ट गृहित धरले होते. डॉ.आंबेडकरांना सामाजिक लोकशाही अभिप्रेत होती. त्यांच्या मते, “राजकीय लोकशाहीचे रुपांतर सामाजिक लोकशाहीमध्ये झाले पाहिजे. स्वातंत्र्य, समता, बंधुता, ही तत्वे राजकीय लोकशाहीत अंतर्भूत झाली असता सामाजिक लोकशाही प्रस्थापित होवू शकते. बंधूत्वाच्या तत्त्वामुळे सामाजिक जीवनाला एकजिनसीपणा येवून स्थैर्य लाभते. त्यामुळे सर्वांनी बंधूत्वाच्या भावनेने वागले पाहिजे.

६) शाश्वत विकासासाठी सामाजिक अंतर्भाव महत्वाचा :-

नागरीकीकरणाच्या प्रक्रियेचा विचार करताना शाश्वत विकास, पर्यावरणाचे संतुलन व सर्वसमावेशकता यांचा विचार होणे गरजेचे आहे. शाश्वत विकासाच्या दिशेने प्रगती करत असताना निष्पक्षपाती पणा क्षमता, आणि शाश्वतता अशा विविध घटकांतील समतोल साधणे गरजेचे आहे. यामध्ये शाश्वत विकासाच्या संदर्भातील (अ) आर्थिक प्रगती, कार्यक्षमता, व स्थैर्य. (ब) पर्यावरणीय समस्या, संसाधने आणि कचरा. (क) सामाजिक सबलीकरण, संघटन, आणि सर्वसमावेशकता — या तीन घटकांतील परस्परासंबंधांचे निराकरणही केले पाहिजे.

विकासाला शाश्वत स्वरूप प्राप्त करण्यासाठी आवश्यक अशा पूर्वसूचना २०३० च्या शाश्वत विकासाच्या आराखड्याच्या (वैळ) अंतर्भूत करण्यात आल्या आहेत. यामध्ये १७ व्यापक उद्दिष्टे देखील निश्चित करण्यात आलेली आहेत. याहीपेक्षा समावेशकतेवर जास्त भर देण्यात आला आहे. समावेशक विकास ‘हा शाश्वत विकासाचाच एक उपघटक मानलेला असून पर्यावरणीय आणि सामाजिक क्षेत्र.. यांच्यातील अन्योन्यता यातून स्पष्ट होते.

नीती आयोगाने शाश्वत विकास आराखड्याच्या अंमलबजावणीनंतर, वैळ इंडिया इंडेक्स २०१८ च्या स्वरूपात भारताच्या कामगिरीला दस्तऐवज तयार केला होतो. उद्दिष्ट ५ (स्त्री—पुरुष समानता) उद्दिष्ट ९ (समावेशक औद्योगिकीकरण), उद्दिष्ट १० (विषमता कमी करणे) आणि उद्दिष्ट ११ (स्थिर शहरे आणि समुदाय) शाश्वत विकासाची ही उद्दिष्टे सामाजिक समावेशकतेशी निगडीत आहेत.

७) समतामूलक शाश्वत विकास .

यासंदर्भात भारताचे उदाहरण घेतल्यास हा देश म्हणजे विविध धर्म, वर्ण, जातींनी युक्त, विविध संस्कृतीचा समुच्चय. येथील विविधतेने या देशाला एक ऐतिहासिक स्थान दिले आहे. येथील नवे सरकार कोणत्याही व्यक्ती, पक्ष, आघाडीचे असो, त्यांनी सामान्य जनतेच्या कल्याणासाठी प्राधान्य दिले पाहिजे. त्यासाठी लोकशाहीमार्गाने त्यांच्यावर जनशक्तीचा दबाव आणला जातो. सत्ताधारा व विरोधी पक्षांनी त्यांच्या निवडणुकपुर्व जाहीरनाम्यात दिलेली आश्वासने व त्यासोबत किमान समान कार्यक्रम यांचा समन्वय घडवून व्यापक जनहितासाठी काम केले पाहिजे. त्यासाठी लोकशाही महत्त्वाची आहे.

८) भारतीय संविधान आणि शाश्वत विकास

२६ जानेवारी १९५० रोजी भारता मध्ये लोकशाही गणराज्याची स्थापना झाली. आपले संविधान केवळ भारताच्या नागरिकांना आपल्या अधिकारांनी सुरक्षित करते असे नाही, तर भारताच्या सीमेअंतर्गत समाविष्ट असणाऱ्या वन्य जीवांची तसेच वनक्षेत्रांची सुरक्षेची जबाबदारीही राज्यावर सोपविते. ज्या शायवत संकल्पनेची चर्चा आज संपूर्ण जगात होत आहे, त्यात अंतर्भूत करण्यात आलेल्या विविध कार्यक्रमांच्या योग्य अंमलबजावणीकरिता विविध स्तरावर अनेकविध योजना आकाराला येत आहेत. पर्यावरण संरक्षणाचे उद्दिष्ट डोळ्यासमोर ठेवून आंतरराष्ट्रीय पातळीवर कायदे बनवले जात आहेत.

भारतीय संविधानाच्या चौथ्या भागात राज्य व संघ स्तरावरील सरकारे तसेच संसद आणि विधानसभा यांच्यासाठी मार्गदर्शक तत्वे घालून देण्यात आली आहेत. यातील कलम नं. ५१ मध्ये राज्य हे देशाच्या पर्यावरणाचे संरक्षण व संवर्धन करण्यासाठी आणि वने व वन्य जीवसृष्टी यांचे रक्षण करण्यासाठी प्रयत्नशील राहील. अशाप्रकारे राज्यांना त्यांच्या सीमाक्षेत्रात येणाऱ्या पर्यावरणीय संसाधनांचे रक्षण करण्यासाठी संबोधित योजना आणि नियम बनवण्यास प्रोत्साहित करण्यात आले आहे. त्याचप्रमाणे कलम ५१ दृ क(छ) मधील मुलभूत कर्तव्यांमध्ये वने, सरोवरे, नद्या व वन्य जीवसृष्टी यांसह नैसर्गिक पर्यावरणाचे रक्षण करून त्यात सुधारणा करणे तसेच प्राणिमात्रांबद्दल दयाबुद्धी बाळगणे हे भारताच्या प्रत्येक नागरिकांचे कर्तव्य आहे. याद्वारे प्रत्येक नागरिकाला एक आरोग्यसंपन्न आणि आनंदी जीवन जगण्याची संधी मिळू शकेल.

९) लोकशाही तत्वांशी सुसंगत :-

सामाजिक विकासाची प्रक्रिया ही लोकशाही तत्वांशी सुसंगत असते. कारण या प्रक्रियेत स्वातंत्र्य, समता, बंधुता, सामाजिक न्याय इत्यादी लोकशाही तत्त्वानुसार सामाजिक संबंधात, सामाजिक संस्थांत व समाजातील सर्व लोकांच्या (केवळ दुर्बलांच्या नव्हे) जीवन जगण्याच्या परिस्थितीत प्रागतिक बदल किंवा सुधारणा घडवून आणल्या जातात. समाजातील मानवनिर्मित भेदभाव (विषमता), शोषण, दमन, अन्याय नष्ट करणे तसेच मानवी संबंधातील असंतोष नष्ट करणे हे सामाजिक विकासाचे लक्षण मानले जाते. वलोकशाही व्यवस्थेत ही हीच गोष्ट अपेक्षित असते. त्यामुळे सामाजिक विकासाची प्रक्रिया ही लोकशाही तत्वांशी सुसंगत ठरते. त्यामुळे शाश्वत विकासाची उद्दिष्टे साध्य करण्यासाठी लोकशाही अत्यंत उपयुक्त ठरते.

१०) निष्कर्ष :-

शाश्वत विकासाची उद्दिष्टे साध्य करण्यासाठी लोकशाहीचे विचार प्रत्येक मानवामध्ये, नागरिकांमध्ये रुजणे गरजेचे आहे. याचबरोबर पर्यावरणवादयांचे विचार देखील शाश्वत विकास साध्य करण्यासाठी आवश्यक आहे.

- (१) पृथ्वीवरील संसाधनांना, नैसर्गिक शुद्धता, स्वच्छ जल व वायू यांना सुरक्षित ठेवण्यासाठी प्रगत देशातील लोकांनी आपल्या उपभोगाच्या प्रतिमानांना व जीवनशैलीला बदलावे लागेल. टेड ट्रेनर यानी 'श्रीमंती त्याज्य आहे' या पुस्तकामध्ये, प्रत्येक अमेरिकी व्यक्ती इथिओपियन व्यक्तीच्या तुलनेत ६१७ पट अधिक ऊर्जेचा वापर करते त्यामुळे जगातील गरीब राष्ट्रांच्या वाट्याला या बाबी खूप कमी येतात.
- (२) विकसित देशांतील लोकांनी खाजगी वाहनांचा वापर कमी करून सार्वजनिक परिवहन व सायकलीसारख्या साधनांचा वापर मोठ्या प्रमाणावर केला पाहिजे.
- (३) आहारामध्ये मांसाहाराच्या ऐवजी भाज्या व डाळींचा वापर मोठ्या प्रमाणात वाढला पाहिजे.
- (४) कोळसा, वीज व अणुऊर्जा या ऐवजी पवन-ऊर्जा, व सौर-ऊर्जा यांच्या वापराला प्राधान्य दिले पाहिजे. एकंदरीत मनुष्याने निसर्गासह संतुलित जीवन व्यतीत करावे त्याला नष्ट करू नये.
- (५) यामध्ये महत्वाचा अडथळा महणजे जिथे साधारण राजकारणाचा संबंध विविध समूहांच्या स्वार्थांच्या संघर्षाशी आहे व ज्यामध्ये सामंजस्य तथापि करण्याचे माग शोधून काढले जातात, तिथे पर्यावरणवाद संपूर्ण मानवजातीच्या कल्याणालाच आपले उद्दिष्ट बनवितो. परंतु या उद्दिष्टासाठी जेव्हा तो उद्योगांचा विस्तार व उपभोगाच्या स्तराला नियंत्रित करण्याची मागणी करतो तेव्हा त्यामध्ये असणा-या हितसंबंधावर संकट येते त्याच्या फायद्यामध्ये घसरण होते. हे हितसंबंध मोठे शक्तिशाली, संधरित व साधनसंपन्न असतात. त्यामुळे ते पर्यावरणाच्या संतुलनामध्ये अडथळे निर्माण करतात.

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- (४) आंतरजालीय स्रोत (इंटरनेट सोर्सेस)



सौरऊर्जा आणि शाश्वत विकास

प्रा. सागर हरिभाऊ दांडे
विदर्भ महाविद्यालय, बुलढाणा

प्रस्तावना

परिसंस्थेतील सर्व सजीव सूर्यावर अवलंबून असतात. वनस्पती सूर्यापासून ऊर्जा मिळवितात. अनस्पती व प्राणी यांच्या प्राचीन अवशेषापासून आपण अप्रत्यक्षपणे सौरऊर्जा प्राप्त करीत असतो

सौरऊर्जेचा इतर इंधन साधनापेक्षा महत्त्वाचा गुणधर्म म्हणजे ही ऊर्जा मुक्त व मुबलक मिळते फक्त ती प्राप्त करण्यासाठी प्रयत्न व अल्पसा खर्च करावा लागतो. जोपर्यंत आकाशात सूर्य आहे तोपर्यंत ही ऊर्जा आपणास मिळत राहणार आहे. सौरऊर्जेमुळे पर्यावरणाचे प्रदुषण होत नाही. त्याच्या पदार्थाची अडचण निर्माण हो नाही किंवा आवाजही होत नाही. तसेच सौरऊर्जा प्राप्त करण्यासाठी जास्त मौल्यवान अशी जमीनही लागत नाही.दुरसंवेदन केंद्र, घरगुती, कारखाना यासाठीही सौरऊर्जेचा वापर होऊ शकतो. आकाशवाणी, अवकाश उपग्रह यांना विद्युत पुरवठा करण्यासाठीही ही सौरऊर्जा उपयोगी आहे. सध्याच्या सौरऊर्जा पध्दतीत तांत्रिकीकरणाची अधिक गरज नाही. सामान्य नागरिकांना गॅस, रॉकेल, दगडी कोळसा, यांची इंधन म्हणून टंचाई जाणवते व त्यासाठी खर्चही खूप येतो. म्हणून सौरऊर्जा अतिशय उपयुक्त बिनखर्चाची व प्रदुषण विरहीत आहे.

सौरऊर्जेची प्रमुख अडचण म्हणजे ही ऊर्जा रात्री व ढगाळ स्थितीत उपलब्ध होऊ शकत नाही. त्यासाठी सौरऊर्जेचा संग्रह केला पाहिजे. त्याचा साठा किंवा संचय केला पाहिजे. परंतु सध्या उपलब्ध असलेले तंत्रज्ञान सौरऊर्जा संचय करण्यास अपुरे पडते. प्रत्यक्ष सौरऊर्जा पध्दतीचे खालील प्रमुख तीन प्रकार आहेत.

प्रत्यक्ष सौरऊर्जा :

प्रत्यक्ष सूर्यकिरणांपासून प्रत्यक्ष सौरऊर्जा मिळवली जाते. या ऊर्जेचा उपयोग उष्णता, विद्युतनिर्मितीसाठी होतो .

१. निष्क्रिय सौरपध्दती
२. सक्रिय सौरपध्दती
३. प्रकाश विद्युत चालक
४. सौरशक्ती बुरुज
५. सौरतळे

१. निष्क्रिय सौरपध्दती :

सौरऊर्जा प्राप्त करण्यासाठी ही अगदी सोपी व अतिशय स्वस्त पध्दत आहे. या पध्दतीत एकच चलन भाग आहे. तो म्हणजे सूर्य. हरितगृह हे निष्क्रिय सौरपध्दतीचे साधे उदाहरण आहे. काचेच्या तावदानातून सूर्यकिरणे सरळ आत जातात. म्हणजेच लघुलहरीद्वारे सौरशक्ती आत प्रवेश करते. आतील पृष्ठभाग, तावदाने त्याच तत्त्वावर निष्क्रिय सौरपध्दतीचे गृहे आधारलेली आहेत.

२. सक्रिय सौरशक्ती :

या पध्दतीत तापणे व थंड होणे हे सौर संग्रहाकावर अवलंबून असते. हवा किंवा पाणी याचे वहन करता यावे म्हणून यंत्राचा वापर केला जातो. हे यंत्र चालविण्यासाठी लागणारी ऊर्जा सौरसंग्रहाकाद्वारे प्राप्त होत असते.सौरतावदाने याचा वापर हल्ली केला जातो. ही तावदाने अधिक कुशलतेने तयार केली असून सौरसंग्रहाक म्हणून अधिक कार्यक्षम आहेत. सूर्याचा मार्ग अवलंबून सूर्यादयापासून ते सूर्यास्तापर्यंत उत्सर्जित होणारी उष्णता या संग्रहाकाने मिळविली जाते. सौरसंग्रहाचा उपयोग फ्रीजप्रमाणे थंड करण्यासाठीही केला जातो.

सक्रिय सौरपध्दती जगात सर्वत्र लोकाभिमुख आहे.

३. प्रकाश विद्युत चालक :

या पध्दतीस सौरपेशी पध्दती म्हणतात. सूर्य प्रकाशात सौरपेशी असतात त्यात सिलिकॉन, किंवा कॅपियन सल्फाइड, गलियम अर्सेनाईड असतात व इलेक्ट्रॉन बाहेर सोडतात त्यापासून विद्युत निर्मिती होते.

४. सौरशक्ती बुरुज :

सौरशक्ती बुरुजालाच सौरशक्ती स्तंभ म्हणतात. सौरशक्ती या स्तंभाद्वारे मिळविता येते. कॅलिफोर्नियातील बासटोव येथे १० मॅगॅवॅट शक्तीचा १०० मीटर उंचीचा एक स्तंभ उभारण्यात आला आहे. या स्तंभाभोवती जमिनीवर ४० चौ. मी. क्षेत्रफळ असलेले २००० आरसे अशा पध्दतीने बसविण्यात आले आहेत की त्यांच्याद्वारे जास्तीत जास्त सूर्यप्रकाश स्तंभाच्या शिखराकडे परावर्तित व्हावा. कारशाद्वारे परावर्तीत झालेली उष्णता स्टीम जनरेटर केंद्रीत होते व तेथे खालून पंपाद्वारे येणाऱ्या पाण्याची वाफ होते. ही वाफ विद्युत जनित्रांवर सोडून विजेची निर्मिती केली जाते.

५. सौरतळे : सौरऊर्जा संग्रह करण्याची व त्याचा संचय करण्याची ही आणखी एक किफायतशीर पध्दती आहे. एक कृत्रिम तलाव करून त्यात अतिक्षार भरले जाते. क्षारयुक्त पाण्यावर गोडे पाणी ओतले जाते. झाररजलाची घनता जास्त असल्याने ते खालीच राहते. वरच्या पाण्यात ते मिसळत नाही. सूर्यप्रकाश गोड्या पाण्यापासून प्रवेश करतो व खारे पाणी सूर्यप्रकाशातील ऊर्जा शाषून घेते व उष्णतेने त्याचे परिवर्तन करते. गोडे पाणी विद्युत निरोधक म्हणून कार्य करते व उष्णता पकडून ठेवते. गोडे पाणी जलीय स्थितीतील हरितग्रहाचे कार्यकरते. गोड्या पाण्याखाली राहिलेली क्षार द्रावणातील उष्णता इमारतीसाठी प्रवाहित केली जाते. विद्युतशक्ती निर्माण करण्यासाठी या उष्णतेचा उपयोग केला जातो.

ही सौरतळी खोल व उथळ स्वरूपाची असू शकतात.

सूर्य - सौर ऊर्जाचा मुख्य स्रोत :

सूर्य हा ऊर्जेचा मुख्य स्रोत आहे. सौर ऊर्जा घेण्यासाठी घरात कुठल्याही प्रकारचे मीटर बसवावे लागत नाही व कुठलेही बिल भरावे लागत नाही. मोठ्या प्रमाणात सूर्याची ऊर्जा उपलब्ध असून त्याची जाणीव ग्रामीण भागातील लोकांना नाही.

सौर कुकर व सौर बंब, सौर दिवे यांचा जर लोकांनी वापर करावयास सूरूवात केली तर आपल्या निसर्गात असलेले पर्यावरण धोक्यात येणार नाही व प्रदूषणा देखील आळा बसेल व संपूर्ण मानवी जीवन सुखमय होऊन जाईल या साठी मानव जातीचे पाऊल आपोआप उचलले जाईल.

सौर उर्जेचे महत्त्व

विद्युत ऊर्जा, पवन ऊर्जा या महागड्या दरात मिळणाऱ्या ऊर्जा आहेत. परंतु, सार ऊर्जा मिळवण्यासाठी पैसे मोजावे लागत नाहीत. दिवसातील १२ तास सौर ऊर्जा आपल्या बरोबरच असते. उरलेल्या १२ तासांसाठी आपण सौर ऊर्जाची साठवण करून रात्रीच्या वेळी ती उपयोगात आणू शकतो. सौर ऊर्जेवर चालणाऱ्या उपकरणांचा वापर करण्यास शिकले पाहिजे.

वापर:

प्रकाश आणि उष्णता दोन्ही स्वरूपात उपलब्ध असणारे सौर ऊर्जा हे अनेक मार्गांनी वापले जाऊ शकते. सौर उष्णताचा वापर धान्य, पाणी गरम करणे, स्वयंपाक, रेफ्रिजरेशन, वॉटर रिटेंशन आणि वीज निर्मितीसाठी केला जाऊ शकतो.

गुंतवणूक खर्चाची प्रचंड किंमत :

सोलर पॅनेल, इनव्हर्टर, बॅटरी, वायरिंग आणि इन्स्टॉलेशन खर्च यासह सौर यंत्रणा खरेदी करण्याचा आरंभिक खर्च खूप जास्त असू शकतो. सरकार किंमती कमी करण्यासाठी आणि सौर उर्जेचा विकास करण्यासाठी प्रयत्न करित आहे.

अधिक जमीनची आवश्यकता :

आपण जितके अधिक ऊर्जा घेऊ इच्छितो, तेवढी सौर पॉनल्सची आवश्यकता अधिक आहे. आणि सौर पॅनेल स्थापित करण्यासाठी पुरेशी जागा आवश्यक आहे. याचा अर्थ त्यासाठी अधिक जमीन आवश्यक आहे, जरी छतावर सौर पॅनेल स्थापित केले असेल तरी जागा पुरेसे नाही. या समस्येसाठी देखील सरकार पर्याय शोधत आहे.

सौर ऊर्जा निष्कर्ष :

सौर ऊर्जा उर्वरित उर्जेच्या स्रोतांपैकी एक उत्कृष्ट आणि उत्तम पर्याय आहे, परंतु सरकारने या दिशेने अधिक कार्य करणे आवश्यक आहे जेणेकरून सौर उर्जेचा फायदा सामान्य लोकांपर्यंत अधिक सहजपणे पोचला जाऊ शकेल आणि आपला पर्यावरण निरोगी राहील.

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महाराष्ट्रातील मासेमारी एक भौगोलिक विवेचन विशेष संदर्भ कोल्हापुर जिल्हा

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सारांश :

मानवाच्या प्राचीन व्यवसायापैकी शिकार व मासेमारी हा एक प्रमुख व्यवसाय आहे. मासेमारी हा प्राथमिक व्यवसाय प्राचीन कालखंडातील एक व्यवसाय आहे. जो प्रागैतालिक कालखंडातील आहे. जगात ईजिप्सीयन लोक इ.स.पूर्व २५०० मध्ये मासेमारी करत असल्याचे पुरावे मिळाले आहेत. नंतर पुढे चिनी लोकांनी इ.स. पूर्व २००० मध्ये मासेमारी सुरू केल्याचे उदाहरणे आहेत. तसेच भारतात इ.स.पूर्व ३५० मध्ये मासेमारी हा गोड्या पाण्यातील प्राथमिक स्वरूपाचा व्यवसाय करत असल्याच्या नोंदी आहेत. खऱ्या अर्थाने १९ व्या शतकात नॉर्वे, ब्रिटन, जपान, अमेरिका इ. देशात मत्स्योद्योग विकासास सुरुवात झाली. २० व्या शतकात मत्स्योद्योगासाठी आंतरराष्ट्रीय आयोगाची स्थापना झाली. परंपरागत मासेमारी पद्धतीत हाताने मासे पकडणे, शिवाय भाले, बाण या परंपरागत शस्त्रासहाय्याने मासे पकडले जात असत. मानवी आहारात मासे व भात हे प्रमुख अन्नघटक पुर्वीपासून आहेत. आज मासेमारी हा व्यवसाय अतिशय प्रगत झाला आहे. या व्यवसायास व्यापारी स्वरूप प्राप्त झाले आहे. वाढत्या लोकसंख्येला अन्नधान्याला पुरक शेती म्हणून मत्स्यउत्पादनास सुरुवात झाली आहे. माशाचे सुमारे ३००० प्रकार आहेत. गोड्या पाण्यातील व खाऱ्या पाण्यातील मासेमारी असे दोन प्रकार चालतात.

कोल्हापूर जिल्ह्याचा विशेष अभ्यासक संदर्भ घेतात तेथील भौगोलिक परिस्थितीत मत्स्यपालन व्यवसायास अनुकूल असल्याचे दिसते.

प्रस्ताविक :

मासेमारी हा जगातील व भारतातील विकसीत व विकसनशील देशातील सर्वात महत्वाचा आर्थिक शेती पुरक जोड व्यवसाय आहे. अन्न व कृषी संघटनांच्या मते जगातील मासेपालन व उत्पादन २००४/२००५ मध्ये ९५ दशलक्ष मेट्रीक टन एवढे होते. यामध्ये खाऱ्या पाण्यातील मत्स्य उत्पादनापैकी ८५% उत्पादन सागरी आहे. तर ०९ दशलक्ष मेट्रीक टन मासे उत्पादन हे गोड्या पाण्यातील आहे. भारत हा मत्स्य उत्पादनात भूक्षेत्रात जपाननंतर दुसऱ्या क्रमांकाचा देश आहे. भारतात सुमारे ७ दशलक्ष मेट्रीक टन मत्स्य उत्पादन होते. हे १९५०-५१ मधील आहे. तर २००४/२००५ मध्ये मत्स्य उत्पादन आठपटीने वाढले म्हणजे ६३ लाख मेट्रीक टन झाले. भारतात मत्स्यपालनासाठी नैसर्गिक अनुकूल परिस्थिती आहे.

महाराष्ट्र हे सागरी राज्य आहे. महाराष्ट्र राज्याला ७२० कि.मी. लांबीचा किनारा लाभला आहे. महाराष्ट्रात गोड्या पाण्यातील मासेमारी ही दौलत, संपत्ती मानली जाते. एकुण किनारपट्टीला पुरक अन्न व पुरक शेती व्यवसाय म्हणून मासेमारीकडे पाहिले जाते. मानवी वाढीसाठी पौष्टिक व प्रथिनयुक्त दर्जा वाढवणे हा उद्देश आहे. मत्स्यशेती म्हणून शेतकरी सधन होवु लागला आहे. महाराष्ट्रात मासेमारीच्या आधुनिक तंत्रशिक्षण देण्याकरीता भंडारा, फुलांब्रा, पुणे, परभणी, नागपुर, कोल्हापुर, रत्नागिरी इ. ठिकाणी मत्स्यशाळा व मत्स्यालय स्थापन करण्यात आली आहेत.

संशोधन पद्धती :

प्रस्तुत लघुशोध निबंधातील माहिती ही दुय्यम स्रोतावर आधारित आहे. महाराष्ट्र राज्य संख्याकी गोषवारा, कोल्हापुर जिल्हा आर्थिक समाजिक समालोचन या सांख्यिकीय पुस्तकातून घेण्यात आली आहेत तसेच विविध शासकीय व इतर वेबसाईट वरून संकलीत करण्यात आली आहे.

बीज संज्ञा :

मासेमारी, मत्स्यशेती, मत्स्यउत्पादन, पाण्यातील मासे, शेतीपुरक, मत्स्यउद्योग, गोड्या पाण्यातील मासे, शेतीपुरक व्यवसाय, मत्स्य सहकारी संस्था.

उद्दिष्ट्ये : या लघुशोध निबंधाची उद्दिष्ट्ये पुढीलप्रमाणे आहेत.

१. महाराष्ट्र राज्य व कोल्हापूर जिल्ह्यातील मासेमारीसाठी शेतीपुरक व्यवसाय म्हणून अनुकूल क्षेत्राचा अभ्यास करणे.
२. राज्यातील व कोल्हापूर जिल्ह्यातील मत्स्य सहकारी संस्था व मत्स्य तंत्रशाळेचा अभ्यास करणे.
३. नवयुवकांना कृषीशाळा व कृषी विद्यापीठाच्या माध्यमातून तंत्रशिक्षण दिले जाते ते अभ्यासणे.
४. शेतीपुरक व्यवसाय म्हणून मत्स्यव्यवसायासाठी अर्थसहाय्य दिले जाते ते अभ्यासणे.
५. मत्स्यउत्पादन व उद्योगातून नवरोजगार निर्मिती करणे.
६. गोडयापाण्यातील मासेमारीसाठी अनुकूल भौगोलिक क्षेत्रामध्ये वाढ करणे.

अहवाल क्षेत्र :

प्रस्तुत लघुशोध निबंध हा महाराष्ट्र राज्यातील आहे व विशेष संदर्भ म्हणून कोल्हापूर जिल्ह्याचा अभ्यास केला आहे. महाराष्ट्र राज्याचा अक्षवृत्तीय विस्तार हा १५°४४' उत्तर अक्षवृत्त ते २२°६' उत्तर अक्षवृत्त आहे. तर रेखावृत्तीय विस्तार हा ७२°६६' पूर्व रेखावृत्त ते ८०° पूर्व रेखावृत्त आहे. महाराष्ट्राला ७२० किलोमीटरचा सागरी किनारा लाभला आहे. तसेच विशेष संदर्भ म्हणून कोल्हापूर जिल्ह्याचा भौगोलिक विस्तार हा १९°४३' व १७°१७' उत्तर अक्षवृत्त व ७३°४०' आणि ७४°४२' पूर्व रेखावृत्त आहे. महाराष्ट्राच्या एकुण क्षेत्रफळाच्या ७७४६ चौ.कि.मीचे क्षेत्र आहे. तर एकुण क्षेत्राच्या २.५% क्षेत्र एकुण राज्याच्या प्रमाणात आहे.

विषय विवेचन :

महाराष्ट्राच्या विविध भागातील पाण्यातील मासेमारी म्हणतात. गोदावरी, प्रवरा, सिंधफणा, मोगरा, वैनगंगा, वर्धा, पैनगंगा, तापी, पुर्णा, गिरणा, कृष्णा, कोयना, वारणा, भीमा, नीरा, बिंदुसरा, इ. नदीपात्रातून तसेच मोठे, मध्य, लघु, पाटबंधारे, जलयुक्त शिवार या पाणीसाठ्यातून गोडया पाण्यातील मासेमारी व मत्स्यसंवर्धन करण्यात येते. विविध मासे प्रकाराचा विचार करता मुशी, पाफट, वागळी, वाम, शिंगडा, झिंगा, शिंगरी, दाताळी, तारळी, भिंगपाला, मांदेली, फारी, खवली, तांब, घोळ, फोय, बांगडा, हलवा, पापलेट, सुरमई, गेहर, तेडली, लोफरी, खाप, कोळंबी, शैबंड, सौहाळ, म्हाफुल इ. सागरी व गोडया पाण्यातील मासे सिंधुदुर्ग, रत्नागिरी, बृहन्मुंबई, रायगड, ठाणे, कोल्हापूर इ. जिल्ह्यातून घेण्यात येते.

महाराष्ट्रात गोडया पाण्यातील मच्छिमार क्षेत्र ३ लाख हेक्टर आहे. यातून १०५ हजार मेट्रीक टन माशाचे उत्पादन मिळाले होते. तसेच समुद्र किनारी भागात म्हणजे ठाणे, रत्नागिरी, रायगड, बृहन्मुंबई, सिंधुदुर्ग या जिल्ह्यात सागरी मासेमारी चालते. महाराष्ट्र राज्याच्या देशात मत्स्यउत्पादन व संवर्धनात प्रथम क्रमांक आहे.

कोल्हापूर जिल्ह्यात गोडया पाण्यातील मासेमारी चालते. एकुण नद्यांची लांबी ९५५ कि.मी. आहे. तर मासेमारीसाठी अनुकूल क्षेत्र ३६२ चौ.कि.मी. आहे. तर जलाशयाची संख्या करवीर, कागल, गगणबावडा, चंदगड, हतकणंगले, शिरोळ इ. तहसील राधानगरी भागात मत्स्यउत्पादन घेतले जाते. कोल्हापूर जिल्ह्यातील अंतर्गत मासेमारीचा विचार करता चंदगड तहसिल विभागात ३९० मेट्रीक टन, गगणबावडा तहसिल १५० मेट्रीक टन व शिरोळ तहसिल मध्ये १०० मेट्रीक टन उत्पादन होते. कोल्हापूर जिल्ह्यात मत्स्यबियाण्याचा अधिक वापर होतो. २०११/२०१२ मध्ये ७२४ लाख मत्स्यबीज वापरले होते. यामध्ये अजरा व चंदगड तहसिल विभागात १६० लाख, राधानगरीत १५४ लाख, शिरोळ तहसील मध्ये ५ लाख, पन्हाळा १० लाख, गगन बावडा १२ लाख, कागल २९ लाख व गगणबावडा तहसिल विभागात २० लाख मत्स्यबीजचा वापर करण्यात आला होता.

निष्कर्ष :

महाराष्ट्र राज्य व कोल्हापूर जिल्ह्यातील मत्स्यपालन समस्याचे निराकरण करण्यासाठी खालील उपायाची अंमलबजावणी करण्याची गरज आहे.

१. महाराष्ट्र राज्य व कोल्हापुर जिल्ह्यातील मासेमारी व मत्स्यशेतीचे नियोजनबद्ध विकासासाठी व अनुकूल क्षेत्रात वाढ होण्यासाठी संशोधन करून नवयुवकांना प्रशिक्षण देण्याची आवश्यकता आहे.
२. नवरोजगार निर्माण होण्यासाठी मत्स्यशेतीची कल्पना ही शेतकऱ्यांपर्यंत पोहचणे गरजेचे आहे.
३. मासेमारी व्यवसायाचा सर्वांगीण विकास होण्यासाठी मत्स्यबीज वाढवणे व वितरण होणे गरजेचे आहे. यासाठी शेतकऱ्यांमध्ये जनजागृती करणे गरजेचे आहे.
४. आधुनिक मत्स्यालय व मासेमारीसाठी नवतंत्रज्ञानाचा वापर व प्रशिक्षणाच्या माध्यमातून युवक वर्गाला अर्थसहाय्य होणे गरजेचे आहे.
५. मत्स्यपालन व संवर्धनाच्या माध्यमातून रोजगार निर्मीती करणे.
६. मानवी व पशु आहार म्हणून मासे व मासळीचे महत्व शास्त्रीय दृष्टीने जनमानसात समजावणे महत्वाचे आहे.

संदर्भग्रंथ :

१. महाराष्ट्र सांख्याकी गोषवारा — सांख्याकी विभाग, महाराष्ट्र शासन, मुंबई.
२. आर्थिक सामाजिक समालोचन — सांख्याकी विभाग, कोल्हापूर जिल्हा.
३. मासेमारी विभाग अहवाल — जीओआय नवी दिल्ली
४. महाराष्ट्रातील शेती — डॉ. मुलाणी व डॉ. रोहिदास लोकरे
५. महाराष्ट्राचा भूगोल — डॉ. पांडुरंग केचे.
६. विविध वेबसाईट —
७. द.मेगा स्टेट महाराष्ट्र — सवदी ए.बी.
८. संपूर्ण शासकीय योजना महाराष्ट्र — नरभर रविंद्र



महिलांच्या विकासातील सण-उत्सवाचे महत्व

डॉ. सुवर्णा प्रकाश पाटील

इतिहास विभाग प्रमुख

मिरज महाविद्यालय, मिरज.

ता. मिरज, जि. सांगली.

गोषवारा

भारतीय संस्कृतीमध्ये सण व उत्सवाला प्राचीन काळापासून महत्व आहे. समाजाचा ते अविभाज्य भाग आहेत. त्यामुळे भारतीय समाज सण व उत्सवप्रीय आहे. भारताच्या कानाकोप-यात अनेक प्रकारचे व अनेक प्रकारे सण साजरे केले जातात.

सण व उत्सव यामध्ये सूक्ष्म फरक आहे. उदा. गणपतीचा सण घरगुती स्वरूपात साजरा केला जातो तर उत्सव सार्वजनिक स्वरूपात साजरा केला जातो. सण उत्सव साजरे करण्याच्या पद्धती वेगवेगळ्या भागात वेगवेगळ्या आहेत. उदा. महाराष्ट्रातील दसरा व कर्नाटकातील दसरा. तर सणांमध्ये नावेही वेगवेगळी असलेली दिसून येतात. पावसाच्या हस्त नक्षत्रामध्ये स्त्रिया 'हादगा' खेळतात यालाच काही ठिकाणी भोंदला असे ही म्हणतात. भारतात साजरे केले जाणारे सण उत्सवामध्ये प्रामुख्याने स्त्रियांचा सहभाग जास्त असल्याचे दिसून येते. कारण कृषिसंस्कृती पासून पुरुष प्रधान समाज व्यवस्था अस्तित्वात येऊन स्त्रीला गौण स्थान दिले. 'चूल आणि मूल' हेच तिचे कार्यक्षेत्र ठरवून दिले.¹ त्यामुळे धार्मिक रितीरिवाज, रूढीपरंपरा, कर्मकांड त्या अनुशंगाने येणारे सम समारंभ याची ही जबाबदारी स्त्रियांवरच पडली. जणू स्त्रियाच या व्यवस्थेच्या पाईक झाल्या. अनेक खेळ प्रकारांचा विचार केला तर प्रत्येक खेळातून महिलांचे शारिरीक आरोग्य तंदुरुस्त कसे राहिल याचा विचार केला आहे.

निष्कर्ष -

अशा रितीने सण उत्सव यांची निर्मिती ऋतुमानानुसार स्त्रियांचे मानसिक, भावनिक आणि शारिरीक आरोग्य यांचा सहसंबंध अत्यंत जवळचा आहे. सण उत्सवाच्या निमित्ताने स्त्रीया एकत्र येतात, त्यातून सुख, दुःख वाटून घेतली जातात. त्यांच्यामध्ये एक सामाजिक ऐक्याचे नाते निर्माण होते हे नाते म्हणजे सामाजिक आरोग्य सुदृढ होण्याचे लक्षण आहे.

प्रस्तावना -

भारतीय संस्कृतीमध्ये सण व उत्सवाला प्राचीन काळापासून महत्व आहे. समाजाचा ते अविभाज्य भाग आहेत. त्यामुळे भारतीय समाज सण व उत्सवप्रीय आहे. भारताच्या कानाकोप-यात अनेक प्रकारचे व अनेक प्रकारे सण साजरे केले जातात.

सण उत्सव -

सण व उत्सव यामध्ये सूक्ष्म फरक आहे. उदा. गणपतीचा सण घरगुती स्वरूपात साजरा केला जातो तर उत्सव सार्वजनिक स्वरूपात साजरा केला जातो. सण उत्सव साजरे करण्याच्या पद्धती वेगवेगळ्या भागात वेगवेगळ्या आहेत. उदा. महाराष्ट्रातील दसरा व कर्नाटकातील दसरा. तर सणांमध्ये नावेही वेगवेगळी असलेली

दिसून येतात. पावसाच्या हस्त नक्षत्रामध्ये स्त्रिया 'हादगा' खेळतात यालाच काही ठिकाणी भोंदला असे ही म्हणतात. भारतात साजरे केले जाणारे सण उत्सवामध्ये प्रामुख्याने स्त्रियांचा सहभाग जास्त असल्याचे दिसून येते. कारण कृषिसंस्कृती पासून पुरुष प्रधान समाज व्यवस्था अस्तित्वात येऊन स्त्रीला गौण स्थान दिले. 'चूल आणि मूल' हेच तिचे कार्यक्षेत्र ठरवून दिले.¹ त्यामुळे धार्मिक रितीरिवाज, रूढीपरंपरा, कर्मकांड त्या अनुशंगाने येणारे सम समारंभ याची ही जबाबदारी स्त्रियांवरच पडली. जणू स्त्रियाच या व्यवस्थेच्या पाईक झाल्या.

सण उत्सवावर असलेला भौगोलिक परिस्थितीचा प्रभाव -

सण उत्सव व भौगोलिक परिस्थिती हवामान, पर्यावरण यांचा संबंध अत्यंत विशिष्ट आहे. आपल्याकडे पावसाळा, हिवाळा, उन्हाळा असे प्रमुख तीन ऋतू आहेत. आपले सण या ऋतूमानावर आधारित आहेत. दोन ऋतूंच्या मधला काही काळ हा संक्रमण काळ असतो या टप्यावर काही सण असतात. उदा. संक्रांत तर काही मधल्या टप्यावर असतात उदा. दिवाळी या हवा व ऋतूमानानुसार सण साजरे करण्याच्या विविध पध्दती आहेत. त्यावरच त्याचे स्वरूप ठरते.

सण उत्सवाचे स्वरूप - सण उत्सवामध्ये प्रामुख्याने तीन भाग असतात.

1) खाद्य संस्कृती -

प्रत्येक सणवाराला करावायचे खाद्य पदार्थ वेगवेगळे असतात. त्याच्यावरही हवामानाचा व ऋतूंचा प्रभाव असतो. उदा. उन्हाळ्यातील सणाला थंड पदार्थ उदा. आंबिल तर हिवाळ्यातील सणाला उष्ण गुणधर्माचे पदार्थ असतात. उदा. तिळगूळ.

2) सांस्कृतिक कार्यक्रम -

सण उत्सवाला खाद्य संस्कृतीबरोबर सांस्कृतिक कार्यक्रमाची जोड असते उदा. संक्रांतीला सार्वजनिक हळदीकुंकू तर नागपंचमीला सर्व महिला एकत्र येऊन झिम्मा फुगडीचा खेळ खेळतात इत्यादी.

3) धार्मिकतेच्या अनुषंगाने देवदेवतांची उपासना -

या सण उत्सवामध्ये मुख्य आधार असतो तो धार्मिकतेचा विशिष्ट सणाच्यावेळी विशिष्ट देवदेवतांची पुजा अर्चा केली जाते. उदा. दिवाळीच्या वेळी लक्ष्मी पुजन केले जाते. दर दस-यावेळी दुर्गादेवीची उपासना केली जाते. आणि चैत्र, वैशाख महिन्यामध्ये प्रत्येक खेड्यामध्ये तेथील ग्राम दैवतांची यात्रा भरविली जाते उदा. सिध्देश्वर, दरगोबा इ.

अशा रितीने सणउत्सवावर असलेला भौगोलिक वातावरणाचा परिणाम व सण उत्सवाचे स्वरूप लक्षात घेता व त्याची चिकित्सा केली तर एक गोष्ट प्रामुख्याने लक्षात येते ती म्हणजे हे सण साजरे करण्यामागे आरोग्य ही प्रमुख भूमिका आहे. पण त्याला धार्मिकतेचा संग दिला आहे. प्रामुख्याने स्त्रियांचा धार्मिक कर्मकांडाच्या वाहक आहेत. त्यातून काही प्रमाणात त्यांच्या विकासास हातभार लागला आहे तर कधी त्यांच्या विकासांमध्ये अडथळा ठरल्या आहेत. प्रस्तुत शोध निबंधाचा विषय सण उत्सव व त्याचा स्त्रियांच्या आरोग्याशी असणारा संबंध स्पष्ट करणे हा आहे.

आरोग्य -

आरोग्य म्हटले म्हणजे प्रामुख्याने शारीरिक आरोग्य असा आपण विचार करतो पण शारीरिक आरोग्या बरोबरच मानसिक आरोग्य, भावनिक आरोग्य, सांस्कृतिक सामाजिक विकास या सर्व गोष्टी आरोग्याचा एक

भाग आहेत. कारण निरोगी शरीरात निरोगी मन असते असे त्यामुळेच म्हटले जाते. भारतामध्ये वेगवेगळ्या धर्माचे वेगवेगळे सण साजरे केले जातात. उदा. हिंदूमध्ये गुढीपाडवा, अक्षयतृतीया, गणेशोत्सव, बेंदूर, घटस्थापना, दिवाळी, संक्रांत, होळी, महाशिवरात्री इ. जैन धर्मांमध्ये बलि प्रतिपदा, नागपंचमी, चातुर्मास, महावीर जयंती, अक्षय तृतीया, पर्युषण पर्व इ. मुस्लिम धर्मांमध्ये मोहरम, रमजान ईद, बकरी ईद, पैगंबर जयंती इ. बौद्ध धर्मांमध्ये बुद्ध जयंती, सम्राट अशोक जयंती, धम्म चक्र परिवर्तन दिन इ. असे विविध धर्मांमध्ये विविध सण साजरे केले जातात.

भारतीय समाजव्यवस्था अर्थव्यवस्था कृषी प्रधान असल्याने दैनंदिन जगण्यात निसर्गाशी जोडलेले नाते अत्यंत महत्वाचे आहे. त्यामुळे सण साजरे करणे म्हणजे आपले जगणे सोपे करणे होय. आरोग्य जपणे होय. आरोग्य हे फक्त शारीरिकच असते असे नाही तर शरीराबरोबर मन ही निरोगी असण गरजेचे असते. या सण आणि उत्सवातून आरोग्य जपले जाते. म्हणून आपण काही निवडक सण ते साजरे करण्याची परंपरा त्यातून होणारे फायदे याचा प्रामुख्याने विचार करणार आहोत. भारतातील व त्यातून महाराष्ट्रातील काही प्रमुख सण व त्यासंदर्भातील विवेचन खालीलप्रमाणे करता येईल.

1) चैत्र पाडवा -

चैत्र पाडवा हा सण शालीवाहन शकाचा आरंभ व पहिला सण म्हणून साजरा केला जातो. यावेळी कड्ढिंबाची ताजी पाने खाण्याची परंपरा आहे. चैत्र व वैशाख हा वसंत ऋतूचा काळ आहे. शिशीर ऋतूत साचलेला कफ वसंत ऋतूतील उष्णतेने पातळ होतो तो वाढून उपद्रव होऊ नये म्हणून ही पाने आरोग्यास उपयुक्त आहेत. याच महिन्यात महिलांचे चैत्र गौरीचे सण असतात. त्यानिमित्ताने कैरीचे पन्हे, ऊस, लिंबाचा रस, काकडी, वाटली डाळ, कलिंगड इ. ची खेरात असते. हे सर्व उन्हाळ्याचा त्रास कमी व्हावा म्हणून आहे.

2) आषाढ, श्रावण सणांचा महापूरच -

आरोग्याच्या दृष्टीने आपल्या सणांच्या साजरे करण्याच्या परंपरेच विज्ञानाच्या दृष्टीकोनातून अत्यंत कौतुक कराव असे सण म्हणजे आषाढ श्रावणातील सणांची मांदियाळी. आषाढ शुद्ध व्दादशीपासून चातुर्मास सुरू होतो याचवेळी पंढरपूरच्या विठ्ठलाची आषाढी वारी सुरू होते. यावेळी तुळशीच्या पानाला फार महत्त्व हे. हे दिवस पावसाळी असल्यामुळे हवा दमट असते अनेकांना कफाचा त्रास होऊ शकतो. तेव्हा तुळस हे कफावर उत्तम औषध आहे. आषाढातील नवमी सुद्धा कांदेनवमी म्हणून साजरी केली जाते. कांदा सुद्धा शरीराला अत्यंत गुणकारी आहेच.

आषाढा नंतर श्रावण महिन्यात सोमवार ते रविवार अनेक देवदेवतांची पुजा अर्चा केली जाते. त्यानिमित्ताने विविध वृक्ष वेलींच्या पानाफुलांची, फळांची नैवेद्य व पुजा म्हणून वापर केला जातो. मंगळवार, शुक्रवार देवीची पुजा करताना आघाडा, दुर्वा, फुले, वाहतात. तर शनिवारी मारुतीला रुईच्या पानांची माळ वाहतात. ही सर्व पाने फुले स्त्री रोगावर अत्यंत गुणकारी आहेत. श्रावण महिन्यात स्त्रीयांसाठी नागपंचमी हा अत्यंत महत्वाचा सण आहे. यावेळी ज्वारीच्या लाह्या नागाला वाहतात ह्या लाह्या पोटाच्या विकारासाठी अत्यंत गुणकारी असतात. नागपंचमीच्या निमित्ताने महिला अनेक खेळ खेळतात हे सर्व महिलांचे खेळ महिलांच्या शारीरिक आरोग्याचा विचार केला तर अतिशय उपयुक्त आहेत. उदा. झिम्मा, फुडगी, फेर नाच इ. श्रावण महिन्यात मांसाहार करणारे मांसाहार वर्ज करतात याची प्रामुख्याने दोन कारणे आहेत. एक म्हणजे या काळात

पावसाचे प्रमाण जास्त असते त्यामुळे पाळीव जनावरे फिरत नसतात. रोगट होतात, माणसांना सुध्दा साथीचे रोग होत असतात. पचनशक्ती मंदावलेली असते या पार्श्वभूमीवर मांसाहार वर्ज असतो तसेच शेतकरी कुटूंबे शेतीत कामासाठी जावू शकत नाही त्यांना मानसिक शांती मिळावी म्हणून देव धर्म पुजा अर्चा यांची जोड दिली आहे.

3) भाद्रपद आणि गोरी गणपती सण उत्सव -

भाद्रपद या मराठी महिन्यात गणपतीचा सण व उत्सव फार मोठ्या प्रमाणात साजरा केला जातो. या सणाच्या निमित्ताने दुर्वा, केवडा, कमळ, शमी, रूई, आघाडा, धोत्रा, देवदार, दवणा, जुई, मालती, माका, बेल, अगस्ती, डाळींब, कण्हेर, पिंपळ इ. वनस्पतीचा पुजेसाठी फूल पत्री म्हणून वापर करतात. याच महिन्यातील पितृ पंथरवड्यात तीळ, सातू, दर्भ, केळी, मका इ. वापर आवर्जून केला जातो. या सर्व वनस्पती आरोग्यास अत्यंत उपयुक्त आहेत.

अश्विन, कार्तिक-दसरा-दिवाळी -

अश्विन व कार्तिक या मराठी महिन्यात मोठ्या प्रमाणात साजरे केले जाणारे सण म्हणजे अनुक्रमे दसरा व दिवाळी होय. हिवाळी ऋतुमध्ये शरीराला शक्तीवर्धक व आरोग्य खाद्यपदार्थांची रेलचेल या सणावेळी असते. या सणांचे महत्त्व सर्वश्रुत आहेच.

पारंपरिक सण व आरोग्य -

आरोग्याचा विचार करता आपल्या असे लक्षात येते की व्यक्तीचे आरोग्य हे शारीरिक व मानसिक आणि भावनिक असते. शोध निबंधाच्या पूर्वार्धात आपण काही प्रमुख सणांची व उत्सवांची थोडक्यात माहिती पाहिली आहे. शोधनिबंधाच्या उत्तरार्धात आपण हे सण उत्सव व आरोग्य याचा विचार करणार आहोत. प्रथम आपण मानसिक आरोग्याचा विचार करू.

सण, उत्सव व महिलांचे मानसिक आरोग्य -

वर उल्लेख केलेल्या गौरी, मंगळागौर, नागपंचमी अशा सणावेळी महिला एकत्र येत असत व नाचगाणी गात असत. विविध खेळ खेळत असत. या सणाच्यावेळी महिलांना एकत्र येता येत होते. त्याशिवाय स्त्रियांना घराबाहेर पडण्याची फारशी संधी नव्हती. सर्व महिला एकत्र आल्यानंतर आपली वैयक्तिक, कौटुंबिक सुख दुःखे एकमेकांना सांगत असता त्यातून त्यांच्या भावनांना वाट मोकळी होत असे. सुखद आठवणीतून त्यांचा आनंद व्दिगुणित होत असे तर दुःख वाटल्याने हलके होत असे. हा या सण व उत्सवाचा फार मोठा फायदा होता. यामुळे महिलांना वेगळ्या समुदेशनाची गरज नव्हती.

या सणांच्या वेळी महिला जी गाणी म्हणत त्यातूनही त्यांची सुख, दुःखे, संसारिक अनुभव नाती गोती, देवदेवतांच्या प्रती त्यांच्या असणा-या भावना, निसर्ग प्रेम इ. व्यक्त होत असे. ही प्रथा म्हणजे त्यांच्या कला व काव्य गुणाला दिलेली संधीच होती. यातूनच त्यांचा मानसिक, भावनिक विकास होत असे. यासाठी काही उदाहरणांची नोंद या ठिकाणी आपण घेऊ शकतो.

देवदेवतांची उपासना महिला आपल्या काव्य शब्दात पुढीलप्रमाणे करतात.

माझी सगळी नाती देवाशीच जोडलेली

त्याच्या हुक्माने मी येथे आली

मल्हार सदाच माझ्या जवळी....

या गीतातून स्त्रीने आपली सर्वनाती देवाशी कशी जोडली आहेत हे लक्षात येते. स्त्री गीते म्हणजे स्त्री जीवनाची गाथाच आहे. कृषि संस्कृतीतील पुरुष प्रधान समाजव्यवस्थेने स्त्री अनेक बंधनांनी जखडून तिचे अस्तीत्व पुरुष सापेक्षी केले होते. आणि हे आयुष्य तिला नको होते असे ती एक गीतात सांगते.

कस्तुरीचा जल्म नको घालू श्रीहरी
संवसारी येऊनी, परायाची ताबदारी¹

माहेरची आणि भावाची नैसर्गिक ओढ एका गीतात सांगते बहिणीला भाऊ एक तरी असावा.

चोळीचा एक खण, एका रातीचा विसावा²

तर निसर्गाचे सौंदर्य टिपणा-या या ओळीतून स्त्रीची सौंदर्य दृष्टी दिसते.

हि फुले विकसली चौहिकडे, चल उचलुनि चुंबू त्यांसि गडे³

अशी व सर्वज्ञात असणारी अशी असंख्य गीते, कवीता, जात्यावरती गाणी, यातून महिला एकत्र येऊन व्यक्त होत असत व आपल्या भावनांना वाट मोकळी करून देत, यातूनच महिलांचे मानसिक भावनिक आरोग्य जपले जात होते.

सण उत्सव व शारिरीक आरोग्य -

महिलांच्या शारिरीक आरोग्याचा व सण उत्सवाचा विचार करता दोन बाबी महत्वाच्या आहेत म्हणजे सण उत्सवावेळी वापरले जाणारे खाद्य पदार्थ व दुसरे म्हणजे सण उत्सवावेळी खेळले जाणारे खेळ आणि त्यातून जपले जाणारी शारिरीक आरोग्य.

खाद्य संस्कृती व आरोग्य -

सण उत्सवावेळी जे खाद्य पदार्थ केले जाते ते ऋतूमानानुसार आरोग्य वर्धन करणारे असतात. खानपानाच्या पध्दतीही आरोग्यवर्धकच असतात. उदा. श्रावण महिन्यात केले जाणारे उपवास, गौरी गणपती वेळी वापरल्या जाणा-या पालेभाज्या, दस-यावेळी वापरला जाणारा राजगीरा व इतर फळे, पदार्थ, दिवाळीत खाल्ले जाणारे व शक्तीवर्धक फराळाचे पदार्थ, संक्राती वेळचे तीळगुळ इ. या सर्व उदाहरणावरून लक्षात येते की, सण उत्सवावेळी खाद्य संस्कृती शारिरीक आरोग्य जपणारी व सुदृढ करणारी आहे.

सण उत्सव खेळ व आरोग्य -

सण उत्सवावेळी खेळले जाणारे खेळ सुद्धा महिलांच्या आरोग्याचाच विचार करणारे आहेत या खेळातून नुसतेच आरोग्य जपले जात नाही तर आरोग्य सुदृढ कसे होईल हे ही पाहिले जाते. वेगवेगळ्या सणासाठी वेगवेगळे खेळ खेळले जातात. उदा. नागपंचमीच्या वेळी झिम्मा, फुगडी, काटवट कणा इ. प्रत्येक खेळातून स्त्रियांना व्यायाम होत असे. टाळी वाजवून स्त्रीया फेर धरत असत टाळी वाजवताना हातातील प्रेशर पॉईंट कार्यरत होतात.⁴ त्यामुळे अनेक आजारावर उपचार झाल्यासारखे होते, पिंग्याचे गाणे व नाच करताना कमरेतून शरीर वाकविल्यामुळे पाठीचा व पायाचा व्यायाम होतो. काटवट कणा या खेळ प्रकारातून पाठीचा भाग पूर्ण सैल होऊन आराम मिळतो. फुगडी या खेळाने सर्व शरीराला व्यायाम मिळतो. फुगडी मध्ये कंबर फुगडी हा एक प्रकार आहे.⁵ यामुळे ही बसून खेळायची असते याने पोटाची चरबी कमी होऊन वजन कमी होण्यास फार उपयोग होतो. फुगडीमध्येच बेलाची फुगडी, चौफुला फुगडी, लंगडी फुगडी असे अनेक प्रकार आहेत.⁶ मंगळा गौरीच्यावेळी 'घार

घुमुदे' या गाण्यावर केलेला नाच सर्वांग व्यायाम आहे.⁷ तुळजापुरातील अंबा फुगडी तर सर्वत्र प्रसिध्द आहे. 'काच किरडा' हा खेळ म्हणजे जीमधील ट्वीस्टिंगची आहे. आगोटा पागोटा, पिंगा, खुंटण, मिरची, दोडका कीस बाई दोडका कीस.

अशा अनेक खेळ प्रकारांचा विचार केला तर प्रत्येक खेळातून महिलांचे शारिरीक आरोग्य तंदुरुस्त कसे राहिल याचा विचार केला आहे.

निष्कर्ष -

अशा रितीने सण उत्सव यांची निर्मिती ऋतुमानानुसार स्त्रियांचे मानसिक, भावनिक आणि शारिरीक आरोग्य यांचा सहसंबंध अत्यंत जवळचा आहे. सण उत्सवाच्या निमित्ताने स्त्रीया एकत्र येतात, त्यातून सुख, दुःख वाटून घेतली जातात. त्यांच्यामध्ये एक सामाजिक ऐक्याचे नाते निर्माण होते हे नाते म्हणजे सामाजिक आरोग्य सुदृढ होण्याचे लक्षण आहे.

संदर्भ

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- 3) डॉ. चिरगोपकर अलका, अर्वाचीन मराठी कवयित्री स्नेहवर्धन पल्बिशिंग हाऊस, पुणे 2007, पृष्ठ क्र. 180.
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वर्धा जिल्ह्यातील विविध आजारांमुळे होणारे मृत्यू व त्या संदर्भातील उपाययोजना

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सारांश :-

आरोग्य भूगोल ही मानवी भूगोलाची उपशाखा आहे. आरोग्य हा घटक मानवी संसाधनाच्या दृष्टीने महत्वाचा घटक समजल्या जातो. देशाच्या आर्थिक व सामाजिक विकासासाठी अन्न, वस्त्र व निवारा या मुलभूत गरजांबरोबरच शिक्षण व आरोग्य या महत्वाच्या गरजांचा विचार सुद्धा केला जातो. आरोग्य व शिक्षण या दोन घटकांमुळे लोकसंख्येच्या गुणवत्तेचा दर्जा सुधारतो. आरोग्य भूगोलामध्ये आरोग्य सेवा सुविधेचा प्रामुख्याने विचार केला जातो.

प्रस्तावना :-

आरोग्य हा घटक मानवी संसाधनाच्या दृष्टीने महत्वाचा घटक समजल्या जातो. देशाच्या आर्थिक व सामाजिक विकासासाठी अन्न, वस्त्र व निवारा या मुलभूत गरजांबरोबरच शिक्षण व आरोग्य या महत्वाच्या गरजांचा विचार सुद्धा केला जातो. आरोग्य व शिक्षण या दोन घटकांमुळे लोकसंख्येच्या गुणवत्तेचा दर्जा सुधारतो. त्याचा परिणाम देशाच्या आर्थिक व सामाजिक विकासावर होतो. म्हणून सार्वजनिक आरोग्य सुधारणा करणे हे भारतीय घटनेनुसार राज्याचे प्राथमिक कर्तव्य मानले जाते. आरोग्य ही बहुपैलु संकल्पना असून त्यावर भौगोलिक, सामाजिक, आर्थिक, सांस्कृतिक, शैक्षणिक व पर्यावरणीय घटकांचा एकत्रित व विविधांगी परिणाम होत असतो.[1] जागतिक आरोग्य संघटनेनुसार, 'आरोग्य म्हणजे शारीरिक, मानसिक व सामाजिक कल्याणाची परिपूर्ण स्थिती आणि आजारपण व दुर्बलतेच्या अस्तित्वाचा अभाव असणे होय'.[3] आरोग्याची संबंधित महत्वाचा घटक म्हणजे रोग. रोग म्हणजे स्वास्थ्य या अवस्थेच्या विरुद्धची अवस्था रोग हे स्थितीपरत्वे बदलतात. रोग हे अनुवांशिक, जन्मतः व कालांतराने होतात. तर काही रोगास तेथील प्राकृतिक व मानवनिर्मित घटक जबाबदार असतात. जसे एखाद्या कारखान्याच्या जवळ लोकांची वस्ती असेल तर तेथील लोकांना काही आजार उद्भवू शकतात जसे वंध्यत्व, कुपोषण, नपुंसकता, गरोदर माता मृत्युदर, बाल मृत्युदर, दम्याचे आजार, कॅन्सर हत्यादी रोग. निरोगी जीवनासाठी पोषक वातावरण गरजेचे असते त्याच प्रमाणे पोषक आहार सुद्धा महत्वाचा असतो, कारण मानवी शरीराला योग्य त्या प्रमाणात काही मुलद्रव्याची गरज असते ते न मिळाल्यास मानवाला थायरॉईड, अॅनेमिया, स्कर्व्ही सारखे रोग होतात. तर काही आजार हे विशिष्ट कालावधीतच होतात जसे डेंग्यू, मलेरिया सारखे आजार सहसा पावसाळ्यातच होतात. वर्धा जिल्ह्यात आठ तालुके असून २०११ च्या जनगणनेनुसार लोकसंख्या १३,००,७७४ आहे.[4] तसेच १२ रुग्णालयांचा समावेश असून १ विशेष रुग्णालये (कॅन्सर, टी.बी.इ.) चे आहे. ३१ दवाखाने, २७ प्राथमिक आरोग्य केंद्र, १८१ उपकेंद्र, ५६८ डॉक्टर व वैद्यांची उपलब्धता आहे. असे असेल तरीही वर्धा जिल्ह्यात सेवाग्राम व सावंगी येथे दोन निम-सरकारी रुग्णालये आहेत. जिल्हा पातळीवर जिल्हा सरकारी दवाखाने आहेत. या तिन्ही रुग्णालयांमध्ये रुग्णांचा चांगल्या प्रकारे उपचार केला जातो. तसेच स्थायी ठिकाणी प्राथमिक आरोग्य केंद्र, उपकेंद्र सुद्धा अस्तित्वात आहे. गाव पातळीवर आशा कर्मचारी कार्य पाहतात. गरोदर स्त्रियांना व पाच वर्षांपर्यंतच्या बालकांना शासनाकडून पोषक आहार पुरवला जातो, असे असेल तरीही वर्धा जिल्ह्यात साथीच्या विकारांमुळे, बिगर साथीच्या विकारांमुळे तसेच अपघात या कारणांमुळे मृत्यूची संख्या पहावयास मिळते ते पुढील प्रमाणे आहे.[2]

विविध कारणांमुळे मृत्यूची संख्या

जिल्हा वर्धा		संदर्भ वर्ष : २०१९-२०२०		
अ.क्र.	मृत्यूचे कारण	मृत्यूची संख्या		
		पुरुष	स्त्री	एकूण
(१)	(२)	(३)	(४)	(५)
अ	साथीचे विकार			
१	हिवताप	१२	६	१८
२	विषमज्वर	०	०	०
३	क्षयरोग	१८	९	२७
४	न्युमोनिया / श्वसन क्रीयेसंबंधी	२९०	३०१	५९१
५	अमांश, अतिसार, गॅस्ट्रा	१	१	२
६	डेंग्यू	०	०	०
७	स्वाईन फ्लू	०	०	०
ब	बिगर साथीचे विकार			
१	एड्स	१२	५	१७
२	हृदय विकार	३३९	३१०	६४९
३	कर्करोग	१३५	११२	२४७
४	बाळंतपणात मातेचा मृत्यू	०	२९	२९
५	पक्षाघात	१६०	१३०	२९०
६	मूत्रपिंड विषयक	९०	८४	१७४
क	अपघात			
१	आत्महत्या	१०३	३८	१४१
२	रहदारी वाहतूक	८१	३१	११२
३	विद्युत धक्का	०	०	०
४	भाजणे / जळणे	२	१२	१४
५	इतर अपघात	६	२	८
ड	इतर कारणे	१३२२	१२२०	२५४२
	एकूण मृत्यू	२५७१	२२९०	४८६१
आधार — जिल्हा आरोग्य अधिकारी, जिल्हा परिषद वर्धा.				

वरील तक्त्यावरून असे निदर्शनात येते कि, हिवताप, क्षयरोग, न्युमोनिया, एड्स, हृदय विकार, कर्करोग, पक्षाघात, मूत्रपिंड, बाळंतमातेचा मृत्यू, तसेच आत्महत्या व अपघात या कारणांमुळे वर्धा जिल्ह्यात मृत्यूची संख्या जास्त आढळते.

उपाययोजना :-

१. जे रोग होतात त्याबद्दल ग्रामीण व शहरी भागात लोकांपर्यंत रोगांबाबत जनजागृती करायला हवी.
२. पावसाळ्यात डेंग्यू, मलेरिया हे आजार होऊ नये यासाठी सांडपाण्याची योग्य विल्हेवाट लावणे, डबक्यात पाणी साचू न देणे, घराभोवताल स्वच्छता ठेवणे, जिथे डास जास्त संख्येने आढळतात, त्यावर मोनोफॉरीफॉस (Monophosphates) या औषधाची फवारणी करावी.
३. छोटे मोठे नाले असेल तर तिथे गप्पी मासे सोडायला हवे.

४. एक ते दीड महिन्यापेक्षा जास्त खोकला असल्यास क्षयरोगाची तपासणी करण्यास सांगावी व आशा कर्मचार्यामार्फत लोकांपर्यंत जागृती करण्यास सांगावी.
५. वर्धा जिल्ह्यात न्युमोनिया / श्वसन क्रियेसंबंधी आजारांमुळे मृत्यूची संख्या सर्वात जास्त आढळते, त्यासाठी लसीकरण करायला हवी, रोग प्रतिकारक शक्ती वाढवायला हवी मद्यपान आणि धूम्रपान करण्यास टाळावे.
६. वर्धा जिल्ह्यात हृदय विकारांमुळे हल्ली जास्त मृत्यू होतात. त्यासाठी प्रत्येक प्राथमिक आरोग्य केंद्र, उपकेंद्र व सामुदायिक आरोग्य केंद्रावरील प्रत्येक आरोग्य कर्मचार्यास सीपीआर (Cardiopulmonary resuscitation) चे प्रशिक्षण द्यायला हवे.
७. या जिल्ह्यात कर्करोगांमुळे सुद्धा मृत्यू झालेले पहावयास मिळतात. त्यासाठी जिल्हा सामान्य रुग्णालयातील उपचाराचा दर्जा सुधारायला हवा, कारण जास्तीत जास्त रुग्ण हे कर्करोगावरील उपचार घेण्याकरिता निम-सरकारी तसेच खासगी रुग्णालयात उपचार घेण्याकरिता जातात.
८. पक्षाघातामुळे सुद्धा या जिल्ह्यातील मृत्यूची संख्या आढळतात. त्यासाठी रुग्णालयातील आपातकालीन सेवा सुविधेचा दर्जा व रुग्णवाहिका सुसज्जतने परिपूर्ण असायला हव्यात.

संदर्भ :-

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२. आर्थिक व सामाजिक समालोचन, वर्धा जिल्हा, २०१९-२०२०
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महाराष्ट्रातील नैसर्गिक संसाधने आणि शाश्वत विकास

डॉ. धेडे डी. आर.

सहयोगी प्राध्यापक व अर्थशास्त्र

विभाग प्रमुख,

यशवंतराव चव्हाण वारणा

महाविद्यालय, वारणानगर

ता. पन्हाळा, जिल्हा-कोल्हापूर

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प्रस्तावना :

सर्वप्रथम सन 1987 मध्ये पर्यावरण आणि विकास यावरील जागतिक समितीने शाश्वत विकास ही संकल्पना मांडली. चिरकाल विकास ही संकल्पना पर्यावरणवादी, अर्थशास्त्रज्ञ, राज्यशास्त्रज्ञ, राजकारणी व निर्णय प्रक्रियेतील अधिकारी यांच्याशी संबंधित आहे. भविष्यकालीन विकासाच्या गरजेच्या संबंधितासह सध्याचा विकास मानला जातो तो म्हणजे शाश्वत विकास होय. शाश्वत विकासामुळे नैसर्गिक संसाधनांच्या शाश्वत वापरावर जोर देते की, त्यामुळे भविष्यकालीन पिढ्यांच्या गरजा पूर्ण करता येतील. अशाच प्रकारचा प्रयत्न महाराष्ट्र शासनाकडून केला जात आहे. थोडक्यात, नैसर्गिक संसाधनांचा अतिरिक्त वापर होऊ नये, तसेच अतिरिक्त उत्पादन व उपभोग ही घातक असतो म्हणून नैसर्गिक संसाधनाचा वापर करताना शाश्वत विकासाची खबरदारी घेणे तितकेच महत्वाचे असते.

शाश्वत विकासाची व्याख्या :

“शाश्वत विकास म्हणजे असा विकास की, जो भविष्यकालीन पिढीच्या त्यांच्या स्वतःच्या गरजा पूर्ण करण्याच्या सामर्थ्याचे किंवा कर्तृत्वाचे तडजोडीशिवाय सध्याच्या गरजांची पूर्तता करणे होय.”

शाश्वत विकासाचे महत्त्व :

शाश्वत विकासाची कल्पना असे मानते की, नैसर्गिक साधन सामग्रीचा शाश्वत वापर आणि चालू व भावी पिढीच्या कल्याणासाठी शाश्वत उत्पादन व उपभोग होय. म्हणूनच शाश्वत विकास ही संकल्पना अतिशय उपयुक्त व आवश्यक आहे. शाश्वत विकास सध्या काळाची गरज बनलेली आहे म्हणूनच जगातील सर्व देशांनी व देशातील सर्व राज्यांनी शाश्वत विकासाच्या दिशेने पाऊल टाकण्यास सुरुवात केलेली आहे. अशा प्रकारचा प्रयत्न महाराष्ट्र शासनामार्फत केला जात आहे म्हणूनच महाराष्ट्रातील नैसर्गिक संसाधने आणि शाश्वत विकास यांचा अभ्यास सदरच्या शोध निबंधामध्ये करणेत आलेला आहे.

अभ्यासाची उद्दिष्टे :

- 1) महाराष्ट्रातील जल संसाधनाचा अभ्यास करणे.
- 2) महाराष्ट्रातील वन संसाधनाचा अभ्यास करणे.
- 3) महाराष्ट्रातील ऊर्जा स्रोतांचा अभ्यास करणे.
- 4) महाराष्ट्रातील शाश्वत विकासाची ध्येये अभ्यासणे.

गृहितक :

महाराष्ट्रातील नैसर्गिक संसाधने आणि शाश्वत विकास यांच्यात समतोल राखण्याचा प्रयत्न महाराष्ट्र शासनाकडून केला जात आहे.

अभ्यास पद्धती :

सदरचा शोध निबंध हा “महाराष्ट्रातील नैसर्गिक संसाधने आणि शाश्वत विकास” यावर आधारित आहे. महाराष्ट्राला नैसर्गिक साधन संपत्ती मुबलक प्रमाणात लाभलेली आहे परंतु जल संपत्ती, वन संपत्ती, ऊर्जा स्रोत, शाश्वत विकासाची ध्येये यांची निवड अभ्यासासाठी केलेली आहे. सदर नैसर्गिक संसाधनाची माहिती संकलित करण्यासाठी ऑनलाईन, वार्षिक अंक, संदर्भ ग्रंथ, वर्तमानपत्रे यासारख्या द्वितीय स्रोतांचा वापर करण्यात आलेला आहे. तसेच आवश्यक त्या ठिकाणी अचूक आकडेवारी देण्यात आलेली आहे. त्यामुळे सदरचा शोध निबंध हा पूर्णतः द्वितीय स्रोतांवर आधारित आहे त्यावर टाकलेला एक दृष्टिक्षेप.

महाराष्ट्रातील जल संपत्ती :

पाणी म्हणजे जीवन आहे त्यामुळे जल संपत्तीला सजीवांच्या बाबतीत खुप महत्त्व आहे. महाराष्ट्रामध्ये नैऋत्य मोसमी वाऱ्यामुळे पाऊस पडतो. राज्यात पावसाळी सुरुवात 7 जून पासून होते. महाराष्ट्रात जून ते सप्टेंबर या कालावधीत पाऊस पडतो. महाराष्ट्रात प्रत्यक्ष पडलेल्या पावसाची विभाग निहाय वर्गीकरण पुढील तक्त्यात केली आहे.

तक्ता क्रमांक-1

विभाग निहाय प्रत्यक्ष पडलेला पाऊस

कालावधी	पडलेला पाऊस (मिमी)						
	कोकण	नाशिक	पुणे	औरंगाबाद	अमरावती	नागपूर	महाराष्ट्र
जून 2020	541.2	210.0	200.9	203.2	183.1	193.3	235.1 (113.2)
जुलै 2020	886.1	204.7	165.4	209.0	247.6	347.8	287.5 (86.9)
ऑगस्ट 2020	1222.0	192.4	310.4	151.1	199.5	444.4	353.5 (123.6)
सप्टेंबर 2020	429.9	193.7	189.3	270.3	151.0	139.1	218.8 (121.8)
ऑक्टोबर 2020	242.5	71.0	232.7	110.7	59.2	51.5	124.7 (175.4)
जून 2020 ते ऑगस्ट 2020	3321.7	871.8	1098.7	944.3	840.4	1097.1	1219.6 (113.4)

आधार-कृषी आयुक्तालय, महाराष्ट्र शासन
टीप- कंसातील आकडे प्रत्यक्ष पडलेल्या पावसाची सरासरीशी टक्केवारी दर्शवितात.

तक्ता क्रमांक 1 वरून असे स्पष्ट होते की, जून 2020 ते ऑगस्ट 2020 मध्ये सर्वात जास्त पाऊस कोकण विभागात 3321.7 मिलीमीटर पडलेला आहे. तर सर्वात कमी पाऊस अमरावती जिल्ह्यात 840.4 मिमी पडलेला आहे तसेच महाराष्ट्रात जून 2020 ते ऑगस्ट 2020 या कालावधीमध्ये एकूण 1219.6 मिलीमीटर पाऊस पडलेला आहे. सरासरी पावसाचे प्रमाण 1075.3 मिलीमीटर आहे म्हणजेच प्रत्यक्ष पडलेल्या पावसाचे प्रमाण सरासरी पावसाच्या 113.4% आहे.

महाराष्ट्रातील जलसिंचन :

सन 2019-2020 मध्ये महाराष्ट्र शासनाच्या जलसंपदा विभागाच्या अधिपत्याखालील लाभ क्षेत्रातील सिंचित क्षेत्र 40.52 लाख हेक्टर आहे. पाटबंधारे प्रकल्पांची संख्या, निर्मित सिंचन क्षमता आणि सिंचन क्षेत्र, लघु सिंचन प्रकल्पाची (स्थानिक क्षेत्र) संख्या, निर्मित सिंचन क्षमता आणि सिंचन क्षेत्र पुढील तक्त्यात दर्शविली आहे.

तक्ता क्रमांक-2

सिंचन क्षेत्राचा तपशील

तपशील (सिंचन क्षमता लाख हेक्टर)	जलसंपदा विभागाचे प्रकल्प/इतर महत्वाचे प्रकल्प			
	मोठे व मध्यम	लघु	स्थानिक क्षेत्र	एकूण
30 जून 2020 रोजी पूर्ण व प्रगती पथावरील प्रकल्प संख्या	405	3472	113618	1,17,495
1) जून 2019 पर्यंत निर्माण झालेली सिंचन क्षमता	39.18	13.86	18.96	72
2) 2019-20 मधील कालवा व नदी व्दारे सिंचन क्षेत्र	19.57	7.03	19.26	45.86
3) 2019-20 मधील लाभ क्षेत्रातील विहीरीव्दारे सिंचन क्षेत्र	11.79	2.13	8.63	22.55
4) 2019-20 मधील वापरलेली एकूण सिंचन क्षमता (2+3)	31.36	9.16	27.89	68.41

आधार- मुख्य अभियंता, लघु पाटबंधारे (स्थानिक) महाराष्ट्र शासन, जलसंपदा विभागाच्या अधिपत्याखालील मुख्य लेखा परिक्षक जल व सिंचन, औरंगाबाद

वरील तक्ता क्रमांक 2 वरून असे स्पष्ट होते की, महाराष्ट्रात 30 जून 2020 रोजी पूर्ण झालेल्या व प्रगती पथावरील मोठ्या व मध्यम प्रकल्पांची संख्या 405, लघु प्रकल्पांची संख्या 3472 आणि स्थानिक क्षेत्र प्रकल्पांची संख्या 1,13,618 अशी एकूण प्रकल्प संख्या 1,17,495 आहे. तसेच महाराष्ट्रात जून 2019 पर्यंत निर्माण झालेली सिंचन क्षमता (मोठे, मध्यम, लघु, स्थानिक क्षेत्र) 72 लाख हेक्टर होती. तसेच 2019-2020 मध्ये एकूण निर्माण झालेल्या सिंचन क्षमतेपैकी 68.41 लाख हेक्टर वर सिंचनाचा वापर करण्यात आलेला आहे. थोडक्यात, महाराष्ट्रात 2019-2020 मध्ये सिंचन क्षमता व सिंचनाचा वापर यामध्ये वाढ झालेली आहे.

महाराष्ट्रातील वन संपत्तीचा तपशील :

महाराष्ट्रात सन 2019-20 अखेर एकूण वनक्षेत्र 61,951.76 चौरस किलोमीटर होते. राष्ट्रीय वन धोरण, 1988 नुसार वन क्षेत्राचे प्रमाण भौगोलिक क्षेत्राच्या 33% असणे आवश्यक आहे परंतु महाराष्ट्रात हे वनक्षेत्र 20% आहे. भारताचा वन स्थिती अहवाल, 2019 नुसार राज्याचे वनाच्छादान 50,778 चौरस किलोमीटर असून ते भारताचा वन स्थिती अहवाल 2017 मध्ये नमूद केलेल्या वनाच्छादनाच्या तुलनेत 96 चौरस किलोमीटर ने वाढलेले आहे. महाराष्ट्र राज्याच्या एकूण वनाच्छादनात अति घनदाट वने 17.2%, मध्यम घनदाट वने 40.5%, खुली वने 42.3% होती. राज्याचे एकूण कांठवन आच्छादन भारताचा वनस्थिती अहवाल, 2019 नुसार 320 चौरस किलोमीटर असून ते भारताचा वनस्थिती अहवाल 2017 मध्ये नमूद केलेल्या आच्छादनाच्या तुलनेत 16 चौरस किलोमीटर ने वाढले आहे. राज्यातील परिमंडळ निहाय वन क्षेत्राचा तपशील पुढील तक्त्यात दर्शविला आहे.

तक्ता क्रमांक-3

वन परिमंडळ निहाय वनक्षेत्राचे वर्गीकरण (31 मार्च 2020)

वन परिमंडळ	वनक्षेत्र (चौ. कि. मी)			
	राखीव	संरक्षित	अवर्गीकरण	एकूण
गडचिरोली	11227.49	1403.05	267.59	12,897.84
नागपूर	4414.17	2157.10	1184.63	7,755.90
धुळे	6148.12	57.06	222.77	6427.95
ठाणे	4344.27	1156.15	333.32	5835.74
नाशिक	5065.92	241.02	32.96	5339.90
चंद्रपूर	3835.80	877.71	125.84	4839.35
अमरावती	5055.54	15.81	14.06	5085.41
कोल्हापूर	3361.79	412.78	754.61	4529.18
यवतमाळ	3352.86	6.31	122.35	3481.53
पुणे	2430.53	0.03	174.04	2604.60
औरंगाबाद	2818.94	105.86	229.57	3154.37
महाराष्ट्र	5,20,55.13	6432.88	3563.75	61,951.76

आधार-प्रधान मुख्य वन संरक्षण यांचे कार्यालय, महाराष्ट्र शासन वरील तक्ता क्रमांक 3 वरून असे स्पष्ट होते की, महाराष्ट्रात 31 मार्च 2020 रोजी राखीव वन क्षेत्राचे प्रमाण 52,055.13 चौरस किलोमीटर होते. याच कालखंडात राज्यातील संरक्षित व अवर्गीकरण वन क्षेत्राचे प्रमाण अनुक्रमे 6432.88 चौरस किलोमीटर व 3563.75 चौरस किलोमीटर आहे. राज्यात 31 मार्च 2020 रोजी राखीव, संरक्षित आणि अवर्गीकरण वन क्षेत्राचे एकूण प्रमाण 61,951.76 चौरस किलोमीटर होते.

राज्यातील एकूण वन क्षेत्राच्या 20.81% प्रमाण सर्वात जास्त गडचिरोली वन मंडळाचे आहे तर एकूण वन क्षेत्राच्या 4.20% प्रमाण सर्वात कमी पुणे वन परिमंडळाचे आहे.

महाराष्ट्रातील ऊर्जा स्रोतांचा तपशील :

आधुनिक अर्थव्यवस्थेचा सातत्यपूर्ण विकासात विद्युत ऊर्जेची महत्वाची भूमिका आहे पारंपारिक आणि नवीकरणीय स्रोतांद्वारे वीज निर्मिती केली जात आहे व ती अर्थव्यवस्था सर्वच क्षेत्रांमध्ये वापरली जाते.

स्थापित क्षमता :

31 मार्च 2019 रोजी महाराष्ट्राची वीज निर्मितीची एकूण स्थापित क्षमता 36,729 मेगावॉट असून त्यात खाजगी क्षेत्राचा वाटा 57.6%, सार्वजनिक क्षेत्राचा वाटा 37.0% आणि सरकारी व खाजगी भागीदारी प्रकल्पांचा वाटा 5.4% आहे. राज्यातील वीज निर्मितीची स्थापित क्षमता 31 मार्च 2019 रोजी देशात सर्वाधिक होती. महाराष्ट्रातील स्रोत निहाय स्थापित क्षमता पुढील तक्त्यात दिलेली आहे.

तक्ता क्रमांक-4

स्त्रोत निहाय स्थापित क्षमता (दशलक्ष युनिट्स)

स्त्रोत	31 मार्च रोजी			31 डिसेंबर 2019 रोजी
	2017	2018	2019	
राज्यात	35192	36317	36729	36076
औष्णिक	21496	22096	22096	21176
नवीकरणीय	7558	8341	8753	9020
जलजन्य	3066	3061	3061	3061
नै. वायुजन्य	3072	2819	2819	2819
क्षेत्रीय क्षेत्रांकडून वाटप	7114	7420	7754	7779

आधार-महानिर्मिती, महाऊर्जा, केंद्रीय विद्युत प्राधिकरण, केंद्र शासन, टाटा पॉवर कं. लि. रिलायन्स इन्फ्रास्ट्रक्चर/अदानी इलेक्ट्रीसिटी

तक्ता क्रमांक 4 वरून असे स्पष्ट होते की, महाराष्ट्र राज्यात 31 डिसेंबर 2019 रोजी ऊर्जेच्या स्त्रोत निहाय स्थापित क्षमतेत औष्णिक स्त्रोताचा वाटा (21176 दशलक्ष युनिट्स) सर्वात जास्त आहे तर सर्वात कमी वाटा (2819) नैसर्गिक वायुजन्य स्त्रोताचा आहे. राज्यात 31 मार्च 2019 रोजी ऊर्जेची स्थापित क्षमता 36076 दशलक्ष युनिट्स होती.

महाराष्ट्र शासनाची शाश्वत विकासाची ध्येये :

संयुक्त राष्ट्र संघाने सप्टेंबर 2015 मध्ये आपल्या जगाचे परिवर्तन हा विकासाचा अजेंडा स्वीकारलेला आहे. या अजेंड्यानुसार सन 2030 पर्यंत 17 शाश्वत विकास ध्येयांपर्यंत 169 उद्दिष्टे साध्य करावयाची आहेत. भारतासह 193 देशांनी या 17 शाश्वत विकास ध्येयांचा स्वीकार केलेला आहे. सामाजिक, आर्थिक, पर्यावरण आणि शांतता या चार आयामांमध्ये शाश्वत विकासाची ध्येये विभाजित झालेली आहेत. सदर 17 ध्येयांची लक्ष्यपूर्ती करण्यासाठी राष्ट्रीय आणि राज्यांची धोरणात्मक, संस्थात्मक, स्थापित सहयोग आणि ठोस कृती आवश्यक आहे.

आराखडा :

शाश्वत विकासाच्या ध्येय पूर्तीसाठी महाराष्ट्र शासनाने जिल्हा नियोजन समितीच्या संविधानिक नियमांमध्ये राज्य स्तरीय व जिल्हा स्तरीय योजनांची संबंधित 17 शाश्वत विकास ध्येयांच्या 169 निर्देशांकाशी सांगड घालणे, प्रशिक्षण देणे, शाश्वत विकासाव्दारे गावे सक्षम बनविण्यासाठी ग्राम सामाजिक परिवर्तन अभियानाची 1000 गावांमध्ये चालू करणे, मानव विकास कार्यक्रमांतर्गत 23 जिल्हांमधील 125 तालुक्यांमध्ये ग्रामीण महिलांसाठी उपजीविका कार्यक्रम राबविणे यासारख्या अनेक योजना हाती घेण्यात आलेल्या आहेत. 13 जिल्ह्यातील अतिमागास 27 तालुक्यांमध्ये सुक्ष्म विकास करण्यासाठी संयुक्त राष्ट्र संघाच्या सहकार्याने 'अॅक्शन रूम टू रिड्यूस पॉव्हर्टी' स्थापन केला आहे.

शाश्वत विकास ध्येये निर्देशांक :

30 डिसेंबर 2019 रोजी निती आयोगाने शाश्वत विकास ध्येये निर्देशांक अहवाल 2019-20 मध्ये प्रकाशित एकूण 17 ध्येयांपैकी 16 ध्येयांचे गुणात्मक मूल्यांकन करून शाश्वत विकास ध्येय निर्देशांक तयार केला आहे. राज्यांचा व केंद्रशासित प्रदेशांचा प्रगतीचा आढावा घेण्यासाठी हा निर्देशांक वापरण्यात येतो. राज्यांना त्यांच्या कामगिरीनुसार चार श्रेणीमध्ये विभाजित केले असून 'साध्य करणारा' (100), साध्यतेत आघाडीवर असणारा (65-99), प्रगती करणारा (50-64) आणि इच्छुक (0-49) असे वर्गीकरण करण्यात आले आहे. शाश्वत विकास ध्येय निर्देशांक अहवाल 2019 नुसार भारताचा 60 गुणांच्या महाराष्ट्र 64 गुणांसह प्रगती करणारे राज्य आहे. केरळ 70 गुणांसह प्रथम क्रमांकावर तर हिमाचल प्रदेश 69 गुणांसह दुसऱ्या क्रमांकावर आहे. महाराष्ट्र राज्याची सर्वोत्तम कामगिरी 'स्वच्छ पाणी व स्वच्छता' (93 गुण) या शाश्वत विकास ध्येयांच्या सहाव्या ध्येयांमध्ये असून किमान कामगिरी उपासमारीचे समूह उच्चाटन 1341 गुण या शाश्वत विकास ध्येयांच्या दुसऱ्या ध्येयांमध्ये आहे यासाठी 16 ध्येयांची कामगिरी पुढील तक्त्यात चार श्रेणींमध्ये दिली आहे.

तक्ता क्र-5

राज्याचे शाश्वत विकास ध्येयांमधील कामगिरीनुसार वर्गीकरण

कामगिरी				
कामगिरी	साध्य करणारा (100)	साध्यतेत आघाडीवर असणारा (65-99)	प्रगती करणारा (50-64)	इच्छुक (0-49)
शाश्वत विकास साध्य	निरंक	ध्येय 3 निरोगीपणा आणि क्षेत्र कुशल ध्येय 4 गुणवत्तापूर्ण शिक्षण ध्येय 6 स्वच्छ पाणी व स्वच्छता ध्येय 7 किफायतशीर आणि स्वच्छ दर्जा ध्येय 8 चांगल्या दर्जाचे काम आणि आर्थिक वाढ ध्येय 10 विषमता कमी करणे ध्येय 12 शाश्वत वापर आणि उत्पादन ध्येय 15 जमिनीवरचे जीवन ध्येय 16 शांती, न्याय आणि सशक्त संस्था	ध्येय 9 उद्योग नाविण्य आणि पायाभूत सुविधा ध्येय 13 हवामान कृती	ध्येय 1 गरीबी निर्मूलन ध्येय 2 उपासमारीचे समूह उच्चाटन ध्येय 5 स्त्री-पुरुष समानता ध्येय 11 शाश्वत शहरे आणि समुदाय ध्येय 14 पाण्याखालचे जीवन

आधार-शाश्वत विकास ध्येय निर्देशांक अहवाल 2019-2020

निष्कर्ष : सदर शोध निबंधाचे महत्वपूर्ण निष्कर्ष पुढीलप्रमाणे-

- 1) जून 2020 ते ऑगस्ट 2020 मध्ये राज्यात सर्वात जास्त पाऊस कोकण विभागात तर सर्वात कमी पाऊस अमरावती विभागात पडलेला आहे.
- 2) जून 2020 ते ऑगस्ट 2020 या कालावधीमध्ये राज्यात पडलेल्या पावसाचे प्रमाण सरासरी पावसाच्या 113.4% आहे.
- 3) जून 2019 पर्यंत महाराष्ट्रात निर्माण झालेली एकूण सिंचन क्षमता 72 लाख हेक्टर होती.
- 4) सन 2019-2020 मध्ये एकूण निर्माण झालेल्या सिंचन क्षमतेपैकी 68.41 लाख हेक्टरवर सिंचनाचा वापर करण्यात आलेला आहे.
- 5) राज्यातील एकूण वनक्षेत्राच्या 20.81% वाटा गडचिरोली वन मंडळाचा सर्वात जास्त आहे.
- 6) राज्यातील एकूण वनक्षेत्राच्या 4.20% वाटा पुणे वन मंडळाचा सर्वात कमी आहे.
- 7) 31 मार्च 2019 रोजी राज्याच्या वीज निर्मितीच्या एकूण स्थापित क्षमतेत खाजगी, सरकारी आणि खाजगी व सरकारी भागीदारी क्षेत्राचा वाटा अनुक्रमे 57.6%, 37.0% आणि 5.4% आहे.
- 8) शाश्वत विकास ध्येय निर्देशांक अहवाल 2019 नुसार भारताचा 60 गुणांच्या तुलनेत महाराष्ट्र 64 गुणांसह प्रगती करणारे राज्य आहे.
- 9) भारतामध्ये शाश्वत विकास ध्येय निर्देशांक अहवालात केरळ राज्य 70 गुणांसह प्रथम क्रमांकावर आहे.
- 10) महाराष्ट्राची सर्वोत्तम कामगिरी 'स्वच्छ पाणी व स्वच्छता' (93 गुणांसह) या शाश्वत विकास ध्येयांच्या सहाय्या ध्येयामध्ये आहे.
- 11) 31 डिसेंबर 2019 रोजी ऊर्जेच्या स्रोत निहाय स्थापित क्षमतेत औष्णिक स्रोतांचा वाटा सर्वात जास्त 21176 द. ल. युनिट्स तर सर्वात कमी नैसर्गिक वायुजन्य स्रोतांचा 2819 द. ल. युनिट्स होता.

संदर्भ :

- 1) ऑनलाईन लिंक- <https://mahades.maharashtra.gov.in/esm.do?type=R>
- 2) महाराष्ट्राची आर्थिक पाहणी, 2020-2021, अर्थ व सांख्यिकी संचालनालय, विभाग महाराष्ट्र शासन, मुंबई
- 3) महाराष्ट्राची आर्थिक पाहणी, 2019-2020, अर्थ व सांख्यिकी संचालनालय, विभाग महाराष्ट्र शासन, मुंबई
- 4) महाराष्ट्र-2020, संतोष दास्ताने
- 5) अस्सा हा महाराष्ट्र, के. सागर
- 6) द मेगा स्टेट महाराष्ट्र, ए. बी. सनदी, अकरावी आवृत्ती, निराली प्रकाशन

डॉ. डी वाय पाटील इन्स्टिट्यूट ऑफ मॅनेजमेंट अँड अन्वेषण डेव्हलपमेंट येथील
ग्रंथालयामार्फत भ्रमणध्वनी द्वारे दिल्या जाणाऱ्या सेवा

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सारांश:

आजच्या माहित तंत्रज्ञानाच्या युगामध्ये प्रत्येकाकडे स्मार्ट फोन उपलब्ध झालेला आहे, याला आपण मोबाईल क्रांती म्हणू शकतो, प्रस्तुत लेखामध्ये डॉ डी वाय पाटील इन्स्टिट्यूट ऑफ मानजमेंट अँड अन्वेषण डेव्हलपमेंट या महाविद्यालयातील ग्रंथालयामार्फत उपभोक्त्यांना भ्रमणध्वनी द्वारे कोणकोणत्या सुविधा दिल्या जातात या विषयीचा हा लेख आहे, थोडक्यात मोबाइल लायब्ररी ही संकल्पना स्पष्ट केली आहे,

मोबाईल ग्रंथालये म्हणजे थोडक्यात भ्रमणध्वनी ग्रंथालये पूर्वीच्या काळा मध्ये जी फिरती ग्रंथालये होती त्याचाच एक भाग म्हणजे आताच्या काळातील भ्रमणध्वनी ग्रंथालये, पूर्वी जी फिरती ग्रंथालये होती तिच संकल्पना आता भ्रमणध्वनी ग्रंथालये या मध्ये वापरली जाते, म्हणजेच फिरती ग्रंथालये ही संकल्पना व तिचे कार्य हे जुने झालेले नाही किंवा काळाच्या ओघात ते नामशेष ही झालेले नाही,

थोडक्यात मोबाइल फोन वरील ग्रंथालय असा त्या नवीन संकल्पनेचा अर्थ नसून मोबाइल फोन द्वारे दिल्या जाणाऱ्या सेवा असा अर्थ अभिप्रेत आहे त्यामुळे फिरती ग्रंथालये या संकल्पनेशी याचा काहीही संबंध नाही.

प्रस्तावना:

आपण आपल्या संगणकावरती ज्या पद्धतीने माहिती चा साठा करतो व ती माहिती आपल्या उपभोक्त्यांना देतो त्याच प्रकारे आपण साठून ठेवलेली माहिती आपल्या उपभोक्त्यांना मोबाईल च्या माध्यमातून देऊ शकतो, त्यामुळे वाचकाचा व ग्रंथालय सेवकांचा वेळ वाचेल , आपल्या उपभोक्त्यांना कमी वेळेत जास्त माहित वाचकां पर्यंत पोहचवू शकतो, आजच्या या धावपळीच्या जीवनात प्रत्येकाला कोणती ही गोष्ट लगेच हवी असते , त्यामुळे जो तो आपले ज्ञान अद्ययावत ठेवण्याचा प्रयत्न करत असतो , मग यामध्ये ग्रंथालये तर का मागे राहतील म्हणूनच आपल्या वाचकांना नवनवीन माहिती मोबाईल च्या माध्यमातून वाचकांपर्यंत लगेच पोहचवण्यासाठी मोबाइल फोन चा वापर केला जातो,

तंत्रज्ञान:

आज बाजारामध्ये वेगवेगळ्या प्रकारचे स्मार्ट फोन उपलब्ध आहेत त्यामध्ये अँड्रॉइड I Phone, आणि विंडोज या प्रचलित ऑपरेटिंग सिस्टीम आहेत , आपल्याला वाचकांना कोणत्या स्वरूपाची माहिती द्यावयाची आहे त्यावर त्या तंत्रज्ञान चा विचार करावा लागेल, जर उपभोक्त्यांना Pdf स्वरूपात माहिती पोहोचवायची असेल तर मोबाइल ची साठवणूक क्षमता किती असावी हा विषय इथे महत्वाचा ठरतो, वाचकांना फक्त सुचिय किंवा संदर्भ सेवा द्यावयाची असेल तर त्या साठी कोणत्या ही क्षमतेचा भ्रमणध्वनी उपयुक्त ठरेल हे ठरवावे लागेल जर ग्रंथालय उपभोक्त्याकडे Tab असेल तर त्यांच्या गरजा वेगळ्या ठरतील तसेच त्या उपभोक्त्याच्या अपेक्षा ही वेगळ्या असतील ,आशा वेळी ग्रंथालयने काय करावे ते ठरवावे लागेल , डॉ डी वाय पाटील इन्स्टिट्यूट ऑफ मॅनेजमेंट अँड अन्वेषण डेव्हलपमेंट येथील ग्रंथालया मार्फत वाचकांना खलील सेवा सुविधा उपलब्ध करून दिल्या जातात,

व्हॅट्स अँप सेवा आणि ग्रंथालये:

आजच्या घडीला व्हॅट्स अँप हे एक मोबाइल अँप सर्व दूर पसरले आहे, आज आपल्याला प्रत्येक अँड्रॉइड मोबाइल मध्ये व्हॅट्स अँप पहायला मिळते , त्यामुळे या अँप च्या माध्यमातून आपण ग्रंथालयाच्या उपभोक्त्या पर्यंत सहज पोहचू शकतो, खालील सेवा आपण वाचकांना सहज उपलब्ध करून देऊ शकतो,

1) नवीन आलेल्या ग्रंथांची सूची:

आपल्या ग्रंथालयात आपण जे काय नवीन ग्रंथ घेतो त्या ग्रंथाची एक सूची तयार करून आम्ही आमच्या वाचकांना व्हॅट्स ग्रुप च्या माध्यमातून त्या नवीन ग्रंथाची सूची सहज उपलब्ध करून देऊ शकतो,

2) नवीन आलेल्या मासिकांची सूची:

आमच्या महाविद्यालयात जे काही प्रत्येक महिन्याला मासिक येतात त्या मासिकांची सूची तयार करून व्हॅट्स अँप ग्रुप च्या माध्यमातून वाचकांपर्यंत पोहोचवतो,

3) वृत्तपत्र कात्रण सुविधा:

वेगवेगळ्या वर्तमानपत्रा मध्ये आलेले माहित त्यामध्ये नोकरी विषय ,आरोग्यविषयक, तज्ञांचे लेख , क्रीडा विषयक माहिती, विद्यापीठाच्या बातम्या , परीक्षा विषयक माहिती, व इतर महत्वाची माहिती वाचकांना व्हॅट्स अँप ग्रुप च्या माध्यमातून दिली जाते,

4) e Pg पाठशाळा नोट्स:

e Pg पाठशाळा मध्ये 70 विषयांच्या नोट्स उपलब्ध करून दिल्या आहेत, त्यामध्ये पारंपरिक ते तंत्रज्ञान या सर्व विषयांच्या नोट्स उपलब्ध करून दिल्या आहेत, आम्ही आमच्या ग्रंथालय उपभोक्त्यांना त्यांच्या विषयांच्या नोट्स उपलब्ध करून देतो,

5) You Tube वरील विषय तज्ञांची मार्गदर्शक व्याख्याने:

You Tube वरती वेगवेगळ्या विषयांवर विषय तज्ञानी दिली व्याख्याने त्याच्या लिंक्स व्हॅट्स अँप च्या माध्यमातून वाचकांपर्यंत पोहोचवतो,

SMS सेवा आणि ग्रंथालये:

आजच्या माहिती तंत्रज्ञानाच्या युगात sms सेवा सेवा सगळीकडे पोहचली आहे, आणि ही सेवा सर्व मोबाइल धारकांनी स्वीकारलेली ही आहे या सेवेचा जाहीरात दार खूप मोठ्या प्रमाणात वापर करताना दिसतात,

ग्रंथालयाच्या बाबतीत ही ग्रंथालयाच्या देव घेव विभागात वाचकांनी देवघेव विभागात केलेले कार्य व्यवहार वाचकांना त्यांच्या मोबाइल वर sms सेवेच्या माध्यमातून खालील सेवा दिल्या जातात

- 1) परत केलेल्या ग्रंथाचा तपशील
- 2) ग्रंथ परत करण्याच्या तारखेचे स्मरण
- 3) वाचकांना झालेल्या दंडाचे स्मरण आणि रक्कम
- 4) ग्रंथ परत करण्याच्या तारखेचे स्मरण
- 5) दंड भरण्याची व्यवस्था

वरील सर्व सेवा आम्ही आमच्या वाचकांना ERP Cloud या सॉफ्टवेअर च्या माध्यमातून देतो त्यामुळे वाचकांना त्यांना झालेल्या दंडाची किंवा ग्रंथ परत करण्याची लगेच माहिती दिली जाते,

व्हॉइस मेल आणि ग्रंथालये:

आपला आवाज साठवून ठेऊन त्या आवाजात वापरकर्त्याला निरोप ठेवणे आणि तो निरोप भ्रणध्वनी द्वारा पाठवणे शक्य झाले आहे त्यामुळे ग्रंथपाल या सेवेचा वापर काही ठराविक गोष्टीसाठी वापरणे शक्य झाले आहे आपल्या ग्रंथालयाचा प्रचार आणि प्रसार करण्यासाठी या सेवेचा वापर केला जाऊ शकतो.

वेब पोर्टल द्वारा सेवा:



आम्ही आमच्या ग्रंथालयचे एक वेब पोर्टल तयार केले आहे या वेब पोर्टल च्या माध्यमातून वाचकांना आम्ही वेगवेगळ्या सेवा उपलब्ध करून देतो, या वेब पोर्टल ची लिंक वाचकांच्या व्हॅट्स अँप ग्रुप वर पाठवतो,

समारोप:

आशा प्रकारे डॉ डी वाय पाटील इन्स्टिट्यूट ऑफ मॅनेजमेंट अँड अन्प्रेनर डेव्हलपमेन्ट या महाविद्यालयाच्या ग्रंथालया मार्फत सेवा उपलब्ध करून दिल्या जातात.आज आपल्याला सर्वाकडे मोबाइल पाहायला मिळतो सध्याच्या या मार्केटींगच्या युगामध्ये ग्रंथालये ही मागे पडू नयेत म्हणून मोबाईल च्या साहाय्याने ग्रंथालयाचे मार्केटींगच म्हणावे लागले, त्याच बरोबर आजचा समाज हा माहीत मिळवण्यासाठी सतत धडपडत असतो, आज प्रत्येकजण जी काय नवीन माहिती येईल ती माहिती सगळ्यांच्या अगोदर मलाच माहीत असली पाहिजे असा सर्वांचाच आग्रह असतो, त्यामुळे प्रस्तुत माहितीपर लेखातून ग्रंथालयाच्या उपभोक्त्यांना नवीन अद्यायवात माहिती मिळावी म्हणून मोबाईल चा वापर करून ती माहिती ग्रंथालयाच्या वाचकांपर्यंत पोहचवली जाते.

पर्यावरण - पूरक ऊस उत्पादनाचे अधूनिक तंत्र

डॉ. विनोद व्यंकटराव चिंते,

वाणिज्य विभाग प्रमुख,

मास्टर दीनानाथ मंगेशकर महाविद्यालय,

औराद शहाजानी जि.लातूर- 413522

सारांश :

ऊस पिक हे महाराष्ट्रातील प्रमुख नगदी पिक आहे. भारतातील एकूण ऊस उत्पादनापैकी महाराष्ट्रात 13.80 टक्के ऊस उत्पादन केले जाते. महाराष्ट्रात 4.04 लाख हेक्टर क्षेत्रावर ऊस पिकाची लागवड करण्यात येते. पण रासायनिक खताचा व औषधाचा मोठ्या प्रमाणावर अतिवापर ऊस पिकासाठी करण्यात येत असल्यामुळे ऊस उत्पादन कमी आहे. तसेच रासायनिक खताचा अति वापर होत असल्यामुळे जमिनीची पोत खालावली जात आहे. व रासायनिक खतांच्या अति वापरामुळे पर्यावरणार दुष्परिणाम दिसून येत आहेत.

म्हणूनच ऊस उत्पादन वाढीसाठी व पर्यावरण संवर्धनासाठी ऊस उत्पादनासाठी नविन आधूनिक तंत्राचा वापर होणे गरजेचे आहे.

उद्देश :

- 1) ऊस पिकासाठी रासायनिक खताची मात्रा व त्याचे दुष्परिणाम दूर करणे.
- 2) ऊस पिकासाठी संतुलित खत मात्रा ठरविणे.
- 3) पर्यावरण रक्षण करणे व ऊस उत्पादकता वाढविणे.

ऊस पिकासाठी मध्यम ते भारी, काळी कसदार, पाण्याचा चांगला निचरा असणारी, जलधारण शक्ती चांगली, सेंद्रीय कर्बाचे प्रमाणी भरपूर, पिकवाढीसाठी लागणारे सर्व अन्नघटक योग्य प्रमाणात पुरविणारी जमीन असावी. जमिनीचा सामू 6.5 ते 7.5 असावा, क्षारांचे प्रमाण 0.5 टक्के पेक्षा कमी असावे. अशा जमिनीत ऊसाची वाढ जोमदार होते. ऊसाच्या रसाची प्रत चांगली राहते. अशा ऊसापासून दर्जेदार गूळ तयार करता येतो आणि असा गूळ साठवणूकीमध्ये चांगला राहतो. खारवट, चोपण, चुनखडीयुक्त जमीन, पाण्याचा निचरा योग्य नसणारी, सामू 8.5 चे वर, क्षारांचे प्रमाण भरपूर असणाऱ्या जमिनी ऊस लागवडीसाठी अयोग्य आहेत. अशा जमिनीत ऊसाची वाढ चांगली होत नाही. सोडीयम क्षाराचे प्रमाण जास्त असल्यामुळे चांगल्या प्रतीचा गूळ तयार होत नाही. गूळ खारट होतो. असा गूळ साठवणूकीमध्ये चांगला राहत नाही. जमिनीची उभी-आडवी नांगरट, कुळवणी करून भुसभुशीत करावी. लांबसरी पध्दतीचा अवलंब करून रान बांधणी करावी.

गृहितके :-

1. रासायनिक खते व किडनाशकांच्या अति वापरामुळे शेतीचे गुणधर्म लय पावतात
2. शेतीच्या शाश्वत विकासासाठी नैसर्गिक पध्दतीने शेती करणे आवश्यक आहे.

खतांचा संतुलित वापर :-

एकूण ऊस उत्पादन खर्चापैकी 30 ते 35 टक्के खर्च खतांवर होतो. याकरीता खते किती, कधी, कशी द्यावीत याची शास्त्रीय माहिती असणे गरजेचे आहे. ऊस पिकांसाठी मातीचे पृथःकरण करून सेंद्रिय, रासायनिक खतांचा संतुलित वापर होणे गरजेचे आहे. अन्नद्रव्यांचा पुख्ठा करताना तो सेंद्रिय, रासायनिक आणि जैविक या तीन माध्यमांद्वारे केल्यास जमिनीचे भौतिक, रासायनिक आणि जैविक गुणधर्म योग्य राखले जातात. त्यामुळे ऊसाचे उत्पादन वाढण्यास, रसाची प्रत सुधारण्यास, तसेच उत्तम प्रतीचा गुळ तयार करण्यास मदत होते. यालाच एकात्मिक अन्नद्रव्य व्यवस्थापन असे म्हणतात.

ऊसासाठी हेक्टरी 50 गाड्या चांगले कुजलेले शेणखत अथवा कंपोस्ट खत उपलब्ध नसेल तर सेंद्रिय खतांसाठी पर्याय म्हणून हिरवळीची पिके (ताग, धेंचा, चवळी, मूग, इ. तसेच ऊसाच्या पाचटाचे खत, गांठूळ खत, साखर कारखान्यातील मळीचे खत, प्रेमसड केक अथवा प्रेमसड अधिक स्पेंट वॉश इत्यादींचा वापर करावा लागतो.

ऊस उगवण, फुटवे, कांडी सुटणे आणि जोमदार वाढ या ऊस वाढीच्या महत्वाच्या अवस्था आहेत. पिकाच्या वाढीच्या अवस्थेनुसार नत्र, स्फुरद, पालाश मुख्य अन्नघटकांची गरज कमी जास्त असते. ऊस वाढीनुसार अन्न घटकांचे कार्य विचारात घेऊन रासायनिक खते देण्याच्या वेळा निश्चित केलेल्या आहेत. पूर्वहंगामी ऊसासाठी प्रती हेक्टरी 340 किलो नत्र : 170 किलो स्फुरद : 170 पालाश तर सुरु आणि खोडव्या ऊसासाठी 205 किलो नत्र : 115 किलो स्फुरद : 115 किलो पालाश प्रती हेक्टर शिफारस केल्याप्रमाणे रासायनिक खतांचा वापर करावा. गुळासाठी ऊस पिकास नत्राची मात्रा नेहमीच्या मात्रेपेक्षा 20 टक्क्यांनी कमी करून खालील दर्शविलेल्या तक्त्याप्रमाणे चार वेळा विभागून द्यावी. तसेच स्फुरद आणि पालाशचा शिफारशीत मात्रा दोन वेळा विभागून द्याव्यात.

शिफारशीपेक्षा जास्त नत्रयुक्त खतांचा वापर केल्यास तसेच भरणीनंतर नत्रयुक्त खते पिकास दिल्यास ऊसाच्या रसाची प्रत खालावते. अशा रसापासून चांगल्या प्रतीचा गुळ तयार होत नाही. तसेच उतारही कमी मिळतो.

जमिनीचे माती परिक्षण करून गंधकाची कमतरता असल्यास गंधकाचा वापर करावा. ऊस पिकास प्रती हेक्टर 60 किलो गंधक शेणखतामध्ये मिसळून लागणीच्या वेळी दिल्यास ऊसातील साखरेचे प्रमाण वाढते, रसाची शुध्दता वाढते, मळी निघण्यास मदत होते, चांगल्या प्रतीचा गुळ तयार होतो आणि गूळाला आकर्षक रंग येतो. स्फुरदासाठी सिंगल सुपर फॉस्फेट खत वापरल्यास वेगळे गंधक देण्याची गरज नाही.

सुक्ष्म अन्नद्रव्यांचा वापर :-

जमिनीतील सुक्ष्म अन्नद्रव्यांची उपलब्धता कमी झाल्यास ऊसाचे उत्पादन घटते, रसाच्या तसेच गुळाच्या प्रतीवर अनिष्ट परिणाम होतो. त्यासाठी अशा जमिनीस अन्नद्रव्यांचा कमतरतेनुसार 25 किलो हिराकस, 25 किलो झिंग सल्फेट, 10 किलो मॅंगनीज सल्फेट व 5 किलो बोरॅक्स प्रति हेक्टरी, चांगल्या कुजलेला शेणखतात (10 : 1 प्रमाणात) मिसळून त्यावर पाणी शिंपडून 3 ते 4 दिवस मुरल्यानंतर सरीमधून द्यावे.

ऊस पिकास रासायनिक खतांचा वापर :-

	पूर्व हंगामी			सुरु/खोडवा		
खत मात्रा देण्याची वेळ	नत्र (युरिया)	स्फुरद (सिंसुफॉ)	पालाश (म्युऑपो)	नत्र (युरिया)	स्फुरद (सिंसुफॉ)	पालाश (म्युऑपो)
लागणीच्या वेळी	27 (59)	85 (531)	85 (142)	20 (43)	58 (363)	58 (37)
लागणीनंतर 6 ते 8 आठवड्यांनी	109(236)	--	--	80 (174)	--	--
लागणीनंतर 12 ते 16 आठवड्यांनी	26 (59)	--	--	20 (43)		
मोठ्या बांधणीच्या वेळी	109 (236)	85 (531)	85 (142)	80 (174)	57 (356)	57 (95)

जीवाणू खतांचा वापर :-

ऊस पिकामध्ये जीवाणू खतांचा वापर केल्याने 25 टक्के रासायनिक खतांची बचत होते. जमिनीचा पोत सुधारतो, ऊसाची उगवण चांगली होऊन मुळांची वाढही चांगली होते. जीवाणू खतांच्या वापरासाठी हेक्टरी 5 किलो जीवाणू (अॅझोटोबॅक्टर + अॅझोस्फिरिलम + अॅसिटोबॅक्टर + स्फुरद विरघळणारे जीवाणू प्रत्येकी 1.25 किलो) एकत्रीत 100 लीटर पाण्यात मिसळून बेण्यास बीजप्रक्रिया करून लागवड करावी किंवा चांगल्या कुजलेल्या शेणखतामध्ये मिसळून सरीमध्ये टाकावे.

रासायनिक खते देताना घ्यावयाची काळजी :-

1. युरिया खत देताना निबोळी पेंडीबरोबर 6:1 या प्रमाणात मिसळून द्यावे लागते.
2. स्फुरद युक्त खते कंपोस्ट किंवा शेण खतात मिसळून दिल्यास फायद्याचे ठरते व जमिनीची पोजस मोठ्या प्रमाणावर सुधारते.
3. हिरवळीचे पिक घेऊन ऊस लागवड केली तर ऊस पिकाला अगाऊची 25 टक्के स्फुरद खताची मात्रा आपोआपच मिळते. यामुळे खतावरील खर्च व जमिनीवरील रासायनिक खताचा अतिवापर यावर निश्चितच नियंत्रण करता येते.

ऊस उत्पादकता कमी असण्याची कारणे :-

देशात ऊस पिकविणाऱ्या राज्यात महाराष्ट्र अग्रेसर आहे. देशातील एकुण ऊसाखालील क्षेत्रापैकी 20 टक्के क्षेत्र महाराष्ट्रात आहे. परंतु ऊस उत्पादकतेचा विचार केला तर महाराष्ट्राचा क्रमांक तामीळनाडू व कर्नाटक राज्याच्या नंतर लागतो. राज्यात ऊसाची उत्पादकता कमी येण्याची पुढील कारणे आहेत.

1. जमिनीचे अयोग्य व्यवस्थापन.
2. पाण्याचा अति वापर व अयोग्य व्यवस्थापन.
3. ऊसाच्या योग्य जातीची लागवड.

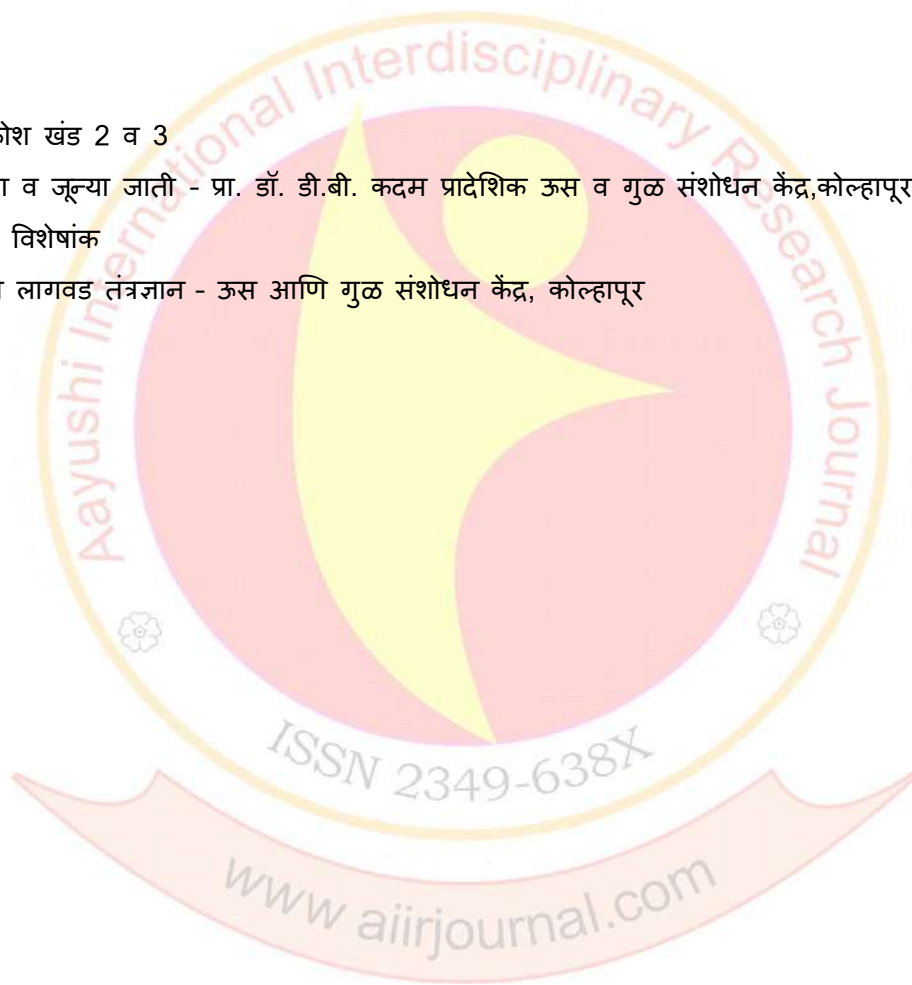
4. निरोगी व शुध्द बेण्याचा अभाव.रासायनिक खताचा अति वापर.
5. पीक संरक्षणाकडे दुर्लक्ष.

ऊस उत्पादकता वाढविण्यासाठीच्या उपाययोजना :-

1. योग्य जमिनीचा निकस.
2. पाण्याच्या कार्यक्षम वापरासाठी ठिंबक सिंचन पध्दतीचा अवलंब.
3. शुध्द व सुधारित जातीची लागवड
4. पाणी व्यवस्थापन.
5. रोग व किडीचा मित्र किटकाव्दारे नियंत्रण.
6. ऊस उत्पादक व विकास कार्यक्रमाचे आयोजन करणे.

संदर्भ ग्रंथ सूची :-

1. मराठी विश्वकोश खंड 2 व 3
2. ऊसाच्या नव्या व जून्या जाती - प्रा. डॉ. डी.बी. कदम प्रादेशिक ऊस व गुळ संशोधन केंद्र, कोल्हापूर.
3. बळीराजा ऊस विशेषांक
4. आधुनिक ऊस लागवड तंत्रज्ञान - ऊस आणि गुळ संशोधन केंद्र, कोल्हापूर



अण्णा भाऊ साठे यांच्या कादंबरीतील निसर्गचित्रण

डॉ. मोहन गोविंद लोंढे
पद्मभूषण वसंतरावदादा पाटील
महाविद्यालय, कवठे महाकाळ

कोणत्याही वाङ्मयप्रवाहातील साहित्याला कलास्वादाच्या पातळीवर एक कलाव्यवहार म्हणून वेगळे स्थान निर्माण झालेले असते. प्रत्येक वाङ्मयीन प्रवाहामध्ये निर्माण झालेली साहित्यकृती ही एक साहित्यकृती म्हणून सामाजिक आकृतीबंध स्पष्ट करणारी असते. म्हणजेच वास्तववादी सामाजिक घटना व घडामोडी यासंदर्भात सामाजिक घटना घडामोडींचे प्रतिबिंब बकलाकृतीत उमटलेले असते. त्यामुळे मानवी मनातील आंदोलनांचा आलेख संबंधित कलाकृतीमध्ये पहावयास मिळतो. याबरोबरच कादंबरी ज्यासामाजिक परीघामध्ये चित्रित होते तेथील निसर्गचित्रण देखील संबंधित कादंबरीमध्ये उमटताना दिसते. स्वातंत्र्योत्तरकालखंडातील मराठी कादंबरीचा विचारकरता ती विविध रूपे घेऊन लिहिली गेलेली आहे. निसर्ग आणि पर्यावरण याचा मानवी जीवनावर नेहमीच परिणाम होत असतो. वास्तविक पाहता या वातावरणावरच व्यक्तीची शारीरिक आणि मानसिक जडणघडण होत असते. वातावरणामध्ये कोणत्याही स्वरूपाचा बदल झाला तरी व्यक्तीच्या भावजीवनावर त्याचा बरावाईट परिणाम हाहोतच असतो. त्याची मानसिक आंदोलने, अंतर्मनातील द्वंद्व, मनोव्यापार, मनातील खळबळ आणि त्याचा आचारविचार यावर निसर्ग आणि वातावरणाचा प्रभाव हा व्यक्तिचित्रणात पडतच असतो. त्यामुळेच व्यक्ती आणि वातावरण यांच्यामध्ये परस्परपूरकतेचे नाते असते. व्यक्तिचित्रणात त्याचासहभाग असल्याने वातावरणनिर्मिती करणे हे कथाविस्तारासाठी आणि कथाशयासाठी अत्यंत आवश्यक बनते. व्यक्ती आणि प्रदेश यांच्यात परस्परसंबंध असल्याने विशिष्ट दृष्टिकोनातून कादंबरीतील विषयाचे प्रतिपादन केले जाते. व्यक्तिचित्रण, त्यांची कृती, घटना—प्रसंग यांतील कार्यकारणभाव स्पष्ट करताना निसर्ग व सामाजिक घडामोडींच्या पार्श्वभूमीवर त्याचा वापर केला जातो. प्रस्तुत शोधनिबंधामध्ये अण्णा भाऊ साठे यांच्या कादंबरीतील निसर्गचित्रण कशाप्रकारे चित्रित झाले आहे या अनुषंगाने मांडणी केली आहे.

प्रारंभीच्या काळातील ग्रामीण कादंबऱ्यांमधून आलेली निसर्गचित्रणे ही उपन्यासांसारखी, केवळवाचकांच्या अभिरूचीपुरती मर्यादित असलेली दिसून येतात. परिणामी खेडुतांच्या जीवनाशी अविभाज्यपणे निगडित असलेल्या निसर्गाच नेमके संदर्भ त्यामध्ये आलेले नाहीत. कारण ग्रामसंस्कृती पर्यायाने कृषिसंस्कृती ही निसर्गनिर्भर आहे याविषयीची नेमकी जाणीव लेखकांना असल्याचे दिसत नाही. परिणामी भूगोलातून पाठांतर केलेली प्राकृतिक रचना तयार केल्यासारखे वाटते. पहिल्या आणि दुसऱ्या पिढीने देखील थोड्याफार प्रमाणात याचेच अनुकरण केले आहे. तिसऱ्या पिढीला मात्र याचे आत्मभान आले आणि त्यातून त्यांनी खेडुतांच्या जीवनसंदर्भातील निसर्गवर्णन केलेले दिसून येते. त्यामुळेच अण्णा भाऊंच्या कादंबरीतील निसर्गचित्रण इतके एकरूप बनले आहे की, व्यक्ती आणि प्राकृतिक पर्यावरण एकमेकापासून अलग करता येत नाही. निसर्गातील बदलांमुळे निर्माण होणारे ऋतू कृषिसंस्कृतीवर परिणामकारक ठरत असल्याने पावसाळ्यात शेतीची पेरणी, हिवाळ्यात सुगी, त्यानंतर मुलामुलींची लग्ने आणि उसंतीच्या वेळी जत्रा—लोकरंजनाचे कार्यक्रम केले जातात. याबरोबरच शेतामध्ये पिक आल्यापासून वेगवेगळे सण सुरू होतात. त्यामुळेच ग्रामीण भागामधील लोक तिथी आणि वार यांना अवास्तव महत्त्व देतात. या माध्यमातूनच प्रामुख्याने लोकजीवन आणि लोकसंस्कृती बनलेली असते. त्यातूनच व्यक्तीच्या मनोवृत्तीचे दर्शन घडते. वास्तविक पाहता कादंबरीचे कथानक गतिमान बनण्यासाठी व्यक्तिदर्शनाबरोबरच वातावरणनिर्मिती करणे देखील तितकेच महत्त्वाचे असते.

सुरुवातीच्या ग्रामीण कादंबरीमध्ये निसर्गाची भरपूर वर्णने करून नायक आणि नायिका यांच्यात रोमॅंटिक भावविश्व रेखाटण्यावर लेखकांचा अधिक भर असे. परंतु ग्रामीण चळवळीनंतरच्या ग्रामीण कादंबरी मध्ये वास्तव चित्रित करण्याच्या दृष्टीने सामाजिक वातावरणाला अधिक महत्त्व दिले गेले. परिणामी वातावरणनिर्मितीच्या कसोटीत बदल घडून आले. व्यक्तीचे जीवन परिणामकारक रीतीने साकार करण्यासाठी आवश्यक त्याच वातावरणाची जोड त्यास दिली गेली. भौगोलिक परिस्थिती सर्वत्र सारखी नसल्याने त्या त्या प्रादेशिक गुणवैशिष्ट्यांचा प्रभाव तेथील माणसांवर पडलेला दिसून येतो. या संदर्भातील नेमके कारण स्पष्ट करताना मा. ना. कागणे यांनी त्यांच्या 'मराठी प्रादेशिक

साहित्य' या ग्रंथामध्ये पुढील विवेचन केले आहे, "व्यक्तिजीवनावर त्या त्या क्षेत्रजीवनाचा खोलवर संस्कार झालेला असतो. म्हणूनच कोकणचा, देशावरचा, माणदेशचा, वऱ्हाडचा माणूस असा स्थूलभेद करता येतो. मानव म्हणून मानवी भावभावना, वासना, इच्छा, राग, द्वेष इत्यादी मूलभूत विकार हे सर्वत्र सारखे असले तरी त्यांच्या आविष्कारपद्धतीत फरक पडतो. ही वळणे बाह्यपरिस्थितीजन्य असतात. म्हणजेच प्रदेशानुसार त्यांना वळणे लागतात." थोडक्यात त्या त्या परिसरातील स्थळ, परिसर आणि निसर्ग या गोष्टी मानवाच्या दृष्टिकोणातून महत्वाच्या ठरतात. ग्रामीण भागातील माणसाला निसर्गाचे सान्निध्य हे तर स्वाभाविकपणेच लाभलेले असते. त्यामुळे निसर्गाशी जमवून घेत व प्रसंगी निसर्गाशी झुंज देत ग्रामीण माणसाला आपले जीवन कंठावे लागते. परिणामी ग्रामीण कादंबरीतील व्यक्तिचित्रणाला निसर्गाची जोड दिल्याखेरीज कादंबरीतील कथावस्तूला परिपूर्ण रूप येऊ शकत नाही.

प्रत्येक ठिकाणची भौगोलिक परिस्थिती सारखी नसते. प्रादेशिक वातावरणानुसार तेथील व्यक्तीची जडणघडण होत असते. वास्तविक पाहता ग्रामीण समाजाची रचना कृषिकेंद्रित असते. शेतीव्यवसाय हा निसर्गाच्या लहरीपणावर अवलंबून असतो. शेतीशी संबंध आल्यापासून मानवाला निसर्गाचे, सभोवतीच्या वातावरणातील घटना— घडामोडींचे नेहमीच आश्चर्य वाटत आले आहे. काही वेळेस त्याला निसर्गातील या बदलाचा नेमक अथ 'लावता येत नाही. म्हणून तो निसर्गपूजक बनला आहे. निसर्गाच्या या चमत्काराने त्याच्या मनाची विशिष्ट अशा प्रकारची ठेवण तयार झालेली आहे. वास्तविक पाहता ग्रामीण समाजाला विविध पातळ्यांवर एकत्र बांधून ठेवणारे अर्थक्षेत्र, जात, धर्म, व्यवसाय यासारखे घटक महत्त्व पूर्ण असतात. तरीदेखील ग्रामीण समाजातील घटकांना एकत्र बांधून ठेवणारा ग्रामीण जीवनाचा धागा देखील अस्तित्वात असतो. हा समाज प्रामुख्याने कृषिनिष्ठेवर, कृषितत्त्वावर जगणारा समाज असल्याने त्याच्यामध्ये एकात्मतेचे काही प्रवाह देखील सामावलेले असतात. यासंदर्भात या. वा. वडस्कर यांनी त्यांच्या 'जनसाहित्याच्या दिशेने' या ग्रंथामध्ये पुढीलप्रमाणे विवेचन केले आहे, "ग्रामीण समाज म्हणजे कृषिनिष्ठसमाज होय. हे धरातत्त्व म्हणजे कृषितत्त्वहोय. ग्रामीण जीवनातील मध्यवर्ती आधार याच कृषितत्त्वाकडून प्राप्त होतो. कृषिनिष्ठ समाज म्हणजे केवळ शेतीवर राबणारा समाज असे मात्र नाही. कृषीशी संबंधित इतर उपक्रमांशी व एकूण कृषकसमाजाच्या सामाजिक अंगाशी जैव पद्धतीने जोडले गेलेले... समाज विभाग हे सुद्धा कृषिनिष्ठ समाज होय. हीमंडळी बिगरकृषी कामे करतात. ती सामाजिक दायित्व म्हणून... विशाल ग्रामस्थाच्या अनेक चाकांपैकी एक चाक म्हणून..." थोडक्यात आपणास असे म्हणत येईल की, ग्रामीण समाज हा कृषितत्त्वाने संस्कारित झालेला असतो. ग्रामीण समाजात मुख्यतः शेती हाच प्रमुख व्यवसाय असल्याने तेथील सामाजिक जीवन हे शेतीवरच अवलंबून असते. त्यामुळे अण्णा भाऊंच्या कादंबऱ्यांमधून तेथील निसर्गचित्रण नेमकेपणाने प्रतिबिंबित होते.

अण्णा भाऊ साठे हे साधरणतः १९५० च्या दरम्यान ग्रामीण जीवनाच्या संदर्भात कादंबरी लेखन करू लागले. त्यांच्या प्रामुख्याने 'वारणेच्या खोऱ्यात' १९५१, 'चित्रा' १९५१, 'फकिरा' १९५९, 'वैजयंता' १९५९, 'अलगूज' १९६२, 'चंदन' १९६२, 'आवडी' १९६३, 'माकडीचामाळ' १९६३ रानगंगा' १९६३, 'गुलाम' १९६४, 'चिखलातील कमळ', १९६५, 'वारणेचा वाघ' १९६८, 'पाझर' १९६९, 'केवड्याचं कणीस' १९६९, 'मंगला' १९७१, यासारख्या कादंबऱ्या या ग्रामीण निसर्गाचे वर्णनकरणाच्या आहेत. या कादंबऱ्या साधरणतः १९६० च्या दरम्यान प्रसिद्ध झालेल्या आहेत.

'फकिरा' ही अण्णा भाऊंची ग्रामीण व दलित जीवन चित्रण करणारी कादंबरी आहे. त्यामुळे या कादंबरीमध्ये वारणा खोऱ्यातील वातावरण चित्रित झाले आहे. वारणेचे खोरे हे तसे सधन होते. त्यामुळे तेथील शेतकरी जीवन चित्रित करताना अण्णा भाऊंनी निसर्गवर्णनाचा आधार प्राधान्यक्रमाने घेतल्याचे दिसते. ग्रामीण जीवनातील काही माणसांच्या शौर्याला, त्यांच्या कृत्याला समूहमनाचे वलय प्राप्त होते. काळाच्या ओघामध्ये या कथा लोकमानसात टिकून राहतात. त्यापासून निर्माण होणाऱ्या परंपरांचे पालन करण्याचा आटोकाट प्रयत्न तेथील लोकांकडून केला जातो. ग्रामीण जीवनातील निसर्ग या कादंबरीच्या माध्यमातून अण्णा भाऊ नेमकेपणाने टिपतात. याबरोबरच वाटेगाव व शिगाव या दोन गावातील यात्रेच्या प्रथेचा भाग या कादंबरीतून चित्रित झाला आहे.

वाटेगाव आणि शिगाव या दोन गावांमध्ये पारंपरिक यात्रेची एक प्रथा आहे. या प्रथेचे वर्णन अण्णा भाऊंनी तेथील निसर्गवर्णनासहित चित्रित केलेले दिसून येते. या यात्रा भरल्याच पाहिजेत अशा प्रकारची भावना तेथील लोकांची असते. शिवाय यात्रांमध्ये 'जोगण्या' आणल्याच पाहिजेत अशा प्रकारची विलक्षण भावना देखील तेथील लोकांची

असते. त्या काळामध्ये इंग्रजी आमदानीत वाटेगावच्या राणूजी मांगाने 'जोगण्या' आणण्याची अद्भूत व धाडसाची कामगिरी पार पाडलेली असते. तेव्हा शिगावच्या खोताने त्याचा शिरच्छेद केला. या घटनेला वाटेगावच्या लोकसमूहात आगळेच स्थान प्राप्त होते. काळाच्या ओघात राणूजीच्या मांगसमाजातील माणसांना जेव्हा तुच्छतेची, वाईट वागणूक दिली जात तेव्हा ही माणसे बंडखोर बनतात. अन्यायावर तुटून पडतात. 'फकिरा' हा असाचा धाडस करणारा, दरोडे टाकून लुटलेला माल गरीब, उपाशी जनतेला देतो आणि गोरगरिबांसाठी, मांग समाजासाठी दैवी वीरच बनतो. या कादंबरीची भाषा ही ग्रामीण ढंगाची असल्याने तेथील निसर्गचित्रणासहित येणारी भाषा लक्षणीय ठरते.

'फकिरा' कादंबरीच्या सुरुवातीलाच सूर्यमावळतानाचे वर्णन येते. सूर्यकिरणांचा किंचित प्रकाश पश्चिमेच्या किनाऱ्यावर राहून गेल्यामुळे एक गुलाबी धांदोटी पसरली होती. असे वर्णन अण्णा भाऊ करतात. या कादंबरीच्या कथानकात फकिरा मांग जमातीतील लोकांसाठी लढतो आहे. कादंबरीचा नायक फकिरा आहे तर खोत हा खलनायक आहे. विष्णुपंत कुलकर्णी, शंकरराव पाटील, राणोजी मांग इ. प्रमुख व्यक्तिरेखा आहेत. खोत तसेच इंग्रज सरकार हे या कादंबरीतील नायकाला म्हणजेच फकिराला त्रास देण्याचे काम करतात. या कादंबरीमधून रात्रीच्या निसर्गाचे वर्णन आलेल आहे ते पुढीलप्रमाणे,

“कोणचाललय ते?”

“मी हाय, राणुजी मांग” राणोजी घोड्यावरून खाली उतरून म्हणाला.

पाटलानं आग्रहाच्या सुरात उद्देशून त्याला म्हंटलं, “ये की, पान खाऊन जा, रात केलीस?”

“वाईच रात झाली” आकाशात पाहत राणोजी तक्रारीच्या सुरात म्हणाला, “पाऊस उठलाय.”

“ये, वारा सुटलाय. पाऊस येत नाही.” पाटलानं निर्वाळा दिला आणि राणोजी जोत्याजवळ येऊन एका दगडावर बसला.

“आजून निजला न्हाय? का जागताय?” राणोजीनं विचारलं.”^३

यासारख्या वर्णनातून लेखकाने रात्रीच्या निसर्गाचे चित्रण केलेले दिसते. यामाध्यमातून रात्रीच्या वर्णनाबरोबरच पारंपरिक माणसाची गावाकडील जगण्याची रीत. याबरोबरच एखादा माणूस बाहेर भेटल्यास त्याला जेवला का, या पान खाऊ अशाप्रकारे विचारना करण्याची रीत या वर्णनातून पहावयास मिळते. या ठिकाणी पान खाण्याविषयी राणुजी यांना आग्रह होतो. तो ही संध्याकाळच्या वेळेस, यातून रात्रीचे निसर्गचित्रण देखील लेखकाने नेमकेपणाने चित्रित केलेले आहे.

राणोजी ही 'फकिरा' या कादंबरीतील एक महत्त्वपूर्ण व्यक्तीरेखा आहे. रात्रीच्या वेळी घोड्यावर बसून गावाकडे येत असताना मांगवाड्याकडे तो नजर टाकतो. त्यावेळचे मांगवाड्याचे वर्णन लेखकाने पुढीलप्रमाणे चित्रित केले आहे, “गावापासून एका हाकेच्या अंतरावर असलेला मांगवाडा निपचित पडला होता. पाच परूस उंच निवडूंगानं त्या पन्नास घरांना वेडा घातला होता. त्या निवडूंगाची दोन टोकं त्या गाडीवाटेजवळ त्या चिंचेच्या झाला खाली येऊन जुळत होती. तिथच मांगवाड्यात जाण्याची वाट होती.”^४ या माध्यमातून लेखकाने वाटेगावच्या मांगवाड्याचे व भोवतालचे वर्णन केले आहे. त्याचबरोबर रात्रीचा मांगवाडा निपचित पडल्यासारखा लेखकाला भासत होता. यामधून योग्य ती वातावरणनिर्मिती होते.

संध्याकाळच्या सूर्यास्ताचे वर्णनही अण्णा भाऊ करताना दिसतात ते पुढीलप्रमाणे, “सूर्य आपल्या दारात जाऊन उभा होता. पश्चिमेला सातदऱ्यांच्या डोंगरावर किरणांचा झगमगाट झाला होता. सूर्याच्या खाली तपकिरी रंगाचा एक प्रचंड ढग पसरला होता. त्या ढगात गालिच्यावर बसल्यागत सूर्य दिसत होता. डोंगरातील कीर् झालीनं शिरण्यासाठी अंग आवळून घेतलं होतं.”^५ या माध्यमातून वाटेगावच्या रात्रीचं वर्णन अण्णा भाऊंनी केलेले दिसून येते.

फकिरा लहानपणी आपल्या सवंगड्याबरोबर इंग्रजी लष्कर बघायला जायचा, त्यावेळच्या ऊन्हाचे वर्णन असे येते, “ऊन मी म्हणत होतं. माळाची वाट फोफाट्यानं भरून बिलबिलीत झाली होती. ऊन्हांनं तो फोफाटा तापला होता. उष्ण वाऱ्याच्या लाटा कुसळावरून मंदगतीनं येऊन गरम धूळ डोकीवर घेत होत्या. त्या धुळीतून ती पोरं पळत होती. घामानं भिजली होती. धुळीचे लोट उडवीत ती राजेवाडी शीव गाठीत होती.”^६ ऊन्हाळ्याच्या दिवसांमधील कडक ऊन्हाळ्यामुळे माळाची वाट कशी झाली होती. तिथला फोफाटा कशाप्रकारे गरम धुळीचे रूप घेऊन लोट उडवित होता याबरोबरच पुढे सडकेच्या कडेला वडाची सावली अशा निसर्गाचे चित्रण येते. फकिरा या कादंबरी मधून ऊन्हाळा,

हिवाळा, पावसाळा या तीन ही ऋतुंचेवर्णन आलेले आहे. यामुळेच या कादंबरीतील निसर्ग अण्णा भाऊंच्या मूळ कथावस्तुला बळकटी आणतो. डोळयासमोर वाटेगावचे चित्र उभे करतो. या नैसर्गिक पार्श्वभूमीवरच फकिरा हा नायक अधिक उठावदार होतो.

निसर्गचित्रण हा अण्णा भाऊंच्या कादंबरीचा आत्मा आहे. त्यांची प्रत्येक कादंबरी तेथील वातावरणाचे नेमके रूप आपल्यामध्ये सामावून घेताना दिसते. पावसाचे वर्णन अण्णा भाऊंच्या कादंबरी मध्ये पुढीलप्रमाणे येते, “पावसाने आखडलेले पाय पसरले. आकाशातून मुसळधार पाऊस वर्षूला गला. विजेचा लखलखाट नि मेघांचा गडगडाट यानं सृष्टी हादरली. बियांचे कण मातीत रुजले आणि लहान अंकुर वर आले. हळूहळू काळी वावरं हिरव्या शालीत गेली. एक न्यारी सृष्टी अवतरली. नवा सुगंध दरवळू लागला. एक नवी ऊब दुनियेला आली. माणसांच्या आशा नजरेच्या आटोक्यात आल्या. पाऊस गेला आणि सुगी आली. पावसाच्या तडाख्यातून मुक्त झालेलं ऊन नवंनवं भासू लागलं. दमट जमीन उसासे घेऊ लागली. शिवारात सुगीची हातघाई सुरू झाली. दौलती रानात फिरू लागला. काढणी, मोडणी, खळी धुंडाळू लागला. त्याला पाहून राणोजीची आठवण होऊन गावकरी त्याच्यापुढे कणसांची रास लोटू लागले.”⁹ अशाप्रकारे ग्रामीण भागातील पाऊस, तेथील माणसांची लगभग, याबरोबरच लोकांची एखाद्या उपकारकर्त्या विषयीची असणारी निष्ठा या विषयीचे वर्णन वरील उदाहरणातून पहावयास मिळते.

‘वैजयंता’ या कादंबरीतून तमाशातील स्त्री कलावंताची कहाणी सांगितलेली आहे. ग्रामीण जीवनाच्या सांस्कृतिक क्षेत्रात तमाशाचे स्थान महत्त्वाचे आहे. तमाशाच्या फडामध्ये ग्रामीण भागातील गुणी, हरहुन्नरी माणसे कामकरीत असतात. त्यामध्ये स्त्री कलावंतदेखील असतात. ‘वैजयंता’ या स्त्रीच्या जीवनात तमाशामुळे झालेल्या हाल-अपेष्टांचे चित्रण या कादंबरीतून केलेले आहे. तमाशा फडाचे मालक यामध्ये काम करणाऱ्या कलावंत स्त्रीचे शारीरिक शोषण करू पाहतात. त्यांच्या प्रेम भावनेचा, स्वातंत्र्याचा कोणी विचारच करीत नाही, हे अण्णा भाऊंनी त्यांच्या कादंबरीतून सांगितले आहे. या कादंबरीतील निसर्गवर्णने देखील उल्लेखनीय अशाप्रकारचे आहेत. गाव, रस्ते, पशू, पक्षी झाडे आणि सर्वात महत्त्वाचे म्हणजे या संपन्न सजीवसृष्टीमध्ये वावरणारी मानसे, त्यांचे स्वभाव, ग्रामीण संघर्ष नैसर्गिक पटलावर उभा राहतो. यातील निसर्गवर्णनामुळे आणि तमाशा कलावंतांच्या, ग्रामस्थांच्या जीवनाचे वर्णन आल्यामुळे ही कादंबरी अधिक सजीव झाली आहे.

‘वारणेच्या खोऱ्यात’ ही अण्णा भाऊंची एक महत्त्वपूर्ण कादंबरी. या कादंबरीमधून देखील निसर्गाचे नेमके वर्णन येते. निसर्ग हा तर या कादंबरीचा जणू प्राणच आहे. सावड्यांच्या शिवारावर निर्माण झालेल्या संघर्षाचे चित्रण लेखक पुढीलप्रमाणे करतो, “सावड्यांच्या शिवारावर आज एकाएकी कठीण प्रसंग गुदरला होता. पावसाने तर दिवस मावळल्यापासून सारखी रिमझिम सुरू केल होती आणि पावसाच्या जोडीला वारा वर्दळील आला होता. वाऱ्याच्या झडीपाठी झडी येत होत्या. सव शिवार भेदरून थंडगार पडले होते, पण वारा त्याला दम घेऊ देत नव्हता. झाडेझुडप थरथर कापत होती. मोठाली झाडे तर जर्जर झाली होती. त्यांच्या पानावर साठलेले पाणी वारा वरचेवर झपाटे मारून झाडून टाकीत होता. सूर्य मावळला होता, पण चांदणे असल्यामुळे पाऊस, वारा व शिवार यांची हालचाल स्पष्ट दिसत होती. वारा जणू त्या शिवाराच्या झिंज्या धरून गदगदा हालवीत आहे असा भास होत होता.”¹⁰ या वर्णनातून निसर्ग जणू कोपल्याचे वातावरण लेखकाने चित्रित केले आहे. पाऊस बंद झाल्यानंतर शेतकरी खऱ्या अर्थाने पेरणीला सुरुवात करतो. परंतु शेतकऱ्यांच्या या आशेवरती पाऊस नेहमी पाणी फिरवितो. कारण तो पेरणी करण्याकरता शेतकरी वर्गाला उसंतच देत नाही. यासंदर्भातील निसर्गवर्णन अण्णा भाऊंनी या कादंबरीतून केलेले आहे.

‘गूलाम’ या कादंबरीतून मलकापूरचे निसर्गवर्णन येते. मलकापूरच्या पूर्वेला रावसाहेबाचा बंगला किंचित फटकून उभा होता. तो दिसायला अतिशय आकर्षक होता. त्यामध्ये अनेक खोल्या होत्या. त्याच्या दारावर पडदे झुलत होते. अशा प्रकारे बंगल्याच्या वर्णनावरोबरच निसर्गाचे वर्णन लेखकाने पुढीलप्रमाणे केले आहे, “एक सुंदरबाग होती. जाईचे मांडव, मोगरा, गुलाब, रातराणी, केळीची आळी, अंतराअंतरावर नारळीची उंच झाडे यानं ती बाग बहरली होती. जणू नंदनवनच होतं.”¹¹ अशाप्रकारचे वर्णन येते.

अण्णा भाऊंच्या कादंबरीवाद्दमयाचा विचार करता निसर्ग हा त्यांनी आधारभूत ठेवलेला आहे. त्यांची प्रत्येक व्यक्तिचित्रे ही निसर्गाच्या सान्निध्यात आपला जीवनक्रम प्रारंभ करतात. त्यांच्या व्यक्तिचित्रणामध्ये कोणत्याही प्रकारचा अभिनिवेश नाही. सकाळ झाली की लोकांची जगण्यासाठीची धडपड पहावयास मिळते. दिवसभरही व्यक्तिचित्रं मिळेल

ते काम करतात. कोणत्याही प्रकारची तक्रार नाही. याबरोबरच दिवस मावळतीला गेल्यानंतरही व्यक्तिचित्रं आपल्या घराचा रस्ता धरतात. त्यातही स्वातंत्र्य चळवळीचा तो कालखंड आहे. इंग्रजांचा त्रास घडीघडीला होत आहे. अशावेळी लोकांच्यामध्ये असलेली एकोप्याची भावना अण्णा भाऊंच्या प्रत्येक कादंबरीतून उजागर होते. या कादंबरीतील संपूर्ण गाव अशाप्रकारच्या बंडखोर व्यक्तीच्या पाठीशी अगदी ठामपणे उभे राहताना दिसतात. हीच अण्णा भाऊंच्या कादंबरीची खरी यशस्वीता आहे. हे संपूर्ण नातेसंबंध चित्रित करीत असतानाच अण्णा भाऊ त्यांच्या कर्तव्याचा मात्र विसर पडू देत नाहीत. त्यांच्या कादंबरीतील प्रत्येक व्यक्तिचित्रे अगदी स्वतःची जबाबदारी ओळखून आपले जीवन कंठतात. त्यांच्या जगण्यामध्ये कोणत्याही प्रकारचा तक्रारीचा सूर नाही. जे आहे त्या परिस्थितीमध्ये ते सन्मानाने जगतात. या जगण्याला अण्णा भाऊ निसर्गवर्णनाची नेमकी जोड देतात. त्यामुळे त्यांच्या कादंबरीतील प्रसंगचित्रण हे अधिकच जिवंत स्वरूप धारण करते. याला कारण अण्णा भाऊंनी त्याला दिलेली निसर्गचित्रणाची जोड हे आहे.

अण्णा भाऊंनी केलेल्या निसर्गचित्रणाचा पुढील काळात आनेक कादंबरीकारांवर प्रभाव पडला दृढते विषय, प्रवाहीपण, प्रभावीलेखन शैली, संघर्ष, आशयसंपन्नकथासूत्र, अनोखेव्यक्तीदर्शन याबरोबरच जिवंत निसर्गचित्रण आणि चित्रमयी वातावरणनिर्मिती हे अण्णा भाऊंच्या लेखनाचे प्रमुख विशेष ठरतात. याबरोबरच हृदयपूर्ण भाषाशैली यामुळे त्यांची लेखनी वाचकवर्गाच्या मनाचा ठाव घेते. अण्णा भाऊंनी लिहिलेल्या कादंबऱ्यांमधून परिसराचे, तेथील वातावरणाचे नेमके वर्णन येते. त्यामुळे त्यांचे परिसराचे आकलन प्रतिबिंबित होते. अशाप्रकारे अण्णा भाऊंनी ग्रामीण जीवनावर कादंबरी लेखन करून मराठी कादंबरीच्या इतिहासात महत्वाचे स्थान निर्माण केले आहे. त्यामुळे कादंबरी लेखनाच्या विकासात अण्णा भाऊ साठे यांचे योगदान लक्षणीय स्वरूपाचे आहे हे मान्यच करावे लागते.

जिवंत निसर्गचित्रण आणि चित्रमयी वातावरणनिर्मिती हे अण्णा भाऊंच्या लेखनाचे प्रमुख विशेष ठरतात. याबरोबरच सौंदर्यपूर्ण भाषाशैली यामुळे त्यांची लेखनी वाचक वर्गाच्या मनाचा ठाव घेते. अण्णा भाऊंनी लिहिलेल्या कादंबरीमधून ग्रामीण परिसराचे, दलित जीवनाचे तेथील निसर्ग आणि वातावरणाचे नेमके वर्णन येते. त्यामुळे या परिसराचे आकलन प्रतिबिंबित होते. अशा प्रकारे लेखन करून अण्णा भाऊंनी मराठीकादंबरीच्या इतिहासात स्थान निर्माण केलेले आहे. त्यामुळे त्यांच्या निसर्गवर्णना मध्ये कोणत्याही प्रकारची अलंकारिकता अथवा संदर्भविहिनता येत नाही. तर त्यांनी केलेली प्रत्येक निसर्गवर्णने ही जीवंत रूप धारण करतात. या माध्यमामतून त्यांचे ग्रामीण परिसराचे नेमके आकलन प्रतिबिंबित होते. त्यांच्या कादंबरीतून निसर्गचित्रण उजागर होताना दिसते.

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भारतातील शाश्वत शेती विकास : समस्या व आव्हाने - एक दृष्टिक्षेप

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गोष्टवारा :

या संशोधनाचे उद्दीष्ट म्हणजे भारतातील शाश्वत शेती विकासाच्या समस्या व आव्हाने यांचा अभ्यास करणे आहे. शाश्वत विकास म्हणजे कृषी उत्पादनांची मागणी आणि पुरवठा यांच्यात समतोल असणे. हरितक्रांती कृषी उत्पादनांमध्ये कार्यक्षमता आणू शकेल आणि त्यामुळे शेतीची उत्पादकता वाढेल. शेतीची अंतिम कामगिरी विविध संसाधनांच्या कार्यक्षमतेवर अवलंबून असून अवलंबलेली रणनीती आणि पद्धती यावर अवलंबून असते. पाऊस कमी झाल्यामुळे दुष्काळाचा सामना करण्यासाठी शेतकऱ्याला नाविन्यपूर्ण रणनीती वापराव्या लागतील. अभ्यासाच्या निष्कर्षांमधून नाविन्यपूर्ण रणनीती आणि वाढ साध्य केल्या जाऊ शकतात. खाजगी क्षेत्रातील 'शेती' सर्वात सर्वोच्च व मोठी असल्याने भारतीय अर्थव्यवस्थेत खूप महत्वाचे स्थान आहे.

शेती उत्पादन, प्रक्रिया आणि विपणन यासारख्या विविध क्षेत्रांचा दुवा असल्याने भारतामध्ये विविध आर्थिक बदल होण्यासाठी शेतीचे वर्चस्व कायम आहे व राहिल. दुय्यम माहितीचा वापर करून कृषी क्षेत्रातील शाश्वत विकासाचा महत्त्वचा अभ्यास करणे हे या पेपरचे व अभ्यासाचे उद्दीष्ट आहे. भारतातील शेती हा मुख्य व्यवसाय आहे कारण ग्रामीण भागात मोठ्या संख्येने लोक राहत असून शेती ही त्यांची उपजिविकेचे (रोजीरोटीचे) महत्वाचे साधन आहे. कृषी क्षेत्रातील शाश्वत विकासाचे उद्दीष्ट उत्पादनक्षमता, कार्यक्षमता, रोजगाराची पातळी वाढविणे आणि नैसर्गिक संसाधनांचा अधिकाधिक उपयोग करून संरक्षण आणि जतन करणे हे आहे. बहुधिक पीक पद्धती व्दारे आणि जंगलतोड व इतर कारणांमुळे मातीचे न्हास कमी करण्याच्या यंत्रणा देखील पुरवेल.

सुचनकशब्द (Key Words) : शाश्वत विकास आणि वाढ, विकासाची दिशा, दृष्टीक्षेप, समस्या आणि आव्हाने.

प्रस्तावना :

शाश्वत शेती विकासात तीन मुख्य उद्दीष्टांचा समावेश केला आहे. पर्यावरणीय आरोग्य, आर्थिक भरभराट आणि उपजिविका दुसऱ्या शब्दांत शाश्वत विकास या तत्त्वावर अवलंबून आहे की भविष्यातील पिढ्यांना त्यांच्या स्वतःच्या गरजा भागविण्याच्या क्षमतेशी कोणतीही तडजोड न करता आपण वर्तमानातील गरजा पूर्ण केल्या पाहिजेत. म्हणूनच नैसर्गिक आणि मानवी संसाधनांच्या कारभारास महत्त्व आहे. मानव संसाधनांच्या कारभारामध्ये शेती कुटुंबांच्या कामकाजाची आणि राहण्याची परिस्थिती, ग्रामीण समुदायाच्या गरजा आणि सध्याचे आणि भविष्यात उपभोक्त्यांच्या आरोग्य आणि सुरक्षा यासारख्या सामाजिक जबाबदाऱ्यांचा विचार करणे समाविष्ट आहे. जमीन आणि नैसर्गिक संसाधनांच्या कारभारामध्ये दीर्घ काळासाठी हा महत्वाचा स्रोत टिकवून ठेवणे आणि वाढविणे समाविष्ट आहे.

जीडीपी (स्थूल देशांतर्गत उत्पादन) आणि रोजगाराच्या योगदानातून भारतीय अर्थव्यवस्थेत कृषी क्षेत्राची भूमिका पाहिली जाऊ शकते. या क्षेत्राने देशाच्या शाश्वत आर्थिक विकासातही महत्त्वपूर्ण योगदान दिले आहे. कोणत्याही देशाचा शाश्वत शेती विकास त्यांच्या उपलब्ध नैसर्गिक संसाधनांच्या एकत्रित न्याय्य वितरणावर अवलंबून असतो. खरं तर शेती ही भारतासारख्या देशाचे भवितव्य ठरवते जिथे अजूनही जवळजवळ दोन तृतीयांश लोकसंख्या ग्रामीण भागातील शेतीसह उदरनिर्वाहासाठी अवलंबून आहे. अनेक दशकांपासून

शहरीकरण वाढत असून तेथे जर शेतीचा चुकीचा उपयोग झाला तर ती अर्थव्यवस्थेसाठी खरोखरच घातक होईल. कारण कृषी विकासाच्या घसरणीमुळे केवळ रोजगारावरच परिणाम होत नाही तर जीडीपीवरही परिणाम होतो (त्यामुळे दारिद्र्य वाढत आहे). कृषी क्षेत्राच्या सुधारणेचे महत्वाचे उद्दीष्ट कृषी क्षेत्राच्या जलद विकास व वाढीद्वारे प्राप्त केले जाऊ शकते, जसे लागवडीचे क्षेत्र वाढविणे, पिकांच्या लागवडीची तीव्रता आणि उत्पादकता यावर अवलंबून आहे. पण भारतासारख्या देशासाठी उर्वरित दोन पेक्षा उत्पादकता वाढवणे अधिक महत्वाचे आहे. हे फक्त वाढते शहरीकरण, औद्योगिकीकरण आणि देशाचे मर्यादित जमीन आकारमान यावर अवलंबून आहे.

उत्पादकता दोन मार्गांनी वाढवता येते. प्रथम उपलब्ध साधनसामग्रीचा कार्यक्षम वापराने उत्पादन वाढविणे. दुसरे आदानाच्या भिन्नेनुसार उत्पादकता वाढविता येते. उत्पादकता आणि शाश्वत विकास यांच्या संदर्भात पहिली पद्धत अधिक चांगली आहे. परंतु लोकसंख्या वाढतच असल्यामुळे ही पद्धत कायमस्वरूपी तोडगा काढू शकत नाही. अशाप्रकारे, आम्ही दुसऱ्या पद्धतीवर जाऊ शकतो, ज्यामुळे पर्यावरणाची हानी होण्याची शक्यता कमी आहे. अर्थव्यवस्थेवर होणारे त्याचे परिणाम म्हणूनच शाश्वत शेती विकासाशी संबंधित मुद्द्यांची चर्चा करण्याची गरज आहे.

अभ्यासाची आवश्यकता:

आर्थिक वाढ आणि विकासात शेतीत महत्वाची भूमिका बजावते आणि म्हणूनच शेती आर्थिक विकासाचा सर्वात मोठा आधार राहिला आहे. १० च्या दशकात शेतीतील कामगिरीच्या काळात घटत्या घसरणीसह मोठ्या प्रमाणात चढ-उतार झाले. शेतीची कामगिरी आणि अर्थव्यवस्था यांच्यातील जवळचा संबंध स्पष्टपणे दर्शवितो की आर्थिक वाढीस चालना देण्यासाठी शेती उच्च दराने वाढली पाहिजे. तथापि अपेक्षित दराने शेती वाढीसाठी, विकासाची संभाव्यता असलेल्या महत्त्वपूर्ण क्षेत्रात दर्जेदार गुंतवणूक केली जाणे अत्यावश्यक आहे.

गेल्या तीन दशकांत सरकारला हे समजले आहे की शेतीमधील विना-लक्षित गुंतवणूक निराशाजनक असून भविष्यात शेतीमधील कोणत्याही गुंतवणूकीवर अशा प्रकारच्या निराशा टाळण्यासाठी आणि गुंतवणूकीची उद्दीष्टे मिळवण्यासाठी लक्ष केंद्रित केले पाहिजे. उदाहरणार्थ, कृषी क्षेत्राच्या सर्वसाधारण कामगिरीमुळेही फलोत्पादन आणि दुग्धव्यवसायासारख्या काही उप क्षेत्रांनी चांगली कामगिरी केली आहे. अशाप्रकारे शेती-शेतीमधील गुंतवणूकीचे क्षेत्र व ज्या ठिकाणी जास्त उत्पादनक्षमता मिळण्याची शक्यता आहे त्यांना लक्ष्य केले पाहिजे.

उद्दिष्टे:

- १) शेती क्षेत्राची स्थिती व कल यांच्यातील समस्या व आव्हाने यांचा अभ्यास करणे.
- २) भारतीय शेतीवरील आर्थिक सुधारणांचा होणारा परिणाम आणि कृषी क्षेत्राच्या विकासास प्रोत्साहित करणाऱ्या प्रमुख घटकांची ओळख पटविणे.
- ३) शाश्वत कृषीत वाढ साधू शकतील अशा पर्यायी हस्तक्षेपी क्षेत्रे ओळखणे.
- ४) भारतासाठी भविष्यातील शक्यता आणि उपाययोजना शोधणे.

भारतीय कृषी क्षेत्र:

शेती ही भारतीय अर्थव्यवस्थेतील सर्वात प्रमुख क्षेत्रांपैकी एक आहे. शेती ही ग्रामीण भागातील लोकसंख्येपैकी जवळजवळ दोन तृतीयांश लोकसंख्येच्या उपजिविकेचे महत्वाचे साधन आहे. भारतीय शेती ५८ टक्के कामगार दलाला रोजगार देते, जीडीपी मध्ये सुमारे २०.५ टक्के हिस्सा, अनेक उद्योगांमध्ये एकूण निर्यात आणि कच्च्या मालाचा २१ टक्के वाटा आहे. देशाच्या जीडीपीमध्ये पशुधन क्षेत्राचे अंदाजे ८.४ टक्के आणि कृषी उत्पादनात ३५.८५ टक्के योगदान आहे.

भारतात सुमारे ६५ टक्के लोक ग्रामीण भागात राहतात आणि अजूनही शेतीवर अवलंबून आहेत, भारताच्या भौगोलिक क्षेत्रापैकी ४३ टक्के भाग कृषी कार्यासाठी वापरला जातो. अंदाजे देशात धान्य उत्पादन सुमारे २११.१७ मेट्रिक टन आहे. एकूण भौगोलिक क्षेत्रापैकी ३२९ मेट्रिक हेक्टर जमीन कृषी क्षेत्राखाली येते त्यातील २५५ मेट्रिक हेक्टर क्षेत्र हे विविध प्रकारचे उत्पादनक्षम उत्पादनाचे प्रतिनिधित्व करते. निव्वळ पेरणी क्षेत्र १४३ मेट्रिक हेक्टर असून त्यातील ५६ मेट्रिक हेक्टर हे देशातील निव्वळ सिंचनाचे क्षेत्र आहे.

भारतातील कृषी उत्पादन:

देशातील बहुतेक भागातील भारतीय कृषी उत्पादन देशातील उपलब्ध नैसर्गिक आणि मानवी संसाधनांच्या इष्टतम वापराशी संबंधित आहे. म्हणूनच शेतीचे हवामान आणि चांगल्या नैसर्गिक संसाधनामुळे भारत आज जगातील असंख्य वस्तूंचा वरच्या दर्जाचा उत्पादक देश बनला आहे. देशात नारळ, आंबा, दूध, केळी, दुग्धजन्य पदार्थ, आले, हळद, काजू, डाळी आणि मिरचीचा उत्पादक देश आहे. तांदूळ, गहू, साखर, कापूस, फळ आणि शाकाहारी वस्तू उत्पादनात दुसऱ्या क्रमांकाचा उत्पादक देश आहे.

भारतीय कृषी उत्पादन पुरेसे आणि योग्य पाणी व्यवस्थापन पद्धतींशी संबंधित आहे. भारतातील बहुतेक शेती पद्धती ही पावसाळ्यापूर्वीच मर्यादित आहे. मान्सून हंगामात भारतात बहुदा भरपूर व पुरेसा पाऊस पडतो तसेच या मुसळधार पावसाचे दहशतीत रुपांतर होते ज्यामुळे देशाच्या विविध भागात मोठ्या प्रमाणात नुकसान करणारा पूर येऊन त्याचा शेवटी शेती उत्पादनावर प्रतिकूल परिणाम होताना दिसतो.

शाश्वत कृषी विकास:

शाश्वत विकासाच्या मुद्द्यांवर तीन व्यापक प्रकारच्या शेती पद्धतींमध्ये चर्चा केली जाऊ शकते. उदा. पारंपारिक उत्पादन पद्धती, आधुनिक शेती पद्धती आणि शाश्वत शेती पद्धती. पुढे आपण त्यांची शाश्वत पर्यावरणीय, आर्थिक आणि सामाजिक या तीन परिमाणांमध्ये तुलना करू शकतो.

१) **शाश्वत पर्यावरण:** बहुतेक पारंपारिक आणि परंपरागत शेती पद्धती पर्यावरणीयदृष्ट्या शाश्वत नसतात. त्यामुळे नैसर्गिक संसाधनांचा गैरवापर होतो, मातीची सुपीकता कमी होते आणि मातीची धूप होऊन जागतिक हवामान बदलाला हातभार लावतात. परंतु पारंपारिक पद्धतीपेक्षा शाश्वत शेतीचे काही मोठे फायदे आहेत.

२) **मातीची सुपीकता:** मातीची सुपीकता सतत कमी होणे ही भारतातील बऱ्याच भागातील मुख्य समस्या आहे. शाश्वत शेती शेतीची सुपीकता व मातीचा पोत व रचना सुधारते.

३) **पाणी:** सिंचन हे चांगल्या पाण्याचे सर्वात मोठे स्रोत आहे. खते आणि कीटकनाशके भूभाग आणि भूजल दोन्ही दूषित करतात. शाश्वत शेतीमुळे मातीच्या वरचा सेंद्रिय पदार्थ वाढतो त्यामुळे पावसाळ्यात पडणाऱ्या पाण्याची साठवण आणि साठवण करण्याची त्याची क्षमता वाढून उत्पादकता वाढते.

४) **जैवविविधता :** शाश्वत शेती पद्धतींमध्ये मिश्र पीक रचना असते, अशा प्रकारे उत्पादित पिकांची विविधता वाढते, शेतात व आजूबाजूला कीटक, इतर प्राणी आणि वनस्पतींची विविधता वाढते.

५) **आरोग्य आणि प्रदूषण:** रसायने, कीटकनाशके आणि खते स्थानिक पर्यावरणावर तसेच लोकसंख्येवर वाईट परिणाम करतात. कीटकनाशकांचा अयोग्य व अतिवापर, अयोग्य साठवण इ. मुळे आरोग्यासंबंधी समस्या उद्भवू शकतात. त्यामुळे उत्पादनात घट होते. शाश्वत शेतीमुळे घातक रासायनिक आणि नियंत्रक कीटकनाशकांचा वापर कमी होऊन उत्पादनात वाढ होते.

६) **जमीन वापरण्याची पद्धत:** जमीनीचा अत्यधिक वापर व शोषण केल्याने भूक्षय, दरडी कोसळतात आणि पूर आल्याने जमिनीत पाण्याचे प्रमाण वाढून जमिनीची लागवड क्षमता कमी होते. शाश्वत शेती मुळे उत्पादकता सुधारते, मातीचे संरक्षण इत्यादीद्वारे वरील समस्या टाळल्या जातात.

७) **हवामान** : पारंपारिक शेतीमुळे ग्रीन हाऊस वायूंच्या विविध प्रकारे उत्पादन करण्यास मदत होते जसे की जमिनीत साठलेल्या कार्बनचे प्रमाण कमी करणे, सिंचनामध्ये शेतातील मिथेन वायू उत्पादन आणि कृत्रिम खतांचा अवलंब कमी करणे इत्यादी. शाश्वत विकासाचा अवलंब करून कृषी संस्कृती पद्धतीने ह्या समस्या सहज पार होऊ शकतात.

८) **शाश्वत आर्थिक घटक** : शेती शाश्वत राहण्यासाठी दीर्घ कालावधी पर्यंत ती आर्थिकदृष्ट्या व्यवहार्य असावी. दीर्घकालीन शाश्वत शेतीपेक्षा पारंपारिक शेतीमध्ये अधिक आर्थिक जोखीम असते. कधीकधी देशांतर्गत मागणी पुरवठा करण्यापेक्षा निर्यातीवर अवलंबून असलेल्या उत्पादन यंत्रणा अधिक महत्वाच्या म्हणून सरकार ते करण्यासाठी आग्रही असतात. हे बरोबर नसून केवळ निर्यातीचा विचार केल्यास त्यात छुप्या खर्चाचा समावेश होत असतो. वाहतूक, स्थानिक अन्न सुरक्षेची हमी देणे इत्यादी. धोरणांमध्ये घरगुती मागणी आणि विशिष्ट अन्न सुरक्षा ही दृश्यमान व्यापार शिल्लक तीतकेच महत्वाचे असतात.

९) **शाश्वत सामाजिक घटक** : शेती तंत्रातील सामाजिक शाश्वत संबंध आणि न्याय व्यवस्थेच्या कल्पनांशी संबंधित आहे. गरीबी कमी केल्याशिवाय शाश्वत विकास तग धरू शकत नाही. ग्रामीण भागातील गरीबांना कृषी विकासाचा लाभ घेण्यासाठी सरकारने वेगवेगळे मार्ग शोधणे आवश्यक आहे. सामाजिक अन्याय म्हणजे समाजातील काही घटक विकासाच्या संधीपासून दुर्लक्षित राहतात. परंतु सामाजिक शाश्वत पणाच्या भक्कम व्यवस्थेमुळे "आहे" आणि "नाही" (haves and have nots) यामधील दरी भरून काढू शकते. नवीन तंत्रज्ञान स्थानिक समाज स्वीकारत नसल्यामुळे बऱ्याच कृषी क्षेत्रांमध्ये लागू होऊ शकली नाही. शाश्वत शेती पद्धती उपयुक्त आहेत कारण ते स्थानिक सामाजिक चालीरिती, परंपरा इ. वर आधारित आहे. स्थानिक लोकांना ते परिचित असल्यामुळे त्यांचा स्वीकार करतात आणि त्या स्वीकारण्याची शक्यता जास्त असते. अधिक म्हणजे शाश्वत शेती पद्धती पारंपारिक माहिती आणि स्थानिक नवनिर्मितीवर आधारित आहेत. स्थानिक लोकांना त्यांच्या पर्यावरणीय पिके आणि पशुधनाबद्दल माहिती आहे.

१०) **उदयोन्मुख (नवनवीन) आव्हाने आणि संधी**: 'उदयोन्मुख आव्हाने आणि संधी' या विषयावरील संमेलनाचे अध्यक्ष (MSSRF) व संसदेचे सदस्य डॉ. एम.एस. स्वामीनाथन यांनी TAAS ने आयोजित केलेल्या कार्यशाळेच्या मुख्य भाषणात मांडलेल्या नवीन धोरण व शिफारशींमुळे सरकारला धोरणात्मक दिशा मिळू शकते. जागतिक आव्हानांचे व्यवस्थापन, हवामान बदलांचे अनुकूलन आणि शेतीतील उत्पन्न वाढविणारे सहयोगी घटक यासारखी आव्हाने यावर त्यांनी भाष्य केले. त्यांचे भाषण पुढील पाच मुख्य मुद्द्यांवर केंद्रित होते:

पहिला आणि सर्वात महत्वाचा मुद्दा शेती संवर्धन आणि जिथे शक्य असेल तेथे शाश्वत शेतीसाठी पर्यावरणीय सुविधांचा पाया वाढविणे, ज्यात जमीन, पाणी, जैवविविधता आणि सागरी संसाधने यांचा समावेश होता. शहरीकरणामुळे उपलब्ध जमीन आणि जलसंपत्तीवर प्रचंड दबाव येत आहेत. त्यामुळे प्रथम कृषी जमीन हे बिगर शेती वापरामध्ये रूपांतरित होते, जे योग्य जमीन वापरण्याच्या धोरणाद्वारे पूर्ववत करणे आवश्यक असते. त्याकरिता सामान्य मालमतेची संसाधने चांगली संरक्षित करणे आवश्यक आहे.

सर्व उप-क्षेत्र, उदा. पिके, पशुसंवर्धन, दुधव्यवसाय आणि मत्स्यव्यवसाय यांच्या संदर्भात लहान शेती व्यवस्थापनात महत्त्वपूर्ण क्रांतिकारक विकास झाला आहे. 'लहान शेतकऱ्यांना मोठ्या प्रमाणात उत्पादनात उत्पादनाची शक्ती' देण्यासाठी या प्रक्रियेस प्रोत्साहित करणे आवश्यक आहे. ही प्रक्रिया सक्षम करणाऱ्या संस्थात्मक यंत्रणेत

(अ) आवश्यक विमा व्याप्तीसह, योग्य बियाणे उपलब्धता वाढविण्याकरिता एक केंद्रीय-उत्पादन असणे आवश्यक आहे.

(आ) सुधारित तंत्रज्ञान आणि शेतकऱ्यांना संबंधित सेवांचा पुरवठा करणे आणि

(इ) उत्पादन एकत्रित करणे.

बाजारपेठेतील प्रवेश सुधारण्यासाठी, ज्यात मूलतः 'एंड टू एंड' किंवा 'फार्म-टू-प्लेट' लक्ष्य केले पाहिजे उत्पादन, प्रक्रिया, विपणन इत्यादींचे संरक्षण करणे. शेतीतून व्यावसायिकदृष्ट्या फायद्याचे आणि बौद्धिकदृष्ट्या व्यवस्थापन केले पाहिजे तरुणांना शेतीव्यवसायकडे आकर्षित करणे हे देखील एक योग्य समाधान आहे.

कृषी विकासाची अभिमुखता (नवनिर्मितीतून) उत्पादन - उत्पन्नातून शेतीच्या उत्पन्नात वाढ घडवून आणली पाहिजे. ग्रामीण-शहरी विस्तीर्णतेची पडताळणी करणे आणि त्याकडे वळविणे हे देखील महत्वाचे आहे. पीक, पशुधन, मत्स्यपालन, दुधव्यवसाय व बागायती उपक्रमांचा समावेश करून ग्रामीण जीवनमान पर्यायांना बगल दिला पाहिजे. तसेच शेतकऱ्यांना बाजारायंत्रनेशी जोडण्यासाठी प्रथम प्राधान्य दिले पाहिजे.

समस्या आणि आव्हाने:

कृषी विकासाचा मुख्य मुद्दा म्हणजे उत्पादकतेत सुधारणा घडवून, रोजगार निर्मिती करणे आणि गरीब लोकसंख्येला उत्पन्नाचे साधन प्रदान करणे ही एक गरज आहे. FAO च्या अभ्यासानुसार असे दिसून आले आहे की विकसनशील देशांमधील छोट्या शेती क्षेत्रात एकूण कृषी उत्पादनांच्या सुमारे ३०-३५ टक्के वाटा आहे.

भारतात आधुनिक तंत्रज्ञानाचा अवलंब करण्याचा वेग कमी आहे आणि शेती पद्धती खूपच उधळपट्टी आणि अवैज्ञानिक आहेत. भारतीय कृषी क्षेत्राच्या विकासासाठी काही मूलभूत समस्यांवर म्हणजे सहकारी संस्थांचे पुनरुज्जीवन, ग्रामीण पत सुधारणे, संशोधन, मानव संसाधन विकास, व्यापार व निर्यात प्रोत्साहन, जमीन सुधारणे व शिक्षण या घटकांकडे लक्ष देणे गरजेचे आहे.

भारतातील भविष्यातील शक्यता आणि उपाययोजना:

भारतीय अर्थव्यवस्थेमध्ये शेती क्षेत्राचा महत्वाचा वाटा आहे ज्याच्या आसपास सामाजिक-आर्थिक विशेषाधिकार आणि वंचितता फिरते आणि त्याच्या संरचनेत होणाऱ्या कोणत्याही बदलांचा सामाजिक समानतेच्या विद्यमान पद्धतीवर एक सारखा परिणाम होण्याची शक्यता असते. शाश्वत शेती उत्पादनात माती, पाणी, पशुधन, वनस्पती अनुवंशशास्त्र, वन, हवामान, पाऊस आणि टोपोलॉजीच्या सुलभ वापरांवर अवलंबून असते. भारतीय शेतीला संसाधनांची मर्यादा, मूलभूत अडचणी, संस्थात्मक अडचणी, तंत्रज्ञान विषयक अडथळे आणि धोरणात्मक प्रेरित मर्यादा आहेत.

शाश्वत विकास म्हणजे नैसर्गिक संसाधनांच्या मुख्य घटकांचे व्यवस्थापन, संवर्धन, तंत्रज्ञान आणि संस्थात्मक बदलांचा दृष्टीकोन अशा प्रकारे चालू आणि भविष्यातील पिढ्यांसाठी मानवी आवश्यकतांची प्राप्ती आणि कायमस्वरूपी समाधान सुनिश्चित करणे. अशी शाश्वत विकास (शेती, वनीकरण आणि मत्स्यव्यवसाय क्षेत्रात) जमीन, पाणी, वनस्पती आणि अनुवंशिक प्राणी संसाधनांचे संरक्षण करणे, पर्यावरणातील कमतरता, तांत्रिकदृष्ट्या योग्य, पर्यावरणीयदृष्ट्या व्यवहार्य आणि सामाजिकदृष्ट्या स्वीकार्य आहे. म्हणूनच, शाश्वत शेती विकासासाठी नैसर्गिक संसाधने, मानव संसाधने, भांडवल सामग्री आणि तांत्रिक संसाधनांचा इष्टतम वापर आवश्यक आहे.

भारतात पिकांचे उत्पादन पावसावर मोठ्या अवलंबून आहे व कृषी क्षेत्राच्या घसरत्या प्रमाणाचे हे एक मुख्य कारण आहे. या अनिश्चिततेचा परिणाम म्हणून लहान शेतकऱ्यांना आणि मजुरांना सर्वाधिक फटका बसतो, जे सामान्यतः लोकांच्या तोंडाला घास देऊन जीवनमान देतात. म्हणून अगोदरच, शेतकऱ्यांना मदत करण्यासाठी काहीतरी केले जावे आणि त्यांना असुरक्षित वाटणारे दुष्काळ, पूर आणि आग यापासून होणारे नुकसान व हानी टाळण्यासाठी त्यांना संरक्षण मिळावे यासाठी पुरेशा प्रमाणात पाणी व वीज पुरविणे गरजेचे आहे. लोकसंख्येच्या बाबतीत भारत हा जगातील दुसरा सर्वात मोठा देश आहे; हे लक्षात घेण्यासारखे आहे की ते देशासाठी एक उत्तम संसाधन आहे. भारतात निष्क्रिय लोकांची संख्या मोठी असून त्यांची कौशल्य शोधून आणि त्यांची संख्या वाढीसाठी योगदान देण्याचे मार्ग शोधण्याची आवश्यकता आहे. विशेषतः शेतीत प्रच्छन्न बेरोजगारी दिसून येते.

मानवी संसाधनांचा पूर्ण पणे उपयोग करून देखील भारतातील शाश्वत विकास साधला जाऊ शकतो. देशातील गरीब लोकसंख्येचा एक मोठा भाग शेतीत गुंतलेला आहे, जोपर्यंत आपण त्यांचे जीवनमान सांभाळत व उच्चावत नाही तोपर्यंत देशाची सर्वांगीण वाढ शक्य नाही. जर आपण गरिबांकडे दुर्लक्ष करत राहिलो तर यावर्गातील लोकांमध्ये ही असमानता वाढतच जाईल. देशात कर्जाचे ओझे व सापळे शेतकऱ्यांना आत्महत्या करण्यास भाग पाडत आहेत. लोक चांगल्या व उत्तम उपजीविकेच्या आशेने शहराकडे स्थलांतर करीत आहेत परंतु यामुळे शहरांमध्ये झोपडपट्टी व लोकसंख्याही वाढत आहे. म्हणूनच ग्रामीण भागातील लोकांना त्यांच्या क्षेत्रात रोजगार मिळाला पाहिजे आणि विकासाची व समृद्धीची संधी दिली पाहिजे. बऱ्याच दिवसांपासून भारताला "विकसनशील" देशाचा शिक्का बसला आहे; "विकसित" देशांकडे वाटचाल करण्यासाठी आपण कृषी क्षेत्रात विविध प्रकारच्या सोयी सुविधांची मोठ्या प्रमाणात भर पाडली पाहिजे.

निष्कर्ष:

अभ्यासात असे दिसून आले आहे की भारतासारख्या विकासाकडे झपाट्याने वाढणाऱ्या देशासाठी शाश्वत शेतीचा प्रयोग व प्रयत्न खूप महत्वाचा आहे कारण यामुळे कार्यक्षमता, रोजगार आणि कौशल्यावर प्रतिकूल परिणाम करणाऱ्या पद्धती कमी करून व निर्बंध घालून विकासाच्या कामांना गती प्राप्त करून देईल. माती, जलसंपत्ती आणि इतर नैसर्गिक संसाधनांचा न्हास या मुलभूत घटकांचे संरक्षण करणे आणि पर्यावरणाला हानी न पोहचविणाऱ्या उत्पादनाची पातळी वाढविणे तसेच पर्यावरणाला अनुकूल असे संरक्षण व संरक्षण करण्यासाठी पर्यावरणास अनुकूल संसाधने वापरण्याचे उद्दीष्ट असले पाहिजे. जेव्हा आपण भारताच्या कृषी क्षेत्राची कामगिरी पाहिली आहे तेव्हा आपल्याला हे सहजपणे समजते की गेल्या काही वर्षांत कृषीची कामगिरी लक्षणीय रीतीने वाढली आहे. शहरीकरण व दुय्यम क्षेत्राची वाढ इत्यादी अनेक आव्हाने असूनही त्यात लक्षणीय प्रमाणात वाढ झाल्याचे दिसून येते आहे.

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शाश्वत विकासात लोकशाहीची भूमिका

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प्रस्तावना :-

लोकशाही आणि विकास यांचे अतूट नाते आहे.लोकशाहीशिवाय कोणतेही राष्ट्र आपला सर्वांगीण विकास करू शकत नाही.व्यक्तिचा सर्वांगीण विकास हे लोकशाहीचे उद्दिष्ट आहे.व्यक्तिचा राजकीय, सामाजिक, आर्थिक, शैक्षणिक, औद्योगिक व नैतिक विकास करणे आणि त्यांना सार्वजनिक निर्णय प्रक्रियेत सहभागी करून घेणे हा लोकशाहीचा गाभा आहे.राजेशाही,हुकूमशाही, साम्यवाद व सर्वकषवादी शासन प्रकारापेक्षा लोकशाही शासन प्रकार आज अधिक प्रचलित होत आहे.येवढेच नाही तर विसाव्या शतकाच्या उत्तरार्धात साम्यवादी देशांमध्ये सुद्धा लोकशाही एक मुख्य म्हणून सुप्रतिष्ठित होत आहे.यामुळे लोकशाहीचे दुसरे नाव बंधुभाव होत आहे.लोकशाही आज केवळ शासन प्रकार राहिला नसून तो एकत्रित जीवनाची पद्धती बनत आहे.म्हणून आज मानव जातीचा शाश्वत विकास (Sustainable Development) करायचा असेल तर लोकशाही शासनाशिवाय अशक्य आहे.शाश्वत विकास हा प्रत्येक व्यक्तीचा व राष्ट्राचा अधिकार आहे.

शाश्वत विकास ही एक आधुनिक संकल्पना आहे.औद्योगिक क्रांतीनंतर जगातील अनेक राष्ट्रांनी आपल्या विकासावर भर दिला.आपला विकास करण्यासाठी नैसर्गिक साधनांचा अविचारी व अनियंत्रित पद्धतीने वापर केला.त्यामुळे विकासाचा फायदा होण्यापेक्षा त्याचा तोटाच अधिक झाला.त्यातून अनेक समस्या व प्रश्न निर्माण झाले.विशेष करून पर्यावरण, आर्थिक विकास, सामाजिक बदल व सांस्कृतिक क्षेत्रात मानवाला अधिक किंमत चुकती करावी लागली.विकास हा नुसताच विकास न राहता तो शाश्वत विकास झाला पाहिजे .त्याची समाजाला कमीत कमी किंमत मोजायला लागायची हा विचार पुढे आला.विकासाची ही संकल्पना केवळ भौतिक न राहता ती चिरंतन राहावी या उद्देशातून शाश्वत विकासाची संकल्पना पुढे आली असावी.म्हणून प्रस्तुत शोधनिबंधात शाश्वत विकास आणि लोकशाही शासन यांचा परस्पर संबंधशोधण्याचा प्रयत्न केला आहे.

शोधनिबंधाची उद्दिष्टे :- शाश्वत विकासात लोकशाहीची भूमिका या प्रस्तुत शोध निबंधाची प्रमुख उद्दिष्टे पुढील आहेत.

- १) शाश्वत विकासाची संकल्पना समजून घेणे.
- २) शाश्वत विकास आणि लोकशाही यांचा सहसंबंध अभ्यासणे.
- ३) शाश्वत विकासाच्या दिशेने भारतीय लोकशाहीची वाटचाल अभ्यासणे.

वरील उद्दिष्टे निश्चित करून प्रस्तुत शोधनिबंधाचा अभ्यास पुढील गृहितकांच्या आधारे करण्यात येणार आहे.

शोधनिबंधाची गृहितके:- प्रस्तुत शोधनिबंधाचे निष्कर्ष हे पुढील गृहितकांच्या आधारे काढली जाणार आहेत. ती गृहितके पुढील होत.

- १) शाश्वत विकास काळाची गरज आहे.
- २) शाश्वत विकासासाठी लोकशाही शासन आवश्यक आहे.
- ३) शाश्वत विकास आणि लोकशाही परस्पर पूरक आहेत.

शाश्वत विकासाची संकल्पना :-

शाश्वत विकास ही एक नवीन संकल्पना आहे.२५ सप्टेंबर २०१५ रोजी युनोच्या आमसभेतील १९४ राष्ट्रांनी Transforming our world the 2030 Agenda for Sustainable development हा विकासाचा अजेंडा स्वीकृत केला.मग प्रश्न हा निर्माण होतो की शाश्वत विकास म्हणजे काय?त्याचा अर्थ स्वरूप व उद्दिष्टे नेमकी कोणती आहेत हे समजून घ्यावे लागतील.

शाश्वत विकासाचा अर्थ व व्याख्या :-

शाश्वत विकास यासाठी मराठीत टिकाऊ, कायम,चिरंतन व जैविक विकास असे समानार्थी शब्द आहेत. परंतू शाश्वत विकास यासाठी इंग्रजीत Sustainable Development हा शब्द वापरतात. यातील Sustainable हा इंग्रजी शब्द लॅटिन भाषेतील Sustainere या

शब्दापासून तयार झाला आहे. Sustainere या लॅटिन शब्दाचा मराठी अर्थ टिकवून ठेवणे, सहन करणे किंवा आयुष्याला हातभार लावणे असा आहे. यामुळे शाश्वत या शब्दाचा सर्व साधारण अर्थ चिरंतन विकास असा होतो. किंवा आय.यू.सी.एन. या संस्थेने केलेल्या अर्थाप्रमाणे शाश्वत म्हणजे सजीव परिस्थिती किंवा नैसर्गिक स्रोतांचा असा वापर करणे की, जो भरून काढला जाईल.

- १) ब्रुट लॅंड अहवाल १९८७ :- शाश्वत विकास म्हणजे असा विकास की, जो भविष्यकालीन पिढ्यांच्या त्यांच्या स्वतःच्या गरजा पूर्ण करण्याच्या क्षमतेशी कोणतीही तडजोड न करता सध्याच्या गरजा पूर्ण करणे होय.
- २) रॉबर्ट अॅलन :- शाश्वत विकास म्हणजे असा विकास की जो मानवी गरजांचे समाधान चिरकाल टिकवणे आणि मानवी जीवनाचा दर्जा सुधारणे हे साध्य करणे होय.
- ३) के. पारिख :- निसर्गाच्या अवस्थेपासून प्राप्त केलेल्या त्याच वस्तू व सेवा अर्थव्यवस्थेचे उत्पादन शक्यतेची तजवीज करून चालू ठेवणे म्हणजे शाश्वत विकास होय.

वरील प्रमाणे शाश्वत विकासाचा अर्थ व व्याख्या पहाता शाश्वत विकास म्हणजे मानव जातीचा आर्थिक, सामाजिक, सांस्कृतिक, शैक्षणिक, आरोग्य विषयक कोणताही विकास करताना नैसर्गिक स्रोतांचा कमीत कमी वापर करणे किंवा त्याच्या पुनर्वापरावर भर देणे होय.

शाश्वत विकासाच्या बाबतीत संयुक्त राष्ट्रांने सन २०१५ मध्ये पार पडलेल्या एका शिखर परिषदेत ‘ आपल्या विश्वाचे परिवर्तन ’ असा ठराव केला. ज्यात शाश्वत विकासाची १७ उद्दिष्टे निश्चित केले. जी उद्दिष्टे साध्य करण्याचे २०३० पर्यंत निश्चित केले आहे. या उद्दिष्टांच्या ठरावावर १६९ राष्ट्रांच्या प्रतिनिधींनी सह्या केल्या आहेत. शाश्वत विकासाची ही १७ उद्दिष्टे पुढील प्रमाणे आहेत.

- १) सर्व प्रकारच्या गरिबीचे निर्मूलन करणे.
- २) भूक संपवणे, अन्न सुरक्षा व सुधारित पोषण आहार उपलब्ध करून देणे आणि शाश्वत शेतीला प्राधान्य देणे.
- ३) आरोग्यपूर्ण आयुष्य सुनिश्चित करणे व सर्व वयोगटातील नागरिकांचे कल्याण साधणे.
- ४) सर्वसमावेशक व गुणवत्तापूर्ण शिक्षण उपलब्ध करणे.
- ५) लिंगभावाधिष्ठित समानता व महिला आणि मुलींचे सक्षमीकरण करणे.
- ६) पाण्याची व स्वच्छतेच्या संसाधनाची उपलब्धता सुनिश्चित करणे.
- ७) सर्वांना अल्पखर्चिक विश्वासार्ह, शाश्वत आणि आधुनिक उर्जा साधने उपलब्ध करून देणे.
- ८) शाश्वत, सर्वसमावेशक आर्थिक वाढ आणि उत्पादक रोजगार उपलब्ध करणे.
- ९) पायाभूत सोयीसुविधांची निर्मिती करणे, सर्वसमावेशक आणि शाश्वत औद्योगिकीकरण करणे व कल्पकतेला वाव देणे.
- १०) विविध देशातील असमानता दूर करणे.
- ११) शहरे आणि मानवी वस्त्या, अधिक समावेशक, सुरक्षित, संवेदनशील आणि शाश्वत करणे.
- १२) उत्पादन आणि उपभोगाच्या पद्धती शाश्वत रूपात आणणे.
- १३) हवामान बदल आणि त्याच्या दुष्परिणामांना रोखण्यासाठी त्वरित उपाययोजना करणे.
- १४) महासागर व समुहांचे संवर्धन करणे तसेच त्यांच्याशी संबंधित संसाधनांचा शाश्वतपणे वापर करणे.
- १५) परिस्थितीकीय व्यवस्थांचा (Ecosystem) शाश्वत पद्धतीने वापर करणे, वनांचे शाश्वत व्यवस्थापन, वाळवंटीकरणाशी मुकाबला, जमिनीचा कस कमी होण्याची प्रक्रिया आणि जैवविविधतेची हानी रोखणे.
- १६) शांततापूर्ण आणि सर्वसमावेशक समाजव्यवस्थांना प्रोत्साहन देणे त्यांची शाश्वत विकासाच्या दिशेने वाटचाल निश्चित करणे. सर्वांना न्यायापर्यंत पोहोच स्थापित करण्यासाठी विविध पातळ्यांवर परिणामकारक, उत्तरदायी आणि सर्वसमावेशक संस्था उभ्या करणे
- १७) चिरस्थायी विकासासाठी वैश्विक भागीदारी निर्माण व्हावी यासाठी अंमलबजावणीची साधने विकसित करणे.

शाश्वत विकासाची वरील उद्दिष्टे पहाता संयुक्त राष्ट्रांने सन २०३० पर्यंत पर्यावरणपूरक विकास करण्यावर भर दिला आहे. यासाठी सर्व सदस्य राष्ट्रांनी पुढाकार घेण्यास सुरुवात केली आहे. यात लोकशाही शासन प्रकार असणारे देश कसे आहेत हे पुढील प्रमाणे अभ्यासता येईल.

शाश्वत विकास व लोकशाही :- शाश्वत विकास निर्देशांक २०२० संयुक्त राष्ट्राकडून प्रसिध्द करण्यात आला आहे. यात १६६ देशांच्या शाश्वत विकासात पहिले दहा राष्ट्र स्वीडन, डेन्मार्क, फिनलंड, फ्रान्स, जर्मनी, नॉर्वे, ऑस्ट्रिया, झेक प्रजासत्ताक, नेदरलॅंड आणि एस्टोनिया या देशांचा क्रम लागतो. याशिवाय जगातील इतर शासन व्यवस्था असलेल्या देशांच्या तुलनेत लोकशाही शासनव्यवस्था असलेले देश शाश्वत विकासात पुढे आहेत.

संयुक्तराष्ट्रांच्या एकुण १९३ सदस्य राष्ट्रांमध्ये इकॉनॉमिस्ट मासिकाने केलेल्या अभ्यासानुसार संपूर्ण लोकशाही असणारे २४ देश आहेत. ज्यात नॉर्वे, स्वीडन, न्यूझीलंड, स्वित्झरलंड, फिनलंड यांचा समावेश होतो. ५१ देशात दोष पूर्ण लोकशाही, ४० देशात मिश्र राजवट आणि ५० देशात हुकुमशाही राजवट आहे. यातील जवळपास सर्वच लोकशाही देशांनी शाश्वत विकासाच्या दिशेने वाटचाल सुरू केली आहे. यात सौर ऊर्जेचा वापर, पर्यावरणपूरक विकास, बेकारी, दारिद्र्य, उपासमार, रोगराई सारख्या समस्या निर्मुलन करण्यावर भर देण्यात येत आहे.

भारतात सुध्दा शाश्वत विकासाच्या बाबतीत सरकार अनेक नवनवीन योजना आखत आहे. फेब्रुवारी २०२१ मध्ये जागतिक शाश्वत विकास परिषद झाली. कोरोनाकाळात ऑनलाईन पद्धतीने ही परिषद पार पडली. या पाश्चिमात्य भाषणात पंतप्रधान नरेंद्र मोदी यांनी येणाऱ्या काळात मानवाच्या प्रगतीच्या प्रवासाची दिशा दोन बाबींवर अवलंबून असेल असे म्हटले, 'एक आपल्या लोकांचे आरोग्य व दुसरे म्हणजे पृथ्वीचे आरोग्य.' सध्या भारतात इथेनॉलचा वापर, ईलेक्ट्रिक मोटार, सौर ऊर्जा, पवन ऊर्जा, वृक्षलागवड, स्वच्छतागृह, स्मार्ट सिटी, आदर्श गाव यासारख्या विविध शाश्वत विकास उपक्रमांवर भर दिला जात आहे. याशिवाय नदीजोड प्रकल्प, सेंद्रिय शेती, जलसंधारण, जैवविविधता, वाघ संरक्षण, यावर भर देण्यात येत आहे. आज शाश्वत विकासात भारताचा ११७ क्रमांक आहे. येणाऱ्या काळात यात अधिक जबाबदारीने लोकसहभाग वाढविण्यावर भर देणे आवश्यक आहे. भारताला सामाजिक विषमता, अन्न सुरक्षा आणि औद्योगिकीकरण या क्षेत्रात भरीव कार्य करणे आवश्यक आहे.

शाश्वत विकास आणि लोकशाही शासन निर्देशांक यांचा तुलनात्मक अभ्यास केला तर आपणास असे दिसून येत की, लोकशाहीशिवाय शाश्वत विकास अशक्य आहे. आज चीन सारख्या साम्यवादी शासन व्यवस्था असणाऱ्या देशात शाश्वत विकासावर भर दिला जात आहे पण तिथे लोकशाही, मानवी हक्क, पर्यावरण मुल्य पायदळी तुडवले जात आहेत. यामुळे एकीकडे चीन विकासाचे नवीन मॉडेल प्रस्थापित करत असला तरी तो खरा शाश्वत विकास ठरणार नाही. कोरोना सारख्या महामारीत चीनने आजपर्यंत जगाला कोणतेही सहकार्य केले नाही. तसेच कोरोनाबाबतचे सर्व सत्य पोलादी पडद्याआड लपवून ठेवले आहे. यावरून एकच म्हणता येईल लोकशाहीतच शाश्वत विकास शक्य आहे.

निष्कर्ष:-

शाश्वत विकासात लोकशाहीची भूमिका या प्रस्तुत शोधनिबंधाच्या अभ्यासावरून असे दिसून येते की, शाश्वत विकास ही आजच्या काळाची आवश्यक बाब बनली आहे. वाढते जागतिक तापमान, नैसर्गिक आपत्ती, प्रदूषण, साथीचे आजार यापासून संपूर्ण सजीव सृष्टी सुरक्षित ठेवणे आवश्यक आहे. अन्यथा येणाऱ्या काळात विकास खूप झालेला असेल पण त्या विकासाचा उपभोग घ्यायला माणूस असणार नाही. आज पर्यावरण प्रदूषणामुळे मानव जातीपुढे मोठे संकट उभे टाकले आहे. ब्राझील, ऑस्ट्रेलियाच्या जंगलात लागलेल्या आगीत अनेक जैववैविध्य नष्ट झाले आहे. तसेच महापुर, ढगफुटी, दुष्काळ, सुनामी सारख्या नैसर्गिक आपत्ती वाढत आहेत. निसर्गाच्या विरोधात जाऊन आपण आपला भौतिक विकास करत गेलोत तर निसर्ग आपणास माफ करणार नाही. तो नैसर्गिक आपत्तीच्या रूपाने पुढे येणार आहे. तेव्हा जगातील सर्व देशांनी एकत्रित येऊन २०३० पर्यंत शाश्वत विकासात आपले योगदान देणे आवश्यक आहे.

विषमता, विसंवाद आणि विद्ध्वंस हे शाश्वत विकासातील मोठे अडथळे आहेत. तेव्हा त्यावर उपाय म्हणून समता, संवाद आणि सुशासन प्रस्थापित करून एक पर्यावरणपूरक जग निर्माण करण्यासाठी लोकशाही शासन आणि शाश्वत विकास यांचा समन्वय साधणे आवश्यक आहे.

संदर्भ सूची:-

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सद्यस्थितीत पर्यावरण हा विषय शिक्षणाच्या प्रथम वर्षापासून ग्रेज्युएट पर्यंत अंतर्भूत आहे. पर्यावरणाशी संबंधित शिक्षण म्हणजे पर्यावरण शिक्षण आपल्या सभोवतालच्या सर्व घटकांना स्पर्श करणारे हे शिक्षण आहे. म्हणून ते सर्व समावेशक आहे. भावी पिढीला पर्यावरणाबद्दल माहिती होऊन जाणीव जागृती व्हावी पर्यावरणाशी व त्याच्या समस्याशी बांधीलकी निर्माण व्हावी. आणि पर्यावरण समस्या कमी व्हावी जागतिक स्तरावर पर्यावरण रक्षण करणारा समाज निर्माण व्हावा यासाठी पर्यावरण शिक्षण शालेय जीवनापासून आवश्यक आहे. त्यामुळे हा विषय अभ्यासक्रमात नव्याने समाविष्ट करण्यात आला आहे.

सजीव आणि निर्जीव या दोन्ही गोष्टींच्या परस्पर प्रक्रियेतून पर्यावरण तयार झाले आहे. मानवी जीवनाचा पर्यावरण हा अविभाज्य भाग आहे. त्यामुळे पर्यावरणाला निकोप ठेवण्याची जबाबदारी ही मानवाची आहे. "वैज्ञानिक पिरिभाषिक कोशानुसार पर्यावरण या संज्ञेत वनस्पती अथवा प्राणी ज्या नैसर्गिक परिसरात जगतात व वाढतात तेथील हवा जमीन पाणी इतर सजीव पर्जन्यमान, उंची, तापमान इत्यादी सर्वांचा समावेश होतो."१ त्याला पर्यावरण म्हणतात.

पर्यावरण शिक्षण -

मानवी जीवन नैसर्गिक गोष्टीशी निगडित असते त्यामुळे जगभरात आज पर्यावरण शिक्षणाला महत्व आले आहे. पर्यावरण शिक्षण ही एक मोहीम, चळवळ आहे. प्रगतीच्या वाटेवर जाणाऱ्या माणसाला पर्यावरण सौरक्षण करणे तेवढेच गरजेचे आहे. पर्यावरण शिक्षण हा योग्य जाणीव जागृती निर्माण करण्याचा, स्वतः शिकण्याचा आत्मसात करण्याचा व इतरांकडून तसे वर्तन घडवून आणण्याचा विषय आहे" सामाजातील प्रत्येक व्यक्तीच्या विचारांचे परिवर्तन करण्याचे सामर्थ्य शिक्षण प्रक्रियेत असल्याने पर्यावरण शिक्षण हा विषय अभ्यासक्रमात समाविष्ट केला आहे."२ ही बदलत्या काळाची गरज आहे हा विषय शिक्षकाने मुलांमध्ये रुजविला तर तो विचार उद्याची भावी पीढी दुसऱ्यापर्यंत पोहचवू शकेल. त्यामुळेच बहुतेक राष्ट्रांनी पर्यावरण शिक्षणासाठी औपचारिक तसेच अनौपचारिक प्रकारच्या शिक्षणाची गरज व्यक्त केली आहे. "जॉनटर्क यांच्या मते, पर्यावरण शिक्षण म्हणजे पृथ्वीवरील पर्यावरणाचे आकलन व मानवी जीवनाचा पर्यावरणावर असणारा प्रभाव यांचा अभ्यास"३ हा विषय प्रात्यक्षिक कार्य, वातावरण निर्मिती प्रसंग निर्मिती, प्रदर्शन उपक्रम उद्बोधन यातून विद्यार्थ्यांमध्ये रुजविला जातो.

पर्यावरण शिक्षणाचे स्वरूप -

वेगवेगळ्या संघटना, अधिकारी, वैज्ञानिक, शिक्षणतज्ञ यांनी आपल्या वैयक्तिक दृष्टिकोनातून पर्यावरण शिक्षणाचे स्वरूप ठरविले आहे. पर्यावरणात्मक समस्या जाणून घेऊन समस्या सोडवणूकीचा प्रयत्न केला जातो. पर्यावरण शिक्षण या संकल्पनेचा उगम सामाजिक व राष्ट्रीय आंतरराष्ट्रीय गरजामधून झाला तसे तर पर्यावरणाचे महत्व प्राचीन काळापासून होते. "पद्मपुराण, स्कंधपुराण, कार्तिकेय महात्म्य"४ अशा प्राचीन अनेक ग्रंथात वेदवाडमयात पर्यावरणासंबंधी उल्लेख आहे. या सर्वांचे महत्व जाणून पर्यावरण शिक्षण मुलांना देण्याचे शासनाने जाहिर केले. विद्यार्थ्यांमध्ये पर्यावरणविषयक सकारात्मक अभिवृत्तीचा, मूल्यांचा व पर्यावरण नैतिकतेचा विकास होईल व त्यांना शास्वत विकासासाठी फायदा होईल असे पर्यावरण शिक्षण दिले जाते. पर्यावरण व पर्यावरणीय आव्हाने, समस्या कमी करणे. लोकजागृती लोकशिक्षण, माहिती व तंत्रज्ञान, प्रसारमाध्यम याचा उपयोग करून हे शिक्षण दिले जाते. विकासाच्या व वाढीच्या नियोजनात पर्यावरणीय अंगाचा प्रामुख्याने, विचार केलेला आहे.

पर्यावरण शिक्षणाची आवश्यकता -

सद्याच युग हे विज्ञान तंत्रज्ञानाच युग आहे. मानव प्रगती करत आहे. पण त्याची दुसरी बाजू पर्यावरणाची हाणी होईल अशाकाही गोष्टी घडत आहे. त्यामुळे पर्यावरणाची गुणवत्ता दिवसेंदिवस ढासाळत आहे. वाढती लोकसंख्या, वाढते औद्योगिकीकरण, बदललेली उपभेक्तावादाकडे झुकणारी जीवनशैली, नैसर्गिक साधनांचा मर्यादेबाहेर उपयोग जल, वायू, ध्वनी प्रदूषण अंतराळ, पृथ्वी, जंगल यावर होत असलेले प्रदूषण या समस्या संपूर्ण जगात आहेत. त्यामुळे पर्यावरणाच्या विविध घटकांचे महत्व लक्षात घेऊन एक जबाबदार नागरीक बनण्यासाठी पर्यावरण शिक्षणाची गरज आहे. " पर्यावरण व्यवस्थापन व आयोजन या एकाच नाण्याच्या दोन बाजू आहे."५ त्या विद्यार्थीदशेपासून मानवाला कळणे महत्वाचे आहे. पर्यावरणामध्ये संतुलन राखण्यासाठी सृष्टिचा समतोल राखावा म्हणून, प्राणवायुचे प्रमाण वाढावे, पर्यावरण जाणीव जागृतीसाठी नैसर्गिक आपत्तीचे परिणाम समजून देण्यासाठी नैसर्गिक साधन संपत्ती जपून वापरण्यासाठी पर्यावरण शिक्षणाची आवश्यकता आहे.

पर्यावरणात शिक्षणाचे महत्व -

शिक्षण हे मानवाच्या सर्वांगीण विकासासाठी अतिशय महत्वाचे आहे. यामुळे वैयक्तीक हीत आरोग्य तसेच अखील मानव जातीचे हीत साधले जाते. त्यामुळे पर्यावरण हा विषय अभ्यासमध्ये असला तर आपली जीवनशैली सुधारू शकते. अन्न-धान्य उत्पादनात वाढ होऊ शकते नैसर्गीक वनस्पतीचा ऱ्हास थांबवल्या जाऊ शकतो, प्रदूषण टाळता येईल, प्रगतीच्या काळात पर्यावरण जपल्या गेले तर अधिक भरभराट होईल.

पर्यावरण शिक्षणाचा उद्देश -

पर्यावरण-शिक्षण हे पर्यावरणाभोवती केंद्रीत झालेले असते. पर्यावरण त्याच्या अभ्यासाचे, उपयोजनाचे व कृतीचे क्षेत्र आहे. समाजाच्या कल्याणासाठी पर्यावरणासंबंधी ज्ञान प्राप्त करणे, पर्यावरणात सुधारण करणे, त्यात बदल करणे हे शिक्षणाचे उद्दिष्ट असलेच पाहिजे. म्हणून "नवीन शैक्षणिक धोरणामध्ये"६ पर्यावरण शिक्षणाला महत्व दिल्या गेले. वास्तव परिस्थिती लक्षात घेऊन विशेषतः गेल्या दशकात, जगभरात राजकारणी आणि शासन यांनी पर्यावरणाच्या ऱ्हासाची दखल घेतली आहे. तो थांबवण्यासाठी पर्यावरण शिक्षण हा एकमेव पर्याय आहे.

संदर्भ सुचि-

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सिंधुदुर्ग जिल्ह्यात राबविलेल्या फळझाड योजना — एक चिकित्सक अभ्यास

डॉ. बी.डी. इंगवले,

अर्थशास्त्र विभाग प्रमुख,

आनंदीबाई रावराणे कला, वाणिज्य व विज्ञान महाविद्यालय,

वैभववाडी, ता.वैभववाडी, जि.सिंधुदुर्ग.

प्रस्तावना—

कोकण विभागाच्या कृषी विकासाच्या दृष्टीने फळ बागायतीस अनन्य साधारण महत्व आहे. कोकणातील रत्नागिरी व सिंधुदुर्ग या जिल्ह्यांची जमीन व हवामान फळ पिकांसाठी अतिशय पोषक आहे. फळबाग लागवड नियोजन पूर्वक केल्यास फक्त या जिल्ह्यांचाच नव्हे तर संपूर्ण महाराष्ट्राचा आर्थिक पाया शाश्वत व बळकट करण्याची क्षमता या जिल्ह्यांमध्ये आहे. आज कोकण विभागामध्ये जवळपास १.५० लाख हेक्टर आंबा व तेवढीच काजूची लागवड झालेली असून त्यापेकी अधिक क्षेत्र हे रत्नागिरी व सिंधुदुर्ग जिल्ह्यातील आहे.

अभ्यास क्षेत्र (Study Area)

प्रस्तुत संशोधनासाठी सिंधुदुर्ग जिल्ह्याची निवड केली आहे. पश्चिमेला निळाशार अथांग सागर, पुर्वेस सहयाद्रीच्या उंच-उंच पर्वत रांगा, विजयदुर्ग, सिंधुदुर्ग सारखे दुर्ग, मध्येच दिसणाऱ्या आमराई, काजूच्या बागा, नारळी — पोफळीची झाडे, सागाची वने, गावो—गांव असलेली पुरातन मंदिरे या सर्वानी हा भाग समृद्ध झाला आहे. राज्याच्या ७२० किलोमीटर किनारपट्टी पैकी १२१ किमी. किनारपट्टी सिंधुदुर्ग जिल्ह्याला लाभली आहे. कोकणातील हवामान व जमीन फळझाड लागवडीला अनुकूल असल्यामुळे या जिल्ह्यामध्ये आंबा, काजू, नारळ, सुपारी, कोकम, चिकू, फणस इ. फळझाड लागवड झालेली दिसून येते. यामध्ये आंबा व काजू या पिकांचा मोठा वाटा आहे.

प्रस्तुत संशोधनाचा विषय—

“सिंधुदुर्ग जिल्ह्यात राबविलेल्या फळझाड योजना — एक चिकित्सक अभ्यास” असा आहे.

गृहितक —

सदर शोध निबंधासाठी खालील गृहितक निवडण्यात आलेले आहे.

“सिंधुदुर्ग जिल्ह्यात राबविलेल्या फळझाड योजनेमुळे जिल्ह्याच्या आर्थिक विकासात वाढ झालेली आहे”.

संशोधनाची उद्दिष्ट्ये —

प्रस्तुत शोध निबंधासाठी खालील उद्दिष्ट्ये निश्चित करण्यात आलेली आहेत.

- १) सिंधुदुर्ग जिल्ह्यातील भूमिउपयोजन पीक रचनेचा अभ्यास करणे.
- २) रोजगार हमी योजनेअंतर्गत लागवड करण्यात आलेल्या फळांविषयी माहिती घेणे.
- ३) सिंधुदुर्ग जिल्ह्यातील किफायतशीर फळझाड लागवडीचे नियोजन अभ्यासणे.

संशोधन पद्धती व माहिती संकलन —

संशोधनाची पद्धती —

सदर संशोधन विषयाचे महत्व लक्षात घेता योग्य संशोधन पद्धती या अभ्यासासाठी स्विकारण्यात आली आहे. प्रस्तुत संशोधनाचा प्रकार वर्णनात्मक आणि विश्लेषणात्मक आहे. कारण जिल्ह्यातील फळबाग लागवडीच्या विविध वैशिष्ट्यांचे विश्लेषण करणे हा त्यामागचा उद्देश आहे.

तथ्य संकलन —

प्रस्तुत संशोधन प्राप्त तथ्यांच्या आधारे सखोल अध्ययनावर आधारित आहे. तथ्य संकलनासाठी प्रामुख्याने प्राथमिक आणि दुय्यम स्रोतांचा वापर केला आहे.

सिंधुदुर्ग जिल्हा आणि भूमि-उपयोजन—

सिंधुदुर्ग जिल्ह्याचे एकूण भौगोलिक क्षेत्र ५ लाख ४८ हजार हेक्टर एवढे असून त्यापैकी विविध पिकाखालील क्षेत्र तसेच जमिनीची विगतवारी पुढीलप्रमाणे—

तक्ता क्र. १

अ.नं.	बाब	क्षेत्र (हेक्टरमध्ये)
१)	जंगलव्याप्त क्षेत्र	३६,३१५ हेक्टर (७.१०%)
२)	शेतीला उपलब्ध नसलेली जमीन अ) बिगरशेती वापराखालील जमीन ब) पडीक व लागवड लायक नसलेली जमिन क) अ + ब	६,७७८ हेक्टर (१.३४%) १,०४,८६७ हेक्टर (२०.७७%) १,११,६४५ हेक्टर (२२.११%)
३)	पडीक जमिनी व्यतिरिक्त लागवड न केलेली जमीन अ) कायम गुरे चरणे व इतर जमीन ब) झाडे झुडपाखालील जमिन क) लागवडीयोग्य परंतु पडीक जमीन ड) अ + ब + क	११,०३१ हेक्टर (२.१९%) ८२,२११ हेक्टर (१६.२९%) ३८,२६४ हेक्टर (७.५८%) १,३१,५०६ हेक्टर (२२.०७%)
४)	पडीक जमीन अ) चालू पड जमीन ब) इतर पड जमीन क) एकूण पड	९,२३३ हेक्टर (१.८३%) ६८,५२२ हेक्टर (१३.५७%) ७७,७५५ हेक्टर (१५.३०%)
५)	पिकाखालील क्षेत्र — निव्वळ क्षेत्र फुलझाडे सह	१,४७,५०० हेक्टर (२९.२२%)

वरील तक्त्यावरून असून आढळून येते की, जिल्ह्यातील एकूण भौगोलिक क्षेत्राचा विचार करता जंगलव्याप्त क्षेत्र ३६,११५ हेक्टर (७.१८%) इतके असून ते सर्वात कमी आहे. पडीक जमिन आणि पडिक जमिनी व्यतिरिक्त क्षेत्र तसेच शेतजमिनीस उपलब्ध नसलेले क्षेत्र या सर्व क्षेत्राचा

भविष्यात फळझाड लागवडीच्या विकासासाठी उपयोग घेऊ शकतो असे संशोधन आकडेवारीवरून आढळून येते.

महाराष्ट्राची रोजगार हमी योजना —

ग्रामीण भागातील बेकारी, दारिद्र्य यावर उपाय म्हणून राज्य शासनाने १५ कलमी कार्यक्रमाचा भाग म्हणून राज्यस्तरावर रोजगार हमी योजना एक खास कार्यक्रम म्हणून १९६५ पासून कांही मर्यादित भागात राबविण्यात आला. ही वैशिष्ट्यपूर्ण योजना राबविणारे महाराष्ट्र हे देशातील पहिलेच राज्य होते. १९९०—९१ पासून रोजगार हमी योजनेशी फळझाड लागवड कार्यक्रमाची सांगड घालण्यात आली.

रोजगार हमी योजनेअंतर्गत लागवड करण्यात आलेल्या फळांविषयी माहिती

आंबा —

महाराष्ट्रात जवळ जवळ सर्व जिल्ह्यात आंब्याची लागवड होते. कोकण विभागात सर्वात जास्त क्षेत्र लागवडीखाली आहे. कोकणातील डोंगर उताराच्या व वरकस पडिक जमिनी आणि दमट व कोरडे हवामान या पिकांस योग्य आहेत. हापूस, रत्ना, सिंधु, कोकण रूची, सुवर्णा या जाती कोकण कृषी विद्यापीठाने विकसित केल्या आहेत. कोकण विभागासाठी रत्ना, केसर, सिंधु या आंब्यांच्या जातीची लागवडीसाठी शिफारस केलेली आहे.

काजू —

काजू हे परकीय चलन मिळवून देणारे महत्वाचे पीक आहे. महाराष्ट्रात काजू या फळझाडांची लागवड कोकण विभागातील रत्नागिरी, सिंधुदुर्ग, ठाणे आणि रायगड जिल्ह्यात आणि कोल्हापूर जिल्ह्याच्या पश्चिम भागात आढळून येते. विशेषतः वरकस जमिनीत काजूची झाडे चांगली पोसतात. कोकणातील उष्ण व दमट हवामान या पिकास फारच अनुकूल आहे. वेंगुर्ला ६, ७, ८ या जातीची झाडे उत्कृष्ट प्रतीच्या बियांचे उत्पादन देतात.

नारळ —

बहुवर्षीय, बहुउपयोगी असे फळझाड आहे. या झाडास कल्पवृक्ष असे म्हणतात. भारतातील नारळ लागवडीखालील एकूण क्षेत्रापैकी महाराष्ट्रात फक्त १% क्षेत्र आहे. महाराष्ट्रातील नारळ लागवडीखालील क्षेत्र प्रामुख्याने कोकण विभागापुरतेच मर्यादित आहे. जमीन किमान १ मीटर खोलीपर्यंतची कसदार भूसभुसीत आणि पाण्याचा निचरा होणारी असावी. बाणावली, प्रताप, टी × टी या सुधारित जाती आणि अधिक उत्पादनाच्या जाती आहेत. नारळ बागेतून काळी मिरी, लवंग, जायफळ, दालचिनी, केळी, हळद, अननस इ. अंतरपिके घेऊन उत्पन्न मिळविता येते.

सुपारी —

सुपारीस पोफळी, अरेकानट, पाम, बीटलनट पाम या नावाने ओळखले जाते. भारतात सुपारीखालील २५००० हेक्टर क्षेत्र असून त्यापैकी २५०० हेक्टर क्षेत्र महाराष्ट्रात आहे. कोकण विभागात सुपारी लागवड अधिक आहे. या पिकास समुद्र काठाच्या वाळूच्या, गाळाच्या, पाण्याचा चांगल्या प्रकारे निचरा होणाऱ्या बारमाही पाण्याच्या जमिनी मानवतात. श्रीवर्धनी, मंगल या सुपारीच्या सुधारित जाती आहेत.

चिकू —

चिकूचे मुळ स्थान मेक्सिको हा देश असून त्याचा प्रसार इतर देशात व भारतात झाला. महाराष्ट्रातील सर्व जिल्ह्यात चिकूची लागवड यशस्वी होऊ शकते. निचरा आणि बारमाही पाण्याची

जमिन तसेच दमट आणि कोरड्या या दोन्ही हवामानात चिकूची वाढ चांगली होते. कलापती, क्रिकेट बॉल, आणि छत्री या सुधारित जाती आहे.

कोकम —

पाण्याचा चांगला नियरा जमीन आणि उष्ण व दमट हवामान योग्य आहे. लागवडीत ९०% मादी व १०% नराची झाले ठेवावीत. कोकण अमृता आणि कोकण हातीस या सुधारीत जाती विद्यापीठाने विकसित केल्या आहेत.

सिंधुदुर्ग जिल्ह्यातील किफायतशीर फळझाड लागवड नियोजन

सिंधुदुर्ग जिल्ह्यात फळझाड लागवड करतांना जमिनीचा उंच सखलपणा, चांगले, वातावरण, उतार इ. बाबींचा विचार न करता लागवड केलेली आहे. अशा फळझाड लागवडी तोंट्यात जाण्याची दाट शक्यता असते.

आंबा लागवड पुर्व नियोजन —

हापूस आंब्यासाठी वारा, भरपुर सुर्यप्रकाश आणि टेकडीचा भाग असणारी जमिन योग्य असते. वेंगुर्ला, देवगड, मालवण हे तालुके समुद्र किनाऱ्या लागत आहेत. परंतु देवगड, विजयदुर्ग परिसरात समुद्राजवळ टेकड्या नसल्यामुळे किनाऱ्यावरून येणारे वारे थेट शिरगांवपर्यंत पोहचू शकतात. तसेच पवन चकक्यामुळे आंब्यांच्या पानामधून मोठ्या प्रमाणावर बाष्पीभवन होते. त्यामुळे आंबे लवकर व नियमित येतात. तसेच येथे कमाल — किमान तापमानामध्ये फारसा फरक नसतो. अशी नैसर्गिक ठेवण मालवण, वेंगुर्ला तालुक्यात दिसून येत नाही. हापूस सोबत १५ ते २०% केसर अथवा रत्ना या जातीची लागवड करावी. त्यामुळे फळधारणा वाढण्यास मदत होते.

काजू लागवड पुर्व नियोजन —

डोंगर उतारावर व किनाऱ्यापासून दूर असणाऱ्या टेकड्यांची काजू लागवडीसाठी निवड करणे शक्य ठरते. कारण टेकड्यावर वारे चांगले वाहतात. धुके कमी काळ व कमी प्रमाणात असते. त्यामुळे फळधारणा खूपच चांगली असते.

नारळ, सुपारी, मसाला पिके लागवड पुर्व नियोजन —

ज्या ठिकाणी पाण्याची उपलब्धता आहे. उदा. नाला, नदीकिनारा, टेकडीचा पायथा या जागा नारळ सुपारी तसेच मसाला पिके लागवडीसाठी योग्य आहेत. नारळ चांगल्या रोपांची निवड शासकीय रोपवाटीकेतून करावी. नंतर झाडे मोठी झाल्यावर काळी मिरी, जायफळ, लवंग, दालचिनी इ. पिके घेता येतात.

सिंधुदुर्ग जिल्ह्यात रोजगार हमी योजनेअंतर्गत राबविलेली तालुका निहान फळझाड योजना —

१) वेंगुर्ला —

१९९०—१९९१ ते २००४—२००५ या काळात आंबा खालील एकूण क्षेत्र ११३३.३५ हेक्टर, काजू १५८.२९ हेक्टर क्षेत्र, नारळ ३९७.५८ हेक्टर क्षेत्र, चिकू ७.८० हेक्टर क्षेत्र आणि इतर फळे ३९.५९ हेक्टर क्षेत्र तसेच २००५ ते २०१५ या काळात आंबा ४९१.४५ हेक्टर क्षेत्र, काजू ३५७.०२ हेक्टर क्षेत्र, नारळ ७४.८४ हेक्टर क्षेत्र, चिकू १.५६ हेक्टर क्षेत्र, व इतर फळे १०९.६२ हेक्टर क्षेत्र असल्याचे आढळून येते. या योजनेअंतर्गत नंतरच्या काळात या सर्व पिकांच्या लागवडी खालील क्षेत्रात घट झालेली आहे. ही उल्लेखनीय बाब नाही.

२) कणकवली —

१९९०—१९९१ ते २००४—२००५ या काळात आंब्याचे एकूण क्षेत्र ८७०.१८ हेक्टर, काजू ६२२९.९६ हेक्टर क्षेत्र, २००५ ते २०१५ या काळात काजू १९४४.६८ हेक्टर क्षेत्र, आंबा १९८.६६ हेक्टर क्षेत्र, नारळ ११४.९७ हेक्टर इतर पिकाखाली १३५.७१ हेक्टर क्षेत्र यावरून रोजगार हमी योजनेअंतर्गत फळझाड लागवड कार्यक्रम राबवून सुध्दा या पिकाचे क्षेत्र हळू हळू कमी होत गेले.

३) कुडाळ —

कुडाळ तालुक्यात १९९०—१९९१ ते २००४—२००५ या काळात आंब्याचे एकूण क्षेत्र १७६४.३३ हेक्टर, काजू ६५५१.७९ हेक्टर क्षेत्र, नारळ २२३२.१ हेक्टर क्षेत्र, इतर फळे ५९.७ हेक्टर क्षेत्र तर २००५ ते २०१५ या काळात आंबा ४१९.६३ हेक्टर क्षेत्र, काजू १८१४.०५ हेक्टर क्षेत्र, नारळ ४५३.३४ हेक्टर, चिकू १४.२४ हेक्टर आणि इतर फळाखाली ०४.६२ हेक्टर क्षेत्र असल्याचे आढळून आहे. आंबा, काजू या पिकांची लागवड कमी असून नारळ चिकू इतर फळे लागवड अधिक आढळून आली.

४) मालवण —

१९९०—१९९१ ते २००४—२००५ या काळात काजू ४६४९.०० हेक्टर क्षेत्र, आंब्याचे क्षेत्र १७८८.५९ हेक्टर, नारळ ११५८.०८ हेक्टर क्षेत्र, इतर फळे ८६.१३ हेक्टर क्षेत्र तर २००५ ते २०१५ या काळात आंबा ६५८.३९ हेक्टर क्षेत्र, काजू १६५३.३७ हेक्टर क्षेत्र, नारळ २८.२२ हेक्टर या तिन्ही पिकांचे क्षेत्र कमी झाल्याचे आढळते. याच काळात चिकूचे क्षेत्र वाढले.

५) वैभववाडी —

सन १९९०—१९९१ ते २००४—२००५ या काळात आंबा लागवड ४०५.०० हेक्टर क्षेत्र, काजू क्षेत्र २८७१.०० हेक्टर, नारळ १३२.७८ हेक्टर क्षेत्र, इतर फळे २२.४२ हेक्टर क्षेत्र तर २००५ ते २०१५ या काळात आंबा १३०.९८ हेक्टर क्षेत्र, काजू ९८३.८२ हेक्टर क्षेत्र, नारळ ४४.२५ हेक्टर इतर पिके २१.९९ हेक्टर क्षेत्र लागवड करण्यात आलेली आहे. या पिकांचे क्षेत्र कमी झाल्याचे आढळते.

६) देवगड —

१९९०—१९९१ ते २००४—२००५ या काळात आंब्याचे क्षेत्र ४७१४.०० हेक्टर क्षेत्र, काजू क्षेत्र १०४.०५ हेक्टर, नारळ १९९.६३ हेक्टर क्षेत्र, इतर फळे २४.१८ हेक्टर क्षेत्र तर २००५ ते २०१५ या काळात आंबा १८७९.७ हेक्टर क्षेत्र, काजू ४६५.४२ हेक्टर क्षेत्र, नारळ ३०.४३ हेक्टर इतर ४.१८ हेक्टर क्षेत्र. अभ्यासावरून हे स्पष्ट होते की, आंबा, काजू, नारळ व इतर पिकांचे क्षेत्र दिवसेंदिवस कमी होत आहे.

७) सावंतवाडी —

१९९०—१९९१ ते २००४—२००५ या काळात आंबा, काजू नारळ, चिकू व इतर फळांखाली एकूण १२४१२.२३ हेक्टर क्षेत्र होते. रोजगार हमी योजने नंतर २००५ ते २०१५ या काळात एकूण क्षेत्र ४५४८.६६ हेक्टर पर्यंत कमी झाल्याचे संशोधनातून आढळून आले आहे.

सिंधुदुर्ग जिल्हा —

जिल्ह्यातील फळ लागवडीखालील क्षेत्राचे वर्गीकरण केले असता जिल्ह्यात १९९०—१९९१ ते २००४—२००५ या कालावधीत एकूण ५०९०६.४ हेक्टर क्षेत्र पिकाखाली असून त्यापैकी आंबा ११०४६.७७ हेक्टर, काजू ३२७०८.८७ हेक्टर, नारळ ६८६९.६८ हेक्टर तर इतर पिकांखाली ३७३.३८ हेक्टर क्षेत्र आहे. २००५ ते २०१५ या काळात एकूण क्षेत्र १७७१०.१६ हेक्टर असून

त्यापैकी आंबा ३९८५.२३ हेक्टर, काजू १०७६६.२७ हेक्टर, नारळ १४९९.११ हेक्टर, चिकू ४३.७१ हेक्टर, इतर पिकांचे १४२८.८४ हेक्टर क्षेत्र असल्याचे आढळून येते. यावरून जिल्ह्यात फळबाग लागवड योजना राबवून सुध्दा चिकूचा अपवाद वगळता आंबा, काजू, नारळ या प्रमुख फळ पिकांचे क्षेत्र कमी झाले आहे.

निष्कर्ष –

- १) जिल्ह्यात रोजगार हमी योजनेअंतर्गत फळझाड लागवड लाभार्थी शेतकऱ्यांकडे २.५ ते ५ एकर क्षेत्र असणाऱ्या शेतकऱ्यांची संख्या जास्त आहे. १० ते १५ एकर कार्यक्षेत्र असणारे लाभार्थी देवगड, कुडाळ, वैभववाडी, मालवण आणि सावंतवाडी तालुक्यात आहेत.
- २) जिल्ह्यात लागवडी योग्य पडीक जमीन क्षेत्र आणि कायम स्वरूपी पडिक जमिनीचे प्रमाण मोठ्या प्रमाणात आहे. त्यामुळे फलोत्पादन लागवडीला आजही संधी आहे.
- ३) जिल्ह्यात देवगड, मालवण आणि कुडाळ तालुक्यात आंबा लागवड धारक क्षेत्र मोठे असल्याचे आढळते.
- ४) जिल्ह्यात रोजगार हमी योजना काळात सर्वच तालुक्यात काजू लागवड मोठ्या प्रमाणात झाल्याचे आढळून येते. कुडाळ, सावंतवाडी, वैभववाडी आणि वेंगुर्ला तालुक्यात काजू लागवड धारक क्षेत्र जास्त असल्याचे आढळते.
- ५) जिल्ह्यात कणकवली, कुडाळ, मालवण, सावंतवाडी आणि वेंगुर्ला तालुक्यात नारळ लागवड जास्त प्रमाणात झाल्याचे आकडेवारीवरून आढळून येते.
- ६) जिल्ह्यात दौडमार्ग, कुडाळ, मालवण, सावंतवाडी आणि वेंगुर्ला तालुक्यात सुपारी लागवडीचे प्रमाण अधिक आहे.
- ७) जिल्ह्यात कोकम आणि चिकू लागवड फारच अल्प असल्याचे संशोधनातून आढळून येते.
- ८) जिल्ह्यात स्त्रियांपेक्षा पुरुष मजुरांना देवगड, कुडाळ, मालवण आणि सावंतवाडी तालुक्यात फार मोठ्या प्रमाणात रोजगार निर्मिती झाली आहे. वर्षातील दैनंदिन कालखंडापेक्षाही फलोत्पादन कालखंडात स्त्री आणि पुरुषांना जास्त मजुरी दर मिळतो असे संशोधनातून आढळून आले.
- ९) जिल्ह्यात रोजगार हमी योजना सुरू झाल्यानंतरच्या म्हणजे १९९०-९१ ते २००४-२००५ या कालखंडात सर्वच फळ पिकांच्या लागवडीत फार मोठ्या प्रमाणात वाढ झाली असून त्यानंतर २००४-२००५ नंतर लागवडीत घट दिसून आली आहे.

शिफारशी (Suggestion) –

- १) जिल्ह्यात या योजनेअंतर्गत अनुसूचित जाती व जमाती इतर मागास प्रवर्गातील शेतकऱ्यांचा समावेश होणे आवश्यक आहे.
- २) फळझाड लागवडीसाठी देण्यात येणारे अनुदान प्रत्यक्ष भौगोलिक परिस्थितीनुसार देण्यात यावे.
- ३) लाभार्थी शेतकऱ्यांना लागवडीसाठी गुणात्मक आणि दर्जेदार कलमे उपलब्ध करून देणे.
- ४) योजनेअंतर्गत फळझाड लागवड करतांना दिल्या जाणाऱ्या सर्व निविष्ठा हंगामापूर्वी शेतकऱ्यांना उपलब्ध करून देणे गरजेचे आहे.
- ५) जिल्ह्यात प्रत्येक तालुक्यात स्थानिक पातळीवर फळप्रक्रिया युनिट उपलब्ध करण्यासाठी लाभार्थी आणि शासनाने प्रयत्न करावेत.
- ६) पिक विमा योजना कार्यक्षम पद्धतीने राबविणे.

- ७) जिल्ह्यात आजही फार मोठ्या प्रमाणात पडित जमीन आहे. ही जमन लागवडीखाली आणण्यासाठी शासन पातळीवर अडचणी दूर करणे.
- ८) जिल्ह्यात नारळ, सुपारी, कोकम, चिकू, आवळा या फळ पिकांच्या लागवडीसाठी योजनेमार्फत शेतकऱ्यांना प्रवृत्त करणे.
- ९) सर्वच तालुक्यात माती परिक्षणानंतर लागवड करण्यासाठी कृषी विद्यापीठाने मार्गदर्शन करावे.
- १०) आंब्यासाठी आधुनिक पध्दतीने साठवणगृहे, वातानुकूलित यंत्रे निर्माण केल्यास आंब्यांची निर्यात होण्यास मदत होईल.

संदर्भसूची —

- १) सुर्या गुंजाळ (संपादक, एप्रिल २००७) 'फळबाग लागवडीचे मुलतत्वे आणि कार्यपध्दती' प्रकाशन यशवंतराव चव्हाण मुक्त विद्यापीठ, नाशिक.
- २) सिंधुदुर्ग जिल्हा सामाजिक व आर्थिक समालोचन मार्च २०१२-२०१३ अर्थ व सांख्यिकी संचालनालय, महाराष्ट्र शासन मुंबई पान नं. ७.
- ३) कृषि पशुसंवर्धन, दुग्ध व्यवसाय विकास आणि मत्स्य व्यवसाय विभाग दिनांक ७ ऑगस्ट महाराष्ट्र शासन निर्णय क्रमांक रो.ह.यो. ४००७/प्र. क्र. ११२/९ अ. मंत्रालय, मुंबई ३२.
- ४) गांगुर्डे किशोर — "हमी रोजगाराची साथ केंद्राची" लोकराज्य मासिक, प्रकाशन माहिती व जनसंपर्क महासंचालनालय, महाराष्ट्र शासन पान नं. २३, २४, २५
- ५) Government of Maharashtra (1994) Economics Surve of Maharashtra Page No. 34.
- ६) WWW.dbskkv.org.atidcapolicentre (कृषी तंत्रज्ञान दैनंदिनी) पान नं. ४२, ४७, ५३, ५४, ५५, ६१ ते ६४, ५६ ते ६६, ६७, ६८, ६९
- ७) गोडसे/पाटील (प्रादेशिक फळ संशोधन केंद्र वेगुर्ले — जुलै २००३) "कोकणात फळबाग किफारयशीर होण्यासाठी काटेकोर पुर्व नयोजनाची गरज बळीराजा मासिक नं. ५४ ते ५७
- ८) कृषी विभाग जिल्ह्यातील सर्व तालुके कृषी कार्यालये आणि कृषी विभाग, ओरोस कार्यालय, जिल्हा परिषद, सिंधुदुर्ग संकलित सांख्यिकीय माहिती.

नैसर्गिक संसाधने आणि सातत्यपूर्ण विकास

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घोषवारा :

वाढत्या लोकसंख्येच्या दृष्टीने पृथ्वीवरील साधनसंपत्ती पुरेशी आहे की नाही, हा वादाचा मुद्दा आहे. वाढत्या मानवी गरजा (उदा., कच्च्या मालाची वाढती मागणी) तंत्रविद्येच्या साहाय्याने भागविता येतील, असे आशावादी माणसाला वाटते. उदा., तंत्रविद्येच्या विकासामुळे विरळपणे आढळणाऱ्या साधनसंपत्तीऐवजी विपुल आढळणाऱ्या साधनसंपत्तीचा वापर करता येऊ शकेल मानवी श्रमाऐवजी झर नैसर्गिक ऊर्जा वापरता येतील पाण्याचा साठा करण्यासाठी मोठी धरणे बांधता येतील तसेच खते, वनस्पतींच्या सुधारित जाती, सिंचाई, यांत्रिक अवजारे इ. वापरून पिकांचे उत्पन्न वाढविता येऊ शकेल भूभौतिक पद्धतींनी खनिजांचे नवीन साठे शोधता येतील. शिवाय खनिज मिळविण्याच्या व त्यांच्या शुद्धीकरणाच्या नवीन सुधारलेल्या पद्धती आणि प्रक्रिया वापरून अधिक प्रमाणात खनिजे मिळविता येतील, असेही आशावादी तज्ञांना वाटते. उलट निराशावाद्यांचे लक्ष युद्धाची विनाशकता, विपुल साधनसंपत्तीचा अनुत्पादक वापर, जमिनी नापीक होण्याची क्रिया, जमिनीची वाढती झीज, महापुरांची विनाशकता, संचयित साधनसंपत्तीचा जलदपणे होणारा वाढता वध इ. गोष्टींकडे जाते.

महत्त्वाचे शब्द :

नैसर्गिक साधनसंपत्ती, ऊर्जा, मानवी विकास, पारंपरिक ऊर्जा, अपारंपरिक ऊर्जा, खनिजे इत्यादी

प्रतावना :

मानवाला उपयुक्त अशा निसर्गातील द्रव्यांना नैसर्गिक साधनसंपत्ती म्हणतात. जमीन, महासागर व वातावरण यांतील कोणतेही द्रव्य आर्थिक दृष्ट्या फायदेशीर होऊ शकते व परिणामी ते साधनसंपत्ती होते. एखादे द्रव्य साधनसंपत्ती होण्याच्या दृष्टीने पुरेसे उपयुक्त असावे लागतेच शिवाय त्यासाठी पुढील तीन बाबींची अनुकूलता असावी लागते. (१) द्रव्यात बदल न करता त्याद्वारे मानवी गरज भागविता आली पाहिजे किंवा मानवी गरजेच्या दृष्टीने ते सहज बदलता आले पाहिजे. (२) उपलब्ध द्रव्याचा वापर करून घेण्याइतपत मानवी कौशल्य विकसित झाले असले पाहिजे. (३) ऊर्जा वा इतर साधनसंपत्ती रास्तपणे खर्चून हे द्रव्य सहज मिळविता आले पाहिजे. अशा प्रकारे एके काळी आर्थिक दृष्ट्या निरूपयोगी असलेले एखादे द्रव्य तंत्रविद्येचा विकास झाल्यावर मौल्यवान साधनसंपत्ती होऊ शकते.

साधनसंपत्ती ही मानवी आणि भौतिक प्रकारची असते. श्रमिक मानव ही साधनसंपत्तीच आहे. भौतिक साधनसंपत्तीचे नैसर्गिक व उत्पादित असे आणखी प्रकार होऊ शकतात. सामान्यपणे नैसर्गिक साधनसंपत्तीचे वनस्पतिज, प्राणिज व खनिज असे प्रकार पडतात शिवाय त्यांमध्ये सूर्यापासून मिळणारी ऊर्जा, वातावरण, मृदा वा जमीन आणि पाणी यांचाही समावेश करता येईल. नैसर्गिक साधनसंपत्तीचे पुनःपुन्हा उत्पन्न होऊ शकणारी (उदा., वनस्पती, पाणी, वायू) आणि पुन्हा उत्पन्न न होऊ शकणारी (उदा., खनिजे) असेही प्रकार होऊ शकतात. पुन्हा उत्पन्न न होणारी साधनसंपत्ती ही संचयित असून ती वापराने संपून जाते. उदा., दगडी कोळसा, खनिज तेल इत्यादी

पुष्कळ धातू अशा तऱ्हेने पूर्णपणे संपून जात नाहीत. कारण त्या वापरलेल्या वस्तूंपासून वेगवेगळ्या प्राणात परत मिळवून पुन्हा वापरता येतात. पुन्हा उत्पन्न होऊ शकणाऱ्या साधनसंपत्तीला प्रवाही वा अक्षय म्हणता येईल कारण काळजीपूर्वक वापरल्यास ती कायमची राहू शकते. उदा., वनांची योग्य ती काळजी घेतल्यास मूळ साधनसंपत्तीत घट न होता वनातील उत्पादने (उदा., लाकूड, औषधी द्रव्ये, टॅनीन, डॅंक, मध इ.) वर्षानुवर्षे उत्पन्न होत राहतील. सूर्यापासून मिळणारी ऊर्जाही अशीच अक्षय आहे परंतु अणुऊर्जा मात्र अमर्याद असली तरी संपू शकेल.

संशोधन पद्धती : या मध्ये संकल्पनात्मक संशोधन पद्धतीचा वापर केलेला आहे .

नैसर्गिक संसाधने :

मानवाला निसर्गातील उपयुक्त असलेल्या घटकांना किंवा पदार्थांना नैसर्गिक संसाधने म्हणतात. नैसर्गिक संसाधनांमध्ये जमीन, पाणी, हवा, सूर्यप्रकाश इत्यादींचा समावेश होतो. तसेच स्थानिक पातळीवर उपलब्ध असलेली खनिजे, खनिज तेल, वनस्पती यांचाही समावेश होतो. जीवसृष्टीच्या अस्तित्वासाठी या संसाधनांची गरज असते. निसर्गात उपलब्ध असलेल्या या पदार्थांचा उपयोग सजीव जगण्यासाठी करतात.

काही संसाधने नूतनीक्षम किंवा अनूतनीक्षम असतात. पाणी, सूर्यप्रकाश, हवा इत्यादी संसाधने कधीही संपणारी नाहीत, म्हणून त्यांना नूतनीक्षम संसाधने म्हणतात. जी संसाधने संपुष्टात येणारी आहेत, ज्या संसाधनांची उपलब्धता मर्यादित आहे त्यांना अनूतनीक्षम संसाधने म्हणतात. उदा., खनिजे, जैवइंधने इत्यादी.

१) नूतनीक्षम संसाधने : नैसर्गिकरीत्या ज्या संसाधनांची पुनर्निर्मिती होऊ शकते अशा संसाधनांना नूतनीक्षम संसाधने म्हणतात. यात सौर ऊर्जा, पवन ऊर्जा इत्यादींचा समावेश होतो. ही संसाधने मुबलक प्रमाणात आणि निरंतर उपलब्ध असतात. मानवी वापरामुळे त्यांच्या प्रमाणावर होणारी घट नगण्य असते.

(२) अनूतनीक्षम संसाधने : ज्या संसाधनांच्या निर्मितीचा वेग अतिशय मंद आहे तसेच नैसर्गिकरीत्या ज्या संसाधनांची निर्मिती होत नाही, अशा संसाधनांना अनूतनीक्षम संसाधने म्हणतात. मानवी दृष्टिकोनातून अनूतनीक्षम संसाधने म्हणजे ज्यांच्या खपाचा वेग अधिक आहे आणि त्यामानाने त्यांची पुनर्निर्मिती मंद गतीने होते, अशी संसाधने (उदा., जीवाश्म इंधन). जीवाश्म इंधनांच्या निर्मितीला कोट्यावधी वर्षे लागतात. त्यामुळे ती अनूतनीक्षम संसाधने ठरतात. धातूंची खनिजे पुनर्चक्रीकरणाने वापरता येतात. मात्र, कोळसा व पेट्रोलियमचे पुनर्चक्रीकरण करता येत नाही. अनूतनीक्षम नैसर्गिक संसाधनांची उपलब्धता मर्यादित असते आणि मोठ्या प्रमाणावर त्यांची पुनर्निर्मिती व पुनर्वापर करता येत नाही. अशी संसाधने संपुष्टात आली की त्यांची पुनर्निर्मिती करता येत नाही. या संसाधनांच्या मागणीचा वेग हा त्यांच्या उत्पादनाच्या वेगापेक्षा नेहमीच अधिक असतो.

नैसर्गिक साधनसंपत्ती मानवी जीवनात उपयोग :

विकसित देशांमध्ये साधनसंपत्तीच्या वापराची कार्यक्षमताही अधिक आढळते. त्यामुळे तेथील शेतजमीन व नैसर्गिक साधनसंपत्ती वापरणारे मजूर यांची उत्पादनक्षमता अधिक असते. सुधारित तंत्र, जादा उत्पन्न देणारी बियाणी, रासायनिक खते व पीडकाशके यांच्या वापरामुळे १९०० सालांतर विकसित देशांतील अन्नधान्याचे उत्पादन वाढत्या प्रमाणात होत आहे. भारतातही १९६० सालापासून बहुतेक पिकांच्या उत्पादनास हळूहळू वाढ होत आहे.

A) तांत्रिक प्रगती : नैसर्गिक साधनसंपत्ती व तांत्रिक प्रगती यांत परस्परसंबंध आहेत. तांत्रिक प्रगतीमुळे नैसर्गिक द्रव्यांना कृत्रिम पर्याय निर्माण झाले (उदा., कृत्रिम धागे) व नैसर्गिक साधनसंपत्ती मिळविण्याचे क्षेत्र व्यापक झाले (उदा., समुद्रातील खनिज तेल मिळविण्याचे प्रयत्न चालू झाले). पुरवठ्यातील खंड (उदा., युद्धकालीन) किंवा साठा संपणे यामुळे छ्वाई निर्माण होऊन तांत्रिक प्रगतीस चालना मिळते (उदा., कृत्रिम रबर, खते व धागे हे युद्धकालीन नैसर्गिक पदार्थांच्या टंचाईमुळे निर्माण करावे लागले, तर जमिनीवरील साठे संपल्याने वा घटल्याने समुद्रातील खनिज तेलाचा शोध घेण्यात येत आहे). नवा, चांगला साठा (किंवा स्वस्त पर्याय) उपलब्ध झाल्यास जुन्या खनिजसाठ्याचे खाणकाम (किंवा जुन्या पदार्थांचे उत्पादन) थांबविले जाते. उदा., खनिज तेल व नैसर्गिक वायू यांमुळे दगडी कोळसा मागे पडला होता, तर ऑनिलीन रंजके मिळू लागल्याने भारतातील निळीची लागवड थांबली.

B) जमीन : भूमिस्वरूप व जलवायुमान : भारतात ४३.०५% जमीन मैदानी, २७.६७% जमीन पठारी व २९.२७% जमीन डोंगराळ आहे. शेती व इतर उत्पादक कामांसाठी एकूण जमिनीपैकी पुष्कळ मोठा भाग वापरता येण्याला अनुकूल अशी तापमान व पाऊस यांची स्थिती भारतात आहे. हिमालयातील काही उंच भाग सोडल्यास सर्व भारतभर वर्षभर पिके घेता येण्याइतके उच्च तापमान असते. एकूण जमिनीपैकी दोन-तृतीयांशपेक्षा जास्त क्षेत्रातील सरासरी वार्षिक पर्जन्यमान ७५० मिमी. पेक्षा अधिक असून २% क्षेत्रातच २५० मिमी. पेक्षा कमी पाऊस पडतो. मात्र भारताच्या बहुतेक भागांत हा पाऊस मॉन्सूनच्या ३-४ महिन्यांतच पडतो व इतर काळ जवळजवळ कोरडाच जातो. त्यामुळे जेथे सिंचनाची सोय नाही किंवा जेथे जमिनीतील ओलावा व कोरड्या हंगामातील थोड्या पावसावर पिके जगू शकतात असे भाग वगळ्यास इतरत्र मॉन्सूनच्या काळातच पिके घेतली जातात. परिणामी लागवडीखालील जमिनीपैकी १५% जमिनीतच वर्षातून एकापेक्षा जास्त पिके घेतली जातात. शिवाय नद्यांतील पाण्याच्या प्रमाणात

मोठे बदल होत असतात. म्हणून सिंचन, जलविद्युत् निर्मिती वगैरेंसाठी मोठे जलाशय निर्माण करावे लागतात. भारतातील बहुतेक नद्या वाहतुकीच्या दृष्टीने उपयोगी नाहीत.

- C) जलसंपत्ती : सिंचन व जलवाहतूक यांचा विकास, जलविद्युत् निर्मिती आणि घरगुती व औद्योगिक पाणीपुरवठा यांकरिता जलसंपत्तीचे मूल्यमापन करणे आवश्यक असते. पाण्याचे हे वापर परस्परांना पूरक (उदा., सिंचन व जलविद्युत् निर्मिती) वा परस्परविरोधी (उदा., सिंचन व औद्योगिक पाणीपुरवठा) असतात. जलसंपत्तीचे मूल्यमापन करताना जमिनीवरील व जमिनीखालील एकूण उपलब्ध पाणी, त्याच्या साठ्याचे स्थान, हंगामी वाटणी व गुणवत्ता यांचा विचार केला जातो. भारतात विपुल पाणी असलेली व पाण्याची सर्वाधिक गरज असलेली क्षेत्रे ही जवळजवळ आहेतच, असे नाही शिवाय पाण्याची सर्वात तातडीची गरज असणारा हंगाम व पाणी विपुल उपलब्ध असलेला हंगाम यांच्या कालमानात अंतर आढळते. यामुळे उपलब्ध पाण्याचा वापर करून घेण्याच्या शक्यतेवर मर्यादा पडतात व वापराचा खर्च वाढतो. १,२५० मिमी. पेक्षा जास्त पर्जन्यमानाच्या प्रदेशात पाण्याचे साठे आढळतात, तर मध्यम व कमी पर्जन्यमानाच्या प्रदेशात पाण्याची (विशेषतः सिंचनासाठी) गरज सर्वाधिक असते. मॉन्सून काळातच जवळजवळ सर्व पाऊस पडत असल्याने पाण्याचा वापर करण्यावर मर्यादा पडतात. पाण्याच्या गुणवत्तेवरही त्याची उपयोगिता अवलंबून असते. (उदा., प. राजस्थानातील फुक्कळ भागांतील भूमिजल-जमिनीखालील पाणी-मचूळ आहे). नदीत सोडण्यात येणाऱ्या शहरी व औद्योगिक सांडपाण्याने उदभवणाऱ्या प्रदूषणाचा परिणाम त्या खालच्या भागातील पाण्याच्या अशाच वापरावर होऊ शकतो. यामुळे गंगा-यमुना नद्यांच्या काठावरील शहरांच्या बाबतीत प्रदूषणासारख्या गंभीर समस्या उदभवू शकतील.
- D) वनसंपत्ती : वनसंपत्ती पुनःपुन्हा वाढते. मात्र वनाची वाढ होण्यास २०-३० वर्षे लागत असल्याने यासंबंधी दीर्घकालीन धोरण असावे लागते. वनापासून इमारती व जाळण्याचे लाकूड तसेच लाख, रेशीम, बांबू, डिंक, रेझिने, वेत वगैरे अनेक पदार्थ मिळतात आणि अनेक उद्योगधंद्यांत त्यांचा कच्चा माल म्हणून उपयोग होतो. वनांपासून मिळणाऱ्या वैरणीमुळे पशुपालनास साहाय्य होते तसेच जमिनीची धूप थांबते पुराचा धोका कमी होतो इ. वनांचे फायदेही आहेत.

मर्यादा :

- 1 नैसर्गिक साधनसंपत्तीच्या अतिवापरामुळे पुढच्या पिढीला त्याचे घातक परिणाम भोगवे लागणार आहेत,
- 2 नैसर्गिक संसाधने वापरण्याच्या आणि निसर्गाच्या संरक्षणाच्या समस्या देखील बदलतात.
- 3 संसाधनांचे सधे मर्यादित आहेत.
- 4 कच्च्या मालाच्या सतत वाढत्या वापरामुळे त्यांच्या उत्पादनाच्या दरात वाढ होते,

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- 2 सतीश कामत : नॅचरल रिसोर्सेस कॉन्झर्व्हेशन लॉ. लेखक: साईराम भट, प्रकाशक: सेज पब्लिकेशन्स, नवी दिल्ली., पाने: ५५५,
- 3 <https://farbitis.ru/mr/regionalism/natural-resources-environmental-pollution/>
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उदय प्रकाश के कहानियों में महानगरीय जीवन

डॉ. शंकर दळवी

राजर्षी शाहू कला तथा वाणिज्य महाविद्यालय ,

रूकडी तहसील हातकणंगले जिला- कोल्हापूर

(महाराष्ट्र)

21 वी शताब्दी में महानगरीय जीवन सबसे चर्चित विषय माना जाता है। महानगरीय समाज को आधुनिक समाज की संज्ञा से संबोधित किया जाता है। परिवर्तन की यह दिशा आधुनिक युग में इतनी क्रांतिकारी एवम ठोस रूप में प्रकट हुई है कि समाज की समस्त प्रणाली को परिवर्तित कर दिया है। नगर का उत्तर-उत्तर विकास ही अपने क्षेत्र में महानगर में परिवर्तित कर देता है। महानगर शब्द अंग्रेजी के मेट्रोपॉलिटन का हिंदी पर्यायवाची है। मेट्रोपॉलिटन ग्रीक भाषा के मेट्रोपोलीस शब्द से निर्माण हुआ है उसका अर्थ मातृनगर ऐसा माना जाता है। लेकिन मातृप्रेम के इस राष्ट्रीयता के आधार पर नगरों का विशेष विकास हुआ है। सन २०११ के जनगणना के अनुसार भारत में तीस महानगर ऐसे हैं जिनकी जनसंख्या काफी है जिने प्रमुख महानगर दिल्ली, कानपुर, मुंबई, चेन्नई, कोलकाता, हैदराबाद, बंगलूर तथा अहमदाबाद आदि हैं। महानगर से आशय ज्यादा आबादी की संख्या वाले नगरों को महानगर के रूप में माना जाता है। महानगर से आशय दस लाख की आबादी वाले नगरों से होता है। लेकिन इससे कम जनसंख्या वाले कुछ नगरों को भी महानगरों का दर्जा प्राप्त है। अविरत महानगरों की जीवन पद्धति तेजी से परिवर्तित होती जा रही है। महानगरीय जीवन की सांस्कृतिक, सामाजिक, धार्मिक, आर्थिक, राजनीतिक आधी संपूर्ण परिवेश के प्रति महानगरीय मनुष्य के जीवन का ज्ञान ही महानगरीय बोध बन गया है। महानगरीय मानव की विविध समस्या क्षत्रियता, सांप्रदायिकता, जाति-पाती, बेरोजगारी, भुखमरी, संकीर्णता, शोषण, अन्याय-अत्याचार, गुंडागर्दी, पारिवारिक, अकेलापन, अजनबीपन आधी समस्या ने जन्म लिया है। साथ ही काम के पीछे दौड़ता जीवन, आवास की कमी महसूस कर रहा है उसी से ही समस्या प्रारम्भ हुई है। प्रतिस्पर्धा, दिवास्वप्न, वेश्यावृत्ति, भिक्षावृत्ति, यांत्रिकता, भावनात्मकता, फॅशन, इंटरनेट, मोबाईल, प्रदर्शन प्रियता आदी से चलते महानगरीय जीवन में नवीन परिवर्तन स्पष्टता से दिखाई देता है। यह सभी विशेषताये अधिक मात्रा में उदय प्रकाश की साहित्य में दिखाई देती है। खासकर उनकी कहानी विधाओं में जादा मात्रा में दिखाई देती है।

21वीं शताब्दी में सबसे चर्चित कथाकार के रूप में उदय प्रकाश का नाम लिया जाता है। हिंदी कहानी को उन्होंने संवेदनशील भाषा दी है। जिसको पढ़ते ही प्रेमचंद, यशपाल, जैनेन्द्र कुमार आदि कहानीकार की परम्परा को आगे बढ़ा देने का अहसास जागृत होता है। उदय प्रकाश के तिरिछ, कॉल गोमरा का स्कूटर, पीली छत्री वाली लडकी, अरेबा-परेबा तथा मंगोलियन कहानी संग्रह में से कुछ कहानियों में महानगरीय जीवन स्पष्टता से दिखाई देता है। उनकी मोहनदास कहानी एक लंबी कहानी के रूप में दिखाई देती है। मोहनदास कहानी महानगरीय जनजीवन को स्पष्ट करती है। लेखक ने अपनी कहानियों में महानगरीय समस्याओं को चित्रित करने का काम किया है। महानगरीय जीवन प्रसंग के साथ-साथ लोक जीवन के रंग तथा अकेलेपन को भी बेबाकी के साथ चित्रित किया है।

'तिरिछ' कहानी एक सामान्य भारतीय परिवार के पिता पुत्र की कहानी है। इस कहानी में तिरिछ एक मेटाफर की तरह प्रकट होता है। कहानी के पहले वाक्य से महानगरीय जीवन का बोध होता है। "इस घटना का संबंध पिताजी से है। मेरे सपने से है, और शहर से भी है। शहर के प्रती जो एक जन्मजात भय होता है, उससे भी है।" महानगरीय जीवन में मानवीय रिश्ते और मूल्य पर लिखी गई कहानी है। एक पिता जो शहर के नहीं गांव के रहने वाले थे। किसी केस के सिलसिले में शहर गये थे। शहर में पिता बेहोशी की हालत में अपना रास्ता भूल जाते हैं। शहर के लोग भौतिक सुख से भरे अपने ही मौज मस्ती में लीन हैं। जो पिता असाध्य स्थिती के बीच शहर में भटकते रहते हैं और अखिर मर जाते हैं। महानगरीय जीवन के यांत्रिकता, प्रतिस्पर्धा, भावनात्मकता के कारण तिरिछकार के पिता मर जाते हैं। तिरिछ के काटने पर व्यक्ति को कुछ काल तक महशुस नहीं होता लेकिन कुछ दिनों के बाद उसका जहर धीरे धीरे असरकर देता है। तिरिछ, महानगरीय जीवन का प्रतीक है। जो महानगरीय मनुष्य के समान ग्रामीण-देहाती लोगों को काटता है। तिरिछ की विशेषता होती है कि उसकी आखों में आखें डालकर देखने के बाद वह उसका प्रतिशोध लिये बिना शांत नहीं होता। जिस तरह महानगरीय व्यक्ति भोले-भाले तथा ग्रामीण लोगों को एक बार आंखें दिखाने के बाद नहीं छोड़ते उसी प्रकार से वे भी अपना जहरीला पण दिखाता है। उसकी दुसरी विशेषता यह भी होती है कि वह सीधे भागनेवाले

आदमीको पकड़ता है। मगर टेढ़े मेढ़े भागता या छलांगे लगाता है वह उसके चंगुल से बच जाता है उसकी यह भी विशेषता होती है कि आदमी को काटने के बाद वह अपनेही पिशाब के किचड़ में शरीर गंधला कर देता है। जो विशेषताये आज के महानगरीय जीवन जीने वाले लोगो की होती है वही सारी विशेषताये तिरिछ की होती है। इसीलिये यह कहानी तिरिछ मनोवृत्ती का प्रतिक के रूप में दिखाई देती है।

महानगरीय बाजार वाद का गहरा प्रभाव मनुष्यजीवन के विविध परिस्थितियों पर पड़ा है। इच्छा होने पर मनुष्य की खत्म ना होने वाली महत्वाकांक्षा का रूप धारण कर लिया है। उदय प्रकाश की कहानी का 'पॉल गोमरा का स्कूटर' महानगरीय जीवन का प्रतीक है। कहानीकार एक रात में दो निर्णय लेता है। अपने नाम का रामगोपाल का नामकरण पॉल गोमरा और स्कूटर खरीदना का निर्णय जो आगे के महीने तक वह स्कूटर हीला भी नहीं पाया। विज्ञापन का प्रभाव उस पर है। खुशी के कारण पॉल गोमरा गुम हो जाता है।

कहानीकार कहता है - "अभी आठ महिने पहिले किसनगंज के जनता फ्लॉट में रहने वाली सर गंगाराम अस्पताल के कर्मचारी राम अवतार आर्य की सत्रह साल की बेटी सुनीला रातोंरात मालामाल हो गई थी, टीव्ही के विज्ञापन में वह आठ फूट बाय चार फूट विशाल ब्लेड पर नंगी सो गई थी।" बाजार वाद में विज्ञापन मीडिया काम कर रहा है। जिसमें फैशन, प्रदर्शन प्रियता, दिवास्वप्न, विक्षिप्त अवस्था तथा वेश्यावृत्ति को दिखाने का प्रयास कहानी के माध्यम से हुआ है। पॉल गोमरा जैसे महानगरीय मनुष्य की कृत्रिम इच्छा बढ़ रही है उसके साथ ही अतृप्ति भी बढ़ रही है। यह एक महानगरीय जीवन को चित्रित करने वाली कहानी है।

उदय प्रकाश की सबसे चर्चित कहानी है 'मोहनदास'। महानगरीय जीवन में मोहनदास जैसे युवक बेरोजगार घूम रहे हैं यह एक प्रकार की सत्ता विमर्श की कहानी है जिसमें मोहनदास जैसा मेरीट प्राप्त करने वाला दलित लड़का भी अपनी नोकरी का मार्ग ढूंढते- ढूंढते भटक जाता है। अपने परिवार की मूलभूत जरूरत को भी वह पुरा नहीं करता। मोहनदास को एक आरक्षण की जगह नोकरी मिल जाती है। लेकिन उसकी जगह उसका लाभ एक ऐसा बिसनाथ नामक व्यक्ति उठाता है जिसके पास सत्ता, ताकत तथा स्वयम् मोहनदास बनकर पुलिस, न्यायालय और राजनीति से सही मोहनदास की पहचान भी वह छीन लेता है। इतना ही नहीं मोहनदास से जब कोई उसका नाम पूछता है तो वह अपना नाम भी डर के मारे नहीं बताता। ऐसा लगता है कि मोहनदास जैसे लोगोंको व्यवस्था ने जिंदा रहने का हक नहीं दिया है। मोहनदास ने परिस्थितियों से समझोता कर लिया है। उदय प्रकाश की 'नेलकटर' कहानी में माँ की व्यथा को बहुत मासूम बच्चों की तरह व्यक्त किया है। इलाहाबाद के मेले में पिताजी द्वारा लाया गया नेलकटर उसे ऐसा लगता है की उनकी स्मृति बहुत हृदय स्पर्शी लगती है। उदय प्रकाश की 'हरियाई घोड़ा' एक मार्मिक कहानी है। पारिवारिक रिश्तों को उजागर करने वाली कहानी है। भाई का सत्याग्रह, पिली छत्री वाली लड़की, अपराध, आदि कहानी में महानगरीय जीवन की झलक मिलती है।

इस तरह से उदय प्रकाश की कहानियों में शताब्दी का महानगरीय जनजीवन पुरी यथार्थता के साथ प्रकट हुआ है। उदय प्रकाश की कहानियां महानगरीय जीवन का दस्तावेज है। मानव के बदलते परिवेश के साथ-साथ बदलते संबंधों को भी बहुत बारीकी से चित्रित किया है। महानगरों में रहने वाले लोग अपने सुख तथा संपन्नता के लिए किसी की भी जान के दुश्मन बन जाते हैं। जनसामान्य तथा सीधे-साधे लोगों के श्रम पर चलनेवाले सभी परजीवी प्राणी लगते हैं। समसामायिक रूप का चित्रण इस में हुआ है। सामाजिक परिस्थितियों की संवेदना तथा सामाजिक दायित्व बोध से कहानियां संपन्न दिखाई देती हैं। उनकी कहानी एक बार पढ़ लेने के बाद हम नहीं भूल सकते। उदय प्रकाश की कहानियों में महानगरीय जीवन का बहुत मार्मिक चित्रण हुआ है।

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श्री चव्हाण जी. एस.^१ प्रा डॉ राठोड व्ही. आर.^२

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सारांश:

पर्यटन ही अलीकडच्या कालखंडामध्ये विकसित झालेली शाखा आहे. अन्न, वस्त्र, निवारा, शिक्षण व आरोग्य या मानवी मूलभूत गरजा आहेत, मात्र मनोरंजन ही मानवाच्या जीवनामध्ये महत्त्वाचा घटक आहे. अलीकडे मानव मनोरंजनासाठी पर्यटनाचा आधार घेतो आहे. पर्यटन हा व्यवसाय विकसित झालेला आहे, मात्र शाश्वत पर्यटन होणे गरजेचे आहे कारण पर्यटनाचा शाश्वत विकास हा चिरकाल टिकणारा आहे. प्रस्तुत शोधनिबंध पत्रिकेमध्ये कराड तालुक्यातील पर्यटन स्थळांचा विकास कमी असून त्या पर्यटनस्थळांचा विकास आणि त्यांचा शाश्वत पर्यटन विकास कसा करावा याचा अभ्यास केला आहे तसेच शाश्वत पर्यटन विकासामधील अडचणी व शाश्वत पर्यटन विकासाच्या शिफारशींचा ही अभ्यास वरील शोध निबंध पत्रिकेमध्ये केला आहे.

बीज संज्ञा: पर्यटन, विकास, शाश्वत पर्यटन, संसाधने, पर्यटन स्थळे

प्रस्तावना:

आधुनिक कालखंडात मानवाच्या सामाजिक व आर्थिक जीवनामध्ये मोठ्या प्रमाणावर बदल झालेला दिसून येतो. विसाव्या शतकाच्या उत्तरार्धामध्ये जागतिक स्तरावर वाहतूक व दळणवळण यामध्ये मोठ्या प्रमाणावर ती विकास झाला आहे व मार्ग जलमार्ग हवाई मार्ग यामध्ये मोठ्या प्रमाणावर ती संख्यात्मक व गुणात्मक क्षेत्रामध्ये आमुलाग्र बदल झालेला आढळतो. त्यामुळे अनेक नवनवीन आर्थिक व्यवस्था यांचा उदय होऊ लागला. त्यामध्ये पर्यटन या व्यवसायाचा उदय झाला. प्राचीन काळापासून स्थलांतरण किंवा प्रवास हा मानवी जीवनाचा अविभाज्य भाग असल्याने नवनवीन भूप्रदेश संस्कृतीक व ऐतिहासिक स्थळे यांचा शोध घेणे, पर्यावरणातील बदलांचा अनुभव घेणे इत्यादीसाठी प्रवास केला जात होता, तथापि पर्यटन हा एक मानवी जीवनाचा नवा आविष्कार म्हणून ओळखला जातो. पर्यटनाचा उदय प्रवास किंवा तीर्थयात्रा यामधून झाला असला तरी ही संकल्पना आधुनिक व शास्त्रीय आहे. पर्यटन हा वाढत्या बाजारपेठेसह सर्वात मोठा जागतिक व्यवसाय आहे. नैसर्गिक व सांस्कृतिक घटकांचा मध्येकिनारपट्टी, सागरी प्रदेश, किल्ले व मंदिरे, अभयारण्य इत्यादी पर्यटन महत्त्वाचे ठरते. भारतासारख्या विकसनशील देशाच्या आर्थिक विकासामध्ये पर्यटन महत्त्वाची भूमिका बजावतो तसेच भारतीय पर्यटन नियोजन आयोग रोजगाराच्या संधी निर्माण करून देते. पर्यटनाचा फायदा स्थानिक समुदाय आणि महसूल निर्मितीसाठी होतो तथापि पर्यटन हे निवासस्थान नष्ट करणे व वन्य जीवांना त्रास देणे, पाण्याच्या गुणवत्तेवर परिणाम करणे हा संसाधन धोका आहे आणि अति विकास, गर्दी आणि स्थानिक संस्कृती व्यत्यय आणून समुदायांना धमकावणे याचबरोबर परंपरागत पर्यटनमुळे स्थानिक समुदायाला फायदा होत नाही. परिणामी पर्यटन त्यावर अवलंबून असते ती संस्था नष्ट करू शकते. याउलट टिकाऊ शाश्वत पर्यटन आहे. त्यामुळे स्थानिक रहिवाशांना फायदा आणि संस्कृतीचा आदर नैसर्गिक संवर्धनाची जाणीवपूर्वक नियोजन केले जाते. परिणामी पर्यटनातून मिळणारा नफा, स्थानिक समुदाय व सरकारकडे निर्देशांक केला जातो. त्यामुळे पर्यटन संवर्धन महत्त्व पर्यटक व स्थानिक रहिवासी या दोघांचे आहे

पर्यटन म्हणजे काय:

सर्वसाधारणपणे पर्यटन म्हणजे करमणूक, विश्रांती किंवा व्यवसायाच्या उद्देशाने प्रवास करणे होय. ऑस्ट्रेलियन अर्थशास्त्रज्ञ हारमन शुद्ध यांच्या मते “पर्यटन म्हणजे असा एक आर्थिक व्यवसाय की, ज्यामध्ये लोकांचा देशांतर्गत किंवा परदेशी प्रवेश वास्तव्य व हालचाल यांच्याशी संबंध असतो” ब्रिटिश पर्यटन संस्था यांच्यामते, “पर्यटन म्हणजे लोकांनी लोकांच्या वास्तव स्थानापसून काही अंतरावर ज्ञान प्राप्ती

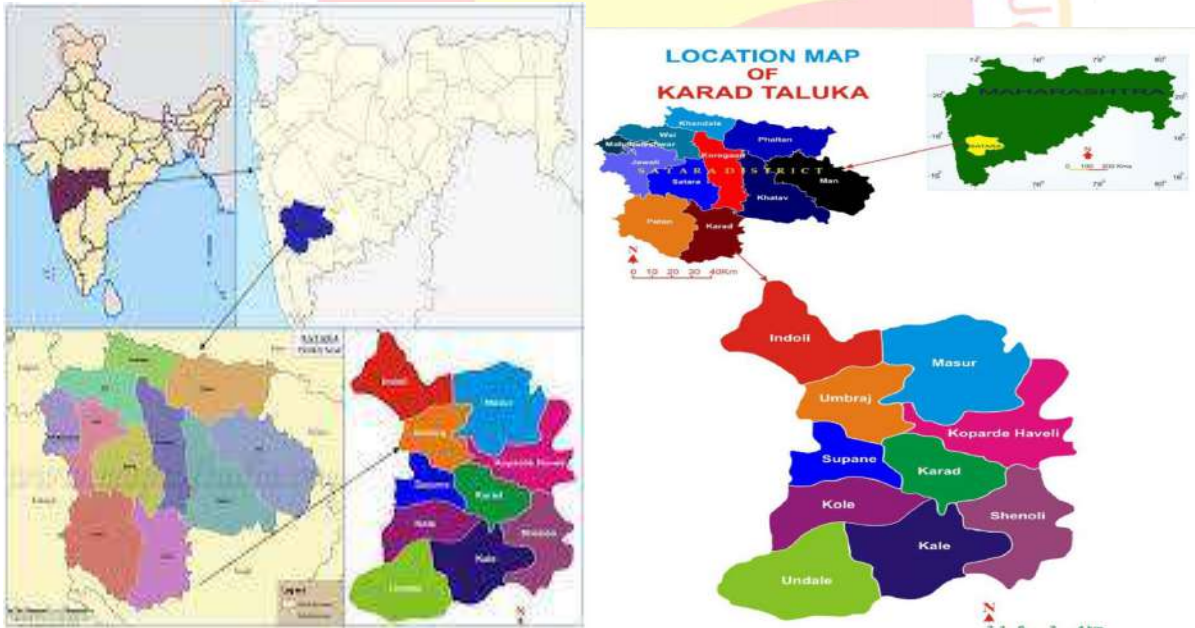
संशोधन, मनोरंजन, स्वास्थ्य व आराम इत्यादी उद्देशाने केलेले आपत्कालीन स्थलांतरण होय.” जागतिक पर्यटन संघटना यांच्यामते, “पर्यटन म्हणजे मानवी निवासस्थानाबाहेर ऐच्छिक व ठराविक उद्देशाने केलेली क्रिया होय.”

शाश्वत पर्यटन म्हणजे काय:

शाश्वत विकास म्हणजे एखाद्या गोष्टीशी वर्तमानाची आवश्यकता पूर्ण होते. भावी पिढीला त्यांच्या स्वतःच्या गरजा भागवण्याच्या क्षमतेची तडजोड करावी लागणे, पर्यटन हा असा दृष्टिकोन आहे, ज्याला शैक्षणिक व व्यावसायिक पसंती जास्त मिळाली आहे. शाश्वत पर्यटन ही संकल्पना अशी पद्धत आहे. जी पर्यटनाची संतुलन साधते. शाश्वत पर्यटनामध्ये पर्यावरण समतोल व पूर्णपणे मानव विकास साधला जातो. संस्कृतिक व निसर्गाच्या बाबतीमध्ये भारतासारखीच तुर्की, हाँगकाँग, चीन, थायलंड, मलेशिया यांनी शाश्वत पर्यटनाचा मार्ग स्वीकारला आहे. पर्यावरण व विकास या विषयावर संयुक्त राष्ट्रांच्या परिषदेने वर्णन केले होते. जागतिक पर्यटन संस्था यांनी पर्यटनाचा शाश्वत विकास स्विकारला आहे व पर्यटन व शाश्वत विकास लागू केले आहेत. जागतिक पर्यटन संस्थेने शाश्वत पर्यटन अशी व्याख्या केली आहे. सध्याचे पर्यटक व यजमानांच्या गरजा भागवणारे पर्यटन भविष्यामध्ये त्या संधीचे संरक्षण करणे व वाढवणे होय. शाश्वत पर्यटन त्यांच्या पर्यावरणीय सामाजिक सांस्कृतिक आर्थिक किंवा प्रायोगिक परिणामांचा अभ्यास करते शाश्वत पर्यटन विकासाचे मार्गदर्शक तत्त्व आहे असे आपणास म्हणता येईल.

अभ्यासक्षेत्र:

सातारा जिल्ह्यातील मोठा तालुका असणाऱ्या कराडची ओळख आहे. महाबळेश्वर मध्ये उगम पावणाऱ्या कोयना व कृष्णा यांच्या काठावरती कराड शहर वसले आहे. कोयना व कृष्णा नदीचा संगम “प्रतिसंगम” या नावाने प्रसिद्ध आहे. कराड शहराला ऐतिहासिक वारसा आहे. महाराष्ट्राचे पहिले मुख्यमंत्री कैलासवासी यशवंतराव चव्हाण साहेबयांची कर्मभूमी असणाऱ्या कराड शहराची ‘यशवंत नगरी’ अशी ही ख्याती आहे. कराड शहर सरासरी 566 मीटर उंचीवर वसलेले असून 17° 28 उ 74' 2 पु या स्थानावर वसले आहे. तालुक्यांमध्ये असणाऱ्या पर्यटन स्थळांचा शाश्वत विकास करणे गरजेचे असल्यामुळे यामध्ये पर्यटन स्थळांचा अभ्यास करून त्यावर ती शाश्वत विकास कसा करता येईल, याचा आढावा घेण्यात आला आहे. भौगोलिक सांस्कृतिक ऐतिहासिक घटकासाठी कराड तालुका प्रसिद्ध आहे



उद्दिष्टे:

शाश्वत पर्यटन विकास आवर्ती लक्ष केंद्रित करणे गरजेचे आहे. प्रस्तुत शोधनिबंधासाठी खालील उद्दिष्टे निश्चित केली आहेत.

- 1) कराड तालुक्यातील पर्यटन स्थळांचा आढावा घेणे.
- 2) कराड तालुक्यातील दुर्लक्षित पर्यटन स्थळांचा अभ्यास करणे
- 3) कराड तालुक्यातील शाश्वत पर्यटन विकासामधील अडचणींचा अभ्यास करणे.
- 4) कराड तालुक्यातील शाश्वत पर्यटन विकासासाठी शिफारशी सुचवणे.

संशोधन कार्यप्रणाली:

प्रस्तुत शोधनिबंधाची कार्य ही प्राथमिक व द्वितीयक माहितीच्या आधारावर ती जमा केले आहे. अभ्यासाची उद्दिष्टे पूर्ण करण्यासाठी प्राथमिक माहितीही फिल्डवर्क करून जमा केली आहे. सत्यापन करण्यासाठी काही व्यक्तींची वैयक्तिक संप्रेषण केले आहे. दुय्यम माहिती तोपोग्रफिकल नकाशे, पुस्तके, वर्तमानपत्रे व बऱ्याच वेबसाईटचा वापर करून जमा केलेली आहे.

कराड तालुक्यातील पर्यटन स्थळे:

कराड शहरात पूर्वी कर्ण म्हणत असत. याचा अर्थ “हत्तीचा बाजार” असा होतो. कराड शहराचे ऐतिहासिक सांस्कृतिक वारसा आहे तर तालुक्यांमध्ये बरीच पर्यटन स्थळे आढळतात. त्यामध्ये वसंतगड, सदाशिवगड, प्रीतिसंगम, आगाशिव-बौद्ध लेणी, कृष्णामाईचे मंदिर, खोडशी धरण, सरसेनापती हंबीरराव मोहिते यांची समाधी, श्री क्षेत्र खंडोबा पाल, गणपती मंदिर कोळी, डायना आई मंदिर कार्वे, इत्यादी धार्मिक स्थळे व पर्यटन स्थळे आढळतात. कराड तालुक्यातील ऐतिहासिक व सांस्कृतिक वारसा असल्यामुळे येथे पर्यटनाचा विकास झपाट्याने होऊ शकतो, मात्र त्याठिकाणी पर्यटनाचा विकास कमी झाल्याचे दिसते. त्याचा विकास घडवून आणण्यासाठी स्थानिक स्वराज्य संस्था व सरकार यांचेकडून प्रयत्न होणे गरजेचे आहे कराड तालुक्यातील पर्यटन स्थळे पुढीलप्रमाणे-

प्रीतिसंगम व कृष्णामाई मंदिर:

कराड शहराच्या उत्तर सीमेवरती महाबळेश्वर मधून उगम पावणाऱ्या कोयना व कृष्णा नद्यांची 180 अंश आत येऊन समोरासमोर मिळतात. यांना आपण कृष्णा-कोयनेच्या “प्रीतिसंगम” म्हणून ओळखतो. हा प्रीतिसंगम जगात एकमेव असल्याचे सांगतात कृष्णा नदीवर खोडशी येथे इसवीसन अठराशे साठ 866 मध्ये बांधलेल्या बंधाऱ्यामुळे कृष्णा नदीचे पात्र कराडपासून उत्तेला सरकले. कृष्णा नदीचे पात्र संत व क्षीण असल्याचे पहावयास मिळते, कारण कोयनानगर येथे झालेले धरण होय. यशवंतराव चव्हाण साहेबांच्या निधनानंतर त्यांची समाधी नजीकच्या किती समूहावर ती वसवली आहे, त्यांच्या सभोवताली उद्यान तयार केले आहे, तेही प्रसिद्ध उद्यान आहे. त्याला प्रीतिसंगम उद्यान म्हणतात. प्रीतिसंगम नजीकच कराड नगरीचे आद्यदैवत कृष्णामाईचे मंदिर आहे अशा प्रकारे “प्रीतिसंगम” हे पर्यटन स्थळ असून त्याची संपूर्ण नियोजन कराड नगर परिषदेकडे असते. दरवर्षी पर्यटक ही या ठिकाणी भरपूर प्रमाणात भेटी देतात.

खोडशी धरण:

1920 मध्ये कृष्णा नदी वरती हे धरण ब्रिटिश रेजिमेंटने बांधले व ते 20 किलोमीटर लांबी पर्यंत कालवा ही बांधला गेला सध्या अस्तित्वात असणाऱ्या दगडी बांधकाम धरणातून शंभर मीटर अंतरावर ती नदीकाठचा नवीन बंधारा बांधण्याचा निर्णय महाराष्ट्र सरकारने घेतला आहे. खोडशी धरणामुळे कृष्णा नदीकाठच्या शेतकऱ्यांना खूप फायदा झालेला आहे सिंचन ही महत्त्वाची गरज या धरणामुळे पूर्ण होते. या ठिकाणी भरपूर लोक भेटी देतात.

किल्ले:

गड, किल्ला, दुर्ग अशा विविध परिचित असलेल्या या स्थळाकडे पाहताना सर्वसाधारणपणे राजकीय इतिहासाच्या दृष्टीने पहिले जाते. किल्ले हे फक्त ऐतिहासिक वारसा नसून एकूण राज्याच्या संपन्नतेचा वैभवशाली इतिहास आहे अशा ऐतिहासिक वास्तूची संपन्नता जपणे, ही सर्वांची जबाबदारी आहे. स्वराज्य संस्थापक श्री छत्रपती शिवाजी महाराजांची आठवण करून देणारे त्यांच्या पराक्रमाची साक्ष असणारे गडकोट हे अलीकडच्या तरुण पिढीने पर्यटनाच्या नावाखाली त्याचे महत्त्व कमी केल्याची दिसते तर इतिहासाची साक्ष असणाऱ्या या गडकोटांचे संवर्धन ही काळाची गरज आहे.

वसंतगड सरसेनापती हंबीरराव मोहिते समाधी:

“वसंतगड” हा महाराष्ट्रात सातारा जिल्ह्यातील एक किल्ला आहे. हा किल्ला पुणे-बंगलोर राष्ट्रीय महामार्गावर उंब्रज व कराड यांच्या दरम्यान आहे. वसंतगड या किल्ल्याच्या पायथ्याला गाव वसले आहे. 930 मीटर उंचीचा हा किल्ला गिरीदुर्ग प्रकारामध्ये येतो. बामनोली डोंगररांगांच्या मध्ये हा किल्ला वसला आहे वसंतगड इतिहासप्रसिद्ध अशा ‘तळबीड परिसराचे रक्षण करणारा किल्ला आहे’. मराठा साम्राज्याचे सरसेनापती हंबीरराव मोहिते आणि त्यांची कन्या रणरागिणी म्हाराणी ताराबाई या तळबीड गावचे होते. वसंतगडची

निर्मिती भोज शिलाहार राजाने केली. इसवी सन १६५९ मध्ये शिवरायांनी वसंताड स्वराज्यात सामील करून घेतला. छत्रपती राजाराम महाराज काही दिवस वसंतगडावर ती मुक्कामाला होते.

वसंतगड किल्ल्याचे प्रवेशद्वार इंग्रजांनी तोफांच्याभडिमाराने भग्न केले आहे. गडावरती गणेशाची सुंदर मूर्ती, चंद्रसेन महाराजांचे मंदिर आहे. याठिकाणी चैत्र महिन्यामध्ये दुसऱ्या पंधरवड्यात मोठी यात्रा असते. मंदिराची जुनी बांधणी असल्याने हे मंदिर खूपच मनमोहक आहे. राजवाड्याचे अवशेष पुण्याच्या गाण्याचे अवशेष असून गडाच्या चारी बाजूंनी चार डौलदार बुरूज आहेत. गडाच्या पश्चिम भागात गोमुखी बांधणीचा दरवाजा आहे कोयना तळे व कृष्णा तळे अशी दोन तरी असून त्यांच्या काठावर जुन्या समाध्या व सतीशिला आहेत, अशा प्रकारे ऐतिहासिक वारसा असलेल्या वसंतगड किल्ला पर्यटनाच्या दृष्टीने महत्त्वाचा आहे. वसंतगड किल्ल्याच्या पायथ्याला तळबीड गावांमध्ये मराठा साम्राज्याचे सरसेनापती हंबीराव मोहिते यांचे स्मारक दिसते. या स्मारकाभोवती सुशोभीकरण करण्यात आलेले आहे. इतिहासाची साक्ष असणाऱ्या तळबीड गावाला ऐतिहासिक वारसा लाभलेला आहे.

सदाशिवगड:

“किल्ले सदाशिवगड”चा डोंगर सातारा जिल्ह्यातील कराड पासून ६ किलोमीटर अंतरावर आहे. समुद्रसपाटीपासून उंची सुमारे ३०५० फूट आहे. या गडावर ती जाण्यास संपूर्ण रस्ता पायऱ्यांचा असून सुमारे या गडावर जाण्यासाठी 1000 पायऱ्या आहेत. गिरीदुर्ग प्रकारांमध्ये हा किल्ला येत असून सुरलीचा घाट या डोंगर रांगांमध्ये बसला आहे. अफजलखानाच्या वधानंतर 10 नोव्हेंबर १६०० मध्ये आपला हा किल्ला छत्रपती शिवाजी राजांच्या ताब्यामध्ये आला. कराड वरती नजर ठेवण्याच्या दृष्टीने व कराडहून पलूस विटाकडे जाणाऱ्या सुली घाटावर नियंत्रण ठेवण्याच्या सोयीसाठी छत्रपती शिवाजी महाराजांनी सदाशिवगड बांधू काढला. गडावर महादेवाचे प्रशस्त मंदिर आहे. मंदिरासमोर आड, चौकोनी विहीर असून त्याला बाराही महिने पाणी असते. मारुतीचे मंदिरही गडावरती असल्याचे दिसते. गडावर काही ठिकाणी ज्योतींचे अवशेष शिल्लक आहेत. गडावर कोरडी तळी आढळतात. अलीकडच्या काळात विहीर खाण्यासाठी झालेल्या उत्खननात एक शिवलिंग सापडले ते त्याच विहिरीच्या आतमध्ये भिंतीलगत पुन्हा स्थापन करण्यात आले आहे गडावर तटबंदी भक्कम असल्याचे आढळते. सदाशिवगडाला ही ऐतिहासिक वारसा आहे.

भुईकोट किल्ला :

प्रीतिसंगमानजीकच पंताचा कोटयाठिकाणी हा भुईकोट किल्ला आढळतो. या किल्ल्याची पडझड झालेली आढळते.

आगाशिव-बौद्ध लेणी:

कराड तालुक्यामध्ये कराड पासून ४ किलोमीटर अंतरावर ती आगाशिव या ठिकाणी प्राचीन बौद्ध लेणी आहेत. एकूण 64 बौद्ध लेणी आहेत. प्राचीन बौद्ध लेणी हा कराडचा अनमोल सांस्कृतिक ठेवा आहे. काही अभ्यासकांच्या मते एकूण 108 लेण्या होत्या, परंतु आता केवळ 63 लेण्या आहेत. बाकीचे लेण्या मातीच्या ढिगाऱ्याखाली गाडले गेले आहेत. या सर्व लेण्या हीनयान पंथीय असून त्यांचे खोदकाम पहिल्या व चौथ्या शतकात झाले ही लेणी बौद्ध भिक्षूंच्या वर्षावसाठी खोदलेली दिसतात. 63 लेण्या तीन भागांमध्ये विस्तारलेले आहेत. पहिला समूह आगाशिव डोंगराच्या दक्षिणेला असून त्यामध्ये 26 लेण्या आहेत. दुसरा समूह आगाशिव डोंगर रांगांच्या दरीत आढळतो तर तिसरा समूह आगाशिव डोंगराच्या उत्तरेला आहे. या लेण्यांच्या मध्ये चैत्यगृहे, तूप, विहारे आढळतात. पुरातन खात्याच्या नोंदीनुसार तिन्ही लेणी समूहात अनेक लेण्यांमध्ये शिलालेख कोरलेले आहेत. महाराष्ट्रात दुसऱ्या क्रमांकावर ती आहेत. अशा प्रकारे ऐतिहासिक व सांस्कृतिक ठेवा असणाऱ्या या लेण्या पाहण्यासाठी पर्यटक मोठ्या संख्येने येतात.

पाल व इतर धार्मिक स्थळे:

तारळी नदीकाठी वसलेल्या “पाल” येथे खंडोबाचे जागृत देवस्थान आहे. पुणे-बेंगलोर महामार्गावरती काशीळच्या पश्चिमेस सुमारे ७ किलोमीटर अंतरावर हे ठिकाण आहे. खंडोबा देवाच्या मंदिरामुळे हे गाव प्रसिद्धी पावलेले आहे चारी बाजूला तटबंदी असलेले हे हेमाडपंथी मंदिर आहे. मंदिराच्या आजूबाजूला स्पीड नाग नदी यांची चित्रे कोरली आहेत. तसेच खंडोबाची दुसरी बायको बाळूबाई यांची ही मूर्ती दिसते. येथील खंडोबा हे जागृत देवस्थान म्हणून बरेच उत्सव व यात्रा भरतात. मंदिरांमध्ये असणाऱ्या वरी मधील शिलालेखात द्वारे खंडोबाचे मंदिर शके 1640 मध्ये बांधले असल्याचे आढळते. कृष्णमाई मंदिर, कराड, धानाई मंदिर, कार्वे, भुलेश्वर मंदिर, बहुले, गणपती मंदिर, कोळे, रामदास स्वामींनी स्थापन केलेल्या अकरा हनुमान यापैकी उंब्रज, मसूर, शहापूर या ठिकाणची हनुमानाची मंदिरे आढळतात.

यांचा विकास कमी असलेला आढळतो, मात्र तरीही धार्मिक स्तरावर ती लोक भेटी देतात. म्हणजे पर्यटन विकास कमी असूनही या ठिकाणी पर्यटक मोठ्या प्रमाणावर ती येत असल्याचे आढळते.

अभ्यासात्मक विश्लेषण:

पर्यटन उद्योग हा जगाच्या अर्थव्यवस्थेचा प्रमुख क्षेत्रांपैकी एक आहे. देशाच्या आर्थिक घटकावर ती पर्यटन व्यवसाय परिणाम करतो. कराड तालुक्यातील पर्यटन स्थळांचा विकास कमी प्रमाणात झालेला आढळतो. कराड तालुका बऱ्याच भागांमध्ये स्थानिक संसाधनांच्या आधारे आणि विकासाने विकसित होणारे क्षेत्र आहे, हा विकास शाश्वत आर्थिक विकासामध्ये फायदेशीर ठरू शकतो, मात्र शाश्वत विकास आर्थिक दृष्टीने पर्यटनावर ती अवलंबून असतो.

पर्यटन विकासासाठी उपलब्ध घटक:

- कराड तालुक्यामधील किल्ले ही पर्यटन विकासासाठी एक शक्ती आहे.
- कराड हे प्रशासकीय केंद्र व व्यापाराचे केंद्र असल्यामुळे पर्यटनासाठी फायदेशीर आहे.
- कराड शहराजवळ विमानतळ असल्यामुळे ती पर्यटकांना आकर्षित करू शकते.
- कराड हे तालुक्याची ठिकाण व व्यापाराचे केंद्र बिंदू असल्यामुळे तसेच मोठी बाजारपेठ असल्यामुळे निवास व जेवण तसेच इतर घटकांची उपलब्धता आढळते.
- कराड हे शहर तालुका ठिकाण असल्यामुळे वाहतुकीची साधने मोठ्या प्रमाणावर ती उपलब्ध असतात
- कराड या तालुक्याला धार्मिक पौराणिक ऐतिहासिक पार्श्वभूमी आहे, त्यामुळे कराड तालुक्यामध्ये बरीच प्रसिद्ध मंदिरे आहेत. त्यामुळे पर्यटक आकर्षित होतात.
- कराड तालुक्यातील पर्यटन क्षेत्राच्या ठिकाणी व इतर सर्व ठिकाणी दळणवळण सुविधा उत्तम आहे. रस्तेही उत्तम प्रकारचे आहेत. त्यामुळे पर्यटक आकर्षित होतात.

शाश्वत पर्यटन विकासामधील अडचणी:

कराड तालुक्यातील पर्यटन स्थळांची स्वच्छता व कराड शहरातील स्वच्छता यामध्ये भरपूर प्रमाणात तफावत आढळते. पर्यटनासाठी पर्यटक जे साहित्य येतात त्यापासून घनकचरा ही गंभीर समस्या आढळते. पर्यटन स्थळांची सांडपाणी व्यवस्थापन हाही एक प्रमुख घटक आहे. पर्यटनस्थळांच्या नूतनीकरणाचा अभाव आढळतो. सर्व पर्यटन स्थळांचा नूतनीकरण झाल्याचे आढळत नाही तर काही पर्यटन स्थळे दुर्लक्षित असल्याचे आढळते गडकोट ऐतिहासिक वास्तूचे संवर्धन व पावित्र्य राखणे गरजेचे आहे पर्यटन स्थळ आवर्ती पाण्याची कमतरता ही समस्या प्रामुख्याने उद्भवते. विजेची कमतरता ही सुद्धा समस्या प्रामुख्याने आढळते. अभ्यासक्षेत्र कमकुवत पायाभूत सुविधा आहेत. लोडशेडिंग हीसुद्धा समस्या पहावयास मिळते. याचा सेवा निवास यावरती विपरित परिणाम झालेला पहावयास मिळतो. विपणन हा विकास प्रक्रियेचा अविभाज्य घटक आहे. विपणन केल्याशिवाय कोणताही विकास होऊ शकत नाही. खराब सेवा मुळे पर्यटक नाराज होतात. स्थानिक लोकांचे मानसशास्त्र शाश्वत पर्यटनासाठी कमकुवत असते. स्थानिक लोक आहेत त्यांच्यामध्ये उद्योजकतेचा अभाव असणे, नवकल्पना यांचा अभाव असणे, सहकार्याचा अभाव असणे, गुणवत्तापूर्ण मानवी संसाधनांचा अभाव असल्याने पर्यटनाच्या शाश्वत विकासामध्ये अडचणी असल्याचे आढळतात.

शाश्वत पर्यटन विकासाच्या शिफारशी:

शाश्वत पर्यटनासाठी खालील शिफारशी करण्यात आल्या आहेत.

पर्यटन स्थळांचा शाश्वत विकास टिकवून ठेवणे गरजेचे आहे. पायाभूत सुविधांचा विकास, वाहतूक, निवास इत्यादी सुविधा दर्जा राखून ठेवणे गरजेचे आहे. कचरा व्यवस्थापन प्रतिबंध देखील आवश्यक आहे. प्रदूषण व पर्यावरण वातावरणाचे रक्षण करणे विपणन हा अतिशय महत्वाचा भाग आहे. स्थानिक लोकांच्या मध्ये पर्यटन या विषयासंबंधी गोडी निर्माण करून त्यांची सहभाग वाढवणे गरजेचे आहे. पर्यटनामध्ये इको पर्यटन ही संकल्पना राबविणे गरजेचे आहे. पर्यटकांना आकर्षित करणारी चांगली विपणन रणनीती आखणे, नाविन्यपूर्ण पारंपारिक जीवनाचा अनुभव पर्यटकांना करून देणे, मंदिरे धार्मिक स्थळे या ठिकाणी मूलभूत सेवा सुविधांचा विकास करून देणे, मंदिरे धार्मिक

स्थळांचा इतिहास प्रसिद्ध करणे, इत्यादी घटक महत्वाचे आहेत, मलकापूर जवळील बौद्ध लेण्यांचा मूलभूत विकास करणे त्या ठिकाणी पर्यटकांना आकर्षित करणाऱ्या सेवा-सुविधांचा पुरवठा करणे या भागात पर्यटन स्थळे आहेत. त्या ठिकाणच्या स्थानिक स्वराज्य संस्थांनी पुढाकार घेऊन सरकारच्या मदतीने व स्थानिक लोकांच्या मदतीने पर्यटनाचा विकास करणे गरजेचे आहे. महाराष्ट्र पर्यटन विकास महामंडळाच्या साह्याने प्रशिक्षण कार्यक्रम आयोजित करणे हे गरजेचे आहे.

कराड तालुक्यांमध्ये पर्यटन विकासाचा अभाव असल्याचे दिसते. या भागांमध्ये पर्यटनस्थळांचा विकास मागास लिहिला आहे त्याचा विकास झाल्यानंतर तालुक्याला विशेष पर्यटन दर्जा मिळेल, यासाठी स्थानिक स्वराज्य संस्था स्थानिक लोक यांनी महाराष्ट्र पर्यटन विकास महामंडळ यांच्या मदतीने या पर्यटनस्थळांचा विकास करणे गरजेचे आहे, वसंतगड सदाशिवगड हे ऐतिहासिक वारसा असणारे किल्ले यांचाही विकास होणे काळाची गरज आहे, किल्ल्यावरती वृक्षारोपण होणे किल्ल्यावर असणारे जुने अवशेष यांचे संवर्धन करणे दुरासंमेलन आयोजित करून गडकोटांचे महत्व वाढवणेही गरजेचे ठरलेले आहे. शिवप्रेमी दुर्गप्रेमी यांच्या मदतीने गड-किल्ल्यांचे महत्व लोकांपर्यंत पोहोचवणे. प्रीतिसंगम व प्रीती संगमानजीकच असणारी प्रीतिसंगम बाग या ठिकाणी पर्यटकांनी भेटी दिल्यानंतर त्यांच्याकडून होणाऱ्या घनकचरा (पाण्याच्या रिकाम्या बाटल्या, कागद, प्लास्टिकचे कागद इत्यादी) व्यवस्थापन करणे गरजेचे आहे. अन्यथा तो घनकचरा नदीमध्ये मिसळून जलप्रदूषण होण्याचा धोका आहे. वरील प्रकारे शाश्वत पर्यटन विकासासाठी शिफारशी करता येतील.

निष्कर्ष:

वरील अभ्यासानुसार कराड तालुक्यातील पर्यटन स्थळांचा आकर्षण ऐतिहासिक महत्व संस्कृतीक महत्व पाहिले. त्याचबरोबर बदलत्या जीवनामध्ये पर्यटन स्थळांच्या ठिकाणी विकासाचा अभ्यास या शोधनिबंध पत्रिकेमध्ये केला असून पर्यटन विकासामध्ये येणाऱ्या अडचणी अडथळे यांचाही अभ्यास केला आहे. यावरून कराड तालुक्यातील पर्यटन स्थळांचा शाश्वत विकास कसा करता येईल, यावर ती शिफारशी दिल्या आहेत. पर्यटनाचा शाश्वत विकास व त्याबरोबर इतर सर्व विकासाचा अभ्यास केला आहे. पर्यटनामुळे व्यवसायाची संधी व्यवसायाची वृद्धी कशी होते, याचेही विश्लेषण केलेले आहे. शाश्वत पर्यटन विकास कसा करावा याबद्दल सविस्तर अभ्यास केलेला आहे.

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राजकीय संस्कृती: व्यापकतेकडून संकुचिततेकडे

प्रा. अमर अण्णा बल्ले

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घोषवारा

१ मे २०२० रोजी महाराष्ट्र राज्याच्या हीरकमहोत्सवी वर्षाची सांगता होत आहे. परंतु कोरोना महामारीच्या संसर्गाचे दुःखद सावट हीरकमहोत्सवी वर्षावर पडले आहे. १ मे १९६० रोजी संयुक्त महाराष्ट्र राज्य अस्तित्वात आले. त्याला आता साठ वर्षे होत आहेत. एखाद्या राज्यासाठी साठ वर्षांचा टप्पा महत्त्वपूर्ण असतो. राज्याला एक उज्ज्वल इतिहास आहे आणि इतिहासाचा वारसा घेऊनच राज्य पुढे जात आहे. या इतिहासातून एक सर्वसमावेशक राजकीय संस्कृती विकसित झाली आहे. पण गेल्या तीन-चार दशकांत ती राजकीय संस्कृती बदलली आणि त्याचा परिणाम राज्याच्या नेतृत्वावर आणि विधीमंडळाच्या कामकाजावरही पडला. गेल्या साठ वर्षांत राज्याच्या सामाजिक आर्थिक आणि राजकीय क्षेत्रांत अनेक स्थित्यंतरे झाली. या स्थित्यंतराचा बदलत्या राजकीय संस्कृतीचा आणि विकासाच्या पुढील दिशा यांची चर्चा करणारा लेख दोन भागांमध्ये प्रसिद्ध करत असून त्याचा हा पूर्वार्ध.

उद्दिष्टे:- राजकीय संस्कृती: व्यापकतेकडून संकुचिततेकडे

गेल्या तीन दशकांपासून महाराष्ट्राची आणि एकूणच भारताची राजकीय संस्कृती खालावल्याचे दिसत आहे. महाराष्ट्राच्या राजकीय संस्कृतीला प्रदीर्घ इतिहास आहे. महाराष्ट्राला सामाजिक धार्मिक राजकीय सुधारणांचा आंदोलनांचा प्रदीर्घ इतिहास आहे. छत्रपती शिवाजी महाराज महात्मा फुले - सावित्रीबाई फुले न्या. रानडे आगरकर वि. रा. शिंदे डॉ. आंबेडकर आणि छत्रपती शाहू यांचा वारसा लाभलेले हे राज्य आहे. या वारशांचा प्रभाव राज्याच्या राजकीय संस्कृतीवर पडणे साहजिकच होते. शिवाय ब्रिटिशांच्या संपर्कात आल्याने आधुनिकतेचाही प्रभाव पडला तसेच राज्यघटनेतील मूल्यांचाही प्रभाव पडला. यातून आधुनिकता आणि परंपरा यांचे मिश्रण असलेली राजकीय संस्कृती घडत गेली. या सर्व ऐतिहासिक वारशांतून सहिष्णुता आणि उदारमतवाद ही महाराष्ट्राच्या राजकीय संस्कृतीची प्रमुख वैशिष्ट्ये म्हणून पुढे आली. सोबतच बहुजनवादी राजकारणाचे प्रारूपही उदयास आले.

प्रत्येक कालखंडात वेगवेगळ्या प्रकारे या ऐतिहासिक वारशांचा संस्कृतीचा वापर राजकीय पक्षांकडून आणि शासनाकडून झाला. परंतु हा वारसा पुढे वाढवण्यात अपयश आलेच पण तो टिकवून ठेवण्यातही अपयश आले. राजकीय संस्कृती विकसित होण्याऐवजी ती बदलत गेली. पण हा बदल विधायक नव्हता. काँग्रेस पक्ष काय किंवा त्या कालखंडातील विरोधी पक्ष काय या सर्वांना ऐतिहासिक वारशांची परंपरा होती. त्यामुळे विरोधी पक्षांची वेगळी विचारधारा असली तरी त्या कालखंडात सत्ताधारी आणि विरोधकांमध्ये एक प्रकारचा संयम आणि समन्वय देखील होता. काँग्रेस हा कायम सत्ताधारी पक्ष राहिल्याने सत्ताधारी पक्षाची म्हणजे काँग्रेसची संस्कृतीही हळूहळू महाराष्ट्र राज्याची राजकीय संस्कृती बनली.

मध्यममार्गी काँग्रेसला दीर्घ सत्ता मिळाल्याने सत्तालोलूपता गैरव्यवहार पक्षांतर घराणेशाही इत्यादी गोष्टीही चिकटल्या. ऐंशीच्या दशकाच्या शेवटी मात्र हिंदुत्ववादी पक्षांचा विस्तार झाल्याने संयमाची जागा आक्रमकतेने घेतली. आक्रमकता भावनिकता प्रतीकांचे राजकारण जात अस्मितेचे राजकारण आणि जातीय दंगली या गोष्टी जसजशा वाढत गेल्या तसतशी राजकीय सहिष्णुतेची परंपरा लोप पावत गेली.

सहिष्णुतेबरोबरच बहुविध संस्कृतीचाही संकोच होताना दिसतो. उदा. मुंबईची बहुविध संस्कृती हे महाराष्ट्राच्या राजकीय संस्कृतीचे महत्वाचे वैशिष्ट्य आणि मुंबईची ओळखही आहे. संयुक्त महाराष्ट्राच्या चळवळीमागे एक भाषिक किंवा मराठी भाषिकांचे राज्य अपेक्षित होते. परंतु ही चळवळ बिगर मराठी किंवा परंप्रांतीयांच्या विरोधी नव्हती. परंतु आधी शिवसेनेने आणि नंतर मनसेने परंप्रांतीयांविरुद्ध जी आक्रमक संकुचित मोहीम राबवली होती त्यातून आपण मुंबईची विविधता नाकारतोय.

बदलत्या राजकीय परिस्थितीत भाजपच्या मुंबईतील वाढीमुळे सेनेला परंप्रांतीयांचा मुद्दा आवरता घ्यावा लागला असला तरी मराठी-अमराठीचा संघर्ष पुढेही सुरू राहिला तर मुंबईची बहुविध ओळख पुसण्याचा धोका आहे. दुसरे उदाहरण म्हणजे एक जात वर्चस्वामुळे कनिष्ठ-मागास-अल्पसंख्य समूहांना सत्तेत सामावून घेण्याचे बहुजनवादी प्रारूपही हळूहळू लोप पावले. त्याबरोबरच काँग्रेसच्या पडझडीची प्रक्रियाही सुरू झाली. मंडल आयोगामुळे जागृत मागास समाजाने सहाजिकच वेगळ्या पर्यायांचा विचार केला.

राजकीय संस्कृतीस अनुसरून साठ-सत्तरच्या दशकापर्यंत राज्यकर्त्यांनी पुरोगामी धोरणे आखली आणि त्यांची अंमलबजावणीदेखील केली. पण ऐंशीच्या दशकापासून राज्यकर्त्यांनी राजकीय वारशांचा जप केला. मात्र त्यानुसार धोरण आखण्याचे सोडून दिले. पुरोगामी धोरणे जसजशी सोडली कल्याणकारी राज्य सार्वजनिक क्षेत्रातून जसजसे माघार घेऊ लागले तसतसे राज्याचा विकासही मंदावला. आर्थिक सुधारणांच्या नावाखाली हितसंबंधाच्या राजकारणातून देशात आणि महाराष्ट्रातून भ्रष्टाचाराची प्रकरणे गेल्या दोन दशकांत अधिक घडल्याचे दिसून येते.

राजकीय मूल्य राजकीय नैतिकता राजकीय निष्ठांचा जसा ज्हास सुरू झाला तशी राजकीय संस्कृती लोप पावत गेली. राजकीय संस्कृतीच्या पतनानंतर राजकारणात इतर घटक प्रभावशाली बनू लागले. राजकीय व्यवहारात संकुचितपणा जातीयवाद वाढत गेला. सत्ता आणि पैसा या समीकरणातून भ्रष्टाचारविरहित एकही क्षेत्र उरले नाही.

नव्वदच्या दशकानंतर राजकारणी बिल्डर्स कॉर्पोरेट्स आणि नोकरशहा यांची युती झाली असून महत्वाची सरकारी भूखंडे सर्वसामान्यांचे खासगी भूखंडे सेझच्या नावाखाली शेतजमिनी हडपण्याचे धोरण त्यांनी राबवले. या लॉबीचे शासकीय धोरण-निर्धारणावर नियंत्रण वाढले आहे. त्यांची भाषा पुरोगामी विचारांची भाषा आम आदमीची पण धोरणे मात्र नव-भांडवलशाहीस पूरक अशी स्थिती बनली आहे. यास कोणताही राजकीय पक्ष अपवाद राहिलेला नाही. सरकारे बदलून प्रश्न सुटणार नाहीत तर राजकीय संस्कृतीमध्ये ज्या अपप्रवृत्तींनी प्रवेश केला आहे तो थांबवण्याची आवश्यकता आहे. त्यासाठी जनमताचा रेटा वाढवण्याची आवश्यकता आहे.

विधीमंडळ परंपरांचा ज्हास

सत्तर-ऐंशीच्या दशकांपर्यंतची विधीमंडळातील परिस्थिती आणि आताची परिस्थिती याची तुलना करता बराच बदल झालेला आढळतो. सुरुवातीच्या काळात राज्यात किंवा केंद्रातही एकाच पक्षाचे स्थिर सरकार

दीर्घकाळ असले तरी विरोधी पक्षही सतर्क होते. विरोधी पक्षांची संख्यात्मक ताकद कमी होती. पण विधीमंडळात आणि जनतेतही त्यांचे नैतिक वजन होते. सत्ताध्याऱ्यांनाही विरोधकांबद्दल एक प्रकारचा आदर होता. राज्य विधीमंडळ किंवा संसदेचे कामकाज व्यवस्थित आणि शिस्तबद्ध चालायचे. परंतु नव्वदच्या दशकानंतर विधीमंडळ कामकाजाच्या दर्जात घसरण झालेली आढळते. सत्ताधारी आणि विरोधी बाकांवर अभ्यासू नेते मंडळी असायची. एखाद्या विषयावर किंवा विधेयकावर अनेक तास अभ्यासू भाषणे व्हायची. ती आता बंद झालेली दिसतात. जनतेच्या जिवाळ्याची विधेयके पाच-दहा मिनिटांच्या चर्चेनंतर संमत केली जात आहेत.

लोकशाही म्हणजे केवळ निवडणुका आणि सरकारे स्थापन करणे नव्हे. तर समता आणि न्यायपूर्ण समाजरचना निर्माण करण्याची घटनात्मक जबाबदारी देखील लोकशाहीत अपेक्षित आहे. त्यादृष्टीने विधीमंडळाने गेल्या पन्नास वर्षांत अनेक पुरोगामी निर्णय घेतले आणि कायदे केले. देशपातळीवर देखील काही निर्णयांची दखल घेण्यात आली. परंतु हळूहळू पुरोगामी आणि दुरगामी महत्वाच्या निर्णयांची परंपरा खंडित होऊ लागली असून आता केवळ भांडवलशाही आणि बिल्डरलॉबीच्या हितसंबंधास पूरक निर्णय होताना दिसतात.

सभागृहातील सदस्यांची रोडावणारी संख्या सभागृहात येऊनही कधीच चर्चेत भाग न घेणे संसदीय आयुधांचा अयोग्य वापर चर्चेविना गोंधळाने वारंवार सभागृह बंद पाडण्याचे प्रकार राज्य विधीमंडळात आणि संसदेतही वाढल्याचे दिसतात. सत्ताधारी आणि विरोधी पक्षनेत्यांमध्ये आणि सदस्यांमध्ये देखील एकमेकांवर सतत चिखलफेक सुरू असल्याचे तसेच शिवराळ भाषेचा वापर वाढला असल्याचे दिसते. नव्वदच्या दशकानंतर आघाड्यांच्या राजकारणामुळे सरकार अनेक विषयांवर स्पष्ट भूमिका घेताना दिसत नाहीत. शासनाचे काम संध गतीने आणि ठोस निर्णय न घेता सुरू असल्याचे दिसते. हे सर्व संसदीय परंपरांच्या विरोधी आणि लोकशाहीस घातक असून सध्याच्या बदलत्या सामाजिक आर्थिक आणि राजकीय परिस्थितीत संसदीय परंपरा जतन करण्याची आणि त्या अधिक समृद्ध करण्याची आवश्यकता आहे.

नेतृत्वाचा पेचप्रसंग

राज्यात आज राजकीय नेतृत्वाचा प्रश्न सर्वच राजकीय पक्षांना भेडसावताना दिसतो आहे. विशेषतः १३५ वर्षांची दीर्घ परंपरा लाभलेल्या आणि राज्यात दीर्घकाळ सत्तेवर राहिलेल्या काँग्रेस पक्षाबाबत नेतृत्वाचा प्रश्न गंभीर आहे. काँग्रेस पक्षाकडे राज्यव्यापी नेतृत्व नाही. खरे तर काँग्रेसची सत्ता गेल्यानंतर पक्षामधील साफसफाई करून नवे नेतृत्व पुढे आणण्याची संधी काँग्रेसच्या हातून गेली आहे. तुलनेने राष्ट्रवादी शिवसेना आणि भाजपकडे नेतृत्वाची फळी दिसते. तरी देखील सर्व पक्षीय विचार करता त्यांच्याकडे एखाद-दुसरे अपवादात्मक विभाग स्तरावरील नेतृत्व दिसून येते. शिवाय अनेक नेते हे त्यांच्या जातीपुरते नेतृत्व करताना दिसतात. जनतेचा पाठिंबा असलेले जनतेच्या प्रश्नांचे भान असलेले नेतृत्व आज नाही.

एकमेकांना संपविण्याचे प्रयत्न पक्षांतर्गत नेतृत्व स्पर्धा संघटनात्मक कार्याचा अभाव वाढती पक्षांतरे त्वरित सत्तेची अपेक्षा असे स्वरूप नेतृत्वाला प्राप्त झालेले दिसते. सामान्य पक्ष कार्यकर्ते ते स्थानिक राज्यस्तरीय नेतृत्व घडण्याची साखळी खंडित झालेली असून गल्लीबोळात दोन-चार कार्यक्रम घेऊन चौकाचौकात मित्रमंडळे स्थापन करून तसेच मोफत धार्मिक यात्रांचे आयोजन करून स्वतःच्याच वाढदिवसाचे बॅनर लावणारे नेतृत्व उदयास येताना दिसते. पक्षाची ध्येयधोरणे विचारप्रणाली लोकांपर्यंत नेणाऱ्या कार्यकर्त्यांची जागा आता मत

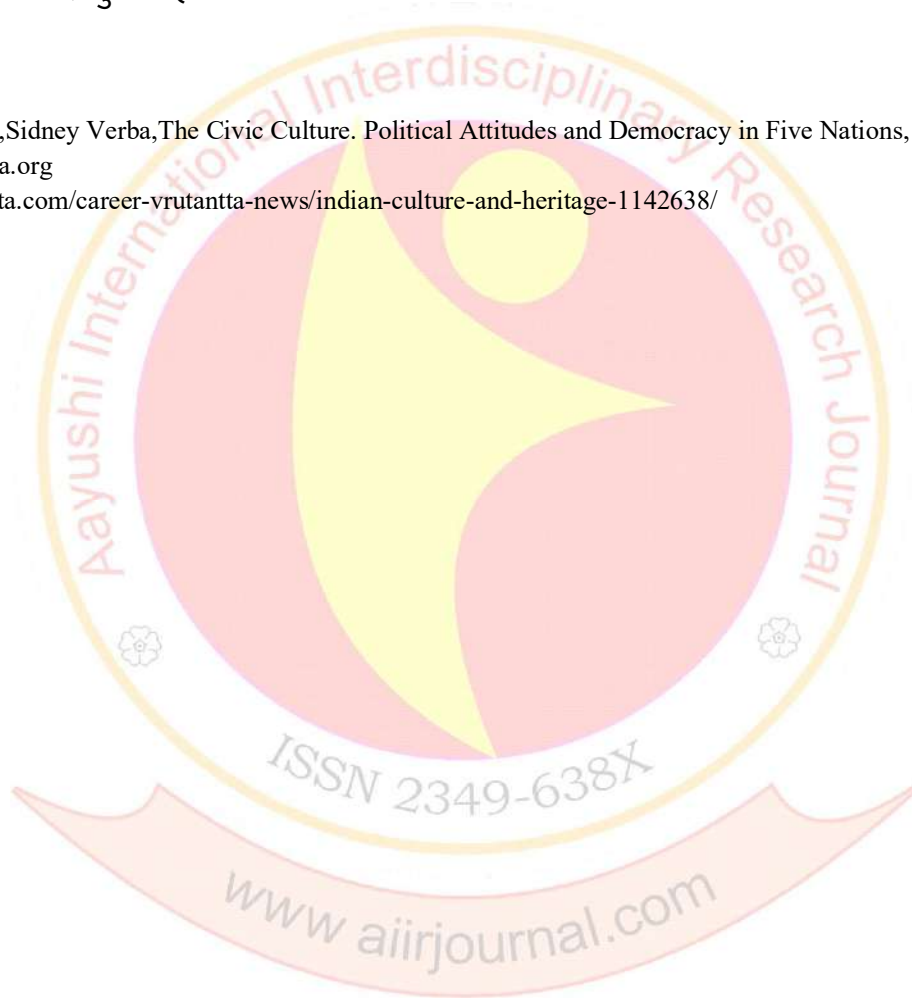
मिळवून देणाऱ्या एजंटने घेतली आहे. मी अमुक मत मिळवून देतो त्या मोबदल्यात माझी अमुक कामे झाली पाहिजेत असे तो स्पष्ट सांगतो. थोडक्यात हितसंबंध महत्वाचे असून पक्षनिष्ठा महत्वाची राहिलेली नाही.

सारांश

जनतेच्या संपर्कातील नेतृत्व बहुजनांना बरोबर घेऊन राजकारण करणारे नेतृत्व आज संपुष्टात आलेले दिसते. स्वतः अभ्यासू आणि अभ्यासक विचारवंत साहित्यिक कलावंत यांच्याशी संपर्क असणारा सुसंस्कृत राजकारणी राज्यात नाही. स्वातंत्र्यपूर्व आणि स्वातंत्र्योत्तर कालखंडातील सामाजिक राजकीय लढ्यास नेतृत्व देणाऱ्या महाराष्ट्रात आज राज्याचा ऐतिहासिक वारसा पुढे नेणाऱ्या नेतृत्वाचा अभाव दिसून येतो. सर्वच प्रमुख पक्षांमध्ये आपल्या पक्षाला राज्याला पुढे नेणाऱ्या नेतृत्वाचा अभाव असल्याने पक्ष नेतृत्व बळकट करण्याचे आव्हान सर्वच राजकीय पक्षांपुढे आहे.

संदर्भ

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भारतातील नैसर्गिक संसाधने आणि शाश्वत विकास

समीर हिंदुराव गायकवाड,

अर्थशास्त्र विभाग अण्णासाहेब डांगे कला वाणिज्य व विज्ञान महाविद्यालय हातकणंगले

घोषवारा

१९४७ ला भारताला स्वतंत्र मिळाले. भारतासाठी नवीन आर्थिक विकासाची नवीन दालने खुली झाली. पारतंत्र्यांत जी भारताची हाणी झाली होती. ती भरून काढण्याची संधी प्राप्त झाली पण भारतातील विकासासाठी आवश्यक संसाधने आणि विकासाची सुरुवात याचा मेळ घालने भारतासाठी फार महत्वाचे होते कारण भारत हा नैसर्गिक संसाधनाने विपूल असणारा देश आहे. या साधनाचा वापर भारताच्या विकासासाठी होत असताना साधनाचा वापर शाश्वत स्वरूपात होणे हे एक आव्हान आहे.

१ प्रस्तावना :

भारतातील नैसर्गिक संसाधने :

नैसर्गिक दृष्ट्या भारत हा विपूल संसाधने आसणारा देश आहे. ही साधने दोन विभागात विभागली आहेत.

१ नवीकरणक्षम व २ अनवीकरणक्षम संसाधने आहेत.

१ नवीकरणक्षम संसाधने : भारतात जमीन, पाणी, हवा, मासेमारी, गवताळ कुरणे, जंगलसंपदा ही संसाधने आहेत.

२ अनवीकरणक्षम संसाधने : खनिजे, दगडी कोळसा, खनिज तेल, नैसर्गिक वायू, तांबे, लोखंड, पारा, अॅल्युमिनिअम इ.

भारतातील नवीकरणक्षम संसाधने :

१) जमीन : भारतात विविध प्रकारचे जमिनीचे प्रकार आहेत. जमीन हा घटक खूप महत्वाचा आहे कारण जमिनीवरून देशाचा विकास किती आहे हे समजण्याचे एक प्रमुख साधन आहे. जमिनीत मानवच्या विकासासाठी असणारे अनेक साधने मानवला प्रथम जमिनिपासूनच मिळाले आहेत. जमिनीचा प्रामुख्याने दोन प्रकारे वापर विकासासाठी केला जातो.

१) जमिनीचा वापर अन्नधान्यासाठी

२) शेती आणि औद्योगिक विकासासाठी खनिज पदार्थांचा वापर

जमिन किंवा मृदा हा भूकवचावरील अत्यंत महत्वाचा स्तर आहे. जमिनिचे विविध प्रकार असून त्यात टेकड्या दऱ्याखोऱ्या दलदलीचे प्रदेश इ. समावेश होतो. जमिन ही त्याप्रदेशात ज्याप्रमाणे खडक बनलेला आहे तशा प्रकारे गुणधर्म त्या प्रदेशातील जमिनीत असतात. उदा. महाराष्ट्र हा लाव्हा खडकापासून बनलेला आहे म्हणून या भागात काळया प्रकारची जमिन पाहावयास मिळते तर महाराष्ट्रातील कोकणतील जमिन ही जाभ्या खडकापासून बनलेली आहे म्हणून ही जमिन तांबड्याप्रकारची पाहावयास मिळते. जमिनीतील प्रकारानुसार जमिनीत पाणी साठवून ठेवण्याची क्षमता सुद्धा जमिनीत असणाऱ्या खडकावरूनच ठरते. काळया जमिनीत अधिक पाणी साठवणूक करण्याची क्षमता असते तर तांबड्या प्रकारच्या जमिनीत कमी पाणी साठवणूक करण्याची क्षमता असते. या जमिनिच्या प्रकारानुसार त्या त्या प्रदेशाचा विकास झाला आहे.

भारतातील जमिनीचे प्रकार १)काळी जमीन २)तांबडी जमीन ३)जांभी जमीन ४)गाळाची जमीन ५)भंगर जमीन ६)भाबर जमीन ७)खंदर जमीन ८)त्रिभूज प्रदेशातील जमीन ९)वाळवंटी जमीन १०)पर्वतीय जमीन
भारतातील जमिनीचा वापर

अ.नं.	तपशील	क्षेत्र(दशलक्ष हेक्टर)	टक्केवारी
१	एकूण भौगोलिक क्षेत्र	३२९	--
२	एकूण नोंदणी झालेले क्षेत्र	३०६	१००
३	ओसाड जमीन	४२	१४
४	जंगलाखालील जमीन	६९	२३
५	कायमची कुरणाखालील जमीन व चराऊ कुरणे	११	३
६	मशागतीयोग्य टाकाऊ जमीन	१८	६
७	पडीक जमीन	२५	८
८	लागवडीखालील निव्वळ क्षेत्र	१४१	४६
९	एकापेक्षा अधिक वेळा लागवड केलेली जमीन	४९	१६
१०	पिकाखालील एकूण क्षेत्र	१९०	६२

२) हवा : पृथ्वीच्या भोवताली वातावरनाला हवा असे म्हणतात . हवा हा घटक नैसर्गिक घटकातील अत्यंत महत्वाचा घटक आहे . हवा अल्यामुळे देशातील जीवपृष्ठी आपले जीवन जगत असते देशातील हवेचे वातावरनावर देशाचा मानवी विकास महत्वाचा असतो . हवेच्या प्रमाणावर देशातील शेती, उद्योग विकसीत होत असतो .

हवेमध्ये ऑक्सीजन, कार्बन डायऑक्साईड, कार्बन मोनोऑक्साईड, मिथेन, क्लोरोफ्लोरो, कार्बन नायट्रोजन ट्राय ऑक्साईड, सल्फर डाय ऑक्साईड, सल्फर ट्राय ऑक्साईड, सल्फर ऑक्साईड अशा अनेक घटकांपासून हवा बनत असते . यातील काही घटक जीवनाला महत्वाचे असतात तर काही घटक जीवनाला अत्यंत घातक असतात . घातक घटकाचे प्रमाण वाढले तर वातावरणाला व विकासाला जीवशृष्टीला घातक होतात .

३) मासेमारी : मासेमारी हा घटक मानवाच्या जीवनापासून मानवाला उपजविकेचे साधन बनला आहे . जमिनीवरील अन्नाच्या साखळीचे साधन मानवला कमी पडू लागल्याने किंवा पर्याय म्हणून पाण्यातील मासेमारीवर मानवाने उपजीविका करून आपले जीवन जगत आले आहे .

मानवाने जैविक विकासामध्ये मासेमारी हा घटक आपल्या विकासासाठी वापरला आहे . मासेमारी मानवाने दोन प्रकारी केली आहे .

१) गोड्या पाण्यातील मासेमारी

२) खाऱ्या पाण्यातील मासेमारी

१) गोड्या पाण्यातील मासेमारी : नदी नाले आढे विहिर तलाव आणि कृत्रिम तळी अशा ठिकाणी गोड्या पाण्यातील मासेमारी केली जाते . भारतात एकूण ८ मोठ्या नद्या आणि त्याच्या ४०० हून अधिक उपनद्या आहेत . या सर्वांमध्ये मासेमारी केली जाते .

२) खाऱ्या पाण्यातील मासेमारी : समुद्र व खाडी समुद्राजवळील नदीच्या भागात केले जाते . भारताला सुमारे ६५३५ किलोमीटर लांबीचा समुद्रकिनारा लाभला आहे . सुमारे २० दशलक्ष चौरस किलोमीटर एवढा सागरी मच्छीमारी व्यवसायासाठी भारताला उपलब्ध आहे . सागरातील नैसर्गिक मत्स्यनिर्मिती होत असल्याने कधीही न संपणारा प्रचंड मत्स्यसाठा सतत उपलब्ध होत आहे .

४) गवताळ कुरणे : गवताळ कुरणामध्ये कायम स्वरूपाची कुरणे आणि इतर चराऊ जमिनीचा यात समावेश होतो १९५०-५१ ला याचे क्षेत्र ६.६८ लक्ष हेक्टर गवताळ कुरणे होती याचे प्रमाण २००३-०४ याकाळात १०.४८ लक्ष हेक्टर इतके झाले आहे. ५३ वर्षात ३.८ लक्ष हेक्टर वाढले आहे.

५) जंगलसंपदा : भारतात जंगलसंपदा नैसर्गिक दृष्ट्या खुप चांगली आहे. भारतातील जंगलसंपदा तीन प्रकारची आहे. राखीव संरक्षित आणि इतर देशाच्या एकूण क्षेत्रफळापैकी २३ टक्के जमिन जंगलाखाली आहे. या जंगलातून कागद, रेयॉन, लाकूड, मध, लाकूड, वावू, औषधी वनस्पती, रंग अशा वस्तू मिळतात. १९५०-५१ ला भारतातील जंगलाचे प्रमाण ४०.४८ लक्ष हेक्टर होते तेच प्रमाण २००३-०४ ला ६९.९७ लक्ष हेक्टर झाले आहे म्हणजे वाढले आहे हे एक चांगला परिणाम आहे.

अनवीकरण संसाधने : जी साधने एकदा वापरल्यानंतर कायमस्वरूपी नष्ट होतात अशा साधनसंपत्तीला अनवीकरण संसाधने असे म्हणतात. या मध्ये खनिजे, दगडी कोळसा, खनिज तेल, नैसर्गिक वायू, तांबे, लोखंड, पारा, अॅल्युमिनिअम इ. याचा समावेश होतो.

१) खनिजे : देशाच्या विकासासाठी खनिजे खुप महत्वाची असतात. ही खनिजे रासायनिक घटकापासून पृथ्वीच्या अंतरंगत भागात लाखो वर्षांपूर्वी तयार झालेली असतात. भारतात एकूण ८९ खनिजांचे उत्पादन घेतले जाते. यामध्ये ४ इंधन खनिजे, ११ धातू खनिजे, ५२ अधातू खनिजे आणि २२ इतर खनिजे आहेत. खनिजाचे वर्गीकरण

१) धातू खनिजे : यामध्ये लोह खनिज, मॅग्नेटाईट, हेमेटाईट, लिमोनाईट, सिडेराईट, मॅग्नेटाईट, हेमेटाईट, सिडेराईट इ. याशिवाय तांबे, कथील, जस्त, सोने, चांदी, मॅंगनीज, बॉक्साईट, शिसे, अॅटिमनी, क्रोमाईट, टंगस्टन इ. धातू खनिजे असून ती अशुद्ध स्वरूपात सापडतात. त्यावर प्रक्रिया कराव्या लागतात.

२) अधातू खनिजे : अभ्रक, ग्राफाईट, गंधक, पोटॅश, फॉस्फेट इ.

३) इतर इंधन शक्तीची खनिजे : यात दगडी कोळसा खनिज तेल नैसर्गिक वायू इ. समावेश होतो.

२) लोखंड खनिज : धातू खनिजांत सर्वात महत्वाचे खनिज लोखंड खनिज होय. लोखंडामुळे मानवला त्याचा विकास अधिक वेगाने करता आला. भारतात लोखंड फार प्राचीन काळापासून वापरले जाते. भारतीयांना या खनिजात फार प्रगती केलेली दिसते. याचे उदाहरण आज हि दिल्लीत उभा असलेला लोह खांब पाहावयास मिळतो.

लोह खनिजात भारताचा जगात चौथा नंबर लागतो. एकूण लोखंड उत्पादनाच्या २५ टक्के उत्पादन भारतात होते. भारतात हेमेटाईटचे १४६३० द.ल टनांचे साठे आहेत. त्यातील ९५ टक्के साठे हे ओरिसा, झारखंड, छत्तीसगड, कर्नाटक आणि गोवा या राज्यांत आहेत. मॅग्नेटाईट या धातूचे साठे मार्यादित असून ते छत्तीसगड कर्नाटक झारखंड आणि ओरिसा या प्रांतांत आहेत. मॅग्नेटाईट या धातूचे १०६१९ द.ल टनांचे साठे असून त्यातील ६० द.ल टन गोवा राज्यस्थान आणि झारखंड या राज्यात आहेत.

३) दगडी कोळसा : दगडी कोळसा हा भारतात फार प्राचीन पासून वापरल्याचे पुरावे मिळतात. हे एक महत्वाचे साधन असून उद्योगधंद्यात दगडी कोळशाचा वापर होतो. भारतात दगडी कोळशाचे चार प्रकार दिसून येतात. त्यामध्ये १) अॅन्थ्रासाईट २) बिटुमिनस ३) लिग्नाईट ४) पीट इ.

भारतातील दगडी कोळशाचे उत्पादन जागतिक उत्पादनाच्या षटके आहे. हे साठे भारतात झारखंड, ओरिसा, पश्चिम बंगाल, मध्य प्रदेश, छत्तीसगड, आंध्र प्रदेश, उत्तर प्रदेश, महाराष्ट्र, आसाम, मेघालय, अरुणाचल प्रदेश या राज्यांत दगडी कोळशाचे साठे मोठ्या प्रमाणात आहेत.

४) खनिज तेल : खनिज तेल हे एक महत्वाचे साधन आहे. खनिज तेल हे ज्वलनशील हायड्रोकार्बन मिश्रण असते. खनिज तेल हे समुद्रात सुद्धा सापडते. भारतात खनिज तेलाच्या साठ्याचा शोध सन १८८६ मध्ये लागला. आसाममधील माटूम भागात तेल साठे आढळून आले. दिग्बोई येथे सर्वप्रथम खनिज तेल उत्पादन सुरू झाले. हा साठा भारतातील सर्वात मोठा साठा आहे. याशिवाय आसाममधील नहरकटिया, मोरान, बाप्पापुंग, हारूनपुंग, हुगरीजात इ. क्षेत्रे खनिज तेलाच्या दृष्टीने महत्वाची आहेत. तसेच वादरपूर, मासिमपूर, पठारिया या भागातही खनिज तेल साठे आहेत. भारताच्या किनाऱ्याजवळ सागरी क्षेत्रात गाळाच्या प्रदेशात खनिज तेलाचे मोठे साठे मिळण्याची शक्यता आहे. गुजरातमधील अंकलेश्वर आसाममधील रुद्रसागर, मुंबई व रत्नागिरी साठे आढळले आहेत.

५) नैसर्गिक वायु : भारतात खनिज तेलाबरोबर नैसर्गिक वायुचे साठे सापडतात. ज्या ठिकाणी खनिज तेल सापडते अशाच ठिकाणी नैसर्गिक वायुचे साठे सापडतात. हे साठे आसाममधील नहरकटिया, बिहारमधील दामोदर खोरे, महाराष्ट्रात मुंबईकडील बॉम्बे हाय, या ठिकाणी वायु साठे आहेत. नैसर्गिक वायु मंडळाच्या मते सन १९८७ मध्ये भारतातील नैसर्गिक वायूचा एकूण साठा ५४१ शतकोटी घनमीटर इतका होता. याचे प्रमाण २००१ मध्ये ७५० शतकोटी घनमीटर इतका असल्याचा अंदाज आहे.

६) तांबे : लोखंडाच्या खाणींच्या जवळपास तांब्याच्या खाणी सापडतात. तांबे हा धातू शीघ्र वाहक असल्यामुळे विद्युतवाहक म्हणून तांब्याचा वापर केला जातो. युएनएफसी च्या मते भारतात १३९ द.श. टन तांब्याचे साठे आहेत. हे उत्पादन आंध्र प्रदेश, गुजरात, हरियाणा, कर्नाटक, महाराष्ट्र, मेघालय, ओरिसा, तामिळनाडू, उत्तराखंड व पश्चिम बंगाल या भागात तांब्याच्या खाणी आहेत.

७) अॅल्युमिनिअम : अॅल्युमिनिअम हा मऊ असा धातू आहे. औद्योगिक विकासासामध्ये हा धातू महत्वाचा आहे. या धातू पासून भाडी यंत्रसामुग्री संगणकाचे भाग इ. बनविले जाते. हा धातू बॉक्साईट पासून बनविला जातो. भारतात बॉक्साईट अनेक राज्यात जमिनिच्या कवचा खाली सापडते. याच्या खाणी महाराष्ट्र, कर्नाटक, झारखंड, आसाम, ओरिसा इ. भागात सापडतात.

अशा प्रकारे भारतात मुबलक प्रमाणात नैसर्गिक संसाधने उपलब्ध आहेत. पण या वापर ७४ वर्षात या नैसर्गिक साधनाचा वापर पर्याप्त प्रमाणात होणे अपेक्षित होते पण तसे होताना दिसत नाही.

शाश्वत विकास : कोणत्याही देशाला नेहमी भेडवसावनार प्रश्न म्हणजे विकास कसा करावयाचा? विकास केल्यानंतर तो कसा ठिकवून ठेवायचा? या प्रश्नातून शाश्वत विकासाची संकल्पना उदयास आली असे म्हणता येईल.

शाश्वत विकासाचा वेगवेगळा अर्थ काढला जातो. पण याचा अर्थ फार मोठा आहे. विकासाचा अर्थ औद्योगिक क्रांतीनंतर देशातील साधन सामग्रीचा वापर करणे अशाच लावला जात होता पण यामुळे मानसाच्या विकासांमुळे पर्यावणाच्या नैसर्गिक चक्रा मध्ये बाधा होत असल्याचे दिसून आले. विकासांमुळे कायम स्वरूपाचे नैसर्गिक

नुकसान झाल्यास या नुकसानीची किंमत मानवालाच द्यावी लागत आहे . या प्रक्रियेतून मानवाने शाश्वत विकासाची संकल्पना पुढे आल्याचे दिसते .

व्याख्या :

१) **बुडलॅंड अहवाल** : 'शाश्वत विकास म्हणजे असा विकास जो भविष्यकालीन पिढ्यांच्या त्यांच्या स्वतःच्या गरजा पूर्ण करण्याच्या क्षमतेची कोणतीही तडजोड न करता सध्याच्या गरजा पूर्ण करणे होय . '

२) **रेमॉड** : 'शाश्वत विकासासाठी अधिक वस्तुनिष्ठ आणि संभाव्यता मोजता येणारी कसोटी म्हणजे साधनसंपत्तीच्या आधाराची उत्पादकतेची व पूर्ण कार्यात्मकतेची चालू ठेवणे होय . '

या व्याख्या वरून एतकेच म्हणता येईल की शाश्वत विकासाची संकल्पना म्हणजे गरिबी, बेरोजगारी, आर्थिक श्रीमंती, सामाजिक अस्तिरथा, साधनाचा अतिरिक्त वापर, साधनाचा कमी वापर अशा अनेक अर्थाने शाश्वत विकासाची संकल्पना वापरली आहे .

थोडक्यात शाश्वत विकासाचा अर्थ म्हणजे नैसर्गिक पर्यावरणात कोणताही बदल न करता मानवाला त्याचे जीवन सुखमय करण्याचा प्रयत्न करणे होय .

संसाधने आणि शाश्वत विकास : शाश्वत विकासाचा एक भाग म्हणून संसाधनाचा वापर आणि विकास हा संबंध पाहिला जातो . अधिक साधनाचा वापर केला तर निसर्गाचे नुकसान होते तर अर्थव्यवस्थेत असंतुलन निर्माण होते हे नुकसान संसाधने कमी प्रमाणात वापर केला तरी ही होते . म्हणजे संसाधनाचा वापर म्हणजे पर्याप्त वापर होणे होय . त्यामुळे देशाच्या विकासात संसाधने आणि शाश्वत विकास फार महत्वाचा आहे .

भारतातील संसाधनाचा वापर

अ.नं.	संसाधने	१९५०-५१	२०००-०१	२०१९-२०
१	जमीन			
	एकूण भौगोलिक क्षेत्र	३२८.७३	३२८.७३	३२८.७३
	एकूण नोंदणी झालेले क्षेत्र	३२८.७३	३२८.७३	३२८.७३
	ओसाड जमीन	४७.५२	४१.२३	४४.०२
	जंगलाखालील जमीन	४०.४८	६९.८४	७१.८७
	कायमची कृषाखालील जमीन व चराऊ कुरणे	६.६८	१०.६६	१०.२६
	मशागतीयोग्य टाकाऊ जमीन	२२.९४	१३.६३	१२.२९
	पडीक जमीन	१७.४५	१०.२७	११.३१
	लागवडीखालील निव्वळ क्षेत्र	११८.७५	१४१.३४	१३९.५१
	एकापेक्षा अधिक वेळा लागवड केलेली जमीन	१३.१५	४४.००	५७.५५
	पिकाखालील एकूण क्षेत्र	१३१.८९	१८५.३४	१९७.५१
२	मासेमारी (लाख . टन मध्ये)	७५२	५६५६	१०७६२
		२०११-१२	२०१३-१४	२०१५-१६
३	खनिजे (मी . टन मध्ये)			
४	दगडी कोळसा (ला . टन मध्ये)	५३९.९५	५६५.७७	५७८.०३

५	खनिज तेल (एमसीएम मध्ये)	४७५५९ .००	३५४०७ .००	३१७३४ .००
६	लॉग्ड (ला .टन मध्ये)	१६८ .५८	१५२ .१८	१३९ .७३
७	तांबे (ला .टन मध्ये)	१६७	१७७	१६५
८	अॅल्युमिनियम (ला .टन मध्ये)	१२५८	११३०	१७६०

संदर्भ : अँगरिकल्व स्टॅटिस्टिकल गॅलान्स २०१९

वरिल टेबल वरून पाहिल्यास भारतात साधन संपत्तीचा वापर मोठ्या प्रमाणात वाढत आहे पण त्याचा विकासावर योग्य असा परिणाम होताना दिसत नाही .

२) उद्दिष्टे :

- १) देशातील विकासाचा अभ्यास करणे .
- २) विकासातील दोष दूर करण्यासाठीचे उपाय शोधणे .

३) संशोधन पद्धती

या संशोधन निबंधासाठी दुय्यम साधनाचा वापर केले आहे . यासाठी १९५० ते २०२० या काळातील देशातील वापरलेल्या संसाधन साधनाचा तुलनात्मक अभ्यास पद्धतीचा वापर करून अभ्यास केला आहे .

४) माहिती संकलण

या संशोधन निबंधासाठी सरकारी अहवालाचा वापर माहिती मिळविण्यासाठी केला आहे .या मध्ये सांख्यिकीय विभाग महाराष्ट्र शासन सांख्यिकीय विभाग भारत सरकार याच्या वार्षिक अहवालाचा वापर केला आहे .

५) निष्कर्ष :

भारतात नैसर्गिक संसाधने मुबलक प्रमाणात आहे पण या संसाधनाचा वापर योग्य प्रमाण होणे गरजेचे आहे . तो होताना दिसत नाही म्हणून देशाचा विकास हा संथ गतिने होताना दिसतो . यामुळे देशात अनेक समस्या निर्माण होताना दिसतात . जसे बेकारी बेरोजगारी विषमता इ .

६) समारोप :

भारत हा नैसर्गिक संसाधन असणारा जगातील एक महत्वाचा देश आहे . योग्य पद्धतीने संसाधनाचा वापर केला तर हा देश जगातील एक प्रगतशील देश होऊ शकतो .

७) संदर्भ सुची :

- १) महाराष्ट्राची आर्थिक पाहणी अर्थ व सांख्यिकी संचालनालय नियोजन विभाग महा .शासन मुंबई
- २) भारतीय अर्थव्यवस्था डॉ .देसाई डॉ .सौ .भालेराव निराली प्रकाशन
- ३) भारतीय अर्थव्यवस्था विकास व पर्यावरणात्मक अर्थशास्त्र डॉ .जी . एन .झामरे .पिंपळापुर अँड कं पब्लिशर्स नागपूर .
- ४) साधनसंपत्तीचे अर्थशास्त्र भोसले,काट,दामजी फडके प्रकाशन
- ५) अँगरिकल्व स्टॅटिस्टिकल गॅलान्स २०१९

भारतीय राज्यघटना आणि शाश्वत विकास

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भविष्य काळात हे ध्येय गाठण्याची मुदत २०१५ होती ती २०३० पर्यंत वाढवली आहे. इकून १७ ध्येय आहेत. आणि १६९ विशिष्ट ध्येय देण्यात आली आहेत. आपल्या भारतीय राज्यघटना मध्ये मुलभूत हक्क, मुलभूत कर्तव्य, राज्याच्या धोरणाच्या मार्गदर्शक तत्वे, दिली आहेत. तसे पाहता युनो, एम. के. गांधी, यांच्या विचारात काम, शिक्षण, सरकारी मदत, प्रसूतीसहाय्य, कामगारांना न्याय, शेती, पशु संवर्धन, पर्यावरण संरक्षण, वन्यजीव रक्षण अशा ठिकाणी 'शाश्वत विकास' ह्या संकल्पनेचा उदय १९९२ मध्ये ब्राझील ची राजधानी 'रिओ-डी-जेनेरिओ' मध्ये आयोजित करण्यात आलेल्या 'पृथ्वी' परिषदेत झाला. ह्या परिषदेत संयुक्त राष्ट्रांकडून पर्यावरण आणि विकास संबंधित दस्तावेज तयार केले गेले, त्यात 'पर्यावरण आणि विकास यांचे अत्यंत जवळचे नाते आहे' असे स्पष्ट करण्यात आले. सध्याच्या स्थितीत विकासाशी संबंधित जवळजवळ सर्वच क्रियाकलाप हे नैसर्गिक संसाधनांवर अवलंबून आहेत. ज्यामुळे, खनिज पदार्थ, जीवाश्म इंधने, वने, मृदा यासारख्या नैसर्गिक साधन संपत्ती अत्यंत वेगाने प्रभावित झालेल्या दिसून येत आहेत. वाढत्या शहरीकरणासाठी होणारी वनांची बेसुमार कत्तल, वाहनांच्या वाढत्या संख्येची इंधनांची गरज पूर्ण करण्यासाठी खनिज तेलांचा होणारा अपरिमित उपसा, या आणि अशा अनेक कारणांमुळे संसाधनांचे प्रमाण दिवसेंदिवस घटत चालले आहे. ज्या खनिज द्रव्यांच्या निर्मिती प्रक्रियेला लाखो वर्षे लागली, शाश्वत विकास याचाच प्रश्न येतो अशा अनुषंगाने शोध घेतला आहे. आपले संविधान केवळ भारताच्या नागरिकांना आपल्या अधिकारांनी सुरक्षित करते असे नाही, तर भारताच्या सीमेअंतर्गत समाविष्ट असणाऱ्या वन्य जीवांची तसेच वनक्षेत्रांची सुरक्षेची जबाबदारीही राज्यांवर सोपवते. ज्या 'शाश्वत विकास' संकल्पनेची चर्चा आज संपूर्ण जगात होत आहे.

शाश्वत विकास ध्येय (Goals)

(१) लैंगिक समानता (२) दारिद्र्य निर्मुलन (३) भूक निर्मुलन (४) आरोग्य (५) शिक्षण (६) शुद्धपाणी (७) स्वस्थ उर्जा (८) चांगल्या नोकऱ्या (९) नवीन उपक्रम पायाभूत सुविधा (१०) असमानता कमी करणे (११) शाश्वत शहरे शाश्वत समाज (१२) उपलब्ध साधनाचा वापर (१३) हवामान (१४) महासागर (१५) जमीन वापर (१६) शांतता, न्याय (१७) शाश्वत विकासाची भागीदारी 'यूनायटेड नेशन्स

शाश्वत विकासाचे आव्हान

"आता आपल्याला काही वेड्या लोकांची नक्कीच गरज आहे. कारण शहाण्या लोकांनी जगाची काय अवस्था करून ठेवली आहे ते बघा ? - जॉर्ज बर्नोड शॉ " विकासाच्या नावाखाली पर्यावरणची फार मोठी हानी केली आहे. जन्माला घातलं म्हणून जगतो. मरतो. पण पर्यावरणाची हानी मोठ्या प्रमाणात करतो.

गेल्या ४५ कोटी वर्षांपासून ६ वेळा विनाशचा, प्रलयाच, सामना केला. प्रत्येक वेळी जैवविविधता, नष्ट केली. आपण जि आता बघतो ती केवळ ०.०१ % शिलक ९९.९९% जैवविविधता ४५ कोटी वर्षांत ६ वेळा नष्ट झाली. सध्या १. % जैवविविधता ७० % जैवविविधता १२ देशात विभागली आहे. त्यात भारत आहे. 'यूनायटेड

नेशनस डेव्हलपमेंट प्रोग्रॅम'ने (UNDP) अधोरेखित केलेल्या शाश्वत विकासाच्या १७ मुद्द्यांपैकी 'शाश्वत शहरे' हा एक महत्वाचा विषय मानला जातो. यात शहरांचा आर्थिक विकास होत असताना शहरातील कार्बन उत्सर्जन कमी करण्याकडे लक्ष देणे, सक्षम सार्वजनिक वाहतूक व्यवस्था निर्माण करणे, रस्ते सुरक्षा आणि झोपडपट्ट्या निर्मूलन करणे, पर्यावरण, सांस्कृतिक आणि नैसर्गिक वारसा यांचे जतन करणे यांचा समावेश आहे. यामुळे साहजिकच शहराचा विकास शाश्वत असावा अशी इच्छा असेल, तर शहराचा विकास आराखडा तसा बनविला पाहिजे. मागील पाच वर्षांत महाराष्ट्रातील महत्वांच्या शहरांचा (मुंबई, नागपूर, पुणे, नाशिक, औरंगाबाद) विचार केला, तर या सर्व शहरांचे विकास आराखडे काही ना काही कारणाने गाजत राहिले. मुंबई-पुण्यात 'वाढीव चटई क्षेत्र निर्देशांकामुळे' (एफएसआय) तर नाशिकमध्ये 'रहिवासी' क्षेत्राच्या वाढामुळे हे आराखडे चर्चेत राहिले. औरंगाबाद आराखडा तर अनेक वर्षे प्रलंबित म्हणून चर्चेत राहिला. या शहरांचे विकास आराखडे कसे आहेत, मान्यताप्राप्त विकास आराखड्याप्रमाणे या शहरांनी किती विकास केला आणि हा विकास शाश्वत आहे का? राज्य शासनाची भूमिका शाश्वत विकासाच्या बाबतीत काय होती आणि त्याचा काय परिणाम शहरांवर झाला याचा आढावा घेऊ.

अमेझॉन फॅशन सेल - १९ ते २३ जून

विकास करताना पर्यावरणाचे रक्षण करणे म्हणजे तारेवरची कसरत असते. अर्थातच विकासाची व्याख्या पुरेशी व्यापक असेल, तर दोन्हीचा समतोल राखणे सोपे जाते. गेल्या पाच वर्षांतील विकास पाहता पुण्यातील टेकडी फोडून रस्ता बनविण्याचा प्रस्ताव, मुंबईतील मेट्रो कारशेडसाठी आरे वसाहतीतील पेटलेला वाद, खारफुटीच्या जंगलाची हानी, मुंबईचा समुद्रकिनारी रस्ता (कोस्टल रोड), तर नाशिकमधील विकास आराखड्यात ओतलेला 'पिवळा' रंग अर्थात बांधकामाच्या नावाखाली शेते कमी करून वाढविलेले रहिवासी क्षेत्र हे सर्व प्रकल्प विकास नाहीत तर भकास भविष्याची सुरुवात आहेत. निसर्गाची हानी करून कधीही विकास साध्य होत नाही. हा सर्व आटापिटा रस्ते अथवा बांधकामे यासाठी चालू आहे. या सर्व शहरांच्या आराखड्यात मुळातच हरित पट्टे अथवा हरित क्षेत्रे कमी असताना, अस्तित्वातील हरित क्षेत्र संवर्धन करणे आवश्यक आहे. ही महानगरपालिकांची जबाबदारी आहे आणि त्याचे उल्लंघन होत असल्यास नगरविकास खात्याने शहरांची योग्य ती कानउघडणी करणे आवश्यक होते. याशिवाय नव्याने निर्माण झालेल्या पुणे आणि नाशिक विकास प्राधिकरणासमोर रस्ते आणि बांधकामे यांचा पुरवठा करतानाच नैसर्गिक संपत्तीचे संवर्धन करण्याची मोठी जबाबदारी आहे. मग प्रश्न असा येतो की, हे भव्य रस्ते प्रकल्प झाले नाहीत तर वाहतुकीचे काय? याला उत्तरही शाश्वत विकासाच्या मुद्द्यांमध्ये दिले आहे- ते म्हणजे 'सक्षम सार्वजनिक वाहतूक'!

मोठ्या शहरातील वाढती लोकसंख्या आणि वाहतूक यांची सांगड घालण्यासाठी पुणे, नागपूर आणि मुंबई येथे मेट्रोची कामे गेल्या पाच वर्षांत वेगाने होत असल्याचे चित्र आहे. परंतु या तिन्ही शहरांत मेट्रो करताना, त्याच जोडीने बस सेवा सक्षम करण्याचे शहराचे प्रयत्न दुबळे पडले आहेत. पुण्यात एकीकडे पीएमपीएमएलची दुरवस्था आणि त्याच जोडीने बीआरटी मार्गाची महानगरपालिकेकडून हेळसांड होत असल्याने एकंदर सार्वजनिक वाहतूक सक्षम होणार की नाही यावर प्रश्नचिन्ह आहे. अर्थातच विकास आराखड्यात बीआरटी मार्ग अधोरेखित केले आहेत; परंतु ते सक्षम केले नाहीत तर मेट्रो होऊन देखील एकंदर वाहतुकीचे चित्र बदलणार नाही. अफाट रस्ता रुंदी आणि बेसुमार उड्डाणपूल यांचे उदाहरण म्हणजे पिंपरी चिंचवड! रुंद रस्ते आणि उड्डाणपूल म्हणजे 'विकास' अशी व्याख्या या शहराने केली असली तरीही ८-१० लेनचे रस्ते असलेल्या गुरुग्रामची दररोजची वाहतूक

कोंडी पाहता, पिंपरी चिंचवडमधील रस्तेदेखील लवकरच वाहनांनी व्यापले जातील यात शंका नाही. येथील मोटारगाड्यांसाठी रुंद पण पदपथ नसलेले रस्ते म्हणजे विकास नसून अशाश्वततेचे उदाहरण आहे.

मुंबई मध्ये थोडे वेगळे चित्र आहे. मेट्रोचे प्रवासी वाढावेत म्हणून मुंबई महानगर विकास प्राधिकरण 'वाहतूक कोंडी शुल्क' लागू करण्याच्या विचारात आहे. बेस्टचे बस भाडे कपात करण्याचा निर्णय देखील चांगला असून यासर्वांचा शहराच्या विकासावर नक्कीच चांगला परिणाम होईल. नागपूरमध्ये देखील मेट्रोचे काम पूर्ण झाल्याचे संकेत असले तरीही या मेट्रोच्या खांब्याच्या खालच्या मजल्यावर रुंद रस्ते बांधून शहराने आपल्याच मेट्रोला जातिवंत शत्रू निर्माण केला आहे. स्वतःचे वाहन वापरायची प्रशस्त सोय असताना मेट्रोने कोण जाईल का? यामुळे मेट्रो बांधून 'विकास' झालेल्या 'नागपूर' मध्ये खरा विकास काँक्रीटच्या जंगलाचा झाला आहे, शहराचा नाही! हे करताना देखील बससेवा सक्षम व्हावी यासाठी शहराचे प्रयत्न अत्यंत तोकडे पडले आहेत. चालू बस सेवा अत्यंत मर्यादित असल्याने मेट्रोच्या छत्राखाली चालवून वाहतुकीचा सर्वांगीण विकास करणे शक्य असताना देखील यासाठी पुरेसे प्रयत्न केले गेले नाहीत. नाशिकमध्ये अनेक वर्षे प्रलंबित असलेला बससेवेचा प्रश्न सुटत आहे आणि शहरासाठी सार्वजनिक बससेवेचा शुभारंभ लवकरच होऊ शकतो.

औरंगाबादमध्ये देखील सार्वजनिक बस सेवा आणण्याचे प्रयत्न होताना दिसत आहेत. अर्थातच नागपूर, नाशिक आणि औरंगाबाद शहरांत होणाऱ्या या घडामोडीत राज्य सरकारचा वाटा असणे आवश्यक आहे. अन्यथा शहराचा अर्थसंकल्प छोटा असल्याने भविष्यात, या बससेवेसाठी पुरेशी आर्थिक गुंतवणूक शहर करू शकेल का हा प्रश्न आहे. दक्षिणेकडील -कर्नाटक, तमिळनाडू राज्यांत शहरातील बससेवेसाठी राज्यशासन अर्थपुरवठा करते. आतापर्यंत महाराष्ट्रात असे प्रयत्न केले गेले नसले, तरीही येणारे सरकार असे प्रयत्न करणार का हा कळीचा मुद्दा आहे. सार्वजनिक वाहतूक व्यवस्था बळकट केली तरीही नागरिकांना खाजगी वाहने वापरण्यापासून परावृत्त करण्याचे अवघड काम आव्हान शहरांना पेलवायचे आहे. म्हणजेच कार्बन उत्सर्जन कमी करण्यासाठी कडू औषध घ्यावेच लागेल. हे कडू औषध म्हणजे पार्किंग शुल्क, वाहतूक कोंडी शुल्क यासारखे प्रकल्प राबविणे. गेल्या पाच वर्षांत या पाचही शहरात पार्किंग धोरण अस्तित्वात आले. यातील जमेची बाजू म्हणजे या सर्व शहरांच्या पार्किंग धोरणासाठी राज्य शासन प्रयत्नशील होते. परंतु स्थानिक पातळीवरील विरोध लक्षात घेता याची अंमलबजावणी करण्याचे धाडस कोणीही करू शकले नाही. यातही आता राज्यशासनाने लक्ष घालायची गरज आहे. रस्ते सुरक्षा हा देखील महत्वाचा घटक असला तरी यावर राज्य अथवा शहर - कुठल्याही पातळीवर ठोस उपाययोजना झाल्याचे दिसले नाही. सुधारित मोटरवाहन कायदा देखील राज्यपातळीवर केवळ चर्चिला जात आहे.

शहर विकासाच्या व्याख्येत सामाजिक विकासही तितकाच महत्वाचा असतो. सर्व शहरे गरिबी आणि झोपडपट्टी निर्मुलन यांस प्राधान्य देत असल्याचे गेल्या पाच वर्षांतील चित्र आहे. अनेक पुनर्वसन प्रकल्प सर्व शहरांनी आपापल्या परीने केले. परंतु आजही परवडणारी घरे शहराच्या मध्यवर्ती भागात पुरविण्यात शहरे कमी पडत आहेत. यासाठी नव्याने येणारे राज्यशासन काही करेल का याची उत्सुकता आहे. कुठल्याही शहराचा विकास करण्यासाठी शहर अनेक अहवाल बनविते; परंतु यातील सर्वात महत्त्वपूर्ण अहवाल म्हणजे 'विकास आराखडा'. विकास आराखड्यात प्रस्तावित रहिवासी क्षेत्र, रस्ते, सार्वजनिक जागा यांचा प्रामुख्याने समावेश असतो. याचसोबत विकास नियंत्रण नियमावली हा बांधकामासंबंधित महत्वाचा दस्तावेज असतो. राज्य शासनाने या विकास नियंत्रण नियमवलीचे सुसुत्रीकरण करण्याचा प्रयत्न केला खरा; परंतु एकंदरित पाहता ते फक्त सर्व

नियमावलीचे एकत्रीकरण झाले आहे. याशिवाय राज्यसरकारने शाश्वत विकासासाठी ग्रीन बिल्डींग धोरण आणि नागरी वाहतूक धोरणाचे मसुदे जारी केले परंतु दीर्घ कालावधीनंतर देखील ही धोरणे अंतिम होऊ शकली नाहीत. पर्यावरणाचा विचार करणारे प्लास्टिक विरोधी चळवळ देखील काही कालावधीनंतर थंडावली. हे सर्व करताना टाऊन प्लॅनिंग स्कीम्सच्या आणि लोकल एरिया प्लॅन द्वारे रस्ते, घरे आणि स्पेसेस यांची आखणी करणे आवश्यक आहे.

एकंदरित काय, की गेल्या पाच वर्षांत राज्यसरकारचा कल शाश्वत विकासाकडे दिसला परंतु काही ठोस उपाययोजना अथवा शहरांवर कडक निर्बंध लादण्याची उदाहरणे आढळली नाहीत. आपल्या तंदुरुस्त भविष्यासाठी आपण निवडून देऊ इच्छिणारा पक्ष शाश्वत उपाययोजना करणार आहे का हे तपासून मत देण्याची गरज आहे. अन्यथा प्रदूषित शहरे, नद्या, तापमानवाढ, वाहतूक कोंडी आणि ताण, महागलेली घरे, अशा संकटांना तोंड द्यायची तयारी नागरिकांनी ठेवावी.

संदर्भ

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के. एम. मुंशी के अनूदित पौराणिक उपन्यास 'बंसी की धुन' में चित्रित
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प्रस्तावना :

प्राकृतिक संसाधनों में वे संसाधन होते हैं, जो मानव के कार्यों के बिना मौजूद हैं। इस सृष्टि में सूरज का प्रकाश, वायु मंडल, जल, थल, इस थलो के साथ साथ सारे सब्जियों, फसल और पशुओं के जीवन, प्राकृतिक रूप से प्राप्त पदार्थ आदियों का समावेश प्राकृतिक संसाधनों की सूची में होता है। संसाधन एक ऐसा स्रोत है, जिसका उपयोग मानव अपनी इच्छाओं की पूर्ति के लिए करता है और इससे वह अपने जीवन का विकास करता रहता है। इस विकास के साथ-साथ प्रकृति से मानव को जीवन जीने की उमंग मिलती है।

प्राकृतिक संसाधन मानव जीवन एवं विकास हेतु आवश्यक है वह प्राकृतिक संसाधनों के आधार से ही अपना संसार निर्माण करता है। मानव के विकास में भूमि, जल, वन, वायु, खनिज के बिना कोई भी कृषि का विकास नहीं हो सकता है। कृषि के विकास के बिना मनुष्य का विकास अधूरा है। प्राकृतिक संसाधन मानव की आवश्यकता और इच्छाओं की पूर्ति करती है। इसके बारे में जेम्स फिशर कहते हैं कि "संसाधन वह कोई भी वस्तु है, जो मानवीय आवश्यकताओं और इच्छाओं की पूर्ति करती है। इससे यह स्पष्ट होता है कि मानव अपनी आवश्यकता और इच्छाओं की पूर्ति के लिए प्राकृतिक साधन संपत्ति का उपयोग करता है। जब गोकुल में गोकुलवाशियों बस्तियों में महावन से रात्रि के समय हजारों की संख्या में भेड़ी आने लगे और वे छोटे बच्चों एवं गायों के बछड़ों को भक्षण करने लगे। इस उपद्रव से बचने के लिए गोकुलवासी गोकुल से वृंदावन जाते हैं। तब वे वहाँ की नैसर्गिक साधन-संपत्ति से अपना जीवन सुखमय बनाने का प्रयत्न करते हैं, इस कारण उन्हें वृंदावन स्वर्ग-सा प्रतीत है। इसके बारे में लेखक प्रस्तुत उपन्यास में लिखते हैं कि "वहाँ की जलवायु, आरोग्य की दृष्टि से अति उत्तम थी। इसलिए पशुधन भी खूब बढ़ाने लगा और ढोर भी काफी हल पुष्ट हो गये। सभी लोग दिन-भर खूब परिश्रम करते और रात को मिठी नींद सोते।"¹ इससे यह प्रतीत होता है कि प्राकृतिक संपत्ति से गोकुलवाशियों का पशुधन विकसित होता है, इनके पशुओं का स्वास्थ्य अच्छा होता है। सब प्राकृतिक सुसंपन्नता के कारण वे आर्थिक सुसंपन्न बनते हैं। मनुष्य को सुखी जीवन यापन के लिए अच्छे जल वायु की आवश्यकता होती, इनमें यदि शुद्धता होती है तो मानव का आरोग्य उत्तम रहता है। वह आनंदी, उत्साही रहता है। वह मानसिक दृष्टि से यदि प्रसन्न हो, तो वह प्रसन्न मानसिकता से उत्तम परिश्रम करता रहता है। इस कारण उसका आरोग्य उत्तम रहेगा। इसलिए नैसर्गिक साधन संपत्तियों को मानव दूषित न करे। इसका संकेत मुन्शीजी मानव को देते हैं। नैसर्गिक साधन-संपत्ति ही शुद्धता को अबाधित रखना और उसका संरक्षण करना जरूरी है। प्राकृतिक संहार न हो। इसके बारे में मानव ने जागृत और संवेदनशील रहना जरूरी है।

मनुष्य आवश्यक चीजे बनाने-के लिए नैसर्गिक साधन-संपत्तियों का इस्तमाल करता है। प्राकृतिक संसाधनों में विविध संसाधनों का समावेश रहता है, उन संसाधन में वृक्ष यह एक महत्वपूर्ण संसाधन है। इसके बिना मनुष्य का विकास अधुरा-सा प्रतीत होता है। वृक्ष से मानव मानव को विविध घटक मिलते हैं। इन घटकों का इस्तमाल मानव अपने लिए विविध उत्पादों के निर्माण के लिए करता रहता है। गोकुल से गोकुलवासी वृंदावन आते हैं तब वे अपनी प्रगति के लिए लगनेवाले चीजों को विकसित करने में लग जाते हैं। जैसे कि “वसन्त ऋतु अब शेष हो चली थी। सेमल के वृक्षों पर नये-नये पुष्प फूट आये थे। वृंदावन में आये नवागन्तुक घर बाँधने, नयी गाड़ीया बनाने आदि कार्यों में जुट गये थे।”² मानव प्राकृतिक संसाधनों की निर्मिती करता है। इस संपदाओं का योजनाबद्ध और विवेकपूर्ण उपयोग किया जाए तो उनसे अधिक दिनों तक लाभ उठाया जा सकता है। मानव विभिन्न प्राकृतिक साधनों का उपयोग अपनी प्राथमिक आवश्यकता की पूर्ति के लिए करता आ रहा है। प्रकृति के इन उपहारों का उपयोग बुद्धिमानी से करने से मानव का जीवन समृद्ध होता है। पेड़ मानव को घर निर्माण के लिए उपयोग में आनेवाला प्राकृतिक घटक है। पेड़ यह जंगल में रहनेवाले बहुत सी जन जातियों के लिए प्राकृतिक घर होता है। पेड़ यह मानव के लिए छत, दवा और अर्थव्यवस्था आदि दृष्टियों से अच्छा साधन है। लेकिन इसका योग्य ढंग से उपयोग करना आवश्यक है, वैसा ही उन वृक्षों का संरक्षण करना भी महत्वपूर्ण है। वृक्षों के प्रति आदरता रखना जरूरी है। इसका संकेत मुन्शीजी करते हैं। जैसे कि “वृक्षों के प्रति कृष्ण को उतना ही अनुराग था, जितना अपने प्रिय मित्रों के प्रति कभी-कभी तो मित्र वृंद को छोड़कर वह पुरातन वृक्षों की छाया तले भ्रमण और विश्राम करते हैं। उनके सानिध्य में उन्हें अपूर्व शांतिका अनुभव होता है।”³ वृक्ष हमें इतना सब कुछ देता है, तो हमारा फर्ज है की उसके प्रति आदरता, प्रेम, सम्मान रखना जरूरी है। इस वृत्ति से ही वृक्षों का संरक्षण हो सकता है। इसका मार्गदर्शन मुन्शीजी करते हैं क्योंकि वृक्ष या उससे मिलनेवाली लकड़ी इस प्राकृतिक संसाधनों को नवीनीकृत करने में समय लगता है।

मनुष्य के जीवन में प्रकृति का बड़ा महत्व है। प्राकृतिक संसाधनों के आधार लेकर मनुष्य अपना जीवन समृद्ध करता है। इसमें कोई शंका नहीं है। इसलिए इसका आदर करना महत्वपूर्ण है। इसके बारे में मुन्शीजी कृष्ण के माध्यम से समाज को मार्गदर्शन के तौर पर कहते हैं कि “हरी हरी घास तथा शीतल छाया वाले वृक्षों से हरे भरे तथा सुंदर पंखोवाले पक्षियों और रमणीय झरनों से सुशोभित गोवर्धन पर्वत की भी मैं आदरतापूर्वक पूजा करता हूँ।”⁴ इस प्रकार हमें प्रकृति से मिलनेवाले विविध घटकों के स्रोतों का सम्मान करना आवश्यक है। इस कारण इन स्रोतों की वृद्धि भी हो सकती है। इस प्रकृति में जब तक संतुलन है तब तक मनुष्य जीवन में भी संतुलन होता है। जब प्रकृति का संतुलन बिगड़ेगा तब हमारे जीवन का संतुलन डगमगाने लगेगा। यदि नैसर्गिक संपत्ति का उपयोग अयोग्य नीति के जरीये आवश्यकता से ज्यादा किया तो इस संपत्ति की क्षति हो सकती है। इस क्षति से मानव का जीवन मूल्यहीन हो सकता है। इस बात का संकेत मुन्शी जी कृष्ण के माध्यम से मानव को करते हुए मानव को कहते हैं कि “इन प्रकृति के (गोवर्धन पर्वत) सम्मान में मैं उत्सव मनाना चाहता हूँ। ये हमारे नहीं हम इनके। इन्हीं के कारण तो हम देवताओं के समान निर्भय बने हैं। यदि ये न रहे तो हमारा कोई मूल्यहीन न रहे।”⁵ इससे यह प्रतीत होता है की प्रकृति का मानवी जीवन में बड़ा महत्व है। यह मानव का जीवन विकसित करता है। प्रकृति के अस्तित्व के बिना मनुष्य का अस्तित्व शून्य है। इस बात की चेतावनी मुन्शीजी मानव को देते हैं। प्रस्तुत उपन्यास में कृष्ण गोकुलवाशियों को इंद्रपूजा के

अलावा गोवर्धन पर्वत की पूजा करे इस प्रकार का आवाहन करते हैं। क्योंकि वह हमारे जीवन का एक महत्वपूर्ण भाग है। मानव ने आज जितनी विविध क्षेत्रों में प्रगति की है। इस प्रगति में प्रकृति का बड़ा हाथ है। इसके बिना मनुष्य का सर्वांगीण विकास असंभव है। इसलिए प्राकृतिक संसाधनों का योग्य ढंग से इस्तमाल करना अनिवार्य है। प्रकृति का योग्य ढंग से सम्मान करना आवश्यक है। इसलिए प्रकृति का संरक्षण, संवर्धन करना मानव का आद्य कर्तव्य है।

जब कोई प्राकृतिक आपत्ति आ जाती है तब प्रकृति ही उस आपत्ति से सजीव को बचाने का प्रयत्न करती है। जब वृंदावन में वर्षा की बड़ी आपत्ति आ जाती है तब गोकुलवाशियों को गोवर्धन पर्वत अपनी गुफा में सहारा देकर उनका रक्षण करता है। जैसे कि “गोवर्धन को उठाकर कृष्ण ने जो आश्रय स्थान ढूँढ़कर निकाला था, वहाँ गोप-गोपिकाएँ अपने अपने बालकों तथा पशुओं को लेकर शीघ्रता से पहुँच गये। इस प्रकार पर्वत का रक्षण मिलने पर गोप-गोपियाँ निश्चित हुए।”⁶ इस प्रकार प्रकृति मनुष्य का रक्षण करती है। मनुष्य का मनुष्य पर से ज्यादा विश्वास इस प्रकृति पर होता है। प्रकृति के रक्षण से मनुष्य, पशु, पक्षि निश्चित होते हैं। इसलिए हर एक सजीव के जीवन में सृष्टि का अनन्यसाधारण योगदान है। सृष्टि के हर एक सजीव के जीवन में सृष्टि का बड़ा महत्व है। इसके साथ साथ मानव के जीवन के सर्वांगीण विकास का प्राकृतिक संसाधन एक महत्वपूर्ण अंग है। इसके बिना मानव का विकास असंभव है। इसलिए प्राकृतिक संसाधनों का संरक्षण एवं संवर्धन करना आवश्यक है।

मुन्शीजी ने नैसर्गिक घटकों का यदि अयोग्य ढंग से उपयोग करने से सब सजीवों का जीवन निंदनीय बन सकता है। इस बात को दर्शाते हुए विवेच्य उपन्यास में प्रादुर्गोकरण और विकास से निर्माण प्राकृतिक समस्याओं का अंकन किया है। त्रेता युग में मधु नामक रक्षस ब्रजभूमि पर राज्य करता था। “जब उसका प्रभाव अधिक बढ़ गया, तब इस भूमि को मधुवन कहा जाने लगा। मधु ने जंगलों को साफ कराया और यमुना किनारे एक नगर की स्थापना की।”⁷ इस प्रकार मनुष्य ने गावों और शहरों का निर्माण किया है। इस प्रादुर्गोकीकरण और शहरीकरण के नीति में मनुष्य के बढ़ती स्वार्थता और अयोग्य नीति के विचारों के कारण जंगलों का बड़ा संहार हुआ है। इस कारण “अकाल का प्रकोप हुआ, नदी-नाले सूख गये, यमुना का नीर भी घट गया, ब्रज के सुंदरग्राम गोकुल की दशा शोचनीय बनी थी। कुओं का पाणी दुष्प्राप्य बन गया था। जल के बिना गाये, अस्थिपंजर मात्र रह गयी थी। गोप गोपिकाओं के मुख पर से हंसी जाती रही थी। नृत्य संगीत वे भूल से गये थे।”⁸ इस तरह शहरीकरण के निर्माण के विचारों के कारण उपर्युक्त समस्याओं का सामना मनुष्य को करना पड़ता है। गावों और शहरों के निर्माण के लिए यदि जंगलों की कटाई प्रमाण से ज्यादा की जाय तो वर्षा (बारीश) का प्रमाण कम होगा इस कारण नदी नाले सूखेंगे और इस अकाल के प्रकोप के कारण मनुष्य का जीवन दर्दनाक और शोचनीय बन सकता है। इस बात का संकेत मुन्शीजी करते हैं। इसलिए मनुष्य ने अपना सर्वांगीण विकास करते समय प्रकृति के संतुलन का भी ध्यान रखना जरूरी है। उसके बिना मनुष्य जीवन नगण्य है।

निष्कर्ष:

मुन्शीजी के पौराणिक अनूदीत उपन्यास ‘बंसी की धुन’ में मुन्शीजी ने प्राकृतिक संसाधन और मानवी जीवन का संबंध दर्शाया है। मनुष्य के अयोग्य विचार स्वार्थधता के कारण प्रकृति का यदि बड़ा संहार हुआ तो

मनुष्य का अस्तित्व धोके में आ जायेगा इसलिए मानव ने अपने विकास के साथ साथ प्राकृतिक संसाधनों का रक्षण करना जरूरी है। साथ-साथ उसका संवर्धन करना भी महत्वपूर्ण है। यह मानव का अद्यकृत्यव्य है इस बात का ज्ञान मनुष्य को होना जरूरी है। इसका संकेत मुन्शी जी मनुष्य प्राणी को दिया है।

संदर्भग्रंथ :

1. कन्हैयालाल माणिकलाल मुन्शी 'बंसी की धुन, अनुवादक- ओंकारनाथ शर्मा, राजकमल प्रकाशन, नई दिल्ली, पृ.100.'
2. वही पृ.101
3. वही पृ.111
4. वही पृ.127
5. वही पृ.127
6. वही पृ.133
7. वही पृ.9
8. वही पृ.31



नाशिक जिल्ह्यातील आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा एक विशेष अभ्यास

डॉ. मंजुषा अर्जुन मुसमाडे

अर्थशास्त्र विभाग प्रमुख, नोरोसजी वाडिया महाविद्यालय, पुणे.

प्रा. महेंद्र रामचंद्र खंबाईत

संशोधक विद्यार्थी

पु.जि.शि.म. प्रो. रामकृष्ण मोरे कला, विज्ञान व वाणिज्य महाविद्यालय, आकुर्डी, पुणे.

गोष्टवारा :-

नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' हा आदिवासी भाग नैसर्गिक संसाधनांनी समृद्ध असा हा भाग आहे. आदिवासी भागात विविध ठिकाणी नैसर्गिक पर्यटन स्थळे आहेत. त्यात नैसर्गिक धबधबे, नैसर्गिक नद्यांचा त्रिवेणी संगम, गरम पाण्याचे झरे, घाटमाथे, थंड हवेचे ठिकाणी, पर्वतरांगा, उंच पर्वत शिखर, नैसर्गिक वने व जंगल पर्यटन इत्यादी आदिवासी नैसर्गिक पर्यटनस्थळे आहेत. तसेच 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळे आजही दुर्लक्षित आहेत. या आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या विकासात अनेक सामाजिक, आर्थिक व राजकीय समस्या आहेत. त्यामुळेच आदिवासी शेतीला पूरक व्यवसाय म्हणून आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा विकास झालेला नाही. त्या समस्यांचा आर्थिक दृष्टीकोनातून अभ्यास करून पर्यटन स्थळांच्या विकासासाठी उपाययोजना सुचविणे हा या संशोधन शोधनिबंधाचा महत्वाचा उद्देश आहे.

बीजशब्द :- नैसर्गिक संसाधने, नैसर्गिक पर्यटन, आदिवासी नैसर्गिक पर्यटन,

प्रस्तावना :-

नाशिक जिल्ह्यातील बहुतांश भाग हा 'आदिवासी' भाग म्हणून ओळखला जातो. नाशिक जिल्ह्यातील हा आदिवासी भाग नैसर्गिक संसाधनांनी समृद्ध असा हा भाग आहे. आदिवासी भागात विविध ठिकाणी नैसर्गिक पर्यटन स्थळे आहेत. त्यात नैसर्गिक धबधबे, नैसर्गिक नद्यांचा त्रिवेणी संगम, गरम पाण्याचे झरे, घाटमाथे, थंड हवेचे ठिकाणी, पर्वतरांगा, नैसर्गिक वने व जंगले पर्यटन इत्यादी आदिवासी नैसर्गिक पर्यटन स्थळे आहेत.

यांपैकी पेठ, सुरगाणा, त्रंबकेश्वर, कळवण बागलाण व इगतपुरी या आदिवासी तालुक्यात विविध ठिकाणी नैसर्गिक पर्यटन स्थळे आहेत. परंतु ते आजही दुर्लक्षितच आहेत. आदिवासी तालुक्यात नैसर्गिक पर्यटन स्थळांच्या विकासाबाबत सामाजिक, आर्थिक व राजकीय दृष्ट्या उदासीनता दिसून येते.

नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळे आजही दुर्लक्षित आहेत. तसेच या आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या विकासात सामाजिक, आर्थिक व राजकीय समस्या आहेत. त्यामुळेच आदिवासी शेतीला पूरक व्यवसाय म्हणून आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा विकास झालेला नाही.

संशोधन समस्या निवडीचे कारण :-

नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळे आजही दुर्लक्षित आहेत. प्रस्तुत संशोधनासाठी नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी तालुक्यात विविध ठिकाणी नैसर्गिक धबधबे, नद्यांचा संगम, गरम पाण्याचे झरे, घाटमाथे, थंड हवेचे ठिकाणी, पर्वतरांगा, नैसर्गिक वने व जंगल पर्यटन इत्यादी आदिवासी नैसर्गिक पर्यटन स्थळे आहेत. म्हणूनच या दोन आदिवासी तालुक्यांची निवड केली आहे. म्हणूनच "नाशिक जिल्ह्यातील आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा एक विशेष अभ्यास" या संशोधन विषयाची निवड संशोधनासाठी केली आहे.

संशोधनाची उद्दिष्टे :-

- १) नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा अभ्यास करणे.
- २) नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या समस्यांचा अभ्यास करणे.
- ३) आदिवासी शेतीला पूरक व्यवसाय म्हणून नैसर्गिक पर्यटन स्थळांचा अभ्यास करून नैसर्गिक पर्यटन स्थळांच्या विकासासाठी उपाय-योजना सुचविणे.

संशोधनाची गृहितके :-

- १) नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळे आजही दुर्लक्षित आहेत.
- २) नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या विकासात सामाजिक, आर्थिक व राजकीय समस्या आहेत.
- ३) आदिवासी शेतीला पूरक व्यवसाय म्हणून आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा विकास झालेला नाही.

संशोधनाची पद्धती :-

प्रस्तुत संशोधनात दुय्यम सामग्रीचा आधार घेण्यात आला आहे. या दुय्यम साधनसामग्री मध्ये विविध संदर्भग्रंथ, प्रकाशित साहित्य, विविध लेख व इंटरनेट इत्यादीद्वय्यम साधनांचा उपयोग करण्यात आला आहे.

'पेठ-सुरगाणा' तालुक्यातील आदिवासी भागातील नैसर्गिक पर्यटन स्थळे व त्या पर्यटन स्थळांच्या विकासातील समस्या :-

नाशिक जिल्ह्यातील 'सुरगाणा' हा संपूर्ण आदिवासी तालुका आहे. नाशिक पासून सुरगाणा तालुक्याचे ठिकाण साधारण १०० कि.मी. आहे. तर नाशिक पासून पेठ तालुक्याचे ठिकाण साधारण ५८ कि.मी. आहे. डोंगर-दरी, वनसंपत्ती, नैसर्गिक धबधबे, नैसर्गिक साधनांनी समृद्ध असे तालुके म्हणजे 'पेठ-सुरगाणा' होय.

'पेठ-सुरगाणा' तालुक्यातील नैसर्गिक पर्यटन स्थळे :-

'सुरगाणा' तालुक्यात भिवतास धबधबा- (केळावण), केम पर्वत थंड हवेचे ठिकाण, व तातापाणी - गरम पाण्याचा झरा (उंबरपाडा, पिंपळसोंड) तर 'पेठ' तालुक्यात बिलकस धबधबा (बिलकस), बुरुंडी धबधबा (पाहुचीबरी) व नार-पार नदींचा संगम (झरी बोरदा, बेजावड) या ठिकाणी नैसर्गिक पर्यटन स्थळे आहेत.

'सुरगाणा' तालुक्यातील पूर्व भागात 'केम'चा डोंगर हे तालुक्यातील सर्वात उंच ठिकाण आहे. तसेच सुरगाणा तालुक्यात केळावण गावाजवळ भिवतास नावाचा धबधबा आहे. सुरगाणा तालुक्यातील उंबरपाडा, पिंपळसोंड जवळील 'तातापाणी' येथे 'नैसर्गिक गरम पाण्याचा झरा' आहे.

'पेठ' तालुक्यातील पाहुचीबरी गाव जवळील 'बुरुंडी' हा धबधबा आहे. तसेच 'पेठ' तालुक्यातील बिलकस गाव जवळील 'बिलकस' हा धबधबा आहे. आणि झरी बोरदा व बेजावड गावाजवळ 'नार-पार' नदींचा संगम आहे. या ठिकाणी नैसर्गिक पर्यटन स्थळे आहेत.

नैसर्गिक धबधबे :-भिवतास धबधबा (केळावण), बिलकस धबधबा (बिलकस), बुरुंडी धबधबा (पाहुचीबरी)

'सुरगाणा' तालुक्यातील 'भिवतास' हा धबधबा केळावण, खोकारविहीर, अंबोडा या परिसरात आहे. तेथे नदीच्या पाण्यातून ढसळणारा धबधबा असून हा धबधबा सुमारे १००० फुट खोल खाली कोसळतो. परिसरात निसर्गरम्य वातावरण असल्याने प्रसन्न वाटते. त्यामुळे गुजरात आणि महाराष्ट्रातील अनेक पर्यटक भेटी देत असतात. असे असले तरी हा धबधबा पर्यटकांसाठी सुरक्षित नाही. धबधबाच्या दोन्ही बाजूंना प्रचंड खोल दरी आहे. त्यामुळे जर एखाद्याचा तोल गेला तर त्यास वाचवणे अशक्यच आहे. परंतु जर सुरक्षितता पुरवून अधिक सोयी-सुविधा दिल्या तर पर्यटकांचा ओढा अजून वाढू शकतो. या भागातील नागलीची भाकरी बाहेरून येणारे पर्यटक आवडीने खातात. आदिवासी भागातील जेवणावळीकडे शहरातील पर्यटकांचा काल असतो. पर्यटनाच्या निमित्ताने येतात त्यामुळे येथे हॉटेल व्यवसायांचा चांगला विकास शकतो.

'पेठ' तालुक्यात 'बुरुंडी' हे पर्यटन स्थळ पेठ व सुरगाणा या दोन्ही तालुक्यातील हद्दीवर पार नदीच्या तीरावर वसलेले निसर्ग सौंदर्यानी नटलेले ठिकाण असून पावसाळ्यात मनमोहक निसर्ग सौंदर्य लाभते. या ठिकाणास बाहेरील पर्यटक 'बुरुंडी' धबधबा बघण्यासाठी येत असतात. या ठिकाणी पुरातन महादेव मंदिर असून या ठिकाणी यात्रा भरते. या पर्यटनस्थळाचा विकास झाल्यास तेथील स्थानिक आदिवासी लोकांना रोजगाराच्या संधी उपलब्ध होतील.

'पेठ' तालुक्यातील बिलकस या गाव जवळ 'बिलकस' हा नैसर्गिक धबधबा आहे. 'बिलकस' हे पर्यटन स्थळ पेठ तालुक्यापासून १४ कि.मि. आहे. 'बिलकस' धबधबा निसर्ग सौंदर्यानी नटलेले ठिकाण असून पावसाळ्यात निसर्ग सौंदर्य लाभते. या ठिकाणास बाहेरील पर्यटक 'बिलकस' धबधबा बघण्यासाठी येत असतात. या ठिकाणी नदी आणि जंगल असून या भागात औषधी वनस्पती खूप आहेत. या पर्यटन स्थळाचा विकास झाल्यास तेथील स्थानिक आदिवासी लोकांना रोजगाराच्या संधी उपलब्ध होतील.

घाटमाथे, थंड हवेचे ठिकाणी, पर्वतरांगा :- 'केम'चा डोंगर (पर्वत)

‘सुरगाणा’ तालुक्यातील ‘केम’ हे सर्वात उंच ठिकाण आहे. ‘केम’ची समुद्रसपाटी पासून उंची ९०० मीटर एवढी आहे. सुरगाणा तालुका गावापासून पूर्वेला स्थित डोंगररांगा मध्ये हे ठिकाण आहे. चिराई घाटातून पुढे शिंदे दिगर किंवा हरणटेकडी येथून या ठिकाणी जाता येते. या डोंगरावर देवीचे मंदिर आहे. दीपावली मध्ये केमची मोठी यात्रा येथे भरते. या यात्रेला आदिवासी भागातील लोक या डोंगरावर येतात. केमच्या डोंगरामधून नार, पार, कादवा, अंबिका व वाझडी या नद्यांचा उगम होतो. केमच्या पर्वतावर अनेक दुर्मिळ, औषधी वनस्पती आढळतात. केमच्या डोंगरावर जाण्यासाठी मार्ग पुढीलप्रमाणे आहेत. १) नाशिक-दिंडोरी-वणी-घागबरी-हरणटेकडी-शिंदे-केम पर्वत (नागझरी मार्गे) २) सुरगाणा-चिराई घाट-शिंदे दिगर-केम पर्वत.

गरम पाण्याचा झरा :- तातापाणी (उंबरपाडा, पिंपळसोंड)

‘सुरगाणा’ तालुक्यातील उंबरपाडा, पिंपळसोंड जवळील ‘तातापाणी’ येथे नैसर्गिक गरम पाण्याचा झरा आहे. या गावाच्या हद्दीलगत अवघ्या एक ते दीड कि.मी. अंतरावरून नाशिक-वणी-सापुतारा-वघई वासदा-सुरत हा गुजरात राज्याला जोडणारा राज्य महामार्ग जात आहे. या महामार्गावरून वर्षभरात सुमारे लाखो पर्यटक येतात. त्यांना आकर्षित करण्यासाठी येथील गरम पाण्याचे झरे विकसित करण्याची नितांत आवश्यकता आहे. पिंपळसोंड गावालगत गुजरात राज्यातील वघईचे राखीव घनदाटजंगल आहे. त्यामुळे हा भाग निसर्ग सौंदर्याने नटलेला संपन्न असा आहे. ‘तातापाणी’ याचा अर्थ आदिवासी बोलीभाषेत ‘गरम पाणी’ असा आहे. या ‘तातापाणी’ जवळ हाकेच्या अंतरावर असलेल्या गायचोंड, साखळचोंड, पायरचोंड व वाहुटचोंड असे उंच टेकड्यावरून फेसाळतकडेकपारीत पडणारे धबधब्यांची विविध रूपे पावसाळ्यात न्याहाळता येतात. सापुतारा-गुजरात महामार्गावरील ‘वघई’ जवळील ‘गिरा’ या धबधब्यापासून पाच ते सात किमी अंतरावर हे धबधबे आहेत. त्यामुळे या ठिकाणी असलेल्या नैसर्गिक साधनसंपत्तीचे योग्य प्रकारे जतन व संवर्धन करण्यासाठी या पर्यटन स्थळांचा विकास करण्यासाठी शासनाने योग्य ती पाऊले उचलावीत.

नद्यांचा संगम :- नार-पार नदींचा संगम (झरी बोरदा, बेजावड)

‘पार’ नदी ही ‘सुरगाणा’ तालुक्यातून वाहत येते, तर ‘नार’ नदी ही पेठ तालुक्यातून वाहत येते, या दोन्ही ‘नार-पार’ नदींचा संगम ‘झरी बोरदा’ या ठिकाणी होतो. हा भागात डोंगर-दरी व वनसंपत्तीने समृद्ध आहे.

या दोन्ही ‘पेठ-सुरगाणा’ तालुक्यातील नैसर्गिक पर्यटन स्थळांचा विकास झाल्यास तालुक्यातील स्थानिक आदिवासींना रोजगार मिळून त्यांच्या शेती क्षेत्राला नवीन पूरक व्यवसाय निर्माण होईल.

नाशिक जिल्ह्यातील आदिवासी भागातील नैसर्गिक पर्यटन स्थळे :-

अ.क्र.	तालुक्याचे नाव	धबधबे	उंच पर्वत शिखरे	नद्यांचा संगम	गरम पाण्याचे झरे	घाटमाथे, थंड हवेचे ठिकाणी	नैसर्गिक वने व जंगल पर्यटन	एकूण नैसर्गिक पर्यटन स्थळे
१	२	५	५	५	६	७	८	९
१.	सुरगाणा	१	१	१	१	१	१	६
२.	पेठ	२	-	१	-	१	१	५
	एकूण	३	१	२	१	२	२	११

‘पेठ-सुरगाणा’ तालुक्यातील आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या विकासातील समस्या :-

- १) या आदिवासी भागातील पर्यटकांसाठी स्थानिक आणि जिल्हा पातळीवर माहिती केंद्र उपलब्ध नाहीत.
- २) पर्यटकांसाठी स्थानिक पातळीवर तेथे राहण्याच्या आणि खाण्यापिण्याच्या सोयी-सुविधा पर्यटकांसाठी उपलब्ध नाहीत.
- ३) या आदिवासी भागातील पर्यटन स्थळांची ऐतिहासिक, भौगोलिक महत्व दर्शविणारे माहितीपत्रक, चित्रफिती इत्यादी परिपत्रके पर्यटकांना उपलब्ध नाहीत.
- ४) या आदिवासी भागातील पर्यटकांसाठी माहिती केंद्र आणि तेथे राहण्याच्या-खाण्याच्या सोयींबद्दल माहिती देणारं परिपत्रके पर्यटकांना उपलब्ध नाहीत.
- ५) स्थानिक आदिवासींना नवीन व्यावसायिकतेला चालना आणि उद्याजाक्तेला वाव मिळविण्यासाठी कर्जपुरवठा व अनुदान मिळत नाही.

- ६) या आदिवासी भागातील पर्यटकांसाठी स्थानिक आणि जिल्हा पातळीवर प्रशिक्षित स्थानिक वाटाडे (मार्गदर्शक) उपलब्ध नाहीत.
- ८) या आदिवासी भागातील पर्यटन स्थळांची उत्तमरीत्या जाहिरात आणि पर्यटकांचे प्रबोधन केली जात नाही.
- ९) या आदिवासी भागातील स्थानिक आणि राजकीय नेते या पर्यटन क्षेत्राच्या विकासाकडे दुर्लक्ष करीत आहेत.
- १०) या आदिवासी तालुक्यात नैसर्गिक पर्यटन स्थळांच्या विकासाबाबत सामाजिक, आर्थिक व राजकीय दृष्ट्या उदासीनता दिसून येते

निष्कर्ष :-

- १) 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळे आजही दुर्लक्षितच आहेत.
- २) नाशिक जिल्ह्यातील 'पेठ-सुरगाणा' या आदिवासी भागातील नैसर्गिक पर्यटन स्थळांच्या विकासात सामाजिक, आर्थिक व राजकीय अशा अनेक स्वरूपाच्या समस्या आहेत.
- ३) आदिवासी शेतीला पूरक व्यवसाय म्हणून आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा विकास झालेलाच नाही.
- ४) या आदिवासी तालुक्यात नैसर्गिक पर्यटन स्थळांच्या विकासाबाबत सामाजिक, आर्थिक व राजकीय दृष्ट्या उदासीनता दिसून येते
- ५) या आदिवासी भागातील पर्यटन स्थळांची उत्तमरीत्या जाहिरात केली जात नाही.
- ६) पर्यटकांसाठी स्थानिक आणि जिल्हा पातळीवर प्रशिक्षित स्थानिक वाटाडे (मार्गदर्शक) उपलब्ध नाहीत.
- ७) या आदिवासी भागातील स्थानिक आणि राजकीय नेते या पर्यटन क्षेत्राच्या विकासाकडे दुर्लक्ष करत आहेत.

सूचना व शिफारशी :-

- १) या आदिवासी भागात पर्यावरणाचा समतोल राखला जाईल अशाच पद्धतीने पर्यटन विकास केला जावा. त्यासाठी नियोजनबद्ध विकास आराखडा निर्माण केला जावा.
- २) आदिवासी शेतीला पूरक व्यवसाय म्हणून आदिवासी भागातील नैसर्गिक पर्यटन स्थळांचा विकास झाल्यास या आदिवासी भागात पर्यटनामुळे स्थानिक रोजगार निर्मिती होईल.
- ३) स्थानिक व्यावसायिकतेला चालना आणि उद्याजातेला वाव मिळायला हवा.
- ४) या आदिवासी भागातील पर्यटकांसाठी माहिती केंद्र- तिथल्या राहण्याच्या-खाण्याच्या सोयींबद्दल माहिती देणारं, त्या स्थळांचे ऐतिहासिक, भौगोलिक महत्त्व दर्शविणारे माहितीपत्रक, चित्रफिती पर्यटकांना उपलब्ध असाव्यात.
- ५) सर्व आर्थिक श्रेणीतल्या पर्यटकांना परवडतील अशी राहण्याच्या सोय असावी.
- ६) या आदिवासी भागातील प्रशिक्षित स्थानिक वाटाडे (मार्गदर्शक) उपलब्ध असावेत.
- ७) प्रत्येक पर्यटन स्थळांच्या ठिकाणी 'पर्यटन स्थळ विकास नमुना आणि किमान सोयी-सुविधा' निर्माण करण्याची आवश्यकता आहे.
- ८) या आदिवासी भागातील प्रत्येक स्थळांचे वर्गीकरण तेथे उपलब्ध असलेल्या सोयी-सुविधा आणि पर्यटनाचा प्रकार असे दुहेरी वर्गीकरण करून त्यानंतर स्थळांची विकास योजना करावी.
- ९) योजनेनुसार आणि स्थानिकांच्या मदतीने प्रत्येक पर्यटनस्थळाचा विकास करायला हवा.
- १०) या आदिवासी भागातील प्रत्येक स्थळाची उत्तमरीत्या जाहिरात करायला हवी, पर्यटकापर्यंत पोचवायला हवं.
- ११) स्थानिकांनी ठरवल्यास आणि त्यांच्या पुढाकाराने पर्यटन क्षेत्र विकास चांगल्या प्रकारे करता येईल.

संदर्भ ग्रंथ :-

- १) "भिवतास" धबधबा पर्यटन विकासाला मिळणार चालना" लेख-देशदूत वर्तमानपत्र, दिंडोरी, २१ जुलै, २०२१.
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नागपूर जिले में नगरीकरण व स्वास्थ्य सुविधाएं**स्वाती रमेश भोवते**

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सारांश

नगरीयता यह आधुनिक जगत के लिए बहुमूल्य संकल्पना है तथा अच्छी स्वास्थ्य सुविधाएं प्रदान करना नगरीयता की एक विशेषता है। पिछले कुछ दशकों में नगरों में तीव्र जनसंख्या वृद्धि हो रही है जो दरिद्रता, समानता व स्वास्थ्य समस्याओं का कारण बनती जा रही है। नगरीय प्रशासन सभी को स्वास्थ्य सुविधाओं देने के लिए सक्षम नहीं है। आज की स्थिति की चर्चा करें तो कोरोना जैसी महामारी सभी के लिए संकट बन चुकी है, जिसने हमें हमारी स्वास्थ्य सुविधाओं के विषय को गंभीरता से पुनः निरीक्षित करने के लिए बाध्य किया है। WHO के अनुसार डॉक्टर जनसंख्या का अनुपात 1:1000 है। परन्तु नागपूर जिले में यह अनुपात कम है। इस प्रस्तुत शोध में नागपूर जिले में नगरीय क्षेत्रों की जनसंख्या व उनके लिए उपलब्ध स्वास्थ्य सुविधाओं की चर्चा की गई है।

मुख्य शब्द: नगरीकरण, जनगणना शहर, स्वास्थ्य सुविधाएं, डॉक्टर जनसंख्या अनुपात**प्रस्तावना**

तीव्र नगरीकरण यह प्रत्येक विकसित व विकासशील देश की विशेषता है। बढ़ती जनसंख्या का नगरीय प्रशासन पर दबाव बढ़ता जाता है, जिस कारण विभिन्न नगरीय समस्याएं जैसे मलिन बस्तियां, आवासीय समस्या, घन कचरा, अपशिष्ट जल तथा इन सभी द्वारा निर्मित प्रदूषण। इन सभी समस्याओं का सीधा परिणाम मानव स्वास्थ्य पर पड़ता है इसका निवारण आवश्यक है। नगर नियोजन द्वारा अच्छी परिवहन प्रणाली क्रियाकलापों के लिए नियोजित क्षेत्र भोजन सुरक्षा पर नियंत्रण तथा आवासीय क्षेत्र में सुधार जल व अपशिष्ट जल प्रबंधन द्वारा स्वास्थ्य संबंधी खतरे को कम किया जा सकता है। एक शोध के अनुसार नगरीय स्वास्थ्य में सुधार के लिए विकसित देशों के तेजी से बढ़ते नगरों में बुनियादी सुविधा व स्वास्थ्य कर्मियों पर बड़े निवेश की आवश्यकता है, जो फिलहाल अधिकतम नगर पालिकाओं के संसाधन के बाहर है।⁶

नगरीकरण की कोई मान्य परिभाषा स्वीकार नहीं की जा सकती यह देश के साथ बदलती जाती है कई देशों में 2500 के ऊपर जनसंख्या वाले क्षेत्र नगर कहलाते हैं तो कहीं 20,000 जनसंख्या वाले क्षेत्र नगर कहलाते हैं।⁶ "नगरीकरण नगरीय होने या बनाने, नगरोन्मुख गति और प्राथमिक व्यवसाय तथा ग्राम्य जीवन पद्धति से द्वितीयक एवं तृतीयक व्यवसाय तथा नगरीय जीवन पद्धति में परिवर्तन की सामान्य प्रक्रिया है। मिचेल (J-C-Mitchell) के शब्दों में "नगरीकरण ग्राम्य अधिवासों से नगरों के रूप में कार्यांतरण की एक समन्वित विधि है, जिसके परिणामस्वरूप ग्रामीण अधिष्ठानों, व्यवसाय तथा अर्थव्यवस्था, क्षेत्र या भूमि

उपयोग, समाज व संस्कृति, जीवन तथा रहन-सहन के स्तर और अन्य मानव मूल्यों के गुणात्मक तथा परिणामात्मक परिवर्तन क्रमशः स्पष्ट होने लगते हैं”¹²।

“नगरीयता : नगरीय जीवन की एक प्रणाली है” (वीर्थ)। नगरीयता मानव जीवन की एक दशा या परिस्थिति को संबोधित करती है”।

“नगरीकरण मे एक भौतिक परिवर्तन शामिल है जिसमे जनसंख्या का बढ़ता अनुपात नगरीय व्यवस्था मे रहता है। अर्थात इन लोगो कि जिवन शैली, आजिविका के तरीके, खाना जो वो खाते है तथा पर्यावरण कि श्रृंखला जिससे वे जुडे है, मे काफी परिवर्तन आते है। एक अंतर्निहित धारणा है कि तेजी से बढ़ती नगरीय जनसंख्या, अपने ग्रामीण जनसंख्या कि तुलना मे अधिक स्वस्थ होगी और नगरीकरण का उच्च स्तर, उच्च स्वास्थ्य स्थिती दर्शायेगा”¹¹।

स्वास्थ्य सुविधाएं

“It is health which is real wealth, and not pieces of gold and silver”. - Mahatma Gandhi

मानव का स्वास्थ्य उसकी कार्यशीलता को प्रभावित करता तथा मानव कि कार्यशीलता उसके विकास को प्रभावित करती हैं। WHO ने नगरीकरण व स्वास्थ्य (Urbanization and Health) यह थीम 2010 मे विश्व स्वास्थ्य दिवस पर रखी थी¹²। जिसमे नगरीय स्वास्थ्य कि ओर ध्यान केन्द्रित किया गया था ।

एक शोध मे नगरीकरण और स्वास्थ्य के बीच संबंधों की समीक्षा की गई है। इस अध्ययन में बताया है कि शहरी आबादी का स्वास्थ्य बदल रहा है तथा नगरीकरण ने आवश्यक बुनियादी ढांचा प्रदान करने की सरकार की क्षमता को पीछे छोड़ दिया है¹⁰।

उद्देश्य

नागपूर जिले में नगर पालिकाओं में स्वास्थ्य सुविधाओं का अध्ययन करना ।

नागपूर जिले में जनगणना शहरों में स्वास्थ्य सुविधाओं का अध्ययन करना ।

आंकड़ा स्रोत

प्रस्तुत शोध के लिए भारतीय जनगणना विभाग द्वारा प्रकाशित द्वितीय स्वरूप के आंकड़ों का उपयोग किया गया है। स्वास्थ्य संबंधी व जनसंख्या संबंधी आंकड़े नागपूर जिला जनगणना पुस्तिका 2011 से लिए गए हैं।

नागपूर जिले की नगरीय रूपरेखा

1961 के जनगणना के समय नागपूर जिले में 5 तहसीलों का समावेश था तथा 12 शहर थे। 1981 में शहरों की संख्या 16 हो गई, 1991 में नागपूर जिला 14 तहसीलों में विभाजित हुआ तब यहां 23 शहर थे। 2001 की जनगणना अनुसार 29 शहर तथा 2011 की जनगणना अनुसार नागपूर जिले में 41 शहर हैं। उसमें से एक महानगरपालिका 10 नगर पालिका एक छावनी क्षेत्र व 29 शहर हैं। जिले की कुल जनसंख्या में से, 68.3% जनसंख्या शहरी और 31.7% जनसंख्या ग्रामीण क्षेत्रों में है ।

नागपूर जिले में नगरीय क्षेत्रों में स्वास्थ्य सुविधाएं

अस्पताल में बेड का उपयोग भर्ती किए गए मरीजों के लिए उपलब्ध सेवाओं को इंगित करता है। इसके लिए कोई वैश्विक मापदंड नहीं है । उसी प्रकार डॉक्टर भी लोगों को स्वास्थ्य सुविधा देने का कार्य करते हैं।

WHO के अनुसार डॉक्टर जनसंख्या का अनुपात 1:1000 है। अर्थात प्रति 1000 कि जनसंख्या पर 1 डॉक्टर । 60 साल पहले भारत में डॉक्टर जनसंख्या का अनुपात 1:6300 था व आज यह अनुपात 1:1800 हो गया है। 4. नागपूर जिले में नगरों में स्वास्थ्य सुविधाओं का विवरण निम्न प्रकार से हैं।

नागपूर जिले में नगरों में स्वास्थ्य सुविधाएं

अनु. क्र.	शहर का नाम	जनसंख्या	बेड संख्या	अस्पतालो कि संख्या	डॉक्टर कि संख्या	प्रति 10000 बेड संख्या	प्रति 10000 डॉक्टर कि संख्या
1	मोवाद (M CI)	8777	11	2	3	13	3
2	नरखेड (M CI)	21537	74	11	4	34	2
3	काटोल (M CI)	43267	45	3	6	10	1
4	कळमेश्वर (M CI)	19578	60	2	5	31	3
5	मोहपा (M CI)	6987	15	3	4	21	6
6	सावनेर (M CI)	32498	35	3	8	11	2
7	खापा(M CI)	14659	26	2	8	18	5
8	रामटेक(M CI)	22310	80	4	11	36	5
9	कामठी (M CI)	86793	143	8	10	16	1
10	कामठी (CB)	12457	32	1	2	26	2
11	नागपूर (M Corp.)	2405665	4500	74	282	19	1
12	उमरेड (M CI)	53971	60	5	6	11	1
13	बाम्हनी (CT)	10341	0	0	0	0	0
14	वाघोडा (CT)	7628	20	2	3	26	4
15	वलनी (CT)	9393	40	6	7	43	7
16	सिल्लेवाडा (CT)	7290	14	2	6	19	8
17	चनकापुर (CT)	12077	10	1	1	8	1
18	चिचोली (CT)	18469	33	5	6	18	3
19	टेकाडी(CT)	13741	20	2	3	15	2
20	कन्हान (पिपरी) (CT)	22945	24	4	7	10	3
21	कान्द्री (CT)	10624	0	0	0	0	0
22	कान्द्री(रामटेक)(CT)	5099	0	2	1	0	2
23	मौदा(CT)	14606	40	6	8	27	5
24	महादुला (CT)	21481	15	3	3	7	1

25	कोराडी(CT)	6321	5	2	2	8	3
26	येरखेडा (CT)	15727	5	1	1	3	1
27	बोखारा (CT)	8602	0	0	0	0	0
28	नरसाडा(CT)	17330	0	0	0	0	0
29	हुडकेश्वर (CT)	24499	0	0	0	0	0
30	बोरखेडी (CT)	13294	0	0	0	0	0
31	बोरी (CT)	12072	20	3	2	17	2
32	वाडी(CT)	54048	0	1	1	0	0
33	दवलमेटि (CT)	14545	0	0	0	0	0
34	सोनेगाव(निपानि)(CT)	9387	0	0	0	0	0
35	निलडोह (CT)	20888	20	1	2	0	1
36	दिगडोह(CT)	38157	5	2	2	1	1
37	वानाडोगरी (CT)	37667	0	0	0	0	0
38	वळधामना (CT)	6148	0	0	0	0	0
39	नागलवाडी (CT)	2562	0	0	0	0	0
40	इसासनी (CT)	4366	0	0	0	0	0
41	टाकलघाट (CT)	11363	40	4	6	35	5
	कुल	3179169	5392	165	410	17(प्रति 10000)	1(प्रति 10000)

स्त्रोत- महाराष्ट्र जनगणना पुस्तिका 2011

नागपूर जिले के कुल 41 नगरों में प्रति 10000 जनसंख्या पर 17 बेड उपलब्ध है। इसमें वलनी जनगणना शहर में सबसे अधिक 43 बेड प्रति 10000 जनसंख्या पर है। उसी प्रकार कुल नगरीय जनसंख्या में प्रति 10000 जनसंख्या पर डॉक्टर की संख्या 1 है तथा सबसे अधिक सिल्लेवाडा में 8 तथा वलनी में 7 डॉक्टर प्रति 10000 की जनसंख्या पर है।

नगर पालिकाओं में स्वास्थ्य सुविधाएं

नागपूर जिले में कुल 10 नगर पालिका एक छावनी क्षेत्र एक महानगरपालिका है। जिनमें स्वास्थ्य सुविधाओं का विवरण निम्न प्रकार से है। नागपूर जिले में नगर पालिकाओं में कुल 5081 बेड है। अस्पतालों की कुल संख्या 118 तथा कुल डॉक्टर की संख्या 349 है। इनमें से सबसे अधिक अस्पतालों की संख्या नागपूर महानगर पालिका में 74 व नरखेड में 11 है। कामठी नगर पालिका में 8 तथा अन्य नगर पालिकाओं में 1,2,3,4 इस प्रकार अस्पतालों की संख्या है। नगर पालिका में डॉक्टरों की संख्या सबसे अधिक नागपूर महानगर पालिका में 282 उसके बाद सावनेर, रामटेक व कामठी में क्रमशः 10, 12 व 10 डॉक्टर है। अन्य महानगर पालिकाओं में 8,7,6,5,4 इस प्रकार डॉक्टरों की संख्या है। उसी प्रकार यदि कुल बेड संख्या की ओर

ध्यान दिया जाए तो सबसे अधिक बेड नागपूर महानगर पालिका 4500 में है। उसके बाद कामठी, रामटेक, नरखेड व कळमेश्वर में बेड संख्या क्रमशः 143, 80, 74 व 60 है।

कुल 10000 जनसंख्या पर बेड व डॉक्टरों की संख्या

प्रति 10000 जनसंख्या पर यदि बेड की संख्या निकाली जाए तो सबसे अधिक रामटेक नगरपालिका में 36 हैं। उसके बाद नरखेड में 34 तथा कळमेश्वर में 31 है। उसी प्रकार प्रति दस हजार जनसंख्या पर डॉक्टर की संख्या मोहपा नगर पालिका में 6 सबसे अधिक है तथा उसके बाद सावनेर में 5 तथा रामटेक में 5 है तथा कामठी व काटोल में सबसे कम 1-1 हैं।

यहां नागपूर महानगर पालिका में बेड संख्या 4500 तथा डॉक्टर की संख्या 282 तथा अस्पताल की संख्या 74 सभी अधिक होने के बावजूद भी यहां की जनसंख्या ज्यादा होने के कारण प्रति 10000 जनसंख्या पर बेड केवल 19 तथा प्रति 10000 जनसंख्या पर डॉक्टर की संख्या केवल 1 है जो चिंता की बात है।

जनगणना शहरों में स्वास्थ्य सुविधाएं

जनगणना शहर अपने आकार व घनत्व में कम होते हैं परंतु नगरीकरण का एक महत्वपूर्ण भाग होते हैं। नागपूर जिले में कुल नगरीय जनसंख्या का 14% नगरीय जनसंख्या 29 जनगणना शहरों में निवास करती है। इनका प्रशासन ग्राम पंचायत या नगर पंचायत के अंतर्गत होता है। जनगणना शहर जो नगरीकरण का महत्वपूर्ण भाग होते हैं, वहां स्वास्थ्य सुविधाएं भी अन्य नगर पालिकाओं की तरह ही होना चाहिए परंतु ऐसा नहीं है। जिले में लगभग आधे जनगणना शहरों में तो एक भी अस्पताल व डॉक्टर की सुविधा नहीं है। नागपूर जिले में कुछ जनगणना शहर जो अब नगरपालिका बनने की ओर अग्रसर हैं, वहां स्वास्थ्य सुविधाओं का स्तर अच्छा है, जैसे वलनी, मौदा व टाकळघाट में कुल 40-40 बेड है तथा प्रति व्यक्ति 10000 की जनसंख्या पर 43, 27 व 35 बेड हैं। उसी प्रकार यहां अस्पताल की संख्या क्रमशः 6, 6 व 4 है तथा प्रति 10000 की जनसंख्या पर डॉक्टर की संख्या क्रमशः 7, 5 व 5 है।

निष्कर्ष

प्रस्तुत शोध के अध्ययन से यह ज्ञात होता है कि :

- नागपूर जिले में नगरों में प्रति 10000 की जनसंख्या पर एक डॉक्टर है जो WHO के निर्देशांक से काफी कम है।
- उसी प्रकार प्रति 10000 की जनसंख्या पर 17 बेड है जो इतनी बड़ी जनसंख्या को स्वास्थ्य सुविधा उपलब्ध करने में असमर्थ है।
- जनगणना शहर जो नगरीय जनसंख्या का भाग है परंतु वहां तक सारी नगरी सुविधाएं, मुख्यतः स्वास्थ्य सुविधाएं अभी तक नहीं पहुंच पाई है उस ओर ध्यान केंद्रित किया जाना चाहिए।
- अतः नागपूर जिले में स्वास्थ्य सुविधाओं को ओर ध्यान दिया जाना चाहिये व डॉक्टरों की संख्या बढ़ायी जाने की ओर प्रयास किया जाना चाहिये।

संदर्भ ग्रंथ सूची

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पर्यावरण शास्त्राचे महत्त्व

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प्रस्तावना:

मानव हा एक महत्वाचा सजीव घटक आहे. नैसर्गिक साधन संपत्तीशी त्याचे अतुट नाते आहे. आपल्या दसरोजच्या किमान गरजा पूर्ण करण्यासाठी त्याला सातत्याने निसर्गावर व आजूबाजूच्या परिस्थितीवर अवलंबून रहावे लागते. मानवाच्या मूलभूत गरजा निसर्गातूनच पूर्ण होतात. पर्यावरण संकल्पनेत निसर्ग निर्मित व मानव निर्मित सर्व सजीव व निर्जीव घटकांचा प्रामुख्याने सहभाग आहे. पर्यावरणाचा अभ्यास करताना सजीव व निर्जीव घटकांचा एकमेकांशी असणारा दृढ संबंध स्पष्ट होतो. पर्यावरण संबंधीच्या मूळ फ्रेंच शब्दअपतवदण या शब्दापासून इंग्रजीत शब्दअपतवदणमदजण हा शब्द प्रचलित झाला.

१) पर्यावरण म्हणजे आपण ज्या ठिकाणी राहतो. त्या सभोवतालची परिस्थिती यामध्ये परिसर, वातावरण, हवा, पाणी, माती, वनस्पती व प्राणी यांचा समावेश होतो.^१

२) मानवी विकास व पर्यावरणाचा समतोल:

मानवी विकास सर्वस्वी पर्यावरणावर अवलंबून असल्याने मानवाचा पर्यावरणात हस्तक्षेप होणे साहजिकच आहे. मानवी विकासाच्या योजना कार्यान्वित करताना मानवाचे व सजीवांचे अस्तित्व सर्वस्वी पर्यावरणाच्या संतुलनावर आधारलेले आहे. पर्यावरणाच्या संतुलनात वस्तुतः वनस्पती मूलभूत असल्या तरी विविध घटकांचा समतोल ही तितकाच मूलगामी असतो. पर्यावरणाच्या नुकसानीचा विचार करता याची काही कारणे लक्षात येतात. मानवाने मृदा, वनस्पती, पशुपक्ष्यांची, पर्यावरणीय आश्रयस्थाने प्रामुख्याने नष्ट केली व त्या जागी शेती, कॉक्रीटची जंगले उभारली कृत्रिम खते, किटकनाशके, जंतुनाशके यांचा रासायनिक रुपातील बेसुमार वापर केला. उत्पादनामध्ये वाढ केली पण मृदेचे, जलसंपदेचे आरोग्य बिघडले, रासायनिक वापराने भू व जलप्रदूषणात वाढ झाली. परिणामी भूचरा बरोबरच पाण्यातील जीव समूहावरही सकट आले. पर्यावरणीयदृष्ट्या पर्यावरणाचे स्थैर्य हे जैविक विविधतेच्या प्रमाणावर बहुतांशी अवलंबून असते. जैविक विविधतेवर मानवाने स्वार्थापायी वारंवार आघात केले व परिसर स्थैर्याला डळमळीत केले. निसर्ग तत्वे, परिस्थितीक तत्वे यांना शह दिल्यामुळे जागतिक व राष्ट्रीय स्तरावर जिकडे तिकडे पर्यावरणाच्या संतुलनाबद्दल आता काळजी व्यक्त करण्यात येत आहे.^२

३) प्रदूषण समस्या:

जगात सर्वत्र, नागरिकरणाची वाढ वेगाने होत असल्याने पर्यावरणाचे प्रादेशिक समतोल बिघडत आहे. प्रादेशिक विकासाच्या योजना राबवितातना पर्यावरणाचे निकष व तत्वे विचारात घ्यायला हवीत.^३ पण आज मानवाच्या बेफिकीर वृत्तीमुळे चंगळवादामुळे आणि पर्यावरणाबद्दल अनास्था यामुळे प्रदूषणाची समस्या जटील बनली आहे. प्रदूषणामुळे मानवासह सजीवांचे अस्तित्वच कायमचे नष्ट होईल की काय अशी भीती वाटू लागली आहे. यंत्रयुगाची सुरुवात झाल्याने परिस्थिती झपाट्याने बदलली आहे. निसर्गावर मात करणे अधिक सोपे झाले आहे. रस्ते, धरणे, शेती यासाठी प्रचंड प्रमाणात निसर्ग दत्त जंगलांचा विनाश होत आहे. कारखानदारी, उद्योगधंदे झपाट्याने वाढत आहेत. स्वयंचलित वाहनांची संख्या भरमसाठ वाढली आहे. वाढत्या लोकसंख्येला पुरेसे अन्नधान्य मिळावे म्हणून अन्नधान्याचे उत्पादन वाढविण्यासाठी रासायनिक खतांचा आणि विषारी किटकनाशकांचा वापर मोठ्याप्रमाणावर वाढला आहे. पण या सर्व मानवी व्यवहारांमुळे घातक व

रोगकारक द्रव्यांचे, रसायनाचे उपद्रवी दुषीतकांचे प्रमाण पर्यावरणात वाढले आहे. त्यामुळे पर्यावरणाचे प्रदुषण वाढले आहे.^४

पृथ्वीवरील निसर्गसंपदेचे योग्य जतन केले गेले नाही. तर पृथ्वीतलावरील मानवजातीचे अस्तित्वच धोक्यात येऊ शकेल. जगातील एकूण निसर्ग संपत्ती मर्यादित आहे. हवा, पाणी, जमीन, खनिजे, तेलसाठे तसेच वने, माळराने, समुद्र आणि शेती व पशुधनापासून मिळणारे पदार्थ आपल्या जीवनासाठी अंत्यत आवश्यक आहेत. पृथ्वीतलावरील, मानवाचे अस्तित्व टिकवण्यासाठी निसर्गाचे संवर्धन करण्याची नितांत गरज आहे.^५

४. जनजागृतीची गरज:

पर्यावरणाचा समतोल राखण्यासाठी आपण बरेच काही करू शकतो. हे लहान मोठ्या राष्ट्रांनी दाखवून दिले आहे. या राष्ट्रात औपचारिक शिक्षणा बरोबरच अनौपचारिक शिक्षणव्यवस्थांची आखणी पर्यावरणदृष्ट्या कृती प्रधान असेल याची दक्षता घेतली जात आहे. पर्यावरणाच्या बाबतीत केवळ सरकारलाच जबाबदार मानण्यापेक्षा जनतेतील जागृती जास्त महत्वाची वाटते.^६

शासनाने कितीही योजना आखल्या तरी त्या अपुऱ्या पडतील. पर्यावरण रक्षण हा आपल्या जीवनशैलीचा अविभाज्य घटक बनायला हवा ज्याप्रमाणे कुठलाही आजार टाळण्यासाठी प्रतिबंधात्मक उपाय करणे. जरूरीचे असते. त्याचप्रमाणे पर्यावरणाचे वेळीच रक्षण करणे गरजे असते.

५. पर्यावरणशास्त्राचे शिक्षण:

पर्यावरण आणि मानव यांच्यात सुसंवाद साधण्याच्या संकल्पनांना गेल्या दोन दशकात अनन्य साधारण महत्त्व प्राप्त झाले. मानव पर्यावरण विकासाच्या संकल्पनांना शासकिय पातळीवर मान्यता मिळू लागली व त्यादृष्टीने सरकारने पर्यावरण संतुलन, प्रदुषण, अपद्रव्याचे विषारी परिणाम याविषयी गंभीर दखल घेण्यास प्रारंभ केला आहे. पर्यावरण विषयी शिक्षणाच्या प्रसाराची प्रभावी हालचाल जगभर वेग घेत आहे. भारतातही पर्यावरण विज्ञानाच्या अभ्यासावर लक्ष केंद्रित करण्यात प्रगती होत आहे. प्राथमिक स्तरावर परिसर अभ्यास, माध्यमिक स्तरावर परिसंस्था व उच्च स्तरावर पर्यावरणशास्त्राचे अभ्यासक्रम राबविले जात आहेत.^७

नैसर्गिक संसाधनाचे संवर्धन करण्यात व्यक्तीगत भूमिका देखील महत्वाच्या आहेत. पृथ्वीवरील नैसर्गिक संसाधने ही अमर्याद असून ती अविनाशी आहेत. या भूमिकेने मानव या संसाधनाचा अमर्याद वापर करून खनिज संपत्ती आणि खनिज इंधनाचा मोठ्या प्रमाणावर वापर करीत होता. पण नैसर्गिक इंधनाची क्षमता मर्यादित असून त्याचा वापर ठराविक मर्यादेपर्यंत केला तरच परिसंस्था टिकू शकतील ही गोष्ट गेल्या दशकापासून स्पष्ट होवू लागली आहे जर नैसर्गिक साधनांचा गैरवापर झाला किंवा त्यांचा वापर प्रमाणाबाहेर केला गेला तर जैविक प्रक्रियेद्वारे नैसर्गिक संसाधनांची पुन्हा निर्मिती होवू शकणार नाही. ही प्रक्रिया मर्यादेबाहेर गेली तर परिसंस्था विस्कळीत होऊन नैसर्गिक समतोल नष्ट होईल. अशा नैसर्गिक साधनांचा वापर अधिक मागेत झाल्याने ही संसाधने कायमची लोप पावण्याच्या मार्गावर आहेत. कुठलीही नैसर्गिक संसाधने पृथ्वीवर अमर्याद अवस्थेत आढळत नाही. एक व्यक्ती म्हणून आपण विचार करायला हवा की आपण पुढील पिढीसाठी काय देणार आहोत. आपण तात्पुरत्या कायदयासाठी विचार करीत आहोत की दुरगामी परिणाम याचा विचार करणे आवश्यक आहे. आपला व्यक्तिगत फायदा घेताना त्यामुळे कुणाचे नुकसान तर होत नाही ना याची आपण प्रत्येकाने काळजी घ्यायला हवी.^८

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- २) प्रा. आहिरराव वा.र., 'पर्यावरण विज्ञान', निराली प्रकाशन पा.५
- ३) उपरोक्त पा.६

- ४) डॉ. पवार किशोर, सौ.पवार नलिनी, 'वायु प्रदुषण', प्रकाशक मेहता पब्लिशिंग हाऊस, पा.४
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- ८) भरुचा एरक, 'पर्यावरणशास्त्र' पा.५६



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घोषवारा :

शाश्वत विकासामुळे पर्यावरणीय अनुकूल इमारती वाढीस लागतात निरंतर विकास म्हणजे मानव आणि पर्यावरणीय आरोग्य वाढविण्याकरता जे लोक त्यांना व्यापून ठेवतात त्यांच्या गरजा पूर्ण करणारे घरे, इमारती आणि व्यवसाय तयार करणे. अलिकडच्या वर्षात, घरांचे बांधकाम व्यावसायिक, आर्किटेक्ट, डेव्हलपर्स आणि शहर नियोजकांमध्ये व्यवसायिक आणि अव्यवसायिक इमारती आणि समुदायांच्या बांधणीत टिकाऊ इमारतीतील प्रथा बरीच प्रमुख बनल्या आहेत. नैसर्गिक संसाधनांचे जतन करणे आणि ग्रीनहाऊस वायू, ग्लोबल वॉर्मिंग व इतर पर्यावरणविषयक घटक वायू कमी करण्याचे प्रयत्न करणे हे सातत्यपूर्ण विकासाचे केंद्र आहे.

महत्वाचे शब्द : नैसर्गिक साधनसंपत्ती , पर्यावरण, वायू , मानवी विकास, संसाधने , शहर , व्यावसायिक आणि अव्यवसायिक इत्यादी

प्रस्तावना :

मानवाला निसर्गातील उपयुक्त असलेल्या घटकांना किंवा पदार्थांना नैसर्गिक संसाधने म्हणतात. नैसर्गिक संसाधनांमध्ये जमीन, पाणी, हवा, सूर्यप्रकाश इत्यादींचा समावेश होतो. तसेच स्थानिक पातळीवर उपलब्ध असलेली खनिजे, खनिज तेल, वनस्पती यांचाही समावेश होतो. आदिमानव गुहेत राहत असे, वनातील फळे व मांस खात असे आणि प्राण्यांची कातडी वा झाडांच्या साली कपडे म्हणून वापरीत असे. अशा प्रकारे त्याचे जीवन निसर्गातून मिळणाऱ्या वस्तूवर सर्वस्वी अवलंबून होते. आधुनिक मानव त्यापेक्षा अधिक सुखसोयीची साधने असलेले व सुरक्षित जीवन जगत असला, तरी त्याचेही जीवन आदिमानवाच्या इतकेच निसर्गावर अवलंबून आहे. मात्र आधुनिक मानव आदिमानवाच्या मानाने पुष्कळ जास्त व विविध प्रकारच्या वस्तू (वनसंपत्ती, विविध धातू, मूलद्रव्ये इ.) वापरू लागला आहे काही पदार्थांवर (उदा., अग्नी, पाणी) नियंत्रण घालण्यास तो शिकला आहे, काही पदार्थांचे नवनवीन उपयोग त्याने शोधून काढले आहेत आणि नैसर्गिक पदार्थांपासून कृत्रिम पदार्थ (उदा., रंग, प्लॅस्टिक, धागे, वस्त्रे, औषधे इ.) बनविण्याचे कसबही त्याच्या अंगी आले आहे.

मानवाला उपयुक्त अशा निसर्गातील द्रव्यांना नैसर्गिक साधनसंपत्ती म्हणतात. जमीन, महासागर व वातावरण यांतील कोणतेही द्रव्य आर्थिक दृष्ट्या फायदेशीर होऊ शकते व परिणामी ते साधनसंपत्ती होते. एखादे द्रव्य साधनसंपत्ती होण्याच्या दृष्टीने पुरेसे उपयुक्त असावे लागतेच शिवाय त्यासाठी पुढील तीन बाबींची अनुकूलता असावी लागते. (१) द्रव्यात बदल न करता त्याद्वारे मानवी गरज भागविता आली पाहिजे किंवा मानवी गरजेच्या दृष्टीने ते सहज बदलता आले पाहिजे. (२) उपलब्ध द्रव्याचा वापर करून घेण्याइतपत मानवी कौशल्य विकसित झाले असले पाहिजे. (३) ऊर्जा वा इतर साधनसंपत्ती रास्तपणे खर्चून हे द्रव्य सहज मिळविता

आले पाहिजे. अशा प्रकारे एके काळी आर्थिक दृष्ट्या निरुपयोगी असलेले एखादे द्रव्य तंत्रविद्येचा विकास झाल्यावर मौल्यवान साधनसंपत्ती होऊ शकते.

साधनसंपत्ती ही मानवी आणि भौतिक प्रकारची असते. श्रमिक मानव ही साधनसंपत्तीच आहे. भौतिक साधनसंपत्तीचे नैसर्गिक व उत्पादित असे आणखी प्रकार होऊ शकतात. सामान्यपणे नैसर्गिक साधनसंपत्तीचे वनस्पतिज, प्राणिज व खनिज असे प्रकार पडतात शिवाय त्यांमध्ये सूर्यापासून मिळणारी ऊर्जा, वातावरण, मृदा वा जमीन आणि पाणी यांचाही समावेश करता येईल. नैसर्गिक साधनसंपत्तीचे पुनःपुन्हा उत्पन्न होऊ शकणारी (उदा., वनस्पती, पाणी, वायू) आणि पुन्हा उत्पन्न न होऊ शकणारी (उदा., खनिजे) असेही प्रकार होऊ शकतात. पुन्हा उत्पन्न न होणारी साधनसंपत्ती ही संचयित असून ती वापराने संपून जाते. उदा., दगडी कोळसा, खनिज तेल इत्यादी. पुष्कळ धातू अशा तऱ्हेने पूर्णपणे संपून जात नाहीत. कारण त्या वापरलेल्या वस्तूपासून वेगवेगळ्या प्रमाणात परत मिळवून पुन्हा वापरता येतात. पुन्हा उत्पन्न होऊ शकणाऱ्या साधनसंपत्तीला प्रवाही वा अक्षय म्हणता येईल कारण काळजीपूर्वक वापरल्यास ती कायमची राहू शकते. उदा., वनांची योग्य ती काळजी घेतल्यास मूळ साधनसंपत्तीत घट न होता वनातील उत्पादने (उदा., लाकूड, औषधी)

खनिजांचे वर्गीकरण :

संसाधनांचे जतन, राखण आणि पुनरुज्जीवन यावर असला पाहिजे, असा लेखकाचा आग्रह आहे. हवा, पाणी तसेच जमीन यांचे 'प्रदूषण' टाळणे, ही जबाबदारी पर्यावरणीय कायदे व नियम यांनी प्रशासकीय यंत्रणेवर टाकलेली दिसते, मात्र या साधनसंपत्तीचे जतन व पुनरुज्जीवन करण्यासाठी पाऊले उचलण्याचे कायदेशीर बंधन मात्र त्यांच्यावर दिसत

खनिजांचे वर्गीकरण

अधातू खनिजे	धातू खनिजे	शक्ती साधने
१) अभ्रक	१) लोह	१) दगडी कोळसा
२) गंधक	२) सोने	२) खनिज तेल
३) खडक	३) चांदी	३) नैसर्गिक वायू
४) जिप्सम	४) कथिल	४) वारा
५) पोटॅश	५) बॉक्साईट	५) सौरशक्ती
६) ग्राफाईट	६) मॅग्निज	६) सागरी लाटा
७) हिरा	७) प्लॅटीनम	
८) फेल्डस्पार	८) टंगस्टन	

नैसर्गिक साधन संपत्तीचे प्रकार :

मानवाला निसर्गातील उपयुक्त असलेल्या घटकांना किंवा पदार्थांना नैसर्गिक संसाधने म्हणतात. नैसर्गिक संसाधनांमध्ये जमीन, पाणी, हवा, सूर्यप्रकाश इत्यादींचा समावेश होतो. यांच्या उगमावरून त्यांचे जैव आणि अजैव असे प्रकार आहेत. जैव संसाधने ही जीवावरणातील घटकांपासून (उदा., वने, प्राणी, पक्षी इत्यादींपासून) प्राप्त होतात. यात कोळसा व जीवाश्म इंधन या जैव इंधनांचादेखील समावेश होतो. कारण ती सेंद्रिय पदार्थांच्या कुजण्यापासून तयार होतात. अजैव प्रकारात जमीन, पाणी, हवा, जड धातू (उदा., सोने, चांदी, तांबे, लोह इत्यादी) आणि वेगवेगळ्या खनिजांचा समावेश होतो.

जैविक संसाधने :

जैविक संसाधनांमध्ये वनस्पती आणि प्राणी यांचा समावेश आहे. मानव, प्राणी आणि सूक्ष्मजीवांचे अस्तित्व वनस्पतीशिवाय अशक्य आहे. प्रकाश संश्लेषणाच्या प्रक्रियेत, हिरव्या वनस्पती सेंद्रिय पदार्थांचे संश्लेषण करतात, अतिरिक्त कार्बन डाय ऑक्साईडपासून हवा शुद्ध करतात आणि वातावरण ऑक्सिजनसह समृद्ध करतात. वनस्पती प्राथमिक उत्पादन देतात आणि ऑक्सिजन, म्हणून, पृथ्वीवरील जीवनाचा प्राथमिक स्रोत आहे. वनस्पती हे मानवांसाठी आणि प्राण्यांच्या आहाराचे स्रोत आहेत, कपडे, औषधे, बांधकाम साहित्य तयार करण्यासाठी कच्चा माल आहे. ते काही खनिजे (कुजून रूपांतर झालेले वनस्पतिजन्य पदार्थ (सरपणासाठी याचा वापर होतो), कोळसा, तेल, इत्यादी) आणि माती तयार करण्यात गुंतलेले आहेत. वनस्पती वातावरणाच्या संरचनेच्या नियामकचे कार्य करते, विशेष जल-संरक्षक आणि माती-संरक्षणात्मक मूल्य आहे, वैद्यकीय आणि आरोग्य सुधारण्याच्या हेतूसाठी आवश्यक आहे.

मानवी आर्थिक क्रियाकलापांच्या परिणामस्वरूप, वनस्पतींची राहणीमान बिघडते (खारटपणा, अम्लीकरण, क्षारीकरण, मातीचे पाणी साचणे, हानिकारक जमिनीचे दूषण रसायने, रोगजनकांच्या आणि कीटकांच्या परिचय इ.), ज्यामुळे अनेकदा त्यांची स्वतःची दुरुस्ती करण्याची क्षमता कमकुवत होते आणि कधीकधी काही विशिष्ट प्रजाती गायब होतात. अशा प्रकारे, संवहनी वनस्पतींच्या सुमारे 200 प्रजातींना संरक्षणाची आवश्यकता असते

संशोधन पद्धती :

नैसर्गिक साधनसंपत्ती आणि सत्यपूर्ण विकास या संशोधन पेपर मध्ये संकल्पनात्मक संशोधन पद्धतीचा वापर करण्यात आलेला आहे.

निष्कर्ष :

- आर्थिक आणि पर्यावरणीय सुरक्षा सुनिश्चित करणे
- नैसर्गिक संसाधनांचे मुख्य वैशिष्ट्य म्हणजे त्यांची मर्यादा.
- पर्यावरण संसाधने भौतिक प्रणालींचा भाग आहेत
- नैसर्गिक संसाधने केवळ जीवनातील फायद्यांसाठी समाजाच्या गरजा पूर्ण करण्यासाठीच नव्हे तर मोठ्या प्रमाणात जैव मंडळाची टिकाऊपणा आणि "शाश्वत जीर्णोद्धार" सुनिश्चित करतात.
- नैसर्गिक संसाधनांचा वापर प्रामुख्याने या वस्तुस्थितीमुळे होतो

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साहित्यातील नैसर्गिक संसाधनांचा बदल : (तहान कादंबरीच्या अनुषंगाने)

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भोगावती महाविद्यालय, कुरूकली

मो.नं. ९६०४६३९००९.

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प्रस्तावना :

अनादी अनंत असा निसर्ग आणि मानवी जीवनाचा विकास या दोहोंचा विचार करता कोणीही सांगेल की, निसर्गच श्रेष्ठ आहे. या निसर्गातील मानव हा एक सजीव घटक आहे. मानवाने इ.स.पूर्व किंवा त्याहीपेक्षा आधी—कधीपासून निसर्गाचा उपयोग—वापर आपल्या शाश्वत विकासात करत आलेला आहे. आज आपण एक विसाव्या शतकाचे म्हणजेच विज्ञान युगाचे साक्षीदार आहोत. आपण फक्त पृथ्वी या ग्रहाचाच विचार करत आहोत. निसर्गात किती घडामोडी घडतात. इथे पृथ्वीच्या पोटातील उलथा—पालथ, तिचे स्वतःभोवतीचे फिरणे यावर संशोधन झाले असले तरी या सर्व अनाकलनिय गोष्टी वाटतात. हे झाले पृथ्वी या ग्रहाविषयी. या ग्रहावरील आपल्या मानव प्राण्यांचेही जीवन असेच अनाकलनिय असते. भूतकाळ जगून गेलेला असतो. वर्तमानकाळात तो जगत असतो. भविष्यकाळ माहित नसतो. मानवाचा हाच भविष्यकाळ त्यांचा वर्तमानकाळ एकेका क्षणाने कमी—कमी करत असतो. याची दखल सहजासहजी मनुष्यप्राणी घेताना दिसत नाही. कारण त्याची स्वभाव—वैशिष्ट्ये साधारणपणे दोन प्रकारची असतात. एक सकारात्मक आणि दुसरे नकारात्मक. ही दोन्ही स्वभाव—वैशिष्ट्ये घेऊनच मानवी जीवनाची वाटचाल सुरू असते. तो आपल्या आयुष्याची चिंता कधीही सहजासहजी करत नाही. कारण त्याला त्याची फारशी गरज वाटतच नाही. तो आपले भविष्य घडविण्यासाठी धावाधाव, पळापळ, हपापलेपण, खोटे—नाटे, अप्पलपोटेपण, स्वार्थी यासारख्या रिपुंना जवळ करताना दिसतो आहे. विज्ञानाच्या माध्यमातून भौतिक गरजा निर्माण झाल्या. ऐनकेन प्रकारे त्याची पुर्तताही होऊ लागली. पण नाती—गोती, माणुसकी, भूतदया या गोष्टींना तिलांजली मिळते आहे. असे का होते ? या अशा अनेक विचारांना अनुसरून मी या परिषदेच्या निमित्ताने साहित्यातील नैसर्गिक संसाधनांचा बदल मानवी जीवनात, मानवी मनात का व कसा होतो ? हे सदानंद देशमुख यांच्या “तहान” या कादंबरीच्या अनुषंगाने सांगण्याचा प्रयत्न केलेला आहे.

तहान ही कादंबरी कास्तकार राघोजी शेवाळे, बबन शेवाळे, मुरल्या—छबिल्या हे त्यांचे दोन बैल आणि सारंगपूर गावातील उन्हाळ्याचे चित्र या कादंबरीत येते. इथे जास्त भेडसावतो तो पिण्याच्या पाण्याचा प्रश्न. हा प्रश्न ज्याचा त्याचा होतो आहे. कारण मानवाने निसर्गावर ताबा मिळविण्याचा चालविलेला प्रयत्न होय. मग तो निसर्गातील मातीचा कण का असेना किंवा दवाचा थेंब का असेना, तो निसर्गनिर्मितच आहे.

तहान कादंबरीतील पाण्याचा प्रश्न हा मानवनिर्मित का निसर्गनिर्मित ह्या वादात न पडता निसर्गनिर्मित पाण्याचे दुर्भिक्ष्य जे निर्माण झाले त्याला मानवच जबाबदार आहे आणि या प्रश्नाची उकल करण्यासाठी राजकारण, समाजकारण, गावठी राजकारण, या सगळ्यात एखादी सामान्य व्यक्ती आपली कुवत—ऐपत न लक्षात घेता, एखादा प्रश्न सोडवायला घेते, त्यात सुरवातीला चांगले, मनासारखे अनुभव येतातही. त्यात त्याच्या स्वतःची सावधगिरी राहत नाही. ती कोणी लक्षात आणून देण्याचा प्रयत्न केला तर त्याकडे दुर्लक्ष केले जाते. रोजच्या जगण्यातली ढब बदलली जाते. ती कायमस्वरूपी राहिली याची त्याला कल्पनाही नसते, नव्हे तर त्याला त्याची गरजही नसते. कारण असे की, आपण सगळ्यांपेक्षा वेगळे काही तरी करू शकतो, करू शकत आहे. हा निर्माण झालेला अहंकार आणि त्या अहंकाराची 'काही जणांनी' केलेली पाठराखण हे आहे. याच गोष्टी तहान कथेतील, बबन शेवाळेच्या बाबतीत घडताना दिसतात. सुरवातीला अवसानघातक्या विहिरीवरून बबनने पाण्याची गाडी आणली. याचे कौतुक वडील रघोजी कास्तकरला वाटते. पण पुढे बबन बैलांच्या जीवावर गावाला पाणी विकून पैसे मिळवतोय ही गोष्ट रघोजीला पटत नाही. दिवसेंदिवस बबनचे पाणी विकणे, बैलांचे शोषण होणे आणि रघोजीचे हतबल होणे या तीन गोष्टी तहान या कादंबरीत प्रकर्षाने जाणवतात. त्यातच येते ते प्रमोद नवले नावाचे पात्र. शिक्षण बी.ए. पास. नोकरीसाठी धडपड केली. विनाअनुदान शाळेत दोन वर्षे फुकट काम करूनही बी.एड. नाही म्हणून शाळेला अनुदान मिळाल्यावर त्याला नोकरीवरून काढले. पुढे बऱ्याच खटपटी करून त्याने घरच्या जबाबदाऱ्या पार पाडल्या आणि सरकारी जागेवर अतिआक्रमण करून पानपट्टीची टपरी सुरू केली. सारंगपूरचा पेपर एजंट अपघातात मेल्या. ती एजन्सी प्रमोद नवलेने घेतली. हळूहळू पान टपरीत जीवनावश्यक नसल्या तरी गरजेच्या वस्तू त्याने विकायला सुरवात केली आणि टपरीचे रूपांतर जनरल स्टोअर्समध्ये झाले. जनवार्तेतूनच त्याने वार्ताहर पद मिळविले आणि हळूहळू पत्रकार म्हणून ओळखू लागला. त्याला बबन शेवाळेचे पाणी विकून मिळवत असलेले पैसे खुपू लागतात. शिक्षण आणि कष्ट करून आपल्याला दिवसभरात चाळीस ते पन्नास रुपये मिळतात आणि हे धस्काट मात्र तीन चारशे रुपये सहज कमवतो. त्याची कमाई बंद पाडण्यासाठी प्रमोद नवले अनेक वेगवेगळ्या प्रकारच्या खेळी करतो. रत्ना प्रकरणात अडकवून त्याला पोलीस ठाण्याची धमकी देऊन सोमनाथ पोलीसाकडून मारायलाही लावतो. शेवटी तडजोड दहा हजार रुपयांवर होते. तेव्हा त्याचा पोलीस स्टेशनचा तगादा संपतो आणि इथूनच बबनला आपल्या चुकांची ओळख होऊ लागते. पाणी टंचाईच्या काळात बबनने पाणी विकून भरपूर कमाई केली. घरी टी.व्ही., पंखा, दागदागिने, कपडालत्ता आणि खाण्याची चंगळ वाढू लागली. बबनला मिळणाऱ्या पैशांसमोर मुरल्या—छबिल्या बैलांची होणारी कुतरओढ त्याला दिसेनाशी झालेली होती. रघोजी त्याला सांगायला गेला की तो कानाडोळा करे. त्याची माय रामकोर बबनच्याच बाजूने बोलून रघोजीला गप्प करी. कुणाचाच कुणाला ताळमेळ नव्हता. कारण पैसा मिळवण्याचा अचानक सापडलेला मार्ग नाती, सद्सद्विवेकबुद्धी, भूतदया या सगळ्यांवर कुरघुडी करत होता. पाण्यासारख्या नैसर्गिक साधन संपत्तीतून बबन शेवाळेचा होत असलेला तात्पुरता भौतिक विकास त्याला विनाशाच्या गर्तेकडे घेऊन जाताना दिसतो. आता इथे आपण भूतदयेचा विचार करतो. तो विचार फक्त रघोजीच्याच मानसिक व्यक्तिमत्त्वाशी जोडला गेलेला आहे. त्याचे हे व्यक्तिमत्व कौटुंबिक स्तरावरही

जिव्हाळ्याचा विचार करताना दिसते. असा हा रघोजी कास्तकर बैलांशी नाते जपून ठेवणारा, माणूसकी जपणारा, रूढी, परंपरा, कृषि संस्कृतीची मनापासून जपणूक करणारा आहे. मोठ्या कष्टाने वाढविलेले, जपलेले बैल बबनने पाण्याच्या धंद्यासाठी जुंपलेले त्याला सहन होत नाही. त्यांच्याकडे होणारे अक्षम्य दुर्लक्ष, त्याच्या तनामनाची तगमग वाढवताना दिसते. परंतु बदलत्या जीवनशैलीचा, वातावरणाचा परिणाम तो सहजा—सहजी पचवू शकत नाही. चांगल्या जुन्या मुल्यांचा बळी जाताना तो आतून तिळ—तिळ तुटतो आहे. बबनने मिळवून आणलेला पैसा त्याची पत्नी रामकोरच्या हातात येत असतो. रिणामी, नवऱ्यापेक्षा तिला आता मुलाची मिळकत मोलाची वाटत असते. ती रघोजीचा घडोघडी अपमान करते. या सगळ्या परिस्थितीसमोर हतबल झालेला रघोजी घरातल्या संघर्षाबरोबरच समाजातील विरोधाचाही बळी ठरताना दिसतो. बाहेरच्या लोकांना वाटते, आता रघोजीच्या घरी पाणी आणि पैसा दोन्ही येत आहे. आता त्याला कोणत्याच टंचाईची झळ नाही. गावातील लोक लोकप्रतिनिधीच येणार म्हटल्यावर मोर्चे काढणार असतात. त्या मोर्च्यात रघोजी सामील होतो. इथेही त्याला घरच्यांचा विरोधच असतो. या मोर्च्यात पोलीसांकडून वातावरण तंग केले जाते. लाठीमार, पळापळी, चेंगराचेंगरी होते. त्यात एका खड्ड्यात रघोजीचा पाय पडतो आणि जायबंदी होतो. री रामकोरच्या शिव्या ऐकतो. पण गावकऱ्यांचा आदर मिळवतो. बबनला केलेल्या कर्माचा पश्चात्ताप होतच असतो. बापाची केविलवाणी अवस्था बघून पाण्याचा 'खाडा' करतो आणि रघोजीला दवाखान्यात घेऊन जातो. त्याचे सगळे इलाज करतो. चार दिवस दवाखान्यात राहून रघोजीला घरी आणतो तो हातगाडीवरून. त्याला बघायला सारा गाव लोटलेला असतो. आता या प्रसंगाला मिरवणूकीचे स्वरूप आलेले असते. रघोजी एखाद्या शांत संतासारखा दिसतो आणि घरी आल्यावर पुन्हा रामकोरच्या शिव्याच ऐकतो. लोकांनी जो पाण्यासाठी मोर्चा काढला त्याचा परिणाम म्हणून पाण्याचा टॅन्कर तर सुरू होणारच होता. त्यामुळे बबनचा पाण्याचा धंदा बसणार याची जाणीवही रघोजीला होतीच. कास्तकार म्हणून बारा महिने धंदा असणार तर पाण्याचा धंदा काही महिन्यांपुरताच असणार. ह्या वास्तवाच्या जाणीवेपोटीच रघोजीने गावकऱ्यांना साथ दिलेली होती आणि घरच्यांना विरोध. या सगळ्या होऊन गेलेल्या घटनांमुळे बबन हळूहळू ताळ्यावर येऊ लागला होता. पाण्यासाठी त्याने मुरल्या—छबिल्याची हाडं काढली होती. गावकरी त्याला त्याच्या कर्माची जाणीव करून देताना म्हणत होते, 'तुझा बाप पाण्यासाठी उपोषण करत व्हाता गावात, अन् तू इकडे दीड दमडीचे हांडाभर पाणी देऊन त्या भोळ्या पोटीवर अशी तहान भागवत होता?' त्याला हातकड्या घालायला पाहिजेत. (सदानंद देशमुख, 'तहान', २ री आवृत्ती, पृ.क्र.९४) हे पण एक कारण बबनच्या बदलाला कारण ठरले. एका पायाने लंगडा झालेल्या रघोजीला मात्र सगळे जगच लंगडे झाल्यासारखे वाटत होते. परिणामी, बाप—लेकातला संघर्षही निवळत होता.

स्वतंत्र भारतातली परिस्थिती मात्र दिवसेंदिवस बिकटच होत चाललेली दिसते. नदी जोड प्रकल्प, समुद्राच्या पाण्यावर गोड्या पाण्याची प्रक्रिया, घरोघरी नळाचे कनेक्शन या आज दिली जाणारी खोटी आश्वासने साधारणपणे 'तहान' कादंबरीच्या आसपासचा काळ पाहता, स्वतंत्र भारताला ५० वर्षे तरी उलटून गेलेली आहेत. पाणी टंचाई दिवसेंदिवस वाढतच आहे. खेड्यांचा विकास म्हणून वृक्षतोड, जंगलतोड यामुळे होणारा पर्यावरणाचा न्हास, निसर्गाला आलेली अवकळा, जीवनमान सुधारू लागले, परंतु हवा प्रदुषण, पाणी

प्रदुषण, आरोग्याचे प्रश्न निर्माण झाले. शहरात नळाने पाणी पुरवले जावू लागले आणि खेडे मात्र पाणी टंचाईने ग्रासून गेले. हीच परिस्थिती बबन शेवाळेसारख्या तरूणाला तात्पुरती दिशा दाखवते आणि त्याच्या वास्तवातील जगण्याच्या दाहीदिशा करून टाकते. याला प्रशासनही कळत नकळतपणे हातभार लावतच असते. त्याचे असे होते. ग्रामीण भागातील प्रश्नांचा निपटारा करण्यासाठी कोटयावधी रूपयांचा आराखडा आखत असते. प्रत्यक्षात खर्च किती झाला, याचा कधीही अंदाज लागत नाही. जर दरवर्षी दुष्काळ पडत राहिला तर पाण्याच्या दुष्काळात आपल्या घरी पैशांची गंगा येईल असेच त्यांना वाटत राहते. या योजनांमध्ये बोअरींग (हाफशे) जागोजागी मारून जमिनीच्या नसा आखडतात. तरीही त्या कापून—कापून त्यातलं पाणी अक्षरशः ओरबडून घेतलं जातं. या परिस्थितीत माणसं आणि त्यांची पाळीव जनावरं काय करणार ? इथं शाश्वत विकासाचा कोण पायंडा पाडणार आणि कोणाचा शाश्वत विकास होणार ? आणि होत राहणार ? हे प्रश्न आहेत. याची उत्तरेही आपणा सर्वांना माहिती आहेत. परंतु बोलणार कोण ? हा पण प्रश्न असतोच. प्रत्येकाला माझां बरं चाललंय ना ? मग झालं ! ही भूमिका आहे आणि या भूमिकेला जबाबदार आहेत ते तुमच्या आमच्यासारखी सर्वसामान्य जनता. 'तात्पुरत्या स्वार्थासाठी' आपण स्वतःला कोणाच्या तरी गोठ्याला बांधून घेतो आणि मग आपली पुढची पिढीही त्याच मार्गावर चालण्याचा प्रयत्न करते. कसा होणार शाश्वत विकास ? निसर्गाकडून मिळणाऱ्या पाण्यासारख्या प्रश्नांचा उहापोह 'तहान' कादंबरी करते. त्यातला बबन शेवाळे हा प्रतिनिधी आहे की तो, गावच्या पाण्याचा 'प्रश्न', त्याला याच्याशी काही देणे—घेणे नाही. तो एक सामान्य कास्तकऱ्यांचा मुलगा, पण स्वतःच्या घरातील हक्काची ताकद की जी शेतकऱ्याची असते, तीच तो पणाला लावतो. पैसा मिळत जातो, त्याची बुद्धीही भ्रष्ट होते. जेव्हा तो ताळयावर येतो, तेव्हा त्याला आपल्या हातात काहीच नाही, जे होते ते ही नाहीसे झालेले त्याच्या लक्षात येते आणि मग त्याला आपण केलेल्या चुकांची जाणीव होते. 'तात्पुरत्या स्वार्थासाठी' त्याचे जगणे हे त्याला वैफल्यकडे नेताना दिसते. या कादंबरीतील बबन शेवाळे हा ग्रामीण भागातील अनेक प्रश्नांचा प्रतिनिधी असतो की जो तात्पुरत्या सोयी पाहतो. तात्पुरते कौतुक करून घेतो. त्याचा आपल्या जीवनाचा अविभाज्य भाग समजतो. हळूहळू त्याचे जगणे बदलते. त्याच्या कष्टाचे 'ग्लॅमर' कमी होऊ लागते. हे त्याच्या लक्षात येत नाही. त्याला सहन न करू शकणारे, प्रमोद नवले जागोजागी असतात. पण थोड्या कालावधीसाठी स्वतःच्या तंद्रीत असणाऱ्या बबन सारख्यांना मात्र त्याचा थांगपत्ताही लागू दिला जात नाही. त्याला अनेक अडथळ्यांना सामोरे जावे लागते. जगणे असह्य होते आणि मग दिसतात ती शाश्वत नाती. यातूनच आजच्या या परिषदेच्या निमित्ताने साहित्यातील नैसर्गिक संसाधनांचा बदल मानवी जीवनात सकारात्मक आणि नकारात्मक ही शाश्वत बदल घडवू शकते असे म्हणायला काही हरकत नाही.

सारांश :

प्रस्तुत निबंधात 'नैसर्गिक संसाधने आणि शाश्वत विकास' या विषयावरील होत असलेल्या चर्चासत्राच्या निमित्ताने मी साहित्यातील नैसर्गिक संसाधनांचा बदल (तहान कादंबरीच्या अनुषंगाने) या विषयावर निबंध लिहिला. तसे पाहता, निसर्गनिर्मित साधनांच्या साहज्याने मानव आपला शाश्वत विकास करू शकतो का ? हा प्रश्न जगभरातील प्रत्येक व्यक्तीला भेडसावणारा आणि या पृथ्वीवरील निसर्गात

अगणित, असंख्य अशा अनेक गोष्टी आहेत. त्यातील आणखी काही गोष्टी असतील की त्या मानवाला माहितही नसतील. तरीही शाश्वत विकास आपण म्हणतो.मी जो निबंध लिहिलेला आहे, त्या निबंधात फक्त एका गावातील निर्माण झालेला पाण्याचा प्रश्न आणि या प्रश्नाचा थोडाफार भार स्वतःच्या स्वार्थासाठी उचलणारा बबन. आता इथे बबन का येतो तर त्याच्या हातात फक्त बैलांचा कासराच आहे. बैल जीवसृष्टीचा एक भाग. पाणी निसर्गनिर्मित. आता जीवसृष्टी आणि निसर्ग यांची हातात हात घातलेली सांगड असते. जर मानवाने सद्सद् विवेकबुद्धीचा उपयोग करून या सांगडीतील काही गोष्टी प्रामाणिकपणे घेण्याचा प्रयत्न केला तर त्याला फारसा निसर्ग आणि जीवसृष्टी विरोध करत नाही. पण जर जीवसृष्टीला आणि निसर्गाला ओरबडण्याचा प्रयत्न केला तर हे दोन्ही घटक आपापल्या पध्दतीने वाटचाल करतात आणि बबनसारखे क्षुल्लक मनुष्य मात्र हतबल होतात. यातून मला काही निष्कर्ष मिळाले, ते पुढीलप्रमाणे :-

निष्कर्ष :

१. मानवाला आपणही निसर्गाचाच एक घटक आहे याची जाणीव ठेवावीच लागते.
२. जीवसृष्टी आणि निसर्ग या दोन्ही घटकांना एकत्र बांधण्याची किमया प्रत्येक ठिकाणचे वातावरण करत असते. त्यात मानवाचा हस्तक्षेप जेमतेमच असावा.
३. निसर्गातील प्रत्येक गोष्टीचा उपयोग पृथ्वीवरील समस्त मानव जातीने गरजेइतकाच करावा.
४. सद्सद् विवेकबुद्धीचा उपयोग मनुष्यप्राणी करतो. त्यातून तो शाश्वत विकासही करतो. त्यात त्याला इतरांचे भले नाही करता आले तरी तो स्वतःपुरते तरी जगण्याची शाश्वती मिळवत असतो. (उदा. रघोजी शेवाळे)
५. मानवाची जर सद्सद् विवेकबुद्धी भरकटली तर त्याला निसर्ग आणि जीवसृष्टी या दोन्हींचा रोष पत्करावा लागतो. (उदा. बबन शेवाळे)
६. समाज पुरुष सद्सद् विवेकबुद्धीहीन मनुष्याला नेहमीच दोषी ठरवत असते.

एकूणच जीवमूल्ये जोपासणाऱ्या व्यक्तींना नेहमीच संघर्ष करावा लागतो. मग ते स्वरूप कौटुंबिक, सामाजिक, राजकीय, वैयक्तिक असो. या तहान कादंबरीत मात्र रघोजी शेवाळेने जी जीवनमुल्ये जपली आहेत, ती शाश्वत स्वरूपाचीच आहेत, हे या परिषदेच्या निमित्ताने नमूद करावेच लागते.

संदर्भ सूची :

१. तहान कादंबरी. लेखक सदानंद देशमुख, कॉन्टीनंटल प्रकाशन.

‘ग्रामविकास’ एक काळाची गरज

प्रा. अरुण सदाशिव कटकोळे

इतिहास विभाग प्रमुख,
दत्ताजीराव कदम आर्टस्, सायन्स अँड कॉमर्स कॉलेज,
इचलकरंजी.

प्रस्तावना :

प्रत्येक देशाचा विकास हा त्या देशातील ग्रामीण जनतेच्या, ग्रामीण भागाच्या विकासावर अवलंबून असतो. त्यातल्या—त्यात भारत हा कृषीप्रधान देश आहे. त्यामुळे ग्रामीण भागाच्या विकासाच्या तुलनेने जरा जास्तच महत्त्व आहे. गावातील नागरिकांच्या दैनंदिन गरजा, अडचणी दूर करण्यासाठी, त्याचबरोबर नागरिकांच्या सोयीसाठी, प्रगतीसाठी व विकासासाठी केलेल्या सर्व कार्याचा समावेश ग्रामविकास कार्यात होतो. ग्रामविकासासाठी शिक्षण, रोजगार, आरोग्य, पाणी सारख्या सुविधा खेड्यात निर्माण होतील. उद्योगांची निर्मिती खेड्यात झाल्यास शेतीमधून निर्माण होणाऱ्या कच्च्या मालावर प्रक्रिया करून वस्तू निर्माण होतील, बाजारपेठ उपलब्ध होईल. युवकांना रोजगार मिळेल. देशाचे उत्पन्न वाढण्यास मदत होईल गाव संपन्न झाल्याने आर्थिक व सामाजिक कारणामुळे निर्माण होणारे मतभेद कमी होतील. ग्रामविकासासाठी गावातील सर्व युवकांनी एकत्र येऊन प्रयत्न करणे गरजेचे ठरले आहे. अन्यथा अनेक समस्यांना सामोरे जावे लागेल.

उद्दिष्टे :

१. ग्रामविकास ही काळाची गरज आहे. हे अधोरेखित करणे.
२. ग्रामविकासास अडथळा आणणाऱ्या समस्या जाणून घेणे.
३. ग्रामविकास साध्य करण्यासाठी कोणत्या उपाययोजना करता येतील याचा आढावा घेणे.
४. ग्राम विकासात ग्रामस्थांची, युवकांची साथ मिळाल्यास कशाप्रकारे यश साध्य करता येईल याचा अभ्यास करणे.

आपले गाव स्वयंपूर्ण झाले पाहिजे, गावाच्या गरजा गावातच भागल्या पाहिजेत हे महात्मा गांधींचे स्वप्न होते. आजवर भारताला स्वातंत्र्य मिळून ७० वर्षे झाली. ७० वा प्रजासत्ताक दिन आपण साजरा केला तरी ग्रामविकासाची तसेच अनेक आव्हानांनी भरलेला आपला देश अनेक समस्यांशी लढत आहे. महात्मा गांधींनी पाहिलेले स्वयंपूर्ण गावाचे स्वप्न आज ही पूर्ण झालेले दिसत नाही. भारतामध्ये स्वातंत्र्यानंतर औद्योगिकीकरणाचा वेग वाढला. उद्योग वाढले परंतु हे सर्वच उद्योग मोठ्या शहरात वाढताना आपणास दिसत आहेत. परिणामी गावे अविकसित राहिलेली दिसतात. आजही अनेक गावामध्ये शिक्षण, पाणी, आरोग्य व रोजगार या किमान पायाभूत गरजा पूर्ण होऊ शकल्या नाहीत. त्यामुळे शिक्षण आणि रोजगारासाठी अनेक गावातील तरुण युवकांचे लोंढे पुणे—मुंबईसारख्या मोठ्या शहराकडे वळू लागले. खेडी उजाड पडू लागली. तेथील तरुण शक्तीच संपुष्टात येऊ लागली आहे. यामुळे तेथील विकाससुद्धा खुंटीत झाला आहे. शहरामध्ये मात्र अनेक झोपडपट्ट्या निर्माण झालेल्या दिसतात व लोकसंख्या वाढीमुळे नगरविकासावर विपरित परिणाम झालेला दिसून येतो.

आज अखेरीस भारतामध्ये सुमारे ६ लाख ग्रामपंचायती आहेत. जवळपास ६५ टक्के लोक आजही खेड्यात राहतात. खेड्यामध्ये राहिलेले लोक तेथेच राहिले तर ग्रामविकास शक्य आहे. अन्यथा केंद्र सरकार तसेच राज्य सरकार वा स्वयंसंस्थांच्या माध्यमातून केले जाणारे सर्व प्रयत्न निरर्थक ठरतील. आज अनेक गावातील समस्या सारख्याच आहेत. त्या सोडविण्यासाठी विविध पातळ्यावर प्रयत्न करणे गरजेचे आहे. ग्राम पातळीवर येणाऱ्या समस्येपैकी काही समस्या पुढीलप्रमाणे—

अ) पाणी :

देशापुरे आज जे अनेक प्रश्न आहेत व विकासातील ज्या त्रुटी आहेत त्या त्रुटींमध्ये पाण्याची समस्या आज आपल्याला फार मोठ्या प्रमाणात भेडसावत आहे. ग्रामीण भागातील सर्वात महत्वाचा प्रश्न म्हणजे पाण्याचा अपुरा पुरवठा होय. आजही अनेक खेड्यांमध्ये उन्हाळ्यामध्ये पाण्याची भीषण टंचाई निर्माण होते. अनेक ठिकाणी पाणी उपलब्ध असले तरी ते पाणी पिण्यायोग्य असतेच असे नाही. ग्रामीण भागामध्ये पाण्याचा वापर शेतीसाठी मोठ्या प्रमाणात केला जातो. गावामध्ये विहिर, कालवे, नदी यासारखी माध्यमे असतील तरच शेतीसाठी पाणी उपलब्ध होऊ शकते. अन्यथा पावसावरच शेती अवलंबून असते. आणि ज्या ठिकाणी विहीरी, कालवे, नद्या यासारखे स्रोत उपलब्ध आहेत त्या ठिकाणी अज्ञानामुळे पाण्याचा अयोग्य वापर होताना दिसतो. पाणी वापरामध्ये लोकांमध्ये सुज्ञानता आणून पाण्याचा योग्य वापर करण्यासंबंधी उपाययोजना तसेच जागृती करणे गरजेचे आहे.

ब) शिक्षण :

ग्रामीण भागात अशिक्षित लोकांचा जास्तीचा भरणा आहे. ग्रामीण भागातील अनेक ठिकाणी शैक्षणिक सोयीसुविधा न पोहोचल्यामुळे येथील शिक्षण आणि साक्षरता मागे पडली आहे. काही ठिकाणी शिक्षण पोहोचले आहे परंतु तेथील दर्जा ढासळला आहे. त्यामुळे ग्रामीण भागातील विद्यार्थ्यांमधील शिक्षण गळतीचे प्रमाण खूप मोठ्या प्रमाणावर आहे. ग्रामीण भागामध्ये शिक्षणाच्या योग्य सोयी-सुविधा नसल्यामुळे अनेक लोक शहराकडे आपल्या पाल्यास पाठवून देतात. प्रसंगी कुटुंबासहित शहराकडे स्थलांतरित होतात. परिणामी ग्रामीण भागातील शिक्षणाचा दर्जा वाढण्यास अडथळे निर्माण होतात. ग्रामीण भागातील प्रत्येक मुलाला शिक्षण मिळाले तर भविष्यात प्रौढ शिक्षणाचा प्रश्न आपोआपच संपुष्टात येईल. त्याचप्रमाणे लोक अंधश्रद्धेला बळी पडल्याचे दिसून येते. या सर्व प्रकारात ग्रामीण भागातील लोकांची जागृती करणे आवश्यक आहे.

हे ग्रामीण भागातील अनेक ठिकाणचे सर्वसामान्य प्रश्न आहेत. हे प्रश्न सोडवले गेले तर निश्चितच ग्रामविकासास चालना मिळेल.

ग्राम विकासासाठी आवश्यक घटक :

ग्रामीणविकास ही एक सातत्यपूर्ण प्रक्रिया असून ती कधीही न संपणारी गोष्टी आहे. ग्रामीण विकास साध्य करण्यासाठी काही मुलभूत घटक आवश्यक असून त्यांना स्थान दिले तर जलद ग्रामविकास साध्य करण्यास त्याची मदत होईल. ते घटक पुढीलप्रमाणे—

अ) लोकसहभाग व लोकपुढाकार :

कोणतेही कार्य सिद्धीस नेत असताना सर्व स्तरातील व्यक्तींची साथ हवी असणे अत्यंत गरजेचे असते. त्यासाठी आपल्या लोकांची मानसिकता बदलणे अत्यंत आवश्यक आहे. सर्व सुविधा शासनाकडून पुरवल्या जातात हा एक आशावाद सर्वसामान्य लोकांमध्ये निर्माण झाला आहे. परंतु सर्वच गोष्टी शासन स्तराकडून सोडवल्या जाऊ शकत नाहीत. उदा. खते, पाणी, रोजगार शासन वेळेत पुरवू शकणार नाही. हे सर्वांना माहित आहे म्हणून ग्राम पातळीवर ग्रामीण युवक मंडळे, गावातील तरुण लोक या सर्वांनी स्वतःहून एकत्र येऊन ग्रामविकासाच्या कार्यात सहभाग घेतला पाहिजे. ग्रामीण पातळीवर अनेक विकासात्मक योजना राबविल्या पाहिजेत.

ब) ग्रामस्थांची मानसिकता :

कोणतीही प्रक्रिया पूर्ण करण्यासाठी आपली मानसिकता असणे आवश्यक आहे. ज्या गावाचा विकास करायचा आहे त्या गावातील बहुसंख्य नागरिकांचा विकासासाठी सहभाग आवश्यक आहे. कोणत्याही चांगल्या कार्यास सहजासहजी कोणी विरोध करत नाही परंतु या प्रक्रियेमध्ये काही निर्बंध स्वतःवर घालून घ्यावे लागतात आणि ते निर्बंध पाळावे लागतात. उदा. चराई बंदी, कुन्हाड बंदी, नशाबंदी, नसबंदी इत्यादी सर्व बंधने ग्रामस्थांनी पाळणे आवश्यक आहे. गावामध्ये पार पडत असलेल्या विकासकामांना आपला पाठिंबा तसेच प्रत्यक्ष कार्याचा हातभार लागणे गरजेचे असते.

क) श्रमदान :

केंद्र सरकार तसेच राज्य सरकारकडून ग्रामविकासासाठी अनेक योजना आखल्या जातात. या योजनेमध्ये गावातील तरुण युवक, ग्रामस्थांनी उत्स्फूर्तपणे सहभागी होणे आवश्यक असते. श्रमदानामध्ये गावातील सर्व नागरिकांचा सहभाग असला पाहिजे. श्रमदानाच्या माध्यमातून गावातील रस्ते दुरुस्ती, छोटे बंधारे, मैदान सपाटीकरण, वृक्षारोपण, विहिर सफाई, नाले सफाई, पाणलोट क्षेत्राचा विकास करणे, इत्यादी असे कितीतरी उपक्रम राबविता येतील आणि या माध्यमातून ग्रामविकास साधता येईल. याचबरोबर श्रमदानामुळे लोक एकत्र येण्यास, योजनेची उपयुक्तता समजण्यास मदत होईल. त्याचबरोबर ग्रामस्थांमध्ये एकोपा, एकात्मता, सलोखा निर्माण होण्यास मदत होईल. म्हणून श्रमदान हा ग्रामविकास कार्याचा महत्वाचा घटक आहे, असे म्हटले तर वावगे ठरणार नाही.

ड) धर्मनिरपेक्ष विकास :

ग्राम पातळीवर अनेक ठिकाणी बारा बलुतेदार पद्धती अस्तित्वात असते. त्यामुळे तेथे अनेक जाती-पातीच्या व्यक्ती एकत्रित असलेल्या दिसून येतात. ग्रामविकासाच्या सर्व कार्यात सर्व जातीधर्माच्या लोकांचा विकास असावा. त्याचबरोबर ग्रामविकासातून किंवा कोणत्याही योजनेद्वारे मिळणारे सर्व फायदे गावातील सर्व लोकांना समान आणि सर्वापर्यंत सर्वांसाठी उपलब्ध होतील यासाठी जाणीवपूर्वक प्रयत्न करणे गरजेचे आहे. सर्व जातीधर्मातील लोकांसाठी ग्रामविकास योजनेद्वारे फायदे मिळणे आवश्यक असते.

इ) संघर्ष नव्हे सहकार्य :

कोणत्याही विकासाची व प्रगतीची सुरुवात सहकार्याने होत असते. आणि यशसुद्धा सहकार्याच्या माध्यमातूनच मिळत असते. म्हणून विकास ही प्रक्रिया राबवत असताना कोणताही संघर्ष निर्माण होणार नाही याची काळजी घेणे आवश्यक असते. कोणत्याही प्रकारचे मतभेद असणार नाहीत, शांततेच्या मार्गाने अनेक प्रश्न सोडविता येतील आणि पार पडलेल्या सर्व कार्यावर विश्वास ठेवणे आवश्यक आहे. यासाठी सर्वांच्या सहकार्याची आवश्यकता असणे गरजेचे आहे. सहकार्याच्या माध्यमातून गावातील अनेक महत्वाकांक्षी प्रकल्प, योजना पूर्ण करण्यास मदत होईल.

ई) तरुणांचा सहभाग :

युवक हीच समाजाची शक्ती आहे. परंतु अशा युवा शक्तीचा ग्रामीण भागातील मोठ्या प्रमाणावर वापर होताना दिसत नाही. बऱ्याच वेळेस गावपातळीवर करण्यात येणाऱ्या कार्येमध्ये तरुणांना सहभागी करून घेतले जात नाही. शैक्षणिक कालावधीमध्ये युवकांकडे मोठा रिकामा वेळ उपलब्ध असतो. अशा वेळेचा योग्य वापर केल्यास समाज विधायक अनेक कामे पूर्ण होऊ शकतात. महाविद्यालयीन शिक्षण घेणारे, नोकरीच्या शोधात असणारे युवक ग्रामविकास कार्यात सहभागी करून घेतल्यास निश्चितच उपयोग होईल. युवकांनी जर ग्रामविकासात मन लावून सहभाग घेतला तर अनेक कार्ये यशस्वी होण्यास मदत मिळेल. उदा. राष्ट्रीय सेवा योजनेअंतर्गत अनेक युवक सहभागी होऊन बंधारा बांधणे, वृक्षारोपण कार्यक्रम, नाले सफाई इत्यादी कार्ये पार पाडली जातात. हे एक युवाशक्तीचे यशच म्हणता येईल. आजच्या युवकांनी फक्त १५ ते २० जरी खेड्यात जाऊन ग्रामविकास कार्यात सहभाग घेतला तर आपल्या देशाला एक संपन्न देश बनण्यास वेळ लागणार नाही.

समारोप :

अशाप्रकारे शोधनिबंधामध्ये ग्रामविकासाद्वारे शिक्षण, आरोग्य, रोजगार, पाणी पुरवठा यासंबंधीचे अनेक प्रश्न सोडविता येतील. अर्थातच ग्रामविकासाद्वारे महात्मा गांधींचे स्वयंपूर्ण गावाचे स्वप्न पूर्ण होण्यास मदत होईल. शहरीकरणाचे आणि मोठ्या शहरांच्या अनेक समस्या उदा. झोपडपट्टी वाढणे इत्यादी प्रश्न कमी होतील. म्हणून सद्य काळाची परिस्थिती पाहता ग्रामविकास करणे ही काळाची गरज आहे. यासाठी केंद्र तसेच राज्य शासनाच्या सहाय्याने प्रयत्न करणे गरजेचे आहे. त्यासाठी तरुणांनी सहभाग आणि पुढाकार घेतला पाहिजे.

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