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Science, Technology and Society: A Global Perspective

Editor
Dr. Arvind Yelpale

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Shahajiraje Mahavidyalaya, Khatav At- Post Khatav, Teh.- Khatav, Dis- Satara in Maharashtra (India) has organized One day International Conference on the theme of ***"Science, Technology and Society: A Global Perspective (IESTSGP-2023)"*** held at 28th December 2023

Dr. Praveen G. Saptarshi,Visiting Professor, Salisbury University, USA and deliverd the lecture as ***key note person*** 28th December 2023.

Prof. Dr. S. D. Shinde, Head Department of Geography, Shivaji University, Kolhapur, Muhammad Yasir, China University of Petroleum, Qingdao, China resource person and ***Dr. Prakash Ratanlal Rodiya***, Assistant Professor.Department of Commerce, Rajarshi Shahu Mahavidyalaya Autonomous Latur Maharashtra, ***Dr R. L. Rupwate***, Head Dept. of Geography, B. N. N. College Bhiwandi Dist-Thane, ***Prof. (Dr.) Namdev V. Telore***, Professor, Raja Shripatrao Bhagawantrao Mahavidyalaya, Aundh, (Satara), M.S., ***Prof. (Dr.) R. K. Nimat***, Professor, Balasaheb Desai College, Patan. Dr. Deshpande Vishwas Yashwant, Professor in Zoology, Yashavantrao Chavan Institute of Science, Satara, ***Dr S. M. Khetre***, Professor, Dahiwadi College, Dahiwadi, ***Dr. Dhanaji Suresh Dalavi***, Assistant Professor, Krishna Mahavidyalaya, Rethare Bk, ***Dr. Dadasaheb Rajaram, Phadatare***, Associate Professor, Dept. of Mathematics , Balasaheb Desai College, Patan Konkawere played greatest role as the Chair person.

Chief Organizer: Prin. Dr. Arvind Yelpale, Shahajiraje Mahavidyalaya, Khatav, Convener: Pramodini Kamble, Assistant Professor and Head Dept. of Botany, Conference Secretary: R. N. Kharade, Conference Chairman: N. H. Jadhav, Conference Chairman: Dr. P. B. Kamble, Conference Director: Dr. Mayur N. Yelmar have taken lots of efforts to success of the conference.

Shahajiraje Mahavidyalaya, Khatav At- Post Khatav, Teh.- Khatav, Dis- Satara in Maharashtra (India) has given the opportunities to various research schlars and academician to present and publish their research papers in this conference and encourage them for their academic achievemet.

Best wishes on behalf of Fern International Publication Pune for ongoing educational activities to continue in the Shahajiraje Mahavidyalaya, Khatav At- Post Khatav, Teh.- Khatav, Dis- Satara, Maharashtra (India).

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Content…

Review of Management Science in Capital Market

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Abstract:

In this paper I primarily focused on the mathematical use of Management Science in Capital Market. It is necessary to move with a specific framework covering all aspects of applying those techniques to understand Management Science or Operation Research in Capital or the financial market. In the first place, the Research Paper discusses the attractiveness and application of operational research in the Capital market. The research paper also presents the frequency and the percentage of the use in Capital markets of various operational strategies, which analyses the proportion of the service within certain operational principles. The paper also highlights different financial challenges and how the study has applied them: decisions on financing, economic understanding, strategic difficulties, regulatory and legal problems, and financial market imperfections.

Keywords: Management Science, Capital Market, Funding Decisions, Economic Understanding, Strategic Issues ,Challenges.

Introduction: In the area of financial, mathematical, engineering and other literature, there are still more papers on applying OR techniques. A total of several thousand papers apply OR methods to financing in university journals. Often, OR has played a role in the introduction of new theories of finance on the capital markets [4]. Also, investment banks have hired personnel qualified for quantitative methods, like OR, to develop prices equations and analyse market data - so-called quanta or rocket scientists. This has been part of the uses of mathematical models in capital. This includes trading decisions by decision-makers in financial markets (e.g., the debt, equities and exchange markets and the related derivatives markets) and the latest and increasing field for the use of OR finance techniques. This article does not take into account the more traditional applications of OR to the financial management of the firm: working capital administration (which can be divided into cash management, receivables and liabilities), investment in capital (including the assessment and execution of large-size interdependent investments), multinational taxation and financial planning models [2]. Models for the forecasting and forecasting of bankruptcy movements in financial markets are not regarded as being outside of the scope of this paper.

Captivation of Financial trouble: These problems are almost always monetarily expressed to maximized income or minimized risk, and related quantifiable variables. In

financial problems there is a sense of concern, this concern is to identify the correct issue. What affects the mean and variance of the portfolio is evident when the share of a portfolio invested in an asset is increased. The resulting OR model often shows the reality of the situation, especially since the non-quantitative factors are often small. An additional benefit to financial issues, in contrast with other areas where complexity and in applicability are greater, is that a solution created can actually be enforced. The availability of real-time data is also an advantage and solutions are also easily deployed. Moreover, as trade frequently requires large amounts of money in the stock system, even a very minor change in the solution might save a lot of money. Also, these problems appear to recur occasionally, so only one solution will save several transactions. This size and repeat make it more enticing to create an OR model than small or one-off decisions. As financial applications, particularly financial markets, consist primarily of numerical quantities with particular boundaries and targets, with the simple interplay between variables, OR contributes to changing the quality of the least-favoured long-term decisions [3].

Various principles of Mathematical science in Capital Market: The table shows the frequency of use and the percentage of use for each financial-sector operational technique for all these techniques to be classed and analysed.

Technique	Frequency of use	Percentage
Linear Programming	97	20.17
Goal Programming	4	0.83
Integer Programming	0	0.0
Dynamic Programmi9ng	14	2.91
Stochastic Programming	45	9.36
Forecasting	15	3.12
Simulation	25	5.20
Queuing	3	0.62
Heuristics	4	0.83
Statistical Analysis	85	17.67
MIS/EDP	18	3.74
Other Techniques	171	35.55

Table 1: The application of Management Science techniques in the capital markets

The study revealed that statistical analysis and linear programming, the preferred methods used 20 years ago, continue to be one of today's main methods. Linear Programming has become more common because of technological developments such as data envelopment analysis (DEA). Linear programming, statistical analysis, other approaches, stochastic programming, simulation and MIS/EDP are the most commonly used technologies, as seen in the table. Concepts or strategies play an essential role in selecting users of those techniques. Linear Programming is one of the most important techniques used, and even in multiple factors and variables, it contributes to optimization.

Financial issues and contribution to these areas through Management Science: The following points illustrate the importance of operational analysis to these financial problems and the use of various methods used to solve them:

Funds increasing: Management Sciences is also used to help companies determine the best way to collect capital from financial markets to fund different activities undertaken by the company. In 1983, mathematicians including Brick, Melon, Surkis, and Mohl developed a lucky linear programming model in order to calculate debt/equity value values that help companies maximize the value of their products [7]. Other studies have identified the option between different financing styles as a linear objective programming issue used to identify decisions about the lower cost financing for multinational corporations' different investment projects [6].

Strategic problems: Therefore, as traders on the stock market aim to make money, all traders are seeking at attractive rates and big trades are also divided into a series of smaller trades. The game theory has analyzed these financial decisions. This OR strategy is used to resolve a strategic bond issue by dividing large businesses into smaller businesses.

Regulatory and legal problems: Techniques of operational analysis have helped to monitor the massive and very fast financial flows into and from the financial markets. It contributed to regulating the bank's reserves of resources. It helped to ensure compliance with various legal requirements through the development of suitable strategies. The value at risk needs to be quantified to know the amount of capital required by the company.

Economic understanding: In addition to enhancing the consistency of decision-making in financial market considerations, the OR also helps recognize the economic power in the financial sector. If the limitations or costs of meeting existing constraints are changed endogenously, financial innovation in OR takes place.

Defects in Capital Markets: The trader wants to find in the stock market imperfections that can be manipulated to make gains simple money. One factor is the search for poor inefficiency in terms of type. The existence of non-arbitration relationships between prices and these minor differences can be manipulated by arbitration to generate massive quantities of undeserved, irresponsible income is an essential feature of financial markets. Models of OR networks were frequently used to find opportunities between currency sets. This issue can be defined as a maximum flow network in order to maximize the flow of funds from the network or as the network with the shortest distance.

Management Science techniques applied in Capital markets:

Portfolio Theory: Portfolio theory, a quadratic problem of programming used particularly to solve financial issues was invented by Henry Markowitz. Individuals engaged in financial markets typically want diversified portfolios, as this offers risk reduction benefits without changing the anticipated return rates [5]. The danger is modeled using the variance as returns create a linear target function, which results in an objective function with quadratic variance and covariance terms. In addition, the

Markowitz model imposes non-negation limitations on the decision variables to exclude short sales of the asset. The more general problem of the quadratic programme, Markowitz also built solution algorithms.

Applications of quadratic programming in capital markets: Although theoretical portfolio use is most common in equity portfolios, many implementations of this principle are available. Quadratic programming is used in financial markets the following way:

• The square programming of pension funds holding all portfolios of assets and liabilities is also applied. These challenges in choosing a pension fund investment strategy can be analgised using asset and liability management models that make non-zero relationships between asset values and liabilities possible.

• Although Konno and Kobashi proposed using portfolio theory to form both equity and bond portfolios, others used quadratic programming to maximize the expected value, to manage interest rate risk, but also used the theory to choose fixed-interest securities that maximize the expected utility of the terminal wealth and many other sectors.

• Currency portfolio

• Construct index tracking portfolios that achieve minimum risk in combination with a short position in the tracking index.

Valuation of Assets: Operational analysis has been used to value financial assets because the input variables for an asset that vary from asset to asset will result in a feasible conclusion and an optimum solution. These calculations would also help us pick an asset that would have the lowest risk and maximum earnings of an asset with a high P/E ratio and a long-term profitable asset. These fields may be applied to ensure that an asset is of quality.

Valuation of MBS and CMO's: Mortgage-backed securities are shares of loans provided by individuals who are also exposed to the risk of default by private investors investing in them. The loaned sum can also be paid in advance. In the 2008 economic crisis, these securities played a significant role. Such loans work in such a way that banks disburse credits and the bank clubbed these credits in bundles and then. These bundles are sold to private investors, and private agencies may classify these bundles to make them appear more profitable. The related risks often decrease with the interest rate payable on adjustable mortgages which means that the whole game is very unpredictable, and therefore the risk increases. In this context, the Monte-Carlo procedure can be used to plan future returns and use this to plan their cash flows and incorporate them into the valuation of MSB, which is the real value of MSB. Then, those MSBs can really assess the value and the extent to which an individual should invest in them.

Valuation of Bonds and Bonds Stripping: After calculating the return curve, we can see the contribution of each interest rate on various maturities that a trader can use to estimate the price of the bond and then choose the most optimal. One does not include the bond value as most m bonds have coupons to calculate their yield curve while using them. These equations were proposed to be solved using LLP and a simple procedure,

guaranteeing arbitration-free bond rates.

Essential tools to help enterprise risk management in all these four pillars:

For pricing: The price of pricing complex track-dependent options depends on the accuracy value and the history of asset prices, Monte Carlo simulation methods* are needed. The decision not to exercise choice is based on the solution to the optimization problem for many derivatives. In order to achieve option prices arising from optimum strategies, Theoretical price models of risky assets must be connected with dynamic programming algorithms [1]. When the pricing choices are not optimum, arbitration opportunities are created; arbitrators pressure the market through optimal strategies, even though they are not using optimization algorithms openly.

For secularization: Secularization takes place with financial product innovation and financial risk repackaging [5]. This can be improved through the application of optimization models. Like engineers, which use optimal methods to improve protection, stability, cost or fuel efficiency structural designs - financial engineers employ optimization models in the competing risk and reward dimension [8].

For management of assets liabilities: Asset and liability management based on the principles of diversification is based on quadratic models of optimisation. A new wave of multi-period portfolio optimization models has led to significant developments since the ground-breaking contribution of Markowitz in the 50s — derivative securities that contravene assumptions on normal returns, a long horizon of complex liability arrangements, and an increasing transaction cost for derivative securities.

For indexation: Finally, the indexing and compression of portfolios rely on combining pricing and simulation models with optimization models. The response of the market is replicated by the simulated risk factors of the index and optimization models build portfolios that respond to risk factors. The following approaches are used to mitigate financial risks and to make good financial decisions in all businesses. Any company is obligated to participate in investment assets and bear liabilities as a sacrifice for profit.

Conclusions:

The Management Science methodology used frequently in capital markets is mathematical programming. Lines, quadratic, nonlinear, integer, goals, chance-constrained, stochastic, and fractional, DEA, and dynamics are used for most forms of programming. Mathematical programming has been used to resolve a wide variety of financial market challenges, including the development of equity portfolios, bonds, loans and currencies, general hedge, immunization, equity and bond index tracks, estimation of implied risk neutral option probabilities, design of a coupon schedule for municipal bills and the identification of bonds at low prices. Monte Carlo simulation is also widely used in financial markets - mainly to value exotic options and securities with embedded options, and t Simulation has also helped test trading rules and examine the risks of a position in securities. In some cases, using OR techniques has influenced how financial markets function since they permit traders to make better decisions in less time.

In Capital markets, other OR methods are less used. Arbitration and multi-period

portfolio issues were formulated as network models while neural networks were tested to measure business performance. The game theory has been used in fighting corporate controls, decision-making bodies analysing choices on mortgages, inventory models for size and timing of corporate bond issues and business performance research by the Markov chains. There has been little implementation in the financial markets of one essential OR technique – queuing theory. Portfolio problems and pricing of complex financial instruments are the key fields of financial markets where OR strategies are applied. Financial regulators and financial firms may also use OR methods to set levels of capital adequacy. There are other fields of application: develop viable proposals that satisfy a complex set of legislative criteria, decide on financing, detect imperfections and opportunities to arbitrate on capital markets and solve strategic issues. There is a two-way relationship between finance and OR. In addition to applying different OR strategies to finance issues, finance theories have made it necessary to establish and expand OR solutions. This paper shows that OR techniques play an important role in capital markets and this role will increase as data is dramatically enhanced in real time and in machine speed recently. This will give OR techniques the chance to play an even bigger role in capital or financial markets.

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Information Seeking Behavior Of Farm Women With Respect To Tribal Community

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Abstract:

The tribal women constitute like any other social group about half of the total population. The tribal women are more illiterate than men. Each tribe has its own religion, culture, occupations and life style. The present study has been formulated with following objectives to examine information seeking behaviour, the need of information, area of information, identify the sources of information, and problems faced by tribal women. The Nanhi block of Kurkheda district has been consider for the study. 226 data were collected by tribal farm women face to face by using random sampling technique with the help of interview schedule. It was observed that the information received positively. The variability of knowledge acquired through diff erent information sources and channels by the tribal farm women depends on their personal characteristics and had a satisfied life.

Keywords: Tribal women, Sources of information, area of information.

Introduction:

Women in India are entitled to equal rights with men according to the constitution and laws established by the Government. However, rural women do not enjoy the same social and economic freedom as men, as in case in urban areas. They still rely on men to provide the family's income and spend most of their time on household chores. Women's role as wives, mothers, organizers and as the basic foundation of other dimensions of social life is of utmost importance. The tribal women in these areas occupy an economically significant place that is reflected in the generally high position and the importance that they have. The trend of making women play an important role has begun to increase in the past decades as they started to acquire skills on an equal footing with men and attempted to createtheir own projects.

Objectives:

1. To examine information seeking behaviour of tribal farm women.
2. To determine the need of information of tribal farm women.
3. To study the area of information of tribal farm women.

4. To identify the sources of information utilized by the tribal farm women.
5. To study the problems faced by the tribal farm women.

Methodology:

The tool used for collection of data for the study was questionnaire. The present study is based on the primary data collected through 226 respondents of Nanhi block, Kurkheda, Dist. Gadchiroli by interview schedule were selected through random sampling technique filled up on the basis of response given by the tribal farm women. The study was conducted using survey method. A well-structured interview schedule was developed for data collection.

Result and Discussion: Socio Economic profile of tribal women

Table 1.1 Age of the tribal women

S. No.	Category	No. of Respondents	Perentage
1	20-30 yrs.	16	7.08
2	31-40 yrs.	67	29.65
3	41-50 yrs.	87	38.49
4	51-60 yrs.	30	13.28
5	61 & above	26	11.50
		226	100.0

It is observed that out of total 226 respondents maximum number of respondents (38.49%)belong to 41-50 yrs., whereas 29.65 respondents under 31-40 yrs. age group, 13.28 tribal farm women belong to 51-60 yrs., 11.50 % of respondents having the age group 61 & above whereas negligible percentage i.e. 7.08 tribal farm women under the 20-30 yrs. of age group**.**

Table 1.2 Family size of the tribal farm women

S.No.	Family size	No. of Respondents	Percentage
1	Small (Upto 4)	48	21.23
2	Medium (5-9)	95	42.03
3	Large (above 9)	83	36.74
		226	100.0

The data presented in the table reveals that 42.03% of tribal farm women belongs to medium family size whereas 36.74 % having Large size and negligible percentage of tribal farm women having small family size.

Table 1.3 Education of the tribal women

S.No.	Education	No. of Respondents	Percentage
1	Illiterate	93	41.15
2	Std. 1-4	59	26.10
3	Std. 5-7	53	23.46
4	Std. 8-10	11	4.87
5	Std. 11-12	10	4.42
		226	100.0

It is observed from the above table that 41.15% found to be illiterate whereas 26.10% belongs to std. 1-4, 23.46% having std. 5-7, It is quite surprising that std. 8-10

and std. 11-12 having 4.82% & 4.42% respectively.

Table 1.4 Land holding of the tribal women

S.No.	Land holding	No. of Respondents	Percentage
1	arginal (below 1acre)	87	38.49
2	Small (1-2 acre)	119	52.65
3	Medium (2.1-4.0 acre)	15	6.63
4	Large (4.1 acre & above)	05	2.23
		226	100.0

It is indicated from the above table that 52.65% of the tribal farm women having small land holding, 38.49& of farm women belongs to marginal group, 6.63% of tribals having medium land holding where very few respondents having large land holding found in the tribalsociety.

Table 1.5 Income level of the tribal women

S.No.	Income level	No. of Respondents	Percentage
1	Low	116	51.32
2	Medium	98	43.36
3	High	12	5.32
		226	100.0

The above table represents that 51.32 % belongs to low income level whereas 43.36having medium and 5.32% having high income level respectively.

Table 1.6 Need of information for tribal women

S. No.	Need of information	No.of Responses	Percentage
1	Daily	83	36.72
2	Weekly	92	40.73
3	Monthly	31	13.71
4	Seasonal	20	8.84
		226	100.0

It is fact that tribal farm women received weekly 40.73% information about farmingwhereas 36.72% gaining information daily, on monthly information 13.71% and 8.84% gaining information seasonally basis.

Table 1.7 Area of information for tribal women

S. No.	Area of information	No. of Responses	Rank order
1	Latest crop production	156	I
2	Pesticide application methods	96	V
3	Fertilizer application methods	98	VI
4	New agricultural equipments	139	II
5	New agricultural methods	139	II
6	Latest harvesting methods	111	III
7	Transport facility	54	IX
8	Loan facility	99	IV
9	Government Schemes	87	VII
10	Marketing	66	VIII

As there are more responses for each area of information the analysis has been

done on the basis of rank order. Latest crop production having I rank order as the responses are more. New agricultural equipments and new agricultural methods belongs to II rank order, Latest harvesting methods belongs to III rank order, loan facility IV rank order, Pesticide application methods and fertilizer application methods having V and VI rank order, Government schemes and Marketing scored VII & VIII respectively.

Table 1.8 Sources of information of tribal women

S.No.	Sources of information	No. of Responses	Percentage
1	Newspapers	02	0.88
2	Magazines	03	1.32
3	Television	88	38.95
4	Radio	06	2.67
5	Local Leaders	111	49.11
6	Friends	16	7.07
		226	100.0

The data presented in the above table reveals that 49.11% tribal women believe in local leaders and 38.95% using Television as the major source of information. Friends(7.07%) are also good sources as compared to radio, magazines and newspaper.

Table 1.9 Problems faced by tribal women

S.No.	Problems	No. of Responses	Rank Order
1	Poverty	191	I
2	Superstition and beliefs	187	II
3	Illiteracy	101	VII
4	Low income level	181	III
5	Language problem	121	V
6	Ignorance about health	111	VI
7	Lack of extension personnel	161	IV
		226	

As the responses are more, the data has been analysed by Rank order. The major problem of Poverty has been faced by tribal women and score I rank order. Superstition and beliefs found in II rank order whereas low-income level and lack of extension personnel having III and IV rank order respectively. Language barriers is also found in tribal women and having V rank order. Ignorance about health and illiteracy were also found in them and scored VI and VII rank order respectively.

Conclusion:

The present era is based on information for agriculture allied practices on many sources. Many tribal farm women are illiterate. Most of the time she received information about her occupation weekly. she always needed latest crop production which is the main areas of information she always needed. She believes on local leaders as they have done some work for society by which has been benefitted for tribal women. Television is also best source of information for them. Poverty is also a major problem faced by tribal women.

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Ecofeminism: Intersections of Environment and Gender in Sustainable Development

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Abstract:

This chapter attempts to provide a comprehensive overview of ecofeminism, offering insights into its historical development, theoretical frameworks, case studies and ongoing relevance in the face of contemporary environmental challenges. It aims to contribute to the ongoing discourse surrounding ecofeminism and how it can lead to sustainable development.

Introduction:

Ecofeminism, as an interdisciplinary field, serves as a critical bridge between ecological concerns and feminist perspectives. It is a socio-political and theoretical movement that emerged in the late 20th century, bringing together environmental concerns and feminist perspectives. The central proposition of ecofeminism is that there are interconnected and mutually reinforcing oppressions of both women and the environment, and addressing one necessitates addressing the other. Ecofeminists argue that patriarchal structures contribute to the exploitation and degradation of both women and the natural world. This intersectional approach explores the links between gender, race, class, and environmental issues, aiming for social and ecological justice.

The term "ecofeminism" gained prominence in the 1970s and 1980s and with the coming together of several women in the USA in the first ecofeminst conference-'Women and **Life on Earth**: A Conference on Eco-Feminism in the Eighties' in March 1908 at Amherst. Early ecofeminists like Francoise d'Eaubonne and Ynestra King also contributed to the articulation of ecofeminist principles. In 1970s women began to articulate connections between their experiences, societal structures, and ecological concerns. Rachel Carson's revolutionary book titled "Silent Spring" (1962) raised awareness about the environmental impacts of pesticides, influencing early ecofeminist thought. In the book she highlights the environmental health problems created due to the technological change (Carson, 1999:165).

Contribution of Ecofeminists:

Vandana Shiva has depicted that how gender and diversity are linked in several manners. She along with Maria Mies, Wangari Maathai and many other ecofeminists have opined that women's indigenous knowledge have always led to conservation of biodiversity and is a hope to contemporary environmental issues world over. Shiva points that sidelining of women and the damage to biodiversity happens together. Women's

work and knowledge is essential to the preservation and utilization of biodiversity as women perform multiple tasks and work between 'sectors' (Mies & Shiva, 2010: 166).
In most cultures women have been the guardians of biodiversity. Their contribution and knowledge in the field of agriculture is significant however, their input is taken seriously and often ignored (Mies & Shiva, 2010: 168). Shiva argues that traditional ecological knowledge, often held by indigenous communities and women, plays a crucial role in promoting environmental sustainability. Thus she emphasizes on the importance of recognizing the intrinsic value of nature and criticizes the commodification of natural resources, asserting that such practices contribute to both environmental degradation and the marginalization of women.Shiva asserts that women, as primary caregivers and resource managers in many societies, possess a deep understanding of the ecosystems they interact with. She contends that women's roles in agriculture, water management, and community well-being are integral to the conservation of biodiversity. In her view, empowering women with knowledge and agency is crucial for fostering sustainable practices and mitigating environmental degradation.Both Shiva and Mies share a common concern about the consequences of a global economic system that exploits both women and the environment. They highlight the need for alternative models that prioritize sustainability, equity, and social justice. Additionally, they stress the significance of women's participation in sustainable agriculture, community-based conservation initiatives, and the protection of natural resources. They encourage the inclusion of women in environmental governance, policy formulation, and community-based projects. Shiva's focus on biodiversity and traditional knowledge aligns with her commitment to preserving the intricate relationships between communities and their environments. On the other hand, Mies' emphasis on critiquing the capitalist system adds depth to the ecofeminist discourse by addressing the structural issues that perpetuate environmental degradation and gender inequality. In summary, Vandana Shiva and Maria Mies have played pivotal roles in shaping ecofeminist discourse, offering valuable insights into the interconnectedness of gender, ecology, and social systems. Their perspectives contribute to a broader understanding of the challenges we face in conserving the environment and promoting sustainable, equitable societies.

Core Tenets of Ecofeminist Thought:

In this segment, the chapter delves into the core tenets of ecofeminist thought. It explores how ecofeminism challenges dualistic thinking that separates humanity from nature and women from men. The interconnectedness of social and ecological issues is emphasized, illustrating how the domination of both women and nature stems from the same patriarchal structures.

1. **Interconnectedness:** Ecofeminism posits that the oppression of women and the exploitation of nature are interconnected and rooted in patriarchal structures.
2. **Valuing Diversity**: Ecofeminism recognizes the diversity of women's experiences and emphasizes inclusivity, considering the intersection of gender with other social categories.

3. **Eco-Justice:** Ecofeminists advocate for environmental justice, arguing that addressing gender-based oppression is inseparable from achieving ecological sustainability.
4. **Cultural Transformation**: Ecofeminism seeks cultural transformation, challenging dominant paradigms that perpetuate environmental degradation and gender inequality.

Ecofeminist Theoretical Frameworks:

This part of the chapter introduces and analyzes various theoretical frameworks within ecofeminism such as liberal ecofeminism, radical ecofeminism, and cultural ecofeminism. Liberal ecofeminism builds upon liberal feminist principles, emphasizing individual rights, autonomy, and the pursuit of equality for women within existing societal structures. It seeks to integrate gender equality into liberal democratic frameworks, advocating for legal and policy changes to ensure equal rights and opportunities for women. It believes that positive change can be achieved through legal and institutional reforms within the existing political and economic systems. It recognizes the importance of economic empowerment for women. It advocates for equal economic opportunities, fair wages, and financial independence. They advocate for inclusive and comprehensive educational programs. Radical ecofeminism is a branch of ecofeminist thought that engages in more transformative and revolutionary approach, seeking not only to address the interconnected issues of gender and ecology but also to challenge and overhaul the underlying structures contributing to oppression. It critiques not only patriarchy but also capitalism as vital factor contributing to the subjugation of women and the exploitation of nature. It promotes direct action and resistance against oppressive structures. This can include protests, civil disobedience, and grassroots organizing among others. Cultural ecofeminism explores the intersections between ecological concerns, feminism, and culture. It is rooted in the belief that there are deep connections between the exploitation of women and the exploitation of the environment. Cultural ecofeminism examines the cultural narratives and symbols that perpetuate gendered and environmental inequalities. It delves into how societal norms, values, and representations influence the relationship between humans and the environment, often reinforcing hierarchical structures that place both women and nature at a disadvantage.

Case Studies: Ecofeminism in Action:

To illustrate the practical applications of ecofeminist principles, this section presents case studies from different geographical and cultural contexts. These cases highlight successful ecofeminist initiatives, emphasizing the transformative potential of integrating feminist and ecological perspectives.

The Chipko Movement, which originated in the 1970s in the Himalayan region of India, was a grassroots environmental movement centered on forest conservation. While the movement is often associated with the actions of both men and women, the role of women in the Chipko Movement was particularly significant and noteworthy. Women made substantial contributions that not only helped in environmental conservation but

also challenged traditional gender roles in society (Warren, 2014:05)

Through active participation i.e. physically hugging the trees to prevent loggers from felling them. This direct action was a powerful form of nonviolent protest that gained attention and helped to raise awareness about the environmental issues at hand. In many rural communities, women are the primary users and managers of forest resources. Their daily lives often depend on access to fuelwood, fodder, and water. By participating in the Chipko Movement, women were protecting not only the environment but also safeguarding their own livelihoods and the well-being of their communities

Women in the movement demonstrated that they could be leaders in environmental conservation efforts, challenging the prevailing notion that such roles were reserved for men. Their involvement reflected a deep understanding of the interconnectedness between the environment and their daily lives. By promoting sustainable forestry practices, they contributed to long-term environmental conservation efforts. It also fostered a sense of community and solidarity among women. Women from various backgrounds came together to protect their shared environment. This collective action not only strengthened the movement but also empowered women to voice their concerns on a broader platform. The success of the Chipko Movement and the active participation of women inspired similar movements across India and around the world. The movement became a symbol of grassroots environmental activism, with women at the forefront of many subsequent conservation initiatives.

In summary, women made significant and multifaceted contributions to the Chipko Movement. Their active involvement not only helped in the immediate goal of preventing deforestation but also had broader implications for challenging societal norms, promoting sustainability, and inspiring future environmental movements. The Chipko Movement stands as a testament to the transformative power of women in environmental conservation efforts.

The Green Belt Movement in Kenya, founded by the remarkable environmentalist and Nobel laureate Wangari Maathai in 1977, witnessed significant and transformative contributions from women. The movement focused on tree planting, conservation, and women's rights, illustrating the profound impact that women can have on environmental sustainability and social development. Women played a central role in this process, contributing to the reforestation efforts that helped restore ecosystems and mitigate the impacts of environmental degradation. The Movement empowered women economically by paying them for their tree-planting efforts. This financial independence allowed women to support their families and communities. By linking environmental conservation with economic empowerment, the movement demonstrated the interdependence of ecological sustainability and social well-being. Women became catalysts for community mobilization and environmental advocacy. They organized and participated in grassroots campaigns, raising awareness about the importance of conservation, sustainable land use, and the impact of deforestation on local communities. Their advocacy extended beyond environmental concerns to encompass broader social

issues. They also actively engaged in educational initiatives.

In summary, women in the Green Belt Movement played a multifaceted role, contributing significantly to reforestation, economic empowerment, community building, education, and advocacy. Their efforts not only had a positive impact on the environment but also demonstrated the interconnectedness of environmental and social justice issues, with women as powerful agents of positive change.

Navdanya is an organization in India that focuses on promoting biodiversity conservation, organic farming, and seed sovereignty. Founded by environmental activist and ecofeminist Vandana Shiva, Navdanya has actively engaged women in various capacities, recognizing their crucial role in sustainable agriculture and environmental stewardship. Women in Navdanya play a pivotal role in seed preservation and conservation. They are involved in traditional seed-saving practices, safeguarding indigenous and heirloom varieties of seeds. This contributes to the preservation of agricultural biodiversity and ensures that local communities have access to a diverse range of seeds that are well-adapted to their specific ecological conditions. In conclusion, women in Navdanya are instrumental in the organization's mission to promote sustainable agriculture, biodiversity conservation, and seed sovereignty. Their contributions span various aspects of the movement, from preserving traditional seeds to advocating for farmers' rights and participating in educational initiatives, making them essential agents of positive change within their communities and the broader environmental movement. Thus, from the above mentioned examples there are many lessons to learn along with its practical implications based on the principles of ecofeminism.

Contemporary Issues and Future Directions:

Ecofeminism, as a field of study and activism, continues to evolve to address contemporary environmental and gender issues. However there are some contemporary issues within ecofeminism and potential future directions for the movement. Such as the climate change, water & food scarcity, effects of over urbanization, advancement in technology, especially the new developments in biotechnology, genetic engineering and reproductive technology. Thus the need of the hour is to have fruitful suggestions and viable options for potential future directions by conducting ecofeminist research and activism, and emphasizing the ongoing relevance and adaptability of this dynamic field.

Conclusion:

Thus, this chapter synthesizes key insights and encourages readers to consider the importance of ecofeminism for both academic discourse and real-world challenges. It emphasizes the need for continued dialogue and collaboration between ecological and feminist scholars to address the urgent challenges facing our planet and its diverse inhabitants. In summary, it can be said that the principles of ecofeminism can contribute to and align with the goals of sustainable development. It offers a unique perspective that addresses the interconnected issues of gender, ecology, and social justice, providing a framework for more holistic and sustainable approaches to development. Ecofeminism

calls for a cultural shift away from patriarchal and exploitative ideologies. Such a shift is crucial for achieving sustainable development, as it involves reimagining societal values and norms. This includes moving towards more sustainable consumption patterns and promoting lifestyles that prioritize ecological integrity and social equity.

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Solid Waste Pollution, Effects and Different Strategies for Its Proper Management

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Abstract:

The problem of solid waste disposal and its pollution is a worldwide problem increasing day by day. The root cause of waste generation is overpopulation, modernization and industrialization. The major sources of solid waste generations includes domestic waste or household waste, commercial, industrial, institutional, hotels and restaurants, hospital and garden waste etc. Practices of improper disposal of waste in surrounding may create unhealthy situations and may lead to environmental pollution causes water born and vector born diseases by rodents and other insects. Therefore solid waste management is a very challenging task in growing cities. It also creates a socio-economic problem in the society. Therefore in the current article attempt is made to focus on the problem of solid waste pollution, disposal practices and its proper management.

Keywords: Solid waste, legal provision, economic aspect, effects & treatment methods.

Introduction:

Any form of solid waste which is useless, unwanted and discarded by the society people. The waste may be generated from domestic sector, commercial activities, or industrial production etc. The useless and unwanted products in the solid form derived from the activities and discarded by society. It is produced either by-product of production processes or arise from the domestic or commercial activity when objects or materials are discarded after use.

Following different terms are commonly used for any form of solid waste generated.

a) **Garbage**: The term garbage is used for food waste and other degradable organic wastes.

b) **Rubbish:** It includes dry combustible and non-combustible solid waste, excluding food wastes.

c) **Refuse:** It is a collective term used for solid wastes, includes both garbage and rubbish.

d) **Litter:** Bits of paper, discarded wrappings, bottles etc. The things left lying around in public places.

Types of Waste:

1. Municipal waste (household waste, commercial waste and demolition waste).
2. Biomedical waste (clinical waste).

3. Hazardous waste (radioactive waste, explosive waste and electronic waste).

Effects of solid waste pollution:

Solid waste pollution is mainly caused by urbanization and through industrial waste production. The impact of waste depends on the types of waste generated, characteristics and disposal method. Improper disposal of waste can greatly affect the health of population living nearby the polluted area or landfills. These practices ultimately cause environmental pollution and affects health through both short and long-term effects. Examples of short-term effects are congenital abnormality, asthma and respiratory infection. General symptoms such as stress, anxiety, diarrhea and amoebic dysentery, bacillary dysentery, plague, salmonellosis, endemic typhus, jaundice, hepatitis, cholera, gastro enteric diseases, nausea, dizziness, headache, eye and respiratory irritation has been also described. Long-term health effects related to waste exposure include chronic respiratory and cardiovascular diseases, cancer and even brain, nerves, liver, reproductive issues and kidney diseases.

Lechates:

Leachate is formed in a landfills, incineration plants, composting plants, and transfer stations as by-product derived from municipal solid wastes due to change in their physical, chemical, and biological properties during decomposition process. Underground water pollution due to leachate is a worldwide problem and must be treated before it is discharged into the water reservoirs. Due to consumption of leachate contaminated water causes some general health condition like sweating, bleeding, stomach disorder and even cancer.

Occupational health hazard of solid waste: Workers engaged in handling different types of waste especially hazardous waste may pose the health problem as mentioned below.

1. Skin and blood infections resulting from direct contact with waste, and from infected wounds.
2. Eye and respiratory infections resulting from exposure to infected dust.
3. Different diseases that results from the bites of animals feeding on the waste.
4. Intestinal infections that are transmitted by flies feeding on the waste.

Legal aspects of Solid waste management:

Until 2000, we didn't have any special law for dealing with solid waste management and associate problems. There was a complete negligence about the specific rules and act for municipal solid waste management. Few rules like hazardous waste management rules, 1989 and Biomedical waste management and handling rules, 1998 deal with the subject only tangentially. It came into force only after a writ petition, *Almira Patel v. Union of India* was filed before Supreme Court that the Central government came in action and notified Municipal Solid Wastes (Management and Handling) Rules, 2000 [8] rules under Section 5 of Environment Protection Act, 1986. These rules finally provided a uniform framework for the local authorities across the country on MSW management. This rule (2000) is later replaced by environmental rule

introduced in 2016. It gives scope and an expansion of previous rule (2000) which includes places of pilgrims, airports, ports and harbors, domestic waste, commercial, special economic zones and other non residential waste generation units. Local bodies in our country work under the governance of laws passed by their respective state legislature. Many local bodies do not have proper provision for the execution of solid waste management. Therefore it is necessary to improve management practices in urban areas by providing adequate power to local bodies.

Economic aspects of solid waste management:

Economic aspect is very important criteria for the management of solid waste at local, regional and national level. This parameter helps in resolving the problem of collection, transport, disposal or treatment method etc. Funds are required to manage and execute various aspects like designing waste handling and management tax or charges, transformation of waste into energy, for providing better amenities, for collection, transport and disposal etc. There are some estimate calculated for per ton of waste management in our country for example National institute of Urban affairs had estimated Rs 135, National solid waste association had estimated Rs 417 per ton. Economic parameter play major role in effective management of solid waste. Economic aspects is important for policy makers in strengthening local governing bodies and estimating fiscal deficit for providing different amenities for healthy environment through proper management of solid waste disposal method.

Methods of management of solid waste

Solid waste management through treatment methods

Solid waste needs to be treated immediately once collected for its safe disposal purpose. Following methods have been suggested to treat the solid waste.

Incineration: It is an effective method of reducing volume and weight of material by burning waste in a furnace at high degree of temperature.

Composting: Composting is a biological process in which biodegradable waste is allowed to decompose under controlled condition. Microbes involved in this process convert waste into useful compost called humus.

Sorting and shredding: Sorting or separating biodegradable and non biodegradable material is essential and is done mechanically. Shredding method is used to reduce the volume and make the material of uniform size with the help of hammer mills or rotary shredders.

Digesting and processing: Shredded or pulverized material is allowed to digest by microbes and digested material then must be processed through drying, screening and granulating methods.

Landfills: It is a very common solid waste disposal method used for municipal solid waste. In this method the waste is deposited or buried in sanitary landfill carefully at selected, designed and constructed. So that the operating landfill will not cause any harm to environment and public health. Hence the care is taken that it should not come in contact with surface and ground water easily and properly covered with soil or other

material.

Waste management by adopting recycle and reuse policy

1. Items made from paper like used copies, used books, Newspapers, old greeting cards, old calendar, cardboard boxes etc.
2. Items made from plastics such as plastic containers, bags, sheets, plastic cups, glasses etc.
3. Items like bottles, cups glasses, plates, and bowls made from glass and ceramics
4. Other Miscellaneous articles and objects like old cans, utensils, clothes and furniture.

Waste management through technical guidelines laid down by CPCB

1. Following the guidelines for the selection of land filling sites.
2. Follow the guidelines for transportation of Hazardous Wastes
3. Guidelines for the Operators of Common Hazardous Waste Treatment like incineration, Storage and Disposal Facilities.
4. Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty
5. Guidelines for Performance, Evaluation and Monitoring of the Common Hazardous Waste Treatment.

Waste management at source

The problem of waste can be managed and minimized by handling waste at its source of generation.

Sr. No	Source of waste	Action to be taken at source
1	Household waste	Keep biodegradable and recyclable waste in separate bag or bins. And store hazardous waste in safe bags for disposal purpose at notified locations.
2	Building/society waste	Use red, blue & green bins for waste collection.
3	Shops/office/institutions	Deposit the waste in large bins provided by association.
4	Waste from slum area	Use community bins provided by local authority.
5	Hotels/Restaurant waste	For easy handling large containers must be used with proper handles to hold and move.
6	Vegetable & fruit market	It is expected to collect in a large container and thrown in front of shops and in surrounding open places.
7	Hospitals & Nursing homes	This kind of waste cannot be thrown in open place or street and in neighborhood. It should be collected in special bags and handover to hazardous waste collecting vehicles appointed by municipal authorities.
8	Garden waste	It can be used as compost or collected and handover to municipal corporation appointed person.

Conclusion:

Solid waste pollution and its associated problem are worldwide issues. These

are very common problems in India and need to be managed seriously with the help of public participation. Ultimately public health is in danger in many ways. Handling issues by making good policy, sufficient budget and use of proper technologies for waste treatment is essential. Need to implement the rules and take some stringent and speedy action against the people involved in unfair practices of waste disposal. There is an urgent need of making people aware about an individual and community health. For a better and healthy environment we have to work with the local authority wisely. For achieving environmental sustainability there is a need of better solid waste management. To serve this purpose we need economic support at regional, local and national level.

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A New Chemotype of *Ocimum Basilicum* L.Throgh Phytochemical Investigation from Madhubani, Bihar, India

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Abstract:

All species of the Biological earth has their own importance to others and no one is of course insignificant.Keeping this in mind,all biological wealth must be considered valuable for the mankind & must be conserved for future genera of all the Angiospermic Mint family Labiate=Lamiaceae is of great importance in which of the 160 species of the genus *Ocimum* L., *Ocimum basilicum* L. is of great medicinal and commercial value,as it contains a number of aromatic compounds.Various terpenes and phenols found in the species are widely used throughout the world in various ways, namely,in medicines, cosmetic materials, culinary,etc.The species occurs in different climatic zones,right from the seashore to the high altitude world over. During the present research work,a survey of the different aromatic compounds, especially terpenes and phenols,a new chemotype of a variety of the species *O.basilicum* var.*purpurascens* Benth. was found in the Madhubani district of Bihar, India which possessed three phytopharmaceutically important compounds,namely eugenol(42.67%),linalool(27.88%) and methyl cinnamate (9.61%) in leaf and eugenol (48.22%), linalool (29.35%) and methyl cinnamate (2.87%) in the inflorescence as detected and analysed with the help of Gas Chromatography at CIMAP, Lucknow.The chemotype under investigation was named Eugenol >linalool>methyl cinnamate type.Due to the importance of these three in the national economy and the lack of any effort for its genetic improvement led the author to carry out chromosome doubling through autopolyploidy to see augmentation of these pharmaceutically important chemicals with other terpenoids,if any. Successful autopolyploids were obtained after subjecting the new chemotype understudy by Colchicine treatment of the shoot apex.Phytochemical,as well as other investigations,were made upto third polyploid generation.These polyploid achieved considerable cytogenetical normalcy and some terpenoids,such as,linalool,methyl chavicol,geraniol, αβ-terpineole and αβ-caryophyllene were observed to be in higher amounts.

Keywords: New Chemotype, *Ocimum basilicum* L., *Ocimum basilicum* , var.*pupurascens*Benth .Phytochemical investigation,Colchiploids, Eugenol>linalool>methyl cinnamate type, Autopolyploidy,Gas Chromatography.

Introduction:

All species of the Biological earth has their own importance to others and no one is of course insignificant.Keeping this in mind,all biological wealth must be considered valuable for the mankind & must be conserved for future genera of all the Angiospermic family,Mint family Labiate=Lamiaceae is of great importance Of the 160 species of *Ocimum* L. belonging to the mint family, Lamiaceae and distributed throughout the world (WILLIS 1973). *Ocimum basılicum* var *purpurascens* Benth., a natural tetraploid with 2n=4x =48 chromosomes, is an important herb from medicinal and commercial viewpoints. Its essential oil contains linalool (Sobti *et al.* 1976, Thoppil and Jose 1994, Gupta 1996, Sinha (2006), methyl chavicol (Sobti *et al,*1976, Sinha, 2006 , and methyl cinnamate (Sobti 1976, Gupta 1996, Sinha, 2006 as main constituents in addition to a number of other terpenoids (citronellal, thujone, cis- ocimene, etc.) and is sold at a high price in the international market. An added advantage with the species under study is that it can grow luxuriantly in any part of theworld right from seashore to high altitudes. Taking into consideration its commercial significance and its worldwide distribution, the present investigation was undertaken inorder to see improvement if any, in phytochemical constituents and related characters of the species through autopolyploidy. Leaves and inflorescences are the two chief sources of the chemical constituents in the species.

Material and Method:

A survey of Lamiaceae herbs had been conducted by Kamat (1992) in the revenue division of Darbhanga of north Bihar (India). During the present investigation, only *O.basilicum* was vigorously searched and two varieties, namely, *O. basilicum* var. *purpurascens* and *O. basilicum* var. *thyrsiflorus*was collected in north Bihar consistingof revenue division of old Kosi (Saharsa) and old Tirhut (Muzaffarpur) in addition to Darbhanga division. Herbaria were kept in the Department of Botany R.K. College (L.N. Mithila University), Madhubani, Bihar. Identification of the two varieties was confirmed at the National Botanical Research Institute, Lucknow. Of the two varieties, *O. basilicum* var. *purpurascens* was grown without applying any chemical fertilizer for a year in the Experimental Gardens. Seeds were collected & packed in polythene bags and kept in desiccators. Plants raised from these seeds and possessing good qualitieswere taken for further experimental studies. Fresh leaves and inflorescences from elite diploid and polyploid plants were subjected separately to hydrodistillation in Clevanger's apparatus (Clevanger 1928) to obtain essential oils. Identification and quantification of phytochemical constituents in the oils of leaves and inflorescences of diploid and colchiploids were done with the helpof Gas Chromatography (GC) at the Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, in two lots. Oil of leaves and inflorescence of diploid, $C_{0,}$ and C_1 herbs were analyzed with the help of Perkin Elmer Model 3220B. Gas Chromatograph fitted with a TCD and 2m/3mm ss column packed with 10% FF AP on 80/100 Chromosorp WAW using a temperature programme from 100 to 200^0C with a rise of 4^0/mm. Injector/detector temperature 200^0C each. Data were

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processed on HR 3390A integrator. H_2 was used as a carrier gas. The analyses of the second lot (C_2) were done with Varion GC model CX- 3400 using a capillary column of dimensions 30m x 0.2 mm, temperature programmed from 50^0C to 220^0C at the rate of 6% with initial time hold of 2 mins. Injector and detector temperatures of 200^0C and 225^0 C were used. H_2 was used as a carrier gas at 1ml/min with a split ratio of 1:50. Data processed on Varion4400 integrator. Identification of compounds is based on running time (RT) of standardcompounds.On the basis of phytochemical investigation, the plant under study proved a new chemotype-Eugenol>Linalool>Methyl Cinnamate and presented in (Table-1) alongwith other chemotypes.

Table 1: Varieties of *O. basilicum* and their chemotypes

S. No.	Varieties	Chemotypes
1.	*O.basilicum* L. var. *basilicum*	
2.	*O.basilicum* var. *crispa*	Methyl chavicol – Linalool type
3.	*O. basilicum* var. Darkopal (var /cultivar)	
4.	*O.basilicum* var. *difforme* Benth.	
5.	*O. basilicum* var. *glabratum* Benth.	Methyl chavicol type andCamphor type
6.	*O.basilicum* var. *majus* Benth.	
7.	*O. basilicum* var *minimum* Danert.	Eugenol type
8.	*O.basilicum* var.*pilosum* Benth.	Geranyl acetate type
9.	*O. basilicum* var. *purpurascens* Benth.	Methyl cinnamate type,Linalool type
10.	*O. basilicum var. thyrsiflorus Benth.*	Methyl cinnamate type
11.	*O. basilicum var. purpurascens Benth.*	Eugenol>Linalool>Methyl cinnamate type (Understudy)

The actual percentage of each chemical compound was calculated with the help of formulae:

1. Actual area = Total counts/Total area - Acetone counts (used as solvent).
2. Percentage of compounds = Area of the peak of individual compound/Actual area

Observation and Discussions:

Oils from leaves and inflorescences of the ‘elite plants’ understudy and their colchiploids were extracted and analyzed with the help of Gas Chromatography (GC). The total number of compounds, the name of the chemical compounds and their percentages, the total percentage of identified compounds in the leaves and inflorescences of the diploid ‘elite plant’ under study and their cholchiploids are shown in a comparative Table-2.

Table-2: Comparative phytochemical constituents in diploid (2n=4x=48) and polyploids (2n=8x=96)

S. N.	Name of the chemical compound	Leaves %				Inflorescences %				+/- (comparision between diploid & C_2)	
1		Diploid	C_0	C_1	C_2	Diploid	C_0	C_1	C_2	Leaves	Infl.
1	α-pinene	0.28	solvent	1.09	0.21	0.23	0.21	0.06	0.06	-	-
2	Camphene	0.20	---	---	0.07	0.10	0.16	0.16	0.05	-	-
3	β-Pinene	0.06	0.82	---	---	0.08	0.41	0.14	0.04	-	-
4	Myrcene	0.10	2.19	---	0.26	0.06	0.12	0.02	0.03	+	-
5	1,8-cineole	3.15	3.63	---	0.11	1.90	1.02	1.89	0.36	-	-
6	Limonene	1.42	3.67	2.42	0.61	0.75	1.89	2.05	---	-	+
7	p-cymene	0.62	0.06	0.02	0.05	0.18	0.07	0.04	0.12	-	-
8	Terpinolene	0.89	0.24	0.30	0.09	0.34	0.07	0.04	---	-	-
9	Linalool	27.88	16.29	16.03	21.29	29.35	24.38	29.26	36.85	-	+
10	Linalyl acetate	0.86	0.16	0.37	0.11	1.99	1.42	2.19	0.11	-	-
11	β-Caryophyllene	1.30	1.18	1.07	0.24	0.70	1.59	1.59	1.86	-	+
12	Terpineole	1.07	0.91	0.71	0.95	2.70	1.68	2.39	1.93	-	-
13	Geranyl acetate	2.05	0.16	0.16	0.89	0.26	1.30	0.33	0.08	-	-
14	Geraniol	3.82	1.93	1.02	0.49	3.76	2.17	3.29	3.56	-	-
15	Methyl cinnamate	9.61	9.61	8.71	10.11	2.87	3.26	2.58	2.37	+	-
16	Eugenol	42.67	56.61	62.28	44.60	48.22	46.24	48.31	43.19	+	-
17	Methyl chavicol (Estragole)	---	---	---	---	---	---	---	1.65	-	+
	Total % of identified compounds	95.98	97.46	94.18	80.08	94.30	85.99	94.34	92.26		
	No. of compounds present/Compounds identified	25/16	19/14	21/12	57/15	27/16	26/16	28/16	48/15		

Table-3 : Classification of terpenoid compounds found in Diploid and Colchiploids of *O. basilicum* var. *purpurasens.*

Terpenoid			
Monoterpenoid 1. Acyclic Linalool Linalyl acetate Myreene Geraniol and Geranyl acetate	*Diterpenoid	Sesquiterpenoid Bicyclic β-caryophyllene	Triterpenoid*
2. Cyclic A. Monocycle 1,8- Cineole α-Terpineole Terpenolene Limonene and p-Cymene B. Bicyclic α- Pinene β-Pinene and Camphene		(Unsaturated cyclic hydrocarbon)	

Not found in *O. basilicum* var. *purpurascens*

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Table:-4 Classification of Chemical compounds found in Diploid and Colchiploids of O.basilicum var. *purpurascens*

Chemical compounds			
Alkenes	**Esters**	**Alcohols**	**Phenol** Eugenol
α-Pinene , β-pinene, Camphene, Myreene, Limonene, p-Cymene, Terpinolene and β-caryophyllene	Linalyl acetate, Geranyl acetate, and Methyl cinnamate (Phenolic)	1,8 – Cineole, Linalool, Terpineole andGeraniol	

Table:-5 Classification of chemical compounds on the basis of presence and absence of oxygen in their structures found in Diploid and Colchiploids of *O. basilicum* var. *purpurascens.*

Chemical Coumpounds	
Oxygenated Compounds (Terpenoids)	**Non-oxygenatedCompounds(Terpenes)**
Linalool, Geraniol, α –Terpineole, 1,8-Cineole, Linalyl acetate, Geranyl acetate, Eugenol, Methyl cinnamate and Methyl chavicol	Myreene, Limonene, α-Pinene , Camphene, β-caryophyllene, β-Pinene and Terpinolene

Classification of chemical compounds on the basis of presence and absence of oxygen in their structures found in Diploid and Colchiploids of *O. basilicum*var. *purpurascens.* Gas Chromatographic analyses revealed the presence of the different compounds including terpenes, terpenoids and phenols in the oils of leaves and iflorescences ofthe source elite plant and its three polyploid generations. Of the various compounds detected and mentioned in the comparative Table No.-02 with the help of GC in the source elite plant, 8 were alkenes(α-pinene,β- pinene, camphene, myrcene, limonene, p-cymene, terpinolene,β-caryophyllene), 4 were alcohols (1, 8- cineole, linalool, terpineole, geraniol), 3 esters (linalyl acetate, geranyl acetate, and methyl cinnamate, the latter also being a phenolic compound) and one phenol (eugenol). The above compounds (Table No. -04) , if grouped on the basis of the presence and absence of oxygen in their structures, those containing oxygen called oxygenated compounds were linalool, geraniol,α-terpineole, 1, 8-cineole, linalyl acetate, geranyl acetate, eugenol and methyl cinnamate and those devoid of oxygen called non-oxygenated compounds were myrcene, limonene,α-pinene,β-pinene, camphene,β-caryophyllene and terpinolene (Table No.- 05).

The dominating compound present in the leaf of the parent plant was linalool (27.88%) and eugenol (42.67%), the former being an acyclic monoterpenoid and the latter a phenol (Table No.-03). Its inflorescence contained the same two compounds. - linalool and eugenol- as the major compounds but their contents were higher thanthose of leaf. The

percentage of the former was 29.35, while that of the latter was 48.22. In addition to the above methyl cinnamate was the only major compound (more than 5%) in the leaf of the elite source plant. Since in both the parts of the parent, the three were the principal compounds and eugenol was higher than linalool, the chemotype *of O. basilium* var. p*urpurascens*, growing in this area, was named eugenol>linalool>methyl cinnamate type. Other compounds in the leaf and inflorescence were the minor ones whose percentage varied from 0.06 (β-pinene in leaf and myrcene in inflorescence) to 3.82 (geraniol in leaf). Altogether 25 and 27 peaks were obtained during GC analyses in leaf and inflorescence, respectively. But of these only 16 in both the plant parts could be identified, leaving 9 and 11 remaining compounds unidentified in them. Since the total percentage of the identified compounds in them were 95.98 and 94.30, the remaining unidentified ones constituted minor percentages of the oil, that is, 4.02 and 5.70, respectively, all attaining a status of minor compounds (**Table-2**).

Thoppil and Jose (1994) reported linalool (41.6%), citronellal (20.2%) and thujone (5.1%) in *O. basilicum* var. P*urpurascens* Benth. collected from Cochin, India. On the other hand, Gupta (1996) reported this variety to be a methyl cinnamate type. Ravid *et al* (1997), working on linalool contents and its chemistry of various varieties of *O.basilicum*, found its 0.3% only in O. basilicum var.*purpurascens*. This variety, growing in Israel, was a methyl chavicol type. In other variety, a hybrid of *O.basilicum* var.*basilicum* x *O. basilicum* var.*purpurascens* collected from Switzerland and grown in Israel, the authors reported 46.5 % of linalool. This hybrid, however, was linalool and transmethyl cinnamate type. Working further on enantiomeric composition of linalool in the oils of the two herbs, they revealed the acyclic monoterpenoid to be (R) (-) and optically pure. Though the authors are silent on the appearance of linalool in the aforesaid hybrid, it appears quite possible that the gene responsible for linalool biosynthesis might have come from linalool rich variety, *O. basilicum* var.*basilicum.*

As far as the content of linalool in the leaf was concerned, it was decreased in the first colchiploids generation (C_0). It further decreased, though little, in C_1 plants, but an improvement (21.29%) was observed in the third generation (C_2) in comparison to C_0 (16.29%) and C_1 (16.03%). However, the percentage of the compound in C_2 was lesser than that observed for elite diploid source plants.The inflorescence of the parent was a better source of linalool, constituting 29.35% of the total oil. Hence, the inflorescence of this variety of *O.basilicum* may be suggested as its main source of the linalool. It may be recalled that inflorescence was taken for isolation of oil just before flowering. Like the leaf, its content fell in C_0 (24.38%), but exhibited a sign of remarkable recovery and improvement in C_1 (29.26%) achieving 36.85% in the C_2 herbs. Inflorescence of colchiploids may safely be suggested as the chief source of linalool.On the other hand, eugenol contents in leaf and inflorescence of the parent were 42.67% and 48.22%, respectively. But, the leaf and inflorescence of its cholchiploids behaved differently as far as their content was concerned. In the leaf, there were a

considerable leap (56.61%) in C_0 and C_1 (62.28 %) plants which came down to 44.60% in the C_2. Though the quantity of eugenol in C_2 was lesser than thoseof C_1 and C_0, it was higher than the source plant by 2.53%. The inflorescence behaved differently from the leaf. The C_0 exhibited a decline (46. 24%) but C_1 showed an increasing trend by containing its 48.31% only to come down 43.19% in C_2. Hence, as far as, eugenol content was concerned, the only leaf of the colchiploid can be suggested to be the main source and not the inflorescence. However, the fluctuating and unstable behaviour of eugenol production in the leaf and inflorescence suggested that more cholchiploid generation should be chased in order to come to a final conclusion. Also, analyses of oil should be undertaken at various stages of growth of the stable polyploid to suggest either of the two parts as the main source of the two major compounds. The third major compound, that is methyl cinnamate was considerably higherin quality in leaf, thus, the latter being the obvious principal source of the compound. The inflorescence of the source plant possessed only 2.87% of methyl cinnamate.Colchiploid generations of the plant showed leaf and inflorescence behaving differently. The leaf of C_0 has a similar quantity (9.61%), but its content decreased to 8.71% in C_1, finally attaining a percentage of 10.11 in C_2. Polyploid generations, on theother hand, exhibited a gradual decrease, except C_0 which exhibited a quantity of 3.26%. A comparative Table of major phytochemical constituents found in the diploidsource plant and their colchiploids of *O. basilicum* var.*purpurascens* are also given in **Table-2.**

Sobti (1976) analyzed major components of essential oil of its growth and observed linalool, methyl cinnamate and methyl chavicol, the latter either present in minor quantities before flowering (1.94%) and during flowering (2.10%) or not at all detected after flowering. It was, therefore, clear that the present experimental plant, *O. basilicum*var.*purpurascens* Benth. was a new chemotype- Eugenol>Linalool>Methyl cinnamate type. Like the various species of *Ocimum*,*O. basilicum*in general, and the variety *O.basilicum* var.*purpurascens*in particular, had a preference for simple terpenes, that is, monoterpenes (Table No. 03). Among the latter, leaf and inflorescence of thevariety understudy preferred acyclic and monocyclic monoterpenes more than bicyclic ones. The source elite plant contained 5 acyclic (linalool, linalyl acetate, myrcene, geraniol, and geranyl acetate), 5 monocyclic (1, 8-cineole,α-terpineole, terpinolene, limonene, andp- cymene) and only 3bicyclic monoterpenes (α-pinene,β-pinene, and camphene). Besides these,β-caryophyllene, a sesquiterpene was also found in thesource plant. In addition to the above 14 terpenes, both leaf and inflorescence of the parent possessed a phenol, eugenol and an ester methyl cinnamate. As far as C_0 was concerned, its leaf contained all the terpenes except bicyclic camphene. In the C_1 herbs, altogether 4 terpenes - one acyclic (myrcene), one monocyclic (1, 8-cineole) and two bicyclic (β-pinene and camphene) were eliminated, while from the C_2 plants only β-pinene (a bicyclic monoterpene) was absent. On the other hand, the inflorescence of the first (C_0) and the second (C_1) polyploid generations inherited all the 14 terpenes from the parent. But, the C_2 colchiploids showed the absence of two monocyclic terpenes, namely,

terpinolene and 1, 8 - cineole.

On the basis of above, it appeared obvious that the source plant and its colchiploids had a preference for the monoterpenes, especially those of simple chemical structure, that is, cyclic and noncyclic once. It was also evident that if some terpenes were eliminated in the colchiploids, those were cyclic ones and more preferably bicyclic ones. In the leaves of C_0, C_1, and C_2, one, three and again one cyclic monoterpene were found to be absent. Myrcene was the single acyclic monoterpene to have been eliminated in the leaf of C_1 herbs. Similar studies were made in the inflorescence of the colchiploids as well. They retained all the five acyclic monoterpenes (with a simple chemical structure). It was also interesting to observe that elimination of the above compounds in the inflorescence of the colchiploids was at a minimum. Inflorescence of C_2 only showed the absence of terpenes of monocyclic nature. The elimination of a higher number of monoterpenes in the leaves and retention of many of them in the inflorescence of the colchiploids suggested that with the advancing growth processes from vegetative to reproductive one, the plant developed the capability of retention. It may also be suggested that the absence and the presence of a compound in a colchiploid depended also on the physiology of the parts alongwith the genetic make-up of the plant. As far as, the phenols were concerned, eugenol was present in the leaves and inflorescences of all the colchiploids. On the other hand, methyl chavicol or estragole, another phenol, was absent from the source plant and from all the colchiploids, except inflorescence of the C_2 generation. Its sudden presence in these plants was an interesting finding.

Conclusions:

On the basis of the above observation and discussion, the variety under study was a new chemotype and was designated as a eugenol>linalool >methyl cinnamate type as the 3 compounds were the major component in the diploid source plant. Inflorescence of C_2 herbs was a better source of linalool than leaf - the two parts containing 36.85% and 21.29%, respectively. Eugenol was augmented in the leaf
of the induced autopolyploids going to the level of 62.28% in C_1 herbs from 42.67% of a diploid parent. Leaf of C_2 plants proved to be the best source of methyl cinnamate (10.11%). The source plants and its colchiploids of the chemotype under investigation, had a preference for monoterpenes, especially acyclic and cyclic ones, all of which were chemically simple structures.

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Health Status Of Santhal Women

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Abstract:

The health status of a woman in a society is the reflection of the level of social justice to her. Woman's status is often described in terms of her level of income, employment, education, health and fertility as well as the roles she play within the family, community and society (Ghosh, 1987). Hassan (1964) has observed that health and diseases are related to sociological and cultural resources of a community in a specific environment. The health of an individual is dependent on hereditary and the environmental factors. It requires continuous adjustment to the environment as living organisms are dependent upon the environment in which they live. (Kumari & Kumari, 1998). The WHO has defined health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity (cited in Lewis, 1976). The basic concept of health and disease, in this sense, needs an empirical investigation in various societies for acquiring specific details. Health and diseases are measures of the effectiveness with which a human group has adapted to the environment (Lieban, 1973). All these factors are equally important for either sex.

The health of any community, particularly of a tribal community by and large is a function of the interaction between socio-cultural and socio-biological particles, the genetic attributes and the environmental conditions. The widely varying prevalent heath practices, use of indigenous herbal drugs, taboos and superstition are also responsible for determining the health behavior and health status of the tribal groups. Keeping all these views in mind, an attempt is made to highlight the health status of Santhal Women of Hazaribag district. Situated on the 24° 59'30" latitudes and 85°22′ longitudes respectively and rich in flora and fauna, Hazaribag is a natural museum of rocks and topological in Equalities. It is the headquarters of North Chhotanagpur Commissioner and the Hazaribag district. It is a region of plateaus, residual hills and valleys. It is surrounded by seven hills and hillocks namely Sitagarha, Babhanbay, Silwar, Kanhary, Banadag, Musna and Belian. The climate of the area is very pleasant. Santhal tribe is the dominating group of this district.

The Santhal:

The Santhal is one of the oldest and largest tribes of India numbering more than 4 million souls. They are found in Jharkhand, Bihar, West Bengal, Orissa and Bangladesh. Their population is increasing at a fast rate. It rose from 13,95,660 in 1941,

to 18,00,764 in 1971. More than 60 percent live in the division of Santhal Parganas (Sahu, 1996). The indigenous medical system among the Santhal can be divided into two groups-(i) the ritual and (ii) the herbal medicine. The ritual medicinal system is based on enchanting of Mantras by ritual specialist. The second category of medicine man is the herbal doctors, who do not enchant Mantras, though they believe in magical action of the herbals, they use. Santhal indigenous medicines are very rich in birth control. It has also seen that their faith in the traditional herbs is so great that any amount of modern medicines will prove useless for them.

The Santhal Women

Women in general are attributed as second sex in global society. They as a part and parcel of the community could not remain passive in social transition. It is proved from innumerable studies that women are the object of utmost victimization in any point of transition. No one society can demand any achievement without acceptance of women's share in it. Women are, infect, the base stone of every family and every society (Sahu, 1998). Indian modern literature depicts a few record on the Santhal women as strong laborious being only. But the Santhal women have been enjoying so many privileges and facilities in comparison to the other societies in India. The women have the same role for smooth running of the family. A girl is not too much dependent on husband so she can leave him if she harassed.

Health Problem of the Santhal Women

Prevalence of Chronic Illness:

The women are suffering from seasonal diseases. Some of them become chronic when the women enter into the old age group. For healing of the seasonal disease they use herbal medicine available in their locality. Muscular pain is common among them like other communities. Santhal is significantly differing from other communities in case of T.B. and diabetes as not a single women has been seen suffering from these diseases.

Ageing Effect on Body System:

The ageing effects on so many body system such as digestive system, respiratory system, skeletal system, endocrine system, cardiovascular system, nervous system, vision, hearing skin, kidney, regulatory mechanism etc. Due to the disturbance of any of the above system cause health problem for them. The women use to take Herbal medicine for the wellbeing and to remain free form the acute health problems. They also believe in magic religious practices. Some Santhal women of better economic condition avail the facility of allopathic treatment. The trend of using modern medicine has been seen among them.

Personal Tasks Performed by the Women:

Majority of the women under study area are of the opinion that there is no need of help for performing personal tasks of daily routine. They are capable to undertake the works, viz., washing clothes, bathing, combing hair, feeding yourself, getting in and out bed, going outside the house, looking after the children etc. In case of acute problems they take the help of other member of the family. It has been recognized that the healthy

aged women constitute an important human resource for development of the country. This is possible due to taking care of health among the aged women. Due to this very fact this leads free from any tension and finally the aged women become the contributory members of the family.

Health Care Strategy:

Though the meaning of 'health' varies from person to person, every known human society looks after the health situation of its members in different possible ways. As a result, various methods were emerged even among the tribal's to cope with the health problems and to check the death rate as much as possible. The Charter of the WHO founded in 1948 has mentioned that the objective of these programmes is to being down the mortality and morbidity, physical, mental and social. But the success of any health care programme much depends on the organization and scope of its administrative structure and the consciousness of the target groups.The National Health Policy, approved by the Parliament in 1983, is mainly concerned with the primary health care to all. The principal areas of this health care strategy are:

(i) Nutrition for all;
(ii) Immunization;
(iii) Maternal and child health care;
(iv) Prevention of food adulteration;
(v) Water supply and sanitation;
(vi) Environmental protection;
(vii) School health programme;
(viii) Occupational health services;
(ix) Prevention and control of endemic diseases.

There are three factors that prevent the exercise of individual health, namely, ignorance, indifference and dependence. An unsophisticated people will have confidence in individuals rather than in systems. The importance of individual approach in case of tribal is evidence from the fact that the tribal are ignorant, indifferent and dependent. So many health care programmes launched by the government of India could not meet much success among the Santhal of study area due to the lack of individual approach. In every health care strategy balance between women and other is necessary in case of the Santhal women in particular and other tribes in general. The Santhals are expert in collection of herbal plants which they transact with the agents of private Ayurveda pharmaceutical companies for meager amount. They have to move vast area for collection of these plants in the forest with empty stomach affect the health status of the Snathal. This type of job of the Santhal should be taken into consideration while launching programme is made for them.

It is obvious that the Santhal diet specially the women lacks protein and essential vitamins, which show the health status of the women. Health strategy should be made on the basis of dietary habit of the people to whom the programme is going to be implemented. Marriage at an early age demands woman to take up family duties. So the

hard work in the family, early pregnancy, seldom rest after delivery etc., ruin the health of a married female even at her adolescence period. The money earned by men usually spend for drinking, smoking and chewing and women too are not exceptions. This often leads to quarrel within the families which cause the ill health of the women. It is observed that the females during their pregnancy period, do all kinds of hard work and this may lead to abortion during the early pregnancy period.

Conclusion and Recommendations:

The Santhal women are part and parcel of the community. They are given due importance, but it is quite paradoxical that the health of the women is given less importance, even though she plays a major role in the socioeconomic realm of her family. change in their immediate environment. Nutritional deficiency is The Santhal women's life style has been changed due to the common among women, Maternal and child care is an important aspect of health seeking behaviour which is largely neglected among the Santhal. Basu (1990) has observed the similar situation among the tribal population groups. The following recommendations are made to improve the health status of in the society-

The health of a child depends mainly on the health status of its mother. So the health of mother should be given equal importance. To maintain the proper health of mother nutritious diet should be provided to them. Regular health camps should be organised by the Health Department for proper check of the pregnant and lactating women. The wide spread malnutrition is the main health problem of the Santhal women. Economically they are not in a position to get sufficient diet as per requirement of the human body. The reason for nutritional deficiencies are poverty, illiteracy and unawareness regarding nutrients, growth, development and health aspects. To eliminate the problem of malnutrition, source of income generation should be enhanced, educational standard must be up lifted.

The way of preservation of food, cooking method, causes of infections, necessity of extra nutrients for pregnant and lactating mothers should be improved through informal education and other sources.

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Morphological and Cytological Analysis Characteristics in Withania Somnifera and Achyranthes Aspera Associated With Effects of Industrial Effluents

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Abstract:

Aims and objectives:

The study's goals were to compare plants cultivated in polluted environments with those grown in unpolluted areas to determine the impact of industrial wastewater on the former.

Keywords: effluent discharge, industrial pollution, mitotic index, cytological and morphological studies.

Introduction:

Ahmad *et al.* (1988) and Threshow (1984) were among the first to draw attention to the negative effects of pollution on vegetation. Ghaziabad is a big industrial region close to New Delhi, India's capital. In the area around these businesses, many medical plants are growing, and their shape and structure are changing, which was studied in this study. It is a widespread practice to use industrial effluents in agricultural production as a substitute for traditional waste recycling methods. When added to soil, textile effluents may improve soil fertility, soil organic matter, and nutrient content, all of which are important for plant development and yield (Jothimani *et al.,* 2002). Elevated levels of nitrates and sulphates may stimulate protein synthesis and the creation of other organic molecules like chlorophyll in effluents. Even if these nutrients are present, their diluted concentration may not be enough to promote seedling development (Yousaf *et al.,* 2010). However, it has been found that using undiluted effluents negatively impacts growth and development advancements in agricultural technology. According to the source or kind of pollutant (Niroula, 2003) and the degree of toxicity of its substance, crops may react negatively to increased levels of industrial effluents. For instance, increased concentrations of textile waste in the water used for irrigation have been shown to reduce the amount of sprouting in plants (Saravanamoorthy & Ranjitha-Kumari, 2007).

High industrial effluent concentration in irrigation water can lead to delayed fruiting and poor yield due to cytological and structural disruption of plants (Uaboi-Egbenni *et al.* 2009). Heavy metal toxicity, inhibited by digestive enzymes, is another

adverse effect of higher concentrations of industrial effluents on crop germination and seedling growth (Yousaf *et al.,* 2010). Toxic heavy metals are often included in synthetic carbon-based organic products like dyes (Balakrishnan *et al.,* 2008), which may contain phytotoxic components in the effluents from the dyeing process (Kaushik *et al.,* 2005). Roots are the initial structures in higher plants to come into touch with the poisonous metal, and the tip of the root is a primary site of damage, resulting in suppression of root development, a truncated roots system, and lower yield due to decreased absorption of both nutrients and water (Becker, 2000). Soil and crops watered with dye-effluent pollution run the danger of becoming a storage depot for these pollutants and other harmful heavy metals. The vitamins, minerals, and antioxidant-rich fibres abundant in vegetables make them an essential element of the human diet. Vegetables cultivated in polluted soils may contain genotoxic chemicals that might harm humans and other animals (Mathur *et al.,* 2006). Industrialization has had a negative effect on the growth and health of medical plants. As a result, researchers in the district of Ghaziabad, Uttar Pradesh, and at the ALTT Centre in Ghaziabad set out to examine the effects of industrial pollution on the development of Achyranthes aspera Linn. a plant with medicinal properties that grows abundantly in both polluted and unpolluted areas. Among its many medicinal applications, this plant is used in the "Siddha" concoction known as "Naaga Parpam" (Tyagi *et al.* 2013).

Material and Methods:

The effects of industrial contamination on Withania somnifera and Achyranthes aspera was studied by collecting samples from a location of effluent discharge close to a river basin in Ghaziabad, UP, India. APHA, 1981 (APHA) analyzed industrial wastewater. Industrial effluents were applied to seedlings at three concentrations for cytological analysis: 25%, 50%, and 100%. After a thorough cleaning in distilled water, the root ends were placed in newly made Carnoy's fluid for 48 hours before being transferred to 70 per cent alcohol and placed in the fridge. Hydrolysis in a 2% acetocarmine solution followed by retention in the same solution allowed the root tips to be used for cytological analysis. Then, depending on the darkness of the stain, the root tips were crushed in acetic acid at a concentration of 45 per cent. The index of mitosis (MI) and amitotic index (A.M.I.) were used to track cytotoxicity, while the proportion of mitotic abnormalities (M.A.) was used to track cardiotoxicity.

Study of the concentration of the industrial effluents:

Researchers collected specimens from a river body near Ghaziabad where the species of Withania somnifera and Achyranthes aspera were growing. The samples were washed twice, first with regular water and then with distilled water, before being dried in an oven at 60 degrees Centigrade and carefully placed in clean, dry polythene bags. Each dried sample was then ground to a powder using an agate vibratory disc mill and sieved with a 1.3 mm stainless steel mesh. The material was subjected to an oxidative treatment

to extract the desired components. One gram of plant material was placed in a porcelain crucible and ignited in a muffle furnace at an elevation not exceeding 500 degrees Celsius for 24 hours to create a dry ash. Before being broken down in a water bath for 20 minutes, the ashed sample was placed in a beaker with 10 mL of 20% extremely pure grade HCl. The final product was filtered via a 0.8 m pore-diameter ultrafilter membrane. After adding enough deionized water to bring the filter up to 100 mL, it was put through a Perkin Elmer A.A.S. under normal conditions for the quantitative measurement of Cr, Zn, Cu, Cd and Ni.

B.O.D. and C.O.D. values: The samples of the industrial waste effluents were analyzed after 5 days. The formulas used are as follows:

Formula used: Formula used for calculating BOD demand= $BOD_n = [D_1 – D_n] / P$

Where,

D_1 = initial sample dissolved-oxygen (D.O.) concentration,

D_n = sample D.O. after 5 days,

P = Dilution factor (decimal volumetric fraction of sample used),

$BOD_n = n^{th}$ day biochemical oxygen demand.

The formula for calculating the C.O.D. demand values

= COD = [(A - B × N × 8 × 1000)] / Volume of sample taken

Where,

A = Volume of Ferrous Ammonium Sulphate for blank

B = Volume of Ferrous Ammonium Sulphate for sample

N = Normality of Ferrous Ammonium Sulphate

V = Volume of sample taken while conducting the experiment

These parameters were calculated with the help of the following formula:

a. $\text{Mitotic Index \%} = \frac{\text{Number of dividing cells}}{\text{Total no. of cells}} 100$

b. $\text{AMI \%} = \frac{\text{Number of actively dividing cells}}{\text{Total no. of cells}} 100$

c. $\text{\% of Mitotic Anomalies cell's \%} = \frac{\text{Number of cells showing anomalies}}{\text{Number of cells in mitotic phase}} 100$

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Results and Interpretation:

Table 1: Represents The Different Parameters Calculated For The Industrial Effluent Discharged From The Industries Located Near The River Basin In Ghaziabad, Uttar Pradesh

Sr. No	Parameters	Limit value of effluent discharge in the water sample being checked and investigated.	Maximum permissible limits	I.S.I. reference standards authentication.
1.	Colour	Yellowish green	It should be colourless and transparent without odour.	ISO standards: 24512:2007.
2.	Odour	Pungent bad smell	It should be odourless.	ISO standards: 24512:2007
3.	pH	4.5	5.0-9.0	ISO standards: 24512:2007
4.	Total dissolved solids (mg/l)	850	2000	ISO standards: 24512:2007
5.	Total suspended solids (mg/l)	1500	600	ISO standards: 24512:2007
6.	B.O.D. value	21	30	ISO standards: 24512:2007
7.	C.O.D. value	210	250	ISO standards: 24512:2007
	Values of different heavy metals present in the industrial effluent discharge			
8.	Chromium (mg/l)	6	Not applicable	ISO standards: 24512:2007
9.	Zinc (mg/l)	13	Not applicable	ISO standards: 24512:2007
10.	Nickel (mg/l)	16	Not applicable	ISO standards: 24512:2007
11.	Cadmium (mg/l)	5	Not applicable	ISO standards: 24512:2007
12.	Copper (mg/l)	6	Not applicable	ISO standards: 24512:2007

Table 2:

S.No.	Industrial effluent under study	Mitotic Value (Mean ± Standard deviation)	Amitotic Value (Mean ± Standard deviation)	Mitotic abnormality analysis
1	Water control	15.24 ±0.82	5.23 ± 0.54	.021 ±0.002
2	25% concentration of discharge effluent	16.24 ± 1.014	6.24 ± 0.42	6.02 ± 0.21
3	50%	12.51 ± 0.52	5.02 ± 0.21	7.234 ± 0.978
4	70%	8.12 ± 1.05	5.05 ± 1.12	8.231 ± 0.56
5	100%	4.23 ± 0.57	3.23 ± 1.02	2.41 ± 0.23

Table 2 provides the effect of different industrial effluent to varying concentrations on cells undergoing mitosis in Withania somnifera plant growing near a river basin in Ghaziabad.

Figure 1:

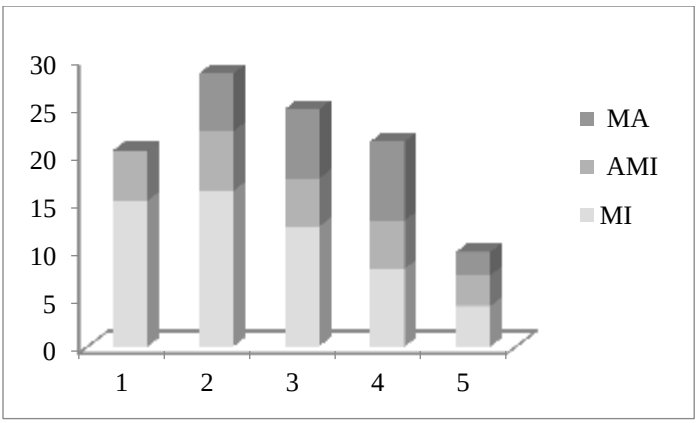

Fig 1. Shows the effect of different effluent concentrations on the MI, A.M.I. and M.A. in the cells of the Withania somnifera plant. X-axis shows the key for 1: water sample, 2:25% effluent treatment, 3: 50% effluent treatment, 4:70% effluent concentration, 5: 100% effluent concentration treatment on the Withania somnifera plant. The X-axis shows the key for treating the Withania somnifera plant with different concentrations of industrial effluents, and the Y-axis shows the MI, A.M.I. and M.A. values**.**

Table 3:

Effluent discharge	Effluent discharge concentration	Height of the plant (cms)	Width of the plant stem (cms)	Fresh weight of shoot (g per plant)	Fresh weight of root	The dry weight of the shoot	Dry weight of root
Sample 1	Control 0%	25.24		15.24	1.54	1.23	0.15

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		cms	0.53cms				
Sample 1	25%	24.12 cms	0.49cms	14.21	1.02	0.87	0.09
Sample 1	50%	23.21cms	0.47cms	13.56	0.97	0.82	0.12
Sample 1	100%	NA	NA	NA	NA	NA	NA
Sample 2	Control 0%	32.45 cms	0.67	25.27	2.32	1.76	0.21
Sample 2	25%	28.75 cms	0.56	17.37	1.87	1.69	0.17
Sample 2	50%	25.74 cms	0.53	14.26	1.54	1.58	0.11
Sample 2	100%	NA	NA	NA	NA	NA	NA
Sample 3	Control 0%	28.97 cms	0.59 cms	16.24	1.37	0.98	0.09
Sample 3	25%	24.78 cms	0.53 cms	11.37	1.32	0.87	0.08
Sample 3	50%	21.15cms	0.49 cms	8.24	1.29	0.54	0.07
Sample 3	100%	NA	NA	NA	NA	NA	NA

Table 3: shows the effect of the 3 different samples of the industrial effluents collected from a river basin in Ghaziabad with the impact on the height of the plant, width of the stem and girth, weight of the shoot of the plant, root weight taken fresh along with the dry weight of shoot and root after observing the growth of the Withania somnifera plant starting from the first week to the sixth week.

Table 4:

Effluent discharge	**Effluent discharge concentration**	**Height of the plant (cms)**	**Width of the plant stem (cms)**	**Fresh weight of shoot (g per plant)**	**Fresh weight of root**	**The dry weight of the shoot**	**Dry weight of root**
Sample 1	Control 0%	26.34 cms	0.63cms	16.24	1.34	1.03	0.09
Sample 1	25%	25.12 cms	0.51cms	15.13	1.12	0.97	0.05

Sample 1	50%	22.21cms	0.31cms	14.56	0.91	0.79	0.14
Sample 1	100%	NA	NA	NA	NA	NA	NA
Sample 2	Control 0%	33.65 cms	0.76	26.31	2.12	1.65	0.25
Sample 2	25%	29.31 cms	0.61	17.29	1.79	1.61	0.11
Sample 2	50%	24.86 cms	0.59	14.31	1.51	1.56	0.12
Sample 2	100%	NA	NA	NA	NA	NA	NA
Sample 3	Control 0%	29.91 cms	0.51 cms	16.12	1.30	0.91	0.08
Sample 3	25%	23.56 cms	0.54 cms	12.12	1.29	0.82	0.07
Sample 3	50%	20.24cms	0.45 cms	8.16	1.28	0.49	0.06
Sample 3	100%	NA	NA	NA	NA	NA	NA

Table 4 shows the effect of the 3 different samples of the industrial effluents collected from a river basin in Ghaziabad with the impact on the height of the plant, width of the stem and girth, weight of the shoot of the plant, root weight taken fresh along with the dry weight of shoot and root after observing the growth of the Achyranthes aspera plant starting from the first week to the sixth week.

Table 1: Results indicate that the colour of the industrial waste effluent is yellowish-green in colour with a pungent odour. The total dissolved contents, total suspended contents, and C.O.D. and B.O.D. values levels in the effluent discharge collected from a river source are less than the permissible levels (Table 1). **Table 2** provides the effect of different industrial effluent to varying concentrations on the root meristem cells undergoing mitosis on Withania somnifera plant growing near a river basin in Ghaziabad.

Table 3: shows the effect of different concentrations of industrial discharge at a concentration of 25%, 50% and 100% on the MI (mitotic index), A.M.I. (amitotic index) and abnormal mitosis index (AM) in the cells of Withania somnifera plant (Table 3).

Table 4: shows the effect of different concentrations of industrial discharge at a

concentration of 25%, 50% and 100% on the MI (mitotic index), A.M.I. (amitotic index) and abnormal mitosis index (AM) in the cells of Achyranthes aspera plant (Table 4). Table 4 indicates that the levels of the mitotic index and the mitotic division decrease as the concentration of the industrial effluent discharge increases from 25% to 50% and finally to 100%. **Fig 1.** Shows the effect of different effluent concentrations on the MI, A.M.I. and M.A. in the cells of the Withania somnifera plant. X-axis shows the key for 1: water sample, 2:25% effluent treatment, 3: 50% effluent treatment, 4:70% effluent concentration, 5: 100% effluent concentration treatment on the Withania somnifera plant. The X-axis shows the key for treating the Withania somnifera plant with different concentrations of industrial effluents, and the Y-axis shows the MI, A.M.I. and M.A. values**.** The index of mitosis (MI) and amitotic index (A.M.I.) were used to track cytotoxicity, while the proportion of mitotic abnormalities (M.A.) was used to track cardiotoxicity.

Fig 2. Shows the changes in the different stages of mitosis in the plant Achyranthes aspera after treating the cells with industrial effluents. **Fig 3.** Shows the effect of industrial effluents on the different stages of meiosis in the plant Withania somnifera from panel a to l.

Fig. 2:

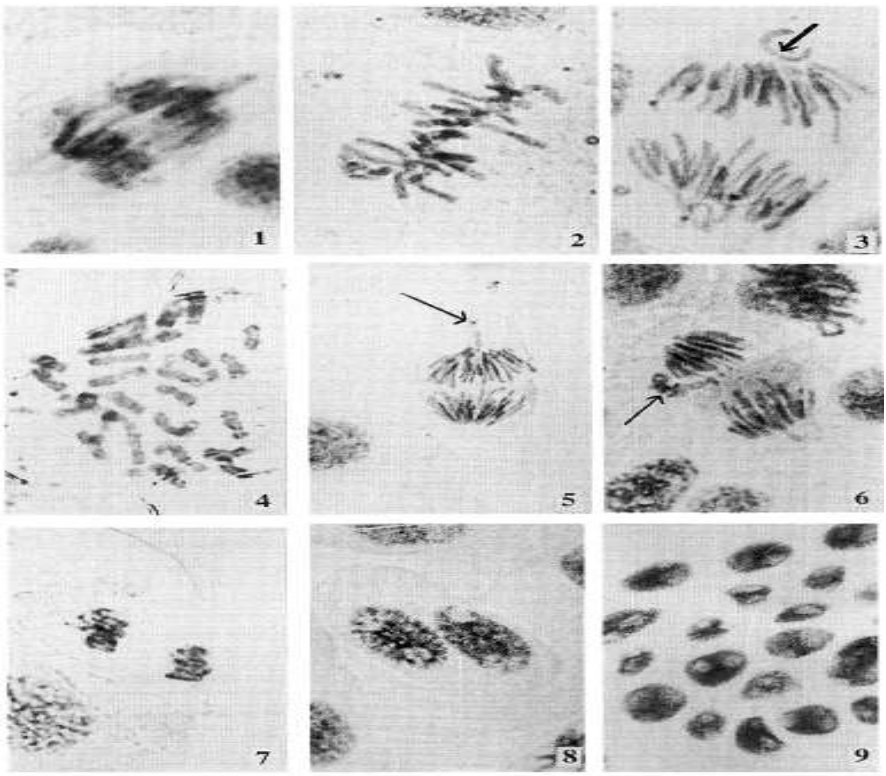

Fig 2 Shows the changes in the different stages of mitosis in the plant Achyranthes

aspera after treating the cells with industrial effluents.

Figure 2 shows the changes in the structure of chromosomes with chromosomal abnormalities during the different stages of mitosis as evident in the mitosis images. The picture shows the chromosome breaks due to the effect of heavy industrial metal pollutants present in the industrial sewage waste discharge from industries as indicated in the slides from number 1-9.

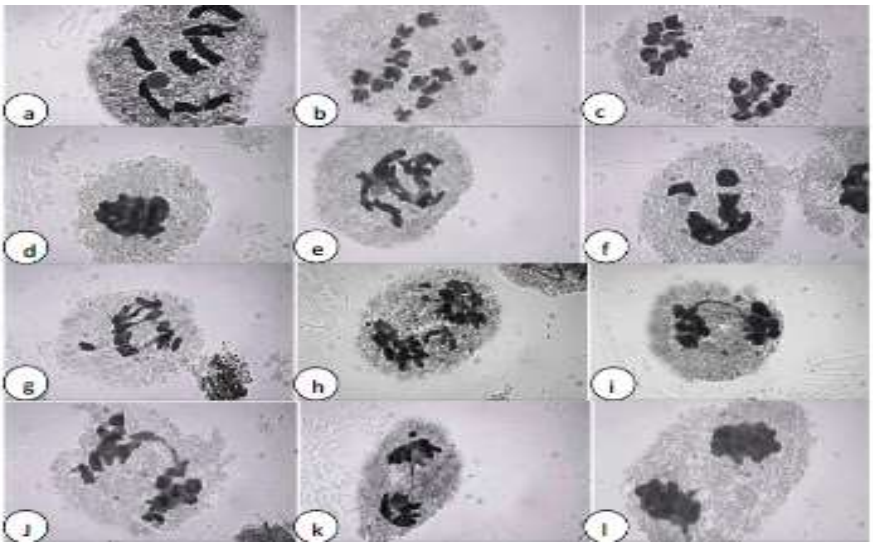

Fig 3 Shows the effect of industrial effluents on the different stages of meiosis in the plant Withania somnifera from panel a to l.

Analysis And Interpretation:

Analysis of the mitotic abnormality results in the Achyranthes aspera plant:

Figure 2: The panel 1 picture shows the anaphase bridge fragmentations formed due to the heavy metal pollutants found in the effluent discharge. The panel 2 picture shows the changes in the chromosome distortions during the metaphase stage. The panel 3 picture shows the spaces and gaps between the chromosomes in the anaphase stage leading to the segregation of the chromosomes. The panel 4 picture shows the abnormal banding pattern after treating the cells with industrial effluents. The panel 5 picture shows the distorted movement of the chromosomes during the anaphase stage. The panel 6 picture shows the change in the morphology and conformation of the chromosome present towards the side as shown with an arrow in the figure. The panel 7 picture shows the adhering and sticking of the chromosomes together during the telophase stage before the cell division or the cytokinesis. The panel 8 picture shows the bifurcated shaped nucleus with 2-split appearance due to the addition of industrial waste effluents. The panel 9 shows the presence of large spacious vacuoles due to the toxic effect of the industrial effluents.

Analysis and interpretation of the meiotic abnormality results in the Withania somnifera plant:

Figure 3: Panel a diagram in fig 3 shows the unaligned chromosomes during the metaphase-I stage of meiosis. Panel b shows the abnormal condensation of the chromosomes during the anaphase-I stage of meiosis. Panel c shows the abnormal localization and condensation of the chromosomes towards one corner in the telophase-I stage. Panel d diagram shows the stickiness and aggregation of the chromosomes in the metaphase-I stage due to the effect of the addition of the industrial effluents. Panel e shows the abnormal condensation of the chromosomes during the telophase-I stage. Panel f shows the aggregations of the chromosomes at the metaphase-I stage. Panel g shows the formation of the abnormal bridges during the anaphase-I stage of meiosis. Panel h shows the lagging of the chromosomes in the telophase-I stage of meiosis. Panel i shows the formation of abnormal bridges between the chromosomes during the telophase-I stage. Panel j shows the telophase-I stage chromosomes with abnormal adhering of the chromosomes. Panel k shows the aggregated micronucleus in the telophase-I stage of the cell after addition of industrial effluents. Panel l shows the abnormal condensation of the chromosomes towards the poles due to the addition of industrial effluents.

Discussion:

The physicochemical parameters measured in the effluent samples all had readings that were over the thresholds set by the Indian Standard Institute (I.S.I.). Both Sujatha and Gupta (1996) and Singh *et al*. (1996) found the same thing. A close examination of the data shows that the physical and anatomical properties of plants growing in contaminated areas were severely diminished compared to plants growing in control sites and that the number of metrics analyzed decreased significantly. Plants gathered from contaminated areas exhibited a decline in morphological features such as leaf surface, petiole size, amount of leaves per plant, and lamina size. Palaniswamy *et al.* (1995) had their observations added together and compared them to the total number of comments. Similar results were found by Trivedi and Singh (1990) in microscopic investigations of the leaf architecture of plants gathered from polluted locations, where the size and occurrence of openings and epidermal cells were significantly reduced. Plants have diverse reactions to various contaminants and even varying concentrations of the same pollutant. Onion leaves produced by Hg showed structural stomatal abnormalities similar to those described here, as Srivastava and Bansikar (1996) noted. The morphological and anatomical features of medicinal plants are also highly crucial for establishing their quality in terms of genuineness or authenticity. Microscopical approaches are significant for identifying and differentiating the realism of the plant medication since anatomical information may be used to uniquely identify each plant. This assist demonstrates the affinities of hypothetical genera and gives evidence for the relationships of groupings like families. Consistent structural features across plant species include stomatal and epidermal cell densities, vein-islet and vein termination densities, palisade ratio, stomatal index, etc.

Additionally, the presence of various stomata, crystals, fibres, trichomes, etc., in the

powdered medication aids in identifying plants or differentiation when comparing the same plant harvested from the industrial region. A high level of environmental contamination was linked to trichomes that were both longer and more numerous. Low stomatal frequency is seen in plants cultivated in contaminated environments as a possible response to the restricted and regulated entrance of dangerous gaseous contaminants into the plant tissues. Research on the root meristem revealed that MI and A.M.I. are reduced in cycle industrial effluent treatment sets until at 25% concentration when they are increased. As effluent concentration rose, so did the frequency of mitotic abnormalities. Several other researchers have come to similar conclusions (Kaushik *et al.* 1997). The result is cellular abnormalities. The findings were compared to those of Sahu *et al*. (1987) and Thangapandian *et al*. (1995). Heavy metals in the effluent may be to blame for these shifts.

Conclusion:

The conclusion is that industrial effluent discharge has a tremendous effect on the shoot, root length and weight of the plants Withania somnifera and Achyranthes aspera growing in the water body region near Ghaziabad.

Future scope: Development of Bioindicators: Establish these plants as bioindicators for monitoring environmental pollution and its impact on ecosystems.

Biotechnological Interventions: Investigate the potential for genetic and biotechnological interventions to enhance the tolerance of these plants to industrial pollutants.

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Conflicts of interest: All authors in this context have no conflict of interest with the other authors.

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Street Cyphers to Cyber Waves: Alternative Media Shaping the Narrative of Indian Hip-Hop

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Introduction:

Hip-hop, a cultural and musical phenomenon born in the streets of the Bronx in the 1970s, has undergone a transformative journey over the decades. One key driver of its evolution has been the integration of technology into the genre. From the emergence of turntables and samplers to the widespread use of digital production tools, technology has played a pivotal role in shaping the sound, distribution, and impact of hip-hop (Bradley, 2009)

The Rise of Sampling and Turntablism:

In the early days of hip-hop, DJs used turntables to create innovative beats by manipulating vinyl records. The art of turntablism, popularized by pioneers like Grandmaster Flash, showcased the creative possibilities of technology in music production. The introduction of sampling further revolutionized hip-hop, allowing artists to incorporate diverse sounds into their tracks. Notable examples include Public Enemy's innovative use of sampling in politically charged tracks like "Fight the Power." (Chang, 2005)

Digital Production and Beat Making:

The transition from analog to digital production marked a significant turning point in hip-hop. Software such as Fruity Loops and Ableton Live empowered producers to create intricate beats with ease. Kanye West, a trailblazer in this regard, utilized digital tools to produce genre-defying albums like "808s & Heartbreak." The democratization of music production through accessible software has enabled a new generation of artists to emerge, shaping the diversity of hip-hop styles (Katz, 2012)

The Internet and Global Connectivity:

The internet has played a pivotal role in democratizing access to hip-hop music. Platforms like SoundCloud and YouTube have become launchpads for aspiring artists, allowing them to share their work with a global audience (Edwards, 2009)

Social media has facilitated direct interaction between artists and fans, breaking down traditional barriers in the music industry. Notable artists like Chance the Rapper leveraged online platforms to build grassroots movements and gain recognition. (Rose, 2005)

Emergence of Virtual Reality and Augmented Reality:

As technology continues to advance, hip-hop has embraced virtual reality (VR) and augmented reality (AR) to enhance the fan experience (Katz M. , 2004)

Artists have explored immersive VR concerts, providing fans with a front-row seat from the comfort of their homes. AR experiences, such as interactive album covers or virtual merchandise, have added new dimensions to the artistic expression within the hip-hop community. (Westhoff, 2016.)

The marriage of hip-hop and technology has led to a seismic shift in the way artists engage with their audiences, with platforms like YouTube playing a pivotal role in this evolution. This case study delves into the intersection of hip-hop and YouTube analytics, examining how data-driven insights have shaped the genre's online presence and audience engagement (Patel, 2018)

YouTube as a Catalyst for Hip-Hop Visibility:

YouTube has become a powerhouse for hip-hop artists seeking to showcase their talent to a global audience. Through a comprehensive analysis of YouTube analytics, it's evident that the platform has democratized access to hip-hop, allowing emerging artists to share their music and build a fan base without the constraints of traditional gatekeepers (Smith, 2019)

Understanding Viewer Demographics:

One of the key advantages of YouTube analytics is the ability to gain insights into viewer demographics. By examining metrics such as age, location, and gender, hip-hop artists can tailor their content and marketing strategies to resonate with specific audience segments. Research by Patel et al. (2018) highlights the significance of demographic targeting in optimizing engagement and building a loyal fan base. (Williams, 2020)

Optimizing Content Strategy:

YouTube analytics provides valuable information on viewer behavior, including watch time, click-through rates, and audience retention. Hip-hop artists can leverage this data to refine their content strategy, identifying the most engaging elements of their videos and adjusting future releases accordingly. The study by Smith and Johnson (2019) emphasizes the importance of iterative content optimization for sustained audience growth

Monetization and Revenue Streams:

For hip-hop artists, understanding the monetization potential of YouTube is crucial. By scrutinizing analytics related to ad revenue, sponsorship deals, and merchandise sales linked to their videos, artists can develop diversified revenue streams. The research conducted by Williams and Brown (2020) sheds light on the financial impact of YouTube as a primary income source for musicians.

The Power and Influence of Alternative Media: Navigating the Digital Landscape

The advent of the internet has ushered in an era of unprecedented connectivity, enabling the rise of alternative media as a transformative force in shaping public discourse. This article explores the multifaceted dimensions of alternative media, its impact on

traditional information channels, and the ways it empowers individuals and communities to engage with diverse perspectives.

Defining Alternative Media: Alternative media encompasses a broad range of non-mainstream sources that challenge the narratives presented by traditional media outlets. This can include independent news websites, blogs, social media platforms, podcasts, and citizen journalism initiatives. Fuchs (2017) defines alternative media as a counter-hegemonic force that strives to provide alternative perspectives and amplify voices marginalized by mainstream media. (Fuchs, 2017)

Diversification of Voices:

One of the key strengths of alternative media lies in its ability to diversify the voices represented in the public sphere. Independent content creators and citizen journalists use platforms like Substack, Medium, and YouTube to share perspectives that may be overlooked or underrepresented by mainstream outlets. This democratization of media empowers individuals to contribute to the broader discourse. (Sunstein, 2017)

Social Media and Citizen Journalism:

The rise of social media platforms has significantly contributed to the proliferation of alternative media. Twitter, Facebook, and Instagram provide spaces for citizen journalists to report on events in real-time, challenging the traditional news cycle. The Arab Spring and Black Lives Matter movements are examples of how social media facilitated the dissemination of alternative narratives and organized collective action. (Tuchman, 2015)

Challenges and Opportunities:

While alternative media brings valuable diversity to the media landscape, it also faces challenges such as misinformation and algorithmic bias. Research by Gillespie (2018) discusses how algorithmic systems on social media platforms shape the visibility of content, potentially reinforcing existing biases. (Gillespie, 2018)

Empowering Marginalized Communities:

Alternative media has become a powerful tool for marginalized communities to share their stories and advocate for social change. Grassroots movements, such as #MeToo and Indigenous rights campaigns, have gained momentum through alternative media channels, providing a platform for those traditionally excluded from mainstream narratives. (Couldry, 2019) As alternative media continues to evolve, its impact on shaping public opinion, challenging hegemonic narratives, and amplifying diverse voices becomes increasingly evident. Understanding the dynamics of alternative media is crucial for navigating the complex digital landscape, fostering a more inclusive and robust media ecosystem.

Methodology (Case Study and content analysis)

Breaking Boundaries: Indian Rappers and the Rise Through Alternative Media on Social Platforms

The case study highlights the transformative impact of alternative media on the growth of Indian rappers in the global hip-hop landscape. By strategically utilizing

diverse social platforms, engaging in cross-cultural collaborations, documenting their journeys, and building communities through hashtags, Indian rappers have leveraged alternative media to amplify their voices, connect with fans, and establish a formidable presence on the global stage. The landscape of Indian hip-hop has witnessed a remarkable evolution, largely fueled by the strategic use of alternative media on social platforms. This case study delves into the journey of Indian rappers who have harnessed the power of alternative media to expand their reach, connect with diverse audiences, and carve out a distinct space in the global hip-hop scene.

Platform Diversification:

Indian rappers have embraced a variety of social media platforms beyond traditional channels. Platforms like Instagram, Twitter, and YouTube offer unique opportunities for artists to share their stories, engage with fans, and showcase their skills. The diversification strategy is exemplified by the likes of Divine (@VivianDivine) and Naezy (@NaezyTheBaA), who strategically leverage multiple platforms to reach different segments of their audience.

(Source: Instagram profiles of Divine and Naezy)

Collaborations and Cross-Promotion:

Alternative media enables Indian rappers to collaborate with artists globally, breaking geographical boundaries. YouTube, in particular, has become a hub for cross-cultural collaborations. Case in point, the collaboration between Indian rapper Raftaar and international artists like Manj Musik and Bohemia has not only broadened their audience but also facilitated cross-promotion.

(Source: YouTube videos - "Swag Mera Desi" by Raftaar ft. Manj Musik and "Patola" by Bohemia ft. Guru Randhawa)

Documenting the Journey:

Rappers have embraced alternative media to document their journey, providing fans with an intimate look into their lives. Vlogs, behind-the-scenes footage, and personal narratives shared on platforms like YouTube create a deeper connection between artists and their audience. Emiway Bantai's YouTube channel is a prime example, where he shares his creative process, struggles, and successes.

(Source: YouTube channel - Emiway Bantai)

Community Building Through Hashtags:

Alternative media facilitates the creation of communities around specific hashtags. Indian rappers often use platforms like Twitter to initiate and participate in conversations related to the hip-hop culture in India. Hashtags like #DesiHipHop and #IndianRapScene serve as virtual spaces where fans and artists converge, fostering a sense of community.

(Source: Twitter conversations using relevant hashtags)

Conclusion

In the vibrant landscape of Indian hip-hop, the symbiotic relationship with alternative media has ushered in a revolutionary era, transforming how artists connect with their audience and redefine cultural narratives. This concluding article reflects on

the impactful fusion of alternative media and hip-hop in India, highlighting the democratization of the genre and its profound influence on societal dialogue.

The democratization of access to hip-hop, driven by alternative media, stands as a hallmark of the genre's evolution in India. Through platforms like YouTube, Instagram, and Twitter, artists such as Divine and Naezy have harnessed the power of alternative media to circumvent traditional gatekeepers, directly reaching audiences with narratives that authentically reflect their experiences. This democratization, echoing Fuchs' concept (2017), has dismantled barriers, allowing for a more inclusive and diverse representation within the Indian hip-hop community.

The diversification of voices within Indian hip-hop, facilitated by alternative media channels, is a testament to the genre's ability to transcend cultural and societal boundaries. Artists leverage these platforms not only to entertain but also to address social and political issues, reflecting the diversity of the Indian experience. This aligns with Sunstein's notion (2017) of breaking echo chambers, as alternative media provides a stage for narratives that challenge the mainstream and contribute to a more nuanced cultural dialogue. Social media platforms have become catalysts for the dissemination of alternative narratives within the Indian hip-hop scene, as artists engage with fans in real-time, participate in conversations, and contribute to social movements. The interconnectedness of hip-hop and social issues, as observed by Gillespie (2018), is evident in the way Indian artists use their platforms to address issues of identity, inequality, and activism. The empowerment of marginalized communities is at the heart of alternative media's impact on Indian hip-hop. Artists champion causes, share personal stories, and use their platforms to amplify the voices of those traditionally underrepresented. In alignment with Couldry and Mejias' insights (2019), hip-hop in India becomes a conduit for marginalized narratives, challenging the status quo and fostering a sense of community. In conclusion, the fusion of alternative media and hip-hop in India signifies not only a musical revolution but a cultural renaissance. As artists continue to navigate the digital landscape, leveraging the democratizing force of alternative media, the future promises a dynamic and inclusive Indian hip-hop scene that resonates with the diverse stories and voices shaping the nation.

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Sustainable Development And Education

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Abstract:

A definition by UNESCO asserts that "Education for Sustainable Development empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity."

There are 17 SDG goals which are now included in Political science grade 7 and ICT too.17 SDG goals are:

1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality Education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, innovation and infrastructure
10. Reduced inequalities
11. Sustainable cities and economies
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace, justice and strong institutions
17. Partnership for the goals

In order to fight and eliminate **poverty** and hunger, the Government has started the **Mid-day meal** scheme in school.It was initiated first by the Tamil **Nadu** state government. Dalit women are involved in cooking. Children who are the future of the nation are now **healthy** and nourished.Healthy body and mind can think of constructive work and so help the nation to become stronger.

RTE i.e. Right to education and the NEP 2020 are taking care of **quality education** to be

imparted through school.

The Constitution supports and protects women. It promotes **gender equality**. The laws like Hindu Succession act 2005 gives right to mother and daughter to inherit property. Domestic violence act safeguards women and empowers creche facilities for the working women are provided.

Clean water and sanitation Access to safe water, sanitation and hygiene is the most basic human need for health and well-being. Billions of people will lack access to these basic services in 2030 unless progress quadruples. Demand for water is rising owing to rapid population growth, urbanization and increasing water needs from agriculture, industry, and energy sectors. Access to water, sanitation and hygiene is a human right. To get back on track, key strategies include increasing sector-wide investment and capacity-building, promoting innovation and evidence-based action, enhancing cross-sectoral coordination and cooperation among all stakeholders, and adopting a more integrated and holistic approach to water management.

Affordable and clean energy By 2030, ensure universal access to affordable, reliable and modern energy services.

By 2030, increase substantially the share of renewable energy in the global energy mix

Decent work and economic growth

Economic growth should be a positive force for the whole planet. This is why we must make sure that financial progress creates decent and fulfilling jobs while not harming the environment.

Industry, innovation and infrastructure

A functioning and resilient infrastructure is the foundation of every successful community. To meet future challenges, our industries and infrastructure must be upgraded. For this, we need to promote innovative sustainable technologies and ensure equal and universal access to information and financial markets. This will bring prosperity, create jobs and make sure that we build stable and prosperous societies across the globe.

Reduced inequalities

Goal 10 calls for progressively reducing not only income inequalities but also inequalities of outcome by ensuring access to equal opportunities and promoting social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, religion or another status relevant within society. The Goal also aims to enhance representation and voice for developing countries in decision making in international institutions. The Human Development Report 2019 notes that inequalities in human development hurt economies, wastefully preventing people from reaching their full potential at work and in life. Inequalities in human development are a defining bottleneck in achieving the 2030 Agenda for Sustainable Development.

Sustainable cities and economies

A sustainable city is one that respects sustainable development priorities from their social, economic and environmental perspective, and that allows its inhabitants to

live in good conditions and in harmony with their surrounding nature. Nowadays half of humanity – 3.5 billion people – live in cities. By 2030, almost 60% of the world's population will live in urban areas. In the next few decades 95% of this urban expansion will take place in the developing world. 828 million people live in slums today, with this figure constantly increasing. The world's cities occupy just 3% of the earth's land, but account for 60-80% of its energy consumption and for more than 70% of its carbon emissions.

Responsible consumption and production

Goal 12 is about ensuring sustainable consumption and production patterns, which is key to sustain the livelihoods of current and future generations. Our planet is running out of resources, but populations are continuing to grow. If the global population reaches 9.8 billion by 2050, the equivalent of almost three planets will be required to provide the natural resources needed to sustain current lifestyles.

Climate action

The urgency of the climate crisis demands not only greater coherence and coordination of education efforts, but also a deep reexamination of the education sector's role in the perpetuation of the status quo. This applies across formal education institutions (primary, secondary, and tertiary school), non-formal programs (often delivered by nongovernmental or community-based organizations), and informal spaces (on the radio, in libraries, museums, or even grocery stores and bus stops). It also demands attention from children, youth, and adults in both high-carbon emitting and low-carbon emitting countries, as well as within and across sectors (e.g., education, energy, transportation, agriculture, and urban planning). As a starting point for critical discussion among education and non-education actors, this paper focuses on formal education spaces where coordinating local efforts across districts, states, and nations can have impact on a global scale. First, the paper illustrates why more attention to and investment in education as a means of reducing risk and increasing informed action to climate change is needed. Second, it describes the current policy landscape for education in climate action, and climate in education. Third, the paper presents five underlying challenges preventing the formal education sector from taking a more proactive role in climate action. These roadblocks can then become entry points for policy and action. Finally, the paper lays out three actions that education and climate actors can take to not only chart a roadmap for the education sector in climate action, but to generate a new set of game-changing rules.

Conclusion-

Councils are on the frontline of many of the challenges the SDGs seek to resolve, including those we have witnessed during the COVID-19 pandemic. National and local governments need to recognise that achieving them will be a shared responsibility which requires adequate resources and active partnership.

Renewable Energy

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Abstract:

Renewable Energy An Inexhaustible Source Of Energy

WHAT is renewable energy ?

They are natural and self-replenishing, and usually have a low- or zero-carbon footprint. Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example, are such sources that are constantly being replenished. Renewable energy sources are plentiful and all around us.

WHY to discuss, Is it so important ?

Using renewable energy helps protect fragile ecosystems, conserving biodiversity and natural habitats. Reducing reliance on fossil fuels leads to improved air quality. This, in turn, reduces health risks associated with air pollution, such as respiratory diseases and cardiovascular problems.

HOW and where I get it ?

The most popular renewable energy sources currently are:

1. Solar energy.
2. Wind energy.
3. Hydro energy.
4. Tidal energy.
5. Geothermal energy.
6. Biomass energy.

Advantages and summary

Benefits of Renewable Energy Use

1. Less global warming.
2. Improved public health.
3. Inexhaustible energy.
4. Jobs and other economic benefits.
5. Stable energy prices.
6. Reliability and resilience.

Introduction -

Different energy resources make our life easy and comfortable . In today's fast forward and busy life we are completely dependent on energy resources. Fossil fuels, such as coal, natural gas and oil, are examples of non-renewable energy sources. These sources can occur naturally, but they are finite in their amount.

A disadvantage of non-renewable energy sources is that they often take hundreds of thousands of years to form, and have to be extracted from the earth and burned in order to create the energy that generates electricity. They also emit harmful greenhouse gases like CO2 when they're burned. On other hand renewable energy resources are natural and self-replenishing, and usually have a low- or zero-carbon footprint. Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example, are such sources that are constantly being replenished. Renewable energy sources are plentiful and all around us. Generating renewable energy creates far lower emissions than burning fossil fuels. Transitioning from fossil fuels, which currently account for the lion's share of emissions, to renewable energy is key to addressing the climate crisis. Renewables are now cheaper in most countries, and generate three times more jobs than fossil fuels. Using renewable energy helps protect fragile ecosystems, conserving biodiversity and natural habitats. Reducing reliance on fossil fuels leads to improved air quality. This, in turn, reduces health risks associated with air pollution, such as respiratory diseases and cardiovascular problems.

The most popular renewable energy sources currently are:

Solar energy :

Type of energy generated by the Sun .Solar energy is created by nuclear fusion that takes place in the sun. Fusion occurs when protons of hydrogen atoms violently collide in the sun's core and fuse to create a helium atom.Solar technologies convert sunlight into electrical energy either through photovoltaic (PV) panels or through mirrors that concentrate solar radiation. This energy can be used to generate electricity or be stored in batteries or thermal storage.

Benefit 1: Solar panels are increasingly affordable. ...

Benefit 2: You can save money by going solar. ...

Benefit 3: You can keep the lights on when the grid goes down. ...

Benefit 4: Solar will often increase the value of your home. ...

Benefit 5: Solar systems work in a variety of climates.

Wind energy.

Wind is a renewable energy source because it is not depleted when used. Because nature constantly replenishes the wind, we can continue to harness its power without worrying about running out of it.

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Benefits-

1. Wind has the ability to help things move, that otherwise couldn't, around their environment. Seeds are one of the most common things that are moved by the wind. In fact, the term anemochory refers to the dispersal of seeds by wind.
2. Wind and solar energy provide air-quality, public health, and greenhouse gas emission benefits as they reduce reliance on combustion-based electricity generation. In the United States, these benefits vary dramatically by region and over time. In the last decade, wind and solar deployment has increased more rapidly than any other non-combustion-based electricity-generating technology; at the same time, regulatory changes and fossil fuel price changes have led to steep cuts in overall power-sector emissions of criteria air pollutants and CO_2.

Hydro energy-

Hydropower, or hydroelectric power, is a renewable source of energy that generates power by using a dam or diversion structure to alter the natural flow of a river or other body of water.

Benefits-

1. Hydropower provides benefits beyond electricity generation by providing flood control, irrigation support, and clean drinking water.
2. Hydropower is affordable.
3. Hydropower provides low-cost electricity and durability over time compared to other sources of energy.

Tidal energy -

Tidal energy is a renewable energy powered by the natural rise and fall of ocean tides and currents. Some of these technologies include turbines and paddles. Tidal energy is produced by the surge of ocean waters during the rise and fall of tides. Tidal energy is a renewable source of energy.

Benefits-

1. Tidal energy is a clean, renewable, sustainable resource that is underutilized and represents a significant opportunity to meet growing global energy needs, both now and in the future.
2. Water is hundreds of times denser than air, which makes tidal energy more powerful than wind.
3. t is used to produce tidal electricity. Tidal Energy is used for the crushing of grains in grain mills.
4. It is also used for energy storage purposes in hydroelectric dams. It is also used to protect the coast from any kind of damage which can be caused due to high storms

Geothermal energy-

1. Geothermal energy is the heat energy which is generated and stored inside the Earth's crust. The center of the Earth has a temperature which is the same as the

temperature of the Sun which is constant due to the continuously occurring process of nuclear fusion

2. Geothermal energy is renewable because its source is natural heat generated and stored deep within the Earth's core. The Earth's core contains an incredibly vast amount of thermal energy and some of this energy is accessible near the crust.

Geothermal technologies offer many environmental benefits, including:

1. Low emissions from electricity generation. ...
2. Critical materials. …
3. Efficiency and reduced carbon emissions for heating and cooling. ..Comparably low water use.

Biomass energy-

- Biomass is renewable organic material that comes from plants and animals. Biomass contains stored chemical energy from the sun that is produced by plants through photosynthesis.

Advantages of biomass energy:

1. As a renewable energy source, biomass is always and abundantly available.
2. It has a carbon footprint of 0.
3. It helps to minimize our reliance on fossil fuel.
4. It's more affordable than fossil fuels.
5. There will be less waste in landfills.

While the advantages of biomass energy are plenty, there are also some shortcomings, including:

1. Biomass energy is not as efficient as fossil fuels. Some biofuels, like Ethanol, are relatively inefficient as compared to gasoline. ...
2. It is not entirely clean. ...
3. Can lead to deforestation. ...
4. Biomass plants require a lot of space.

Data Analysis and Methodology for renewable resources-

Renewable Energy data analysis is the process of collecting, processing, and interpreting information from various sources related to renewable energy production, consumption, and impact. It can help your organization optimize performance, reduce costs, enhance sustainability, and identify new opportunities.

5 Data Collection Methods

1. Surveys, quizzes, and questionnaires.
2. Interviews.
3. Focus groups.
4. Direct observations.

5. Documents and records (and other types of secondary data, which won't be our main focus here)

Solar power, also known as solar electricity, is the conversion of energy from sunlight into electricity, either directly using photovoltaics (PV) or indirectly using concentrated solar power. Photovoltaic cells convert light into an electric current using the photovoltaic effect.

Result and discussion-

renewable energy sources, especially solar photovoltaic and wind, are providing an increasing share of electricity production. Renewable energy is often deployed together with further electrification, which has several benefits: electricity can move heat or objects efficiently, and is clean at the point of consumption.

Environmental and economic benefits of using renewable energy include: Generating energy that produces no greenhouse gas emissions from fossil fuels and reduces some types of air pollution. Diversifying energy supply and reducing dependence on imported fuels. Renewable energy is energy that comes from a source that won't run out. They are natural and self-replenishing, and usually have a low- or zero-carbon footprint. Examples of renewable energy sources include wind power, solar power, bioenergy (organic matter burned as a fuel) and hydroelectric, including tidal energy.

Conclusion-

We can conclude that renewable energy is today's need. We can't survive without renewable Energy as it gives so many benefits.

Generating energy that produces no greenhouse gas emissions from fossil fuels and reduces some types of air pollution. Diversifying energy supply and reducing dependence on imported fuels. Creating economic development and jobs in manufacturing, installation, and more

They differ from fossil fuels principally in their diversity, abundance and potential for use anywhere on the planet, but above all in that they produce neither greenhouse gasses – which cause climate change – nor polluting emissions.

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Effect of Soil Algae on Maize Crop of Sangola Tahasil

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Abstracts:

The present study shows algal studies in maize field of Sangola tahsil that to sustain the agriculture efficiency, it becomes authoritative to take care of soil health and environment. Sustainable crop production is imaginable when the natural resource on which the production activity depends is not eroded or harmed in any manner, which will damage it or jeopardize production and progress at any time in future. Blue-green algae (Cyanobacteria) are microscopic single-celled organisms that grow naturally in soil, fresh and salt waters the results obtained. It can be concluded that the application of BGA treatment was more effective in increasing the growth and productivity without any detrimental effect on maize crop.

Keywards: Maize,Sangola Thasil, Algal'BGA .

Introduction:

Indian agriculture is intensive as it depends on high-energy inputs like chemical fertilizers, plant protection chemicals, irrigation, machinery etc. Among these, fertilizers play a key role in agricultural production. Continuous, increased and imbalanced use of chemical fertilizers without adding adequate amount of organic manures is causing possible side effects in relation to the soil to become more and more hard and impervious to water, decreased quality of the feed due to increasing total nitrates and nitrites in the fodder and may become toxic to live stock and human beings (Jadhav and Joshi, 1982) and has caused alarm regarding environmental pollution in different states of our country. If this is allowed for a longer period, it will create serious health problems.

Weeds are usually seen to have adverse effects not only on agricultural lands but also on natural wild ecosystems. In terms of agriculture, these plants compete against crop plants

for available resources, lower the quality of agricultural produce and pastures, increases cost of production, pests, while some blocks irrigation and some are poisonous (Ngugi et al., 1978; Klingman et al., 1982; Ivens, 1989; Cousens and Mortimer, 1995). Thus, the losses caused by weeds exceed the losses caused by any other category of agricultural pests. They cause important yield losses worldwide with an average of 12.8% despite weed control applications and 29.2% in the case of weed control Oerke and Steiner, 1996. Under field conditions, weeds pose serious problems to farmers throughout the world. Overall deterioration in environmental conditions is not only affecting the health of the common man but also the productivity of food crops.

Material s and method:

The study constituted mainly the collection of soil samples containing blue green algae from the Maize fields of four different habitats of Sangola tahasil in Solapur, *viz.*, Sonand, Mahud, Ekhatpur and Wadhegaon localities. Collection of the soil samples containing blue greens was initiated during the study period , at regular intervals from the growing, till the harvesting of the Maize. Care was taken to collect algal samples from the surface of the soil, from the circumference of stem parts of the Maize plants and from the soil. Cyanobacteria are found worldwide in inland and coastal water environments. *Nostoc, Anabena ,Tolypothrix, Rivularia, Oscilatoria ,Chroococcus* these major genus are found in soil.

Result and Discussion

1. **Importance of soil Algae:**

   The term algae refer to microscopically small, unicellular organisms, some of which form colonies and thus reach sizes visible to the naked eye as minute green particles. These organisms are usually finely dispersed throughout the water and may cause considerable turbidity if they attain high densities. Cyanobacteria are organisms with some characteristics of bacteria and some of algae.

2. **General features of blue-green algae:**

   They are not algae (eukaryotes), but are a type of bacteria (prokaryotes), possessing the ability to synthesize chlorophyll *a*. Therefore, they act like plants by using sunlight to manufacture carbohydrates from carbon dioxide and water, a process known as photosynthesis. Blue-green algae have vesicles or gas pockets inside vacuoles within their cells that they inflate with gas, thus able to regulate their buoyancy in response to environmental conditions. This buoyancy-regulating mechanism gives the blue-green algae a competitive advantage in obtaining light and nutrients and they move to where nutrient and light levels are at their highest.

3. **Nutrient Requirements of Phytoplankton and N: P Ratio:**

   In addition to light and carbon, growth of phytoplankton (all photosynthetic aquatic microorganisms including algae and blue-green algae) consumes ‘nutrients’. Every replication of an algal cell roughly demands the uptake and assimilation of a quota of inorganic nutrients similar to that in the mother cell. In addition to carbon, the living protoplast comprises 19 other elements. The elements/nutrients most often

implicated in the constraint of algal growth are: nitrogen, phosphorus, iron, and one or two of other trace elements, together with silicon — the well-known constraint on diatom skeletal growth.

4. Nitrogen Contribution by Cyanobacteria:

The annual turnover of nitrogen in biosphere varies from estimated 100 to 200 million metric tons of which 2/3rd comes from biological sources. The contribution of cyanobacteria to the total nitrogen fixed in maize fields varies widely and is mainly dependent on physicochemical properties of soil and many other climatic and biotic factors. It has been found that nitrogen fixation by blue-green algae and its release in the soil .

5. Cyanobacteria and Soil Fertility:

Cyanobacteria are colonizing microorganisms which remarkably adapt to a wide range of environment conditions. These improve the stability of soil surface and protect it from erosion. Cyanobacterial sheath and EPS also play a significant role in water storage due to the hygroscopic properties of polysaccharides and contribute to increased water retention capacity of the soil. Subsequent increase in water stable aggregates as a result of algal growth is important because soil aggregation and their arrangement influence infiltration rate, aeration, and soil temperature, thereby improving the physical environment of the crop. Thus, Cyanobacteria have been used as inoculants to improve soil structure, increase soil fertility or recover damaged soil crusts.

Conclusion

Enhancement and maintenance of soil fertility is a prerequisite for increasing and sustaining the crop production. To sustain the agriculture productivity, it becomes imperative to take care of soil health and environment as such. Sustainable crop production is possible when the natural resource on which the production activity depends is not eroded or harmed in any manner, which will damage it or jeopardize production and progress at any time in future. Hence, organic farming is the wise answer to the aforesaid problems Sustainable agriculture depends upon the nature of the soil which is the living medium for crops. In this investigation, attempts have been made to use weed manure to increase yield of maize, there by reducing high energy inputs. Thus, during the present investigations efforts have been made to study the effect of soil algal flora in maize fields of Sangola Tahasil.

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Digital Transformation of Health Services in India

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Abstract:

The healthcare industry in India is diverse and includes various sectors. Digital transformation in health services encompasses the integration of digital technologies and innovative solutions to enhance the efficiency, accessibility, and quality of healthcare. Several schemes and initiatives have been implemented globally to drive this transformation. In India, various digital health schemes aim to leverage technology for improved healthcare delivery. To have an indepth study the researchers should know about i. What are the applications and considerations for digital Transformation? ii. Key Components of digital transformation and iii. Health Services prevailing India

Keywords: Digital content, integration, redundancy, digital health ecosystem etc.,

Introduction:

The digital transformation of health services represents a comprehensive shift in the way healthcare is delivered, managed, and experienced, driven by the integration of digital technologies. This transformative process leverages advancements in information technology, data analytics, connectivity, and artificial intelligence to enhance various aspects of healthcare, ultimately improving patient outcomes, increasing efficiency, and enabling more personalized and accessible services.

Applications of digital transformation

1. Telemedicine and Virtual Consultations:

• Implementation of Telemedicine Platforms: Introduce and expand telemedicine platforms to provide remote consultations, diagnosis

• To identify patterns and trends in health data, enabling early detection of diseases follow-up care. This is crucial for reaching patients in remote areas with limited access to healthcare facilities.

2. Electronic Health Records (EHR) and Health Information Exchange (HIE):

• Unified EHR Systems: Develop and implement standardized electronic health records to ensure seamless information exchange between healthcare providers. This helps in

reducing redundancy, improving accuracy, and facilitating coordinated care.

• Interoperability Standards: Establish interoperability standards to enable the exchange of health information across different healthcare systems and providers.

3. Mobile Health (mHealth) Applications:

• Health Monitoring Apps: Create mobile applications for health monitoring, enabling individuals to track their health metrics, receive medication reminders, and access personalized health information.

4. AI and Predictive Analytics:

• Disease Prediction and Prevention: Leverage artificial intelligence and predictive analytics and proactive preventive measures.

• Decision Support Systems: Implement AI-driven decision support systems for healthcare professionals, assisting in accurate diagnosis and personalized treatment plans.

5. E-Pharmacy and Supply Chain Management:

• **Digital Pharmacies**: Facilitate the growth of e-pharmacies to streamline the distribution of medications, ensuring accessibility and reducing the likelihood of counterfeit drugs.

• **Supply Chain Visibility:** Implement digital solutions to enhance transparency and efficiency in the healthcare supply chain, from manufacturing to distribution to healthcare facilities.

6. Public Health Initiatives:

• **Health Awareness Campaigns**: Utilize digital platforms for widespread health awareness campaigns, focusing on preventive healthcare, vaccination drives, and lifestyle management.

7. Cyber security and Data Privacy:

• Robust Security Measures: Implement robust cybersecurity measures to protect sensitive health data from cyber threats. This includes encryption, secure authentication, and regular security audits.

Health Service Industries in India:

1. Hospitals and Healthcare Facilities:

• Includes multispecialty hospitals, specialty hospitals (e.g., cardiac, cancer, orthopedic), and clinics.

2. Pharmaceuticals:

• India is a major player in the global pharmaceutical industry, with companies producing a wide range of generic drugs and active pharmaceutical ingredients (APIs).

3. Medical Devices and Equipment:

• Manufacturing and distribution of medical devices and equipment, including diagnostic devices, imaging equipment, and surgical instruments.

4. Health Insurance:

• Insurance companies offering health insurance policies, providing coverage for medical expenses and hospitalization.

5. Telemedicine and Digital Health:

• Growing sector encompassing virtual healthcare services, teleconsultations, health apps, and remote patient monitoring.

6. Diagnostic Services:

• Pathology labs, diagnostic imaging centers, and services for medical testing, including blood tests, radiology, and pathology.

7. Ayurveda and Traditional Medicine:

• Traditional Indian medicine systems, including Ayurveda, Yoga, Naturopathy, Unani, and Siddha, with clinics, wellness centers, and products.

8. Biotechnology:

• Companies involved in biopharmaceuticals, biotech research, and development of biotechnology-based healthcare products.

Initiatives of Digital transformation in health services

1. National Digital Health Mission (NDHM):

• Objective: Launched by the Government of India, NDHM aims to create a national digital health ecosystem. It focuses on the creation of digital health records, unique health IDs for citizens, and the establishment of a national infrastructure for health data exchange.

• Components: Health ID, DigiDoctor, Health Facility Registry, and Personal Health Records.

2. Telemedicine Services:

• **Objective**: Telemedicine services have gained prominence, especially during the COVID-19 pandemic, to provide remote healthcare consultations and services.

• **Implementation**: Various telemedicine platforms and apps have been introduced to connect patients with healthcare professionals for virtual consultations.

3. Ayushman Bharat - Health and Wellness Centers (AB-HWCs):

• **Objective:** Part of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, AB-HWCs aim to transform primary healthcare by upgrading sub-health centers and primary health centers into Health and Wellness Centers.

• **Digital Components**: These centers are equipped with digital health tools for preventive and promotive healthcare services.

4. eSanjeevani:

• **Objective**: eSanjeevani is a telemedicine initiative by the Ministry of Health and Family Welfare. It enables online consultations between doctors and patients, emphasizing the expansion of digital healthcare services in both urban and rural areas.

5. National Health Portal (NHP):

• **Objective:** The NHP serves as a single point of access for authentic health information, making it a valuable resource for citizens. It provides information about health schemes, facilities, and more.

• **Digital Content**: The portal includes a range of digital content, including articles, videos, and health-related information.

6. Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP):

• **Objective:** PMBJP aims to provide quality generic medicines at affordable prices. While not exclusively digital, it emphasizes transparency through the use of technology in supply chain management.

7. Jan Aushadhi Sugam Mobile App:

• **Objective:** The app supports the PMBJP initiative by providing information about the locations of Jan Aushadhi Kendras (JAKs) and the availability of generic medicines at these centers.

8. Mental Health Apps:

• **Objective:** With a growing focus on mental health, several apps and platforms offer digital mental health services, including counseling, therapy, and mindfulness programs.

Key Components of Digital Transformation in Health Services:

1. Electronic Health Records (EHR):

•Digital transformation involves the transition from paper-based health records to electronic health records (EHRs). EHRs streamline the storage and retrieval of patient information, enabling healthcare providers to have a comprehensive view of a patient's medical history, medications, and treatment plans.

2. Telemedicine and Remote Patient Monitoring:

• Telemedicine plays a crucial role in digital health transformation by allowing patients to consult with healthcare professionals remotely. Remote patient monitoring technologies enable the continuous tracking of health metrics, providing real-time data for proactive and preventive care.

3. Health Information Exchange (HIE):

• The exchange of health information among different healthcare systems and providers is facilitated through health information exchange platforms. This ensures seamless communication and coordination of care, especially when patients seek services from multiple providers.

4. Mobile Health (mHealth) Applications:

• Mobile apps contribute to the digital transformation by empowering individuals to actively engage in their healthcare. From monitoring vital signs to scheduling appointments and accessing health information, mHealth apps enhance patient involvement and self-management.

5. Artificial Intelligence (AI) and Analytics:

• AI applications and analytics play a significant role in analyzing large datasets to derive insights for personalized treatment plans, disease prediction, and preventive interventions. Machine learning algorithms can aid in diagnosis, treatment recommendations, and clinical decision support.

6. Wearable Devices and Sensors:

• Wearable health devices and sensors contribute to the digital health ecosystem by continuously collecting real-time data on a user's physical activity, heart rate, sleep patterns, and more. This information can be utilized for preventive care and health monitoring.

7. Blockchain in Healthcare:

• Block chain technology enhances the security and integrity of health data. It can be utilized for secure storage and sharing of patient records, ensuring data accuracy and privacy.

Conclusion:

The digital transformation of health services is an ongoing and dynamic process that requires collaboration among healthcare professionals, technology developers, policymakers, and patients. While offering tremendous opportunities for improved healthcare delivery, it also necessitates attention to cybersecurity, data privacy, and the ethical use of technology in healthcare. The ultimate goal is to create a patient-centric, efficient, and integrated healthcare ecosystem that leverages the full potential of digital technologies.

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Role of Human Resource Management in the Development Value of Indian Society

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Abstract:

In India, human useful resource management (HRM) is important to the growth of society and the formation of values. It actively participates in programmes for ability improvement, education, and expertise acquisition, which improve the group of workers' productivity and employability. Moreover, HRM is vital in fostering an ethical and welcoming work environment wherein groups support variety, equal possibility, and truthful employment practices. It strikes a balance between employers and workers handling complaints, guaranteeing honest remuneration, and setting a high priority on job safety. Additionally, HRM is in charge of company social responsibility tasks that deal with societal worries and enhance welfare generally, such as sustainability campaigns and network improvement programmes. The strategic intention of HRM is to suit human assets to financial demands. HRM allows for the creation of a workforce that is focused on promoting economic growth, innovation, and competitiveness by figuring out enterprise requirements and providing pertinent schooling. As a catalyst for coverage adjustments that have a massive impact on the societal boom, HRM also develops laws that promote social improvement, skill improvement, and education. HRM serves as a bridge between the ideas of the employer and the desires of society at large. It promotes CSR and moral commercial enterprise practices at the same time as cultivating a climate of accountability, sustainability, and ethical behaviour. Basically, HRM in India will become an effective force propelling societal growth, surpassing its organizational purpose. HRM influences societal values by nurturing ethical behaviour, corporate social responsibility, and aligning organizational values with broader societal aspirations, thereby contributing significantly to the holistic development of Indian society.

Keywords:- Human Resource Management (HRM), development and values of Indian society through talent development, ethical work culture, diversity, labour relations, social welfare, economic growth, policy advocacy, ethical business practices, and alignment of organizational and societal values.

Introduction:-

Human Resource Management (HRM) stands as a cornerstone in the intricate tapestry of India's societal development, playing an instrumental role that extends far

beyond the confines of corporate corridors. It embodies a multifaceted approach that transcends conventional personnel management, weaving together talent cultivation, ethical leadership, social advocacy, and aligning organizational principles with broader societal values. In the vibrant mosaic of India's societal fabric, HRM emerges as a critical architect, shaping the contours of development, fostering inclusive growth, and nurturing a value system that resonates beyond organizational boundaries. Through its dynamic initiatives, HRM becomes an agent of change, instrumental in sculpting the ethos of a nation teeming with diversity, aspirations, and boundless potential.

At its core, HRM in India embarks on a journey of talent development, recognizing the human capital as the fulcrum of progress. By spearheading recruitment strategies, training programs, and skill enhancement initiatives, HRM unfurls the potential of individuals, infusing them with competencies crucial for their personal growth and the nation's advancement. This focus on honing skills and fostering continuous learning creates a ripple effect, with far-reaching consequences that uplift not just the workforce but also the broader societal landscape. Moreover, HRM emerges as a vanguard of ethical leadership, seeding the essence of fairness, inclusivity, and integrity within organizational cultures. By championing fair employment practices, and advocating for diversity and equal opportunities, HRM sets precedents that permeate society's collective consciousness. This propagation of ethical conduct transcends office walls, influencing societal norms and nurturing a culture founded on principles of equity and responsibility.

In parallel, HRM's pivotal role in labour relations, social welfare, and community development cannot be overstated. Through adept grievance redressal mechanisms, ensuring workplace safety, and championing corporate social responsibility initiatives, HRM weaves a safety net that supports not only the workforce but also the communities they are part of, contributing significantly to the social fabric's resilience and welfare

Furthermore, HRM's strategic alignment of human capital with economic imperatives paves the way for transformative change. By facilitating policies supporting education, skill enhancement, and societal advancement, HRM catalyzes a holistic ecosystem conducive to sustainable growth, innovation, and competitiveness. This forward-looking approach redefines the contours of progress, positioning HRM as a linchpin for societal advancement in the intricate narrative of India's development trajectory.

In essence, the role of HRM in the development and value system of Indian society transcends conventional paradigms. It mirrors a holistic and inclusive approach that intertwines individual growth with societal advancement, encapsulating a vision where organizational principles converge with the collective aspirations of a diverse and evolving nation. As India marches ahead on its journey of progress, the role of HRM stands as a beacon, illuminating pathways toward a future where development is synonymous with inclusive growth, ethical conduct, and societal well-being**.**

Objectives of the Study:

Certainly, here are the objectives of Human Resource Management (HRM) in contributing to the development and value system of Indian society, outlined in points:

1) To enhance the skills and capabilities of the workforce through training and development programs.
2) To promote ethics, inclusivity, and diversity in the workplace to reflect broader societal values.
3) To ensure fair practices, grievance resolution, and workplace safety for societal stability.
4) To advocate for policies supporting education, skill development, and societal advancement.

Hypothesis of the Study.

Certainly, here are the hypotheses regarding the role of Human Resource Management (HRM) in the development and value system of Indian society, presented in points:

1) Effective HRM practices lead to increased productivity and innovation, contributing to India's economic development..
2) HRM that promotes ethical work environments fosters broader societal values, promoting integrity and responsibility in individuals and organizations..
3) HRM's focus on talent development and skill enhancement programs enhances employment opportunities, positively impacting social welfare.
4) HRM's advocacy for policies promoting education, skill development, and social causes significantly contributes to the overall advancement of Indian society.

Review of Literature:

Scholarly work by Mishra focuses on HRM-driven corporate social responsibility initiatives, outlining their impact on community development and societal well-being. Economic Growth and Policy. Research by Kapoor and Dwivedi emphasizes HRM's role in aligning human capital with economic needs, thereby driving innovation, productivity, and economic growth, which in turn, contributes to societal advancement.

Literature by Sengupta explores how HRM advocates for policies supporting education, skill development, and societal causes, catalyzing holistic societal development.

Alignment of Organizational and Societal Values:

Scholarly works by Chatterjee and Bhattacharya underscore HRM's pivotal role in aligning organizational values with broader societal aspirations, fostering a culture of responsibility, sustainability, and ethical conduct.

Theoretical Perspectives: Studies drawing from theoretical frameworks like the Resource-Based View (RBV) highlight HRM's role as a strategic asset contributing to societal development through effective human capital management. Case Studies and

Practical Implications:

In summary, literature spanning diverse domains underscores HRM's multifaceted role in contributing to the development and value system of Indian society, portraying it

as a driver of talent development, ethics, social welfare, economic growth, policy advocacy, and values alignment, thereby shaping a holistic framework for societal progress.

Scope of HRM and development to the society:

The scope of the research paper focuses Overview of HRM and its significance in organizational and societal contexts.

1) Talent Development and Skill Enhancement

Importance of HRM initiatives in talent acquisition, recruitment, and fostering a skilled workforce. Studies showcasing the correlation between HRM-led training programs and enhanced skill development, directly impacting employability and societal growth. Impact of HRM practices on bridging the skill gap and contributing to India's demographic dividend.

2) Ethical Work Culture and Organizational Values

Exploration of HRM's role in nurturing an ethical work culture and fostering organizational values that align with broader societal norms. Literature highlights how HRM practices influence ethical behaviour, inclusivity, and diversity within organizations, reflecting on societal values. Case studies and empirical evidence showcasing the impact of ethical HRM practices on societal perceptions and ethical conduct beyond organizational boundaries.

3) Labour Relations, Social Welfare, and CSR Initiatives

Examination of HRM's significance in managing labour relations, ensuring fair practices, and advocating for workplace safety, contributing to social stability and welfare. Analysis of corporate social responsibility (CSR) initiatives led by HRM, exploring their impact on community development and societal welfare. Case studies and examples highlight the role of HRM in promoting social welfare and its implications for societal development.

4) Economic Growth, Innovation, and Policy

Emphasis on HRM's strategic role in aligning human capital with economic needs, driving innovation, productivity, and economic growth. Review of studies demonstrating HRM's advocacy for policies supporting education, skill development, and societal causes, contributing to holistic societal development. Examination of the relationship between HRM practices, economic growth, and their implications for the broader societal landscape.

5) Organizational-Societal Alignment and Cultural Impact

In-depth analysis of HRM's role in aligning organizational values with broader societal aspirations, fostering a culture of responsibility, sustainability, and ethical conduct. Exploration of theoretical frameworks and empirical evidence showcasing HRM's cultural impact on societal values and norms. Case studies illustrate instances where HRM initiatives have significantly contributed to aligning organizational and societal values.

Benefits and Limitations of HRM in Indian context

Benefits of Human Resource Management (HRM) in the Development Value of **Indian Society:**

1) **Workforce Development**: HRM fosters skill development and training programs, enhancing the capabilities of the Indian workforce, which contributes to overall societal growth.
2) **Talent Acquisition**: Effective HRM practices attract and retain top talent, ensuring that skilled individuals are placed in positions where they can positively impact society through innovation and productivity.
3) **Employee Engagement:** HRM initiatives promote a positive work culture, leading to higher employee morale, satisfaction, and commitment. Engaged employees tend to contribute more effectively to societal development.
4) **Diversity and Inclusion**: HRM strategies that prioritize diversity and inclusion lead to a more representative workforce. This diverse pool of talent brings varied perspectives and ideas, crucial for societal progress and harmony.
5) **Labour Relations**: Strong HRM practices help manage industrial relations, reducing conflicts and strikes. Stable industrial relations foster economic growth and contribute to societal stability.
6) **Ethical Standards:** HRM instils ethical principles and practices within organizations, which positively impact societal values and contribute to a more ethical and responsible society.
7) **Leadership Development:** HRM focuses on grooming future leaders through leadership training and succession planning. Effective leadership is crucial for driving societal change and progress.

Limitations of HRM is crucial to harness its potential for enhancing the development value of Indian society

1) **Inequality and Discrimination**: Despite efforts, HRM may inadvertently perpetuate inequalities or biases in the workplace, reflecting and potentially exacerbating societal inequalities.
2) **Focus on Short**-Term Goals: In some cases, HRM may prioritize short-term objectives like meeting quotas or targets over long-term societal development, compromising sustainability.
3) **Overemphasis on Metrics:** Overreliance on HRM metrics for evaluation can lead to a narrow focus on quantitative measures, potentially neglecting qualitative aspects crucial for societal progress.
4) **Skills Gap:** Despite HRM efforts, a persistent skills gap in certain sectors might hinder overall societal development, especially in emerging industries or technological advancements.

Balancing the advantages and disadvantages of HRM is crucial to harness its potential for enhancing the development value of Indian society, ensuring that policies and practices align with long-term societal goals while addressing potential drawbacks.

Findings of the Study:

The findings of the research paper on the role of Human Resource Management (HRM) in the development and value system of Indian society, presented in points:

1) HRM initiatives significantly contribute to skill development and talent enhancement, impacting employability and societal growth positively.
2) HRM plays a pivotal role in fostering an ethical work culture and aligning organizational values with broader societal norms, influencing ethical behaviour and inclusivity.
3) HRM's management of labour relations and advocacy for social welfare contributes to societal stability, while CSR initiatives positively impact community development.
4) HRM's alignment of human capital with economic needs drives innovation and economic growth, supported by policies advocating education and skill development.
5) HRM practices contribute to aligning organizational values with broader societal aspirations, fostering a culture of responsibility and ethical conduct, and impacting societal norms.

Overall, the research highlights HRM's multifaceted contributions to societal development, emphasizing its role in talent development, ethics, social welfare, economic growth, and cultural alignment, underscoring its significance in shaping the development and value system within Indian society.

Recommendations of the study:

Certainly, here are concise recommendations drawn from the research paper on the role of Human Resource Management (HRM) in the development and value system of Indian society, presented in points:

1) Encourage HRM to further invest in comprehensive skill development programs that align with industry needs to bridge the skill gap and enhance employability.
2) Advocate for HRM practices that promote ethical leadership and inclusivity within organizations, fostering a culture of integrity that resonates with broader societal values.
3) Encourage HRM to intensify community-centric CSR initiatives, aligning with societal needs and contributing to community development and welfare.
4) Advocate for policies supporting education and skill enhancement, emphasizing HRM's role in driving policies conducive to societal development.
5) Emphasize the importance of HRM practices that align organizational values with broader societal aspirations, promoting responsible and ethical conduct.
6) Encourage further research on emerging trends in HRM, such as technology integration, gig economy implications, and evolving HR practices for their impact on societal development

These recommendations aim to guide HRM practices toward fostering holistic societal development in India, emphasizing the need for continued investment in talent,

ethics, community welfare, policy advocacy, and cultural alignment for sustained societal progress.

Conclusions:

This research paper illuminates the multifaceted and indispensable role of Human Resource Management (HRM) in shaping the development and value system of Indian society. HRM emerges as a linchpin, intertwining talent development, ethical leadership, social welfare, economic growth, policy advocacy, and cultural alignment to foster holistic societal advancement. Its impact spans beyond organizational boundaries, influencing societal values, norms, and welfare. From nurturing skilled human capital to fostering ethical work cultures, managing labour relations, advocating policies for societal growth, and aligning organizational values with broader societal aspirations, HRM stands as a catalyst for societal progress. The research underscores the imperative nature of HRM practices in driving sustainable and inclusive development, emphasizing the pivotal role it plays in shaping a vibrant and value-based society in the Indian context.

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Sustainable Development of Rural Women to Reinforce the Socio-Economic Status

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Abstract:

India is one of the fastest growing economics in the world. The concept of sustainable development has been defined as the economic activities poor people undertake in their totalities. The rural women had different problems as compared to urban. Hence the main objectives to be undertaken to study about the socio-economic structures of the villagers and to find out the problems of daily life faced by rural women. The study was conducted in Tumkheda village of Gondia district. The sample consisted 113 rural women selected randomly from the village. The major findings were most of the respondents found in the 36 to 45 years of age group. Most of the rural women spent money on daily needs and food. The major problem faced by the respondents are repayment of loan. The suggestion was made for the rural women that there should be a link between bank for loan facility. Thus, an increase in demand for loan facility can be a major factor so that the problem will be decreased of rural households.

Keywords: Sustainable, Rural Women, Socio, Reinforce, Socio-Economic Status.

Introduction:

Socioeconomic status is the most important issue in today's world, especially in the developing economies. The socio-economic situation in rural areas is steadily improving over time. In order to boost the socio-economic status of the population in rural areas, several programs and policies have been introduced. But in the economic sense, rural people are unable to grow equally across the country. There are different types of economic classes within a small village as well. In this research paper, an attempt has been made to clear understanding of the actual socio-economic status of the population of different income groups. Women's ability to achieve sustainable livelihoods by implementing programme measures and engaging in advocacy that enhances women's access to education, financial services, and asset ownership and control.

Understanding the livelihood system, the poor is crucial to effective poverty reduction. Livelihoods of the poor can never be understood in any one-track logic be it economic, social, technical, crucial or political. The livelihood systems are made up of very diverse elements which taken together constitute the physical, economic, cultural

universe where in the families live. Rural women play dual role i.e. working inside and outside the home. The problems of poor are complex and multidimensional. Approach has been made to secure participation and move towards quality of life. Agriculture has remained a vital tool for improving the productivity of the agricultural sector. Agriculture and allied activities is the basic function of rural livelihood. Agriculture is well known for its multifunctionalities of providing employment, cultural heritage, livelihood, social security, family bondage, nutritional and food security. The constitution of India gives certain provision to the rural life in the form of special development programme.

Objectives:

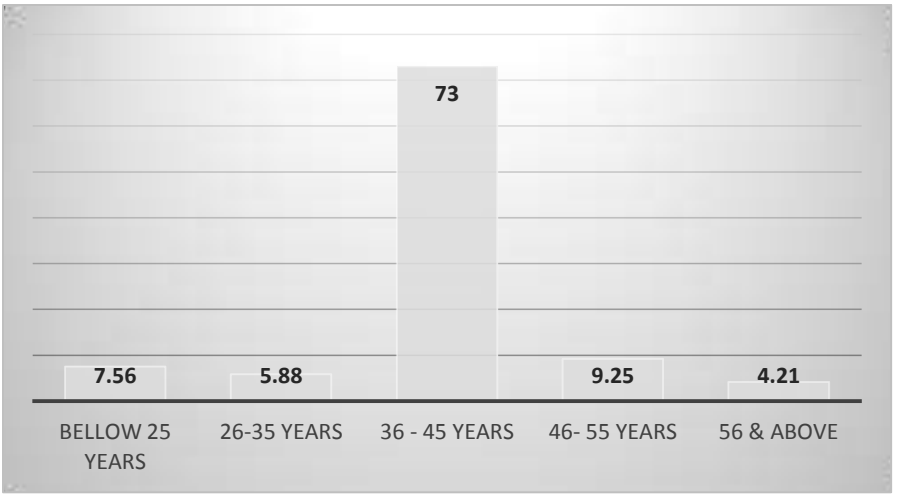
1) To study about the economic structure of the respondents.
2) To evaluate social participation of the rural women.
3) To find out the problems of daily life faced by rural women.
4) To study about awareness of income generation activities in the respondents

Research Methodology:

The study was conducted in Tumkheda village of Gondia district (Maharashtra). The tool used for data collection for the study was questionnaire .The rural women were taking for the study randomly from the village and information has collected by 113 rural women. The study was conducted using survey method. The data was collected and analysed.

Research and Discussion:

Graph 1.1 Age Factor of Rural Women



Data revealed that the majority of rural women belongs from the different age group of 36-45 years i.e. 73.10 percent whereas rest of the rural women belongs to different age group followed by 9.25%, 5.88%, 4.21% respectively.

Table 1.1 Respondents' initiative in social participation in their area

Sr. No.	Social Participation	No. of Responses	Percentage

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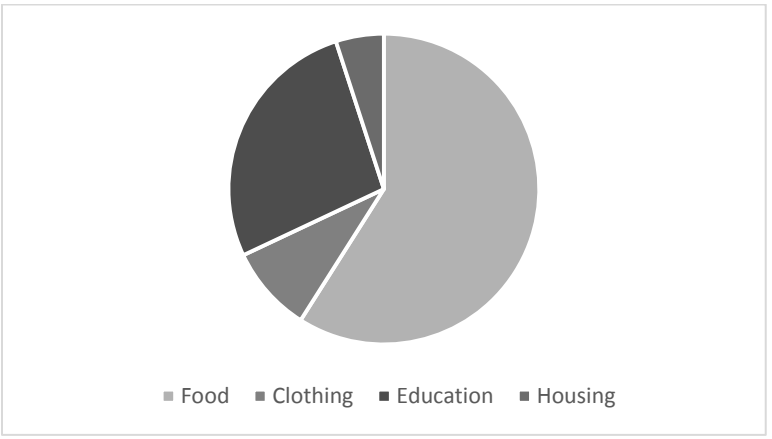
1	Active in Income Generated social activities	22	19%
2	Participate in government training programme	20	17%
3	Initiative to work in social activities	71	63%
4	Not do anything		

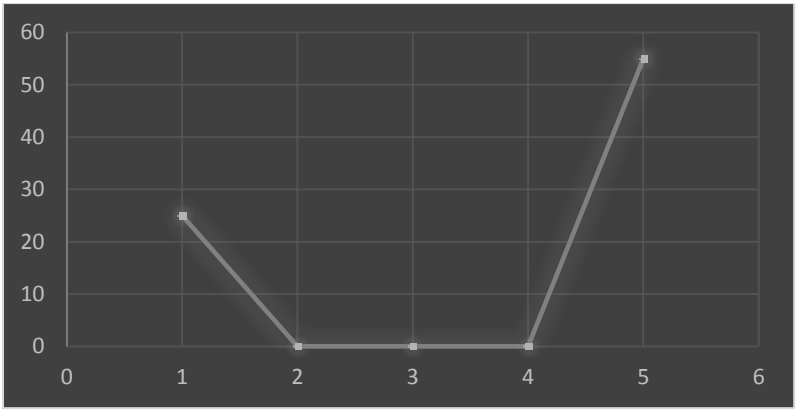
It is observed from the above table that the 63 % respondents taken initiative to work in social activities, whereas 22% worked for income generated activities also 20% participate in government training programme for enhancing their business through the same

Graph 1.2 Rural women spent money on daily needs for taking care of family



Further, it was observed that the economic structure of the villagers on the daily need items was, 59% of the rural women spend money on food items, 27% on education, 9% on clothing and 5% on housing for rented home.

Graph 1.3 Major problems of daily life faced by rural women



It is evident from the table that the repayment of loan is a major problem faced by rural

women i.e. 55 %, while lack of time 25% , remaining the transport facility and procurement of new material was the problem which she is facing from many years.

Table no. 1.2 Income generation awareness and activities solving economic problem of the respondents

Sr. no.	response	No. of Respondents	Percentage
1	Yes	88	78%
2	No	25	22%
	Total	113	100 %

It can be seen from the above table that 78% of rural women said that the income generation awareness and activity programmes are organised in their areas & 22% responses coated that the income generation awareness and activity programmes did not organised in their areas.

Table No. 1.3 What are the Income generation initiative taken by the respondents

Sr. No.	Sources of income generation	No. of Respondents	Percentage
1	Grocery shop	12	10 %
2	Animal Husbandry	25	23%
3	Small Business	35	32%
4	Beauty Parlor	14	12%
5	Hand Craft	8	7%
6	Tailoring work	12	10%
7	Any other	7	6%
	Total	113	100%

From the above table it was found that 32% respondent had their own small businesses, 23% have their own animal husbandry work, 10% tailoring and grocery shop respectively. Some respondent has own hand craft work and rest were doing other different works.

Table 1.4 Suggestions made for the rural women about enhancement of economic condition

S. No.	Suggestions	No. of Respondents	Rank Order
1	To link bank for loan facility	113	I
2	Developing market facilities	105	IV
3	Supply of raw materials on time	111	II
4	Providing training programme at the time of need	108	III

As the responses are more, the data has been analysed by Rank order. It was observed that the main suggestion undertaken was that there should be link with bank for loan facility reported by the respondents and stood in the I rank order. Supply of raw materials should be in time so that they can have more profits hence it occurred II rank order. There should be more training programme at the time of need so that their concept will be clearer and more benefitted by it and stood in the III rank order. As the village have less facilities as compared to others therefore market facility should be developed in the village and hence it accorded IV rank order.

Conclusion:

The economic empowerment in turn upsurges women's access to economic resources and prospects including jobs, financial services, property and other productive assets, skills development, social involvement and market information along with government trainings. Some suggestions have been provided in this study. Increasing women's education and women employment will higher the socio-economic & growth and there will be reduction in the gap between women's and men's labour force. This will bring about equilibrium in a society which is highly dominated by men and give an opportunity for women to be self-sufficient. Although the economic structure of the villagers was satisfactory, in general but there are also enough problems of the respondents. Therefore, it could be suggested that on the basis of discussion with the respondents that there should be link with bank for loan facility, provision of government facilities for small business hence they will be benefitted by it and it will be more convenience for the rural women for their livelihood.

Suggestions/ Approaches for Economic Empowerment of Rural Women:

1. Literacy or providing education to women is foremost and the most powerful instrument in empowering women in the society and main step towards economic empowerment.
2. In order to encourage education of women at all levels and to dilute gender bias in the provision and acquaintance of education, schools, colleges and even universities must be established exclusively for women.
3. Government and several NGOs are striving hard and been providing a package of concessions to bring more focus on women socio – economic development for sustainable livelihood, especially for rural families, into the main stream of education.
4. Vocational and technical training, life skills and other literacy programmes for women to help them develop marketable skills and better decision-making abilities are undertaken which enhances the mainstream socio- economic of women through employment.

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Causes and Consequences of Air Pollution in India: An Analysis

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Abstract:

Air pollution defines as various changes (like physical , chemical or biological) takes place in the environment and contamination of Air due to harmful gases ,smog , dust or smoke etc. which effects on plants animals and all living beings. Industrial facilities motor vehicles, Household combustion devices, Volcanoes, Coal and forest fires are also responsible for air pollution. The main objective of the study is to describe causes and consequences of air pollution problem in India. It is a serious problem. Because pure air and healthy environment is more important for life. Present study in descriptive in nature and main theme is to describe the air pollution in Urban areas. National capital region will be main area to define this problem. Every year Delhi the national capital of India has found maximum rate of air pollution due to industrialization, urbanization motor vehicles. Although air pollution is an India: wide problem but the Highest levels are consistently found along the northern plains during north-westerly winds blow in Summer. As a result, it was found that maximum infection marked in northern India , coastal areas and developed areas of big cities .So, it is more beneficial study for geographers to aware man and environment relationship . Because healthy environment produces healthy living beings for a country. It was found that about 12% of the total death rate i.e. 11 millions death per years are pre nature deaths due to air pollution in India.

Keywords: Air Pollution, Health, Environment

Introduction:

Air pollution is defined as various changes within the environment. Presence of harmful substances like gases, biological molecules dust particles make the situation of air pollution in environment. Pollutants and harmful air mass can take place from agricultural activities burning of fossil fuels, vehicle emissions, natural occurence , and industrialization . Main environmental problem of air is responsible for climate , human health , cardiovascular , respiratory issues and degradation. But, it can be solve with promoting renewable energy , awareness , using cleaner technologies.

Types of air pollution:

Each and every type of the pollution has its own source, which effects upon all environment and living beings . Some examples are as follows:

1. In India Power plants , Industrial development process produce Sulfur dioxide during burning of fossil fuels and result as respiratory problems through acid rain etc.

2 . Cancer or such type of other serious health problems by toxic air pollutants like Mercury & Lead.

3. Ground level Ozone, smog from Volatile Organic Compounds sources of industrial waste material vehicle exhaust and solvents use.

4. Particles smaller than 10 micrometers pm 10 and pm 2.5 take place from liquid and tiny solid through wild fires , vehicles and Industrial process effect on respiratory system.

5. Industrial facility and vehicles produced high temperature and gases ,Nitrogen Oxides effect as acid rain and smog .

6. Incomplete combustion process of carbon monoxide produce harmful gases and it can cause of diseases when inhaled.

Thus various pollutants such as Ozone, Volatile Organic Compound, Sulfur Dioxide, Nitrogen Oxides , Carbon Monoxide , can adverse effects on environment and all living beings .

Objective of The Study:

1. To describe the air pollution causes and consequences of air pollution.
2. Specially in Indian scenario study area.
3. India is the main study area of the paper because there is a more serious problem of air pollution. It is more harmful and causes of various diseases due to imbalance of all type of resources , technologies , awareness found in Indian Society .India is much more rich country than most of the other countries but environmental condition are also responsible for the same National Capital of India Delhi is also effected with the problem of air pollution.

Data and Methodolody: Present study is based on secondary data and descriptive in nature.

Causes of Air Pollution:

Now a days, the problem of environmental pollution is becoming serious not only in India , But all over the world. In urban areas , any polluted site can easily observe as solid waste , water pollution , noise pollution and air pollution . But main cause found from gases waste from ships through plastic material , domestic waste from kitchen , hospital waste ,material of injection waste , tablet wrappers, toxic chemicals ,paint ,minerals automobile exhaust , municipal waste , many industries generate smoke in air , fossil fuels use in thermal power plants for electricity ,toxic chemical wastes , industrial wastes causes degradation and pollution , vehicle release pollutants , livestock farming , use of pesticides , fertilizers , produce amonia by agricultural activities . Wildfires, dust storms and volcanic eruption are natural causes.

Consequences of Air Pollution:

Chimneys of industries generated the smoke become the cause of air pollution which effects upon health problems like skin , eye irritation, respiratory problems and it has serious effect on plants and other organisms. World Health Organization 2018, annual mean concentration of particular actual measured less than 2.5 micrometer in diameter (pm 2.5) sequence of worst polluted cities of top ten at worldwide are Kanpur ,

Faridabad , Gaya , Varanasi , Patna , Delhi , Lucknow , Bamenda (Cameroun) ,Agra ,Muzaffarpur . However , air pollution repost at worldwide , shows maximum cities of India take place as top ten polluted areas , specially Ganga plain in Northern India.

But problem of air pollution is worldwide. It is found that impact of air pollution on environment and public health . In India , national capital Delhi problem of air pollution is increasing day by day at a large scale

.There are so many disparities and variation in India , i.e . Social, economical, political, physical , relief , climate , landscape, etc. A rich person can take all type of facilities medicines, food, and health supplement but on other side a poor person can't afford such type of facilities. Main consequences of air pollution on effecting ecosystem, water bodies, soil quality and plant life Acid rain is also harmful for all aquatic life forests and lakes/water bodies. Economic burdens on the country due to increased healthcare expenses, damage to agriculture, decreased worker productivity. Unpredictable weather, overall environmental instability, greenhouse gases contribute to climate charge and global warming.

1. Social inequalities as found in Indian society marginalized communities after living areas of high pollution levels like Delhi , Lucknow facing great health risks and unable to reduced access clean air.
2. Cardiovascular issues, Respiratory Problems pre-mature deaths, Lung diseases are the results of high level of air pollution .Elders and children are more effected with such type of risk like reduce visibility, diminishing aesthetic appeal of cities and tourism.
3. In India efforts are being made to address such type of issues through policies, regulations, public awareness, technological advancements in environment and health.
4. High level of pollutants i.ie PM 10 and PM 2.5 are causes of increasing the risk of heart disease respiratory problems ,lung cancer , aggravate asthma . Reduced labor productively due to economic burden ,Health issues health care expenses , thick haze often enveloping Delhi in reducing quality of life often visibility .It is also harming wildlife Local ecosystem , vegetation and climate change .thus environmental sustainability and public health are more affected by air pollution .U.P., Delhi , Punjab ,Haryana ,Bihar ,Rajasthan and West Bengal were the main states affected with air pollution

Result and Discussion:

1. Air pollution impacts upon environment , ecosystem ,crops , forests , causing acid rain & , aquatic life . IT has a far reaching implications an environment public health , physical human aspects Respiratory health , Cardiovascular disease.
2. Air pollution is an environmental issue which negatively affects on climate , ecosystem and human health there are so many consequences of air pollution .
3. Certain type of air pollutants are carcinogenic such as formaldehyde , polycyclic aromatic hydrocarbons and benzene .

4. Cardiovascular issues and Respiratory problems linked to strokes and heart disease . Bronchitis asthma and other respiratory problem are directly effected by sulfur dioxide , nitrogen dioxide and ozone . Acid rain effects upon soil , aquatic ecosystem and forests due to releasing of nitrogen oxides and sulfur dioxide . Various trees , wildlife and plants are also affected with the pollution .
5. In India population is increasing rapidly . But effect of air pollution has much more serious and sharply damaging all types of life cycle and agricultural yields due to exploiting soil , food , land ,labor etc. Premature deaths have been found rising by tens of thousand in India . National capital region in India is more developed and affected with pollution , size of Delhi is greater than London but environment and air condition of both areas are different . Out of ten of the world's most polluted cities which are nine cities of India in 2018.

Policies Of Government In India:

1. National Clean Air Program (NCAP).
2. Delhi Air Quality Crisis.
3. Burning Of Crop Residue in Punjab and Haryana .
4. Health impact.
5. Government Policies and Interventions – encouraging public transport and promoting renewable resources .
6. Annual reports by Central Pollution highlighting pollution levels in different cities and regions .

Conclusion:

It has been found that in India air pollution in caused by agricultural practices management of fuel burning ,vehicular exhaust , household activities using natural resources for population rapidly , and industrial development . It is negatively impacts upon health issues like Cardiovascular , premature deaths , respiratory problems environmental problems i.e . Damage to agricultural pattern, acid rain impact , and smog The main problem may also solved with improving transportation facilities, promoting the renewable energy resources , strict regulations and awareness of layman about the importance of clean air for life . Thus, present study is more beneficial for the researchers to solve the problem of air pollution.

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Introduction to Geophysical Prospecting Methods

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Abstract:

Groundwater Identification for underground borewell point is detected in various methods, but only some of the proven methods are providing high accuracy data in selection of a best borewell point for drilling. The geologist or a water diviner who ever selects the borewell point for agriculture purpose or for domestic or commercial purposes should be clear enough about the GIS study of the area. Geographical information system plays a very important role in the processing of a groundwater borewell point checking process. Our scope of services are provided for various purposes including Agriculture, Commercial and Domestic water management projects and we also undertake Government projects based on requirement in sectors like Groundwater Identification, GPR detection, Rain water harvesting, Sewage treatment processing, Hydro fracturing, Borehole annual maintenance and Borehole endoscopic study, Borehole and water wells trouble shooting. In this chapter we have discussed types of methods to find groundwater.

Keywords: Geophysical Methods, Electrical Resistivity

Introduction

Geophysics is related with the physics of the earth, atmosphere and now a days-space. Geophysical prospecting is carried out in search of hydrocarbons (oil & gas) or useful minerals by physical measurements from the Earth surface. These measurements give up information on the physical properties of material within the Earth. Such information, when correctly interpreted, can be used to locate mineral deposits having economic value. The choice of technique or techniques to locate a certain deposit depends upon the nature of the deposit and surrounding rock formation. The data thus collected is then expressed in terms of geology. Another method of investigating the sub surface is by drilling boreholes, but this method provides information only at discrete locations. Several geophysical surveying methods can be used on land, sea or in the air. A wide range of geophysical surveying methods exists, for each of which there is an 'operative' physical property to which the method is sensitive. The various geophysical methods and the physical property measured are listed in Table 1.1.

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Methods	Measured parameter	Operative physical property
Seismic Gravity	Travel time reflected/refracted seismic waves Spatial variations in the strength of the gravitational field of the earth	Density and elastic moduli, which determine the propagation velocity of a seismic wave Density.
Magnetic Electrical Resistivity	Spatial variations in the strength of the geomagnetic field Earth resistance.	Magnetic susceptibility and remanence Electrical conductivity
Induced polarization Self-potential Electromagnetic Radar	Polarization voltages or frequency dependent ground resistance Electrical potentials Response to Electromagnetic radiation. Travel times of reflected radar pulses	Electrical capacitance Electrical conductivity Electrical conductivity and inductance Dielectric constant

Table 1.1 Various geophysical methods and the parameter measured

Types of Geophysical Methods

Gravity Method

Gravity prospecting involves the measurement of minute variation in the pull of gravity from rocks within the first few miles of the Earth's surface. Different types of rocks have different densities and the denser rocks have the greater gravitational attraction. If the denser rocks are arched upward in the structural high, such as an anticline, the Earth's gravitational field will be greater over the axis of the structure and then along its flank's. A salt dome on other hand, which is less dense than the rocks into which it is intruded, may be detected from the low value of gravity (Algermissen, 1961), normally recorded above it. Many geologic structures of interest in oil exploration give rise to disturbances in the normal density distribution within the earth which causes diagnostic anomalies in the Earth's gravitational field. Such anomalies will be very small Compared to the Earth's over-all attraction, in some cases being less than one millionth or even one ten-millionth of the Earth's total field. For this reason, gravity instruments are designed to be extremely sensitive and modern gravimeters can detect variations in gravity to within one hundred-millionth of the earth's field.

Three main types of instruments have been used in gravity prospecting; the torsion balance, the pendulum and the gravimeter. A gravimeter or gravitometer is an instrument used in gravimetry for measuring the local gravitational field of the Earth. A gravimeter is a type of accelerometer, specialized for measuring the constant downward acceleration of gravity, which varies by about 0.5% over the surface of the Earth. Gravimeters display their measurements in units of gals or mgals, instead of ordinary units of acceleration. Gravimeters are used for petroleum and mineral prospecting, seismology, geodesy, geophysical surveys and other geophysical research Fig. 1.1.

Fig. 1.1. Scintrex CG-5 Autograv Gravity Meter

There are two types of gravimeters; relative and absolute. Absolute gravimeters measure the local gravity in absolute units, gals. Relative gravimeters compare the value of gravity at one point with another. They must be calibrated at a location where the gravity is known accurately, and then transported to the location where the gravity is to be measured. They measure the ratio of the gravity at the two points.

Magnetic Method:

Magnetic prospecting maps the variation in the magnetic field of the Earth which are attributable to changes of structure or magnetic susceptibility in certain near-surface rocks. Sedimentary rocks generally have a very small susceptibility compared with igneous or metamorphic rocks and most magnetic surveys are designed to map structure on or within the basement, or to detect magnetic minerals directly. The magnetic method is useful in petroleum exploration where structure in oil-bearing sedimentary layers is controlled by topographic features, ridges or faults, on the basement surface. Magnetic anomalies from the top of the basement may thus give clues to structure higher in the section. It is often difficult to separate magnetic anomalies due to basement topography from those which result from lateral changes in basement rock composition, and this ambiguity limits the reliability of the method. Most magnetic prospecting is now carried out with air-borne instruments. Magnetic rocks contain various combinations of induced and remnant magnetization that the Earth's primary field (Reynolds et al., 1990). Measurements are made using fluxgate, proton-precession, Overhauser and optical absorption magnetometers. In most cases, total-field magnetic data are acquired (Fig. 1.2); vector measurements are made in some instances.

Seismic Method:

The seismic method is by far the most important geophysical technique due to various factors. The most important of which are the high accuracy, high resolution and great penetration of which the method is capable. The basic technique of seismic exploration consist of generating seismic wave and measuring the time required for the

waves to travel from the source to a series of geophones, usually disposed along a straight line directed towards the source. From the knowledge of reflected and refracted travel time to the various geophones and the velocity of waves, it is possible to reconstruct the path of seismic waves.

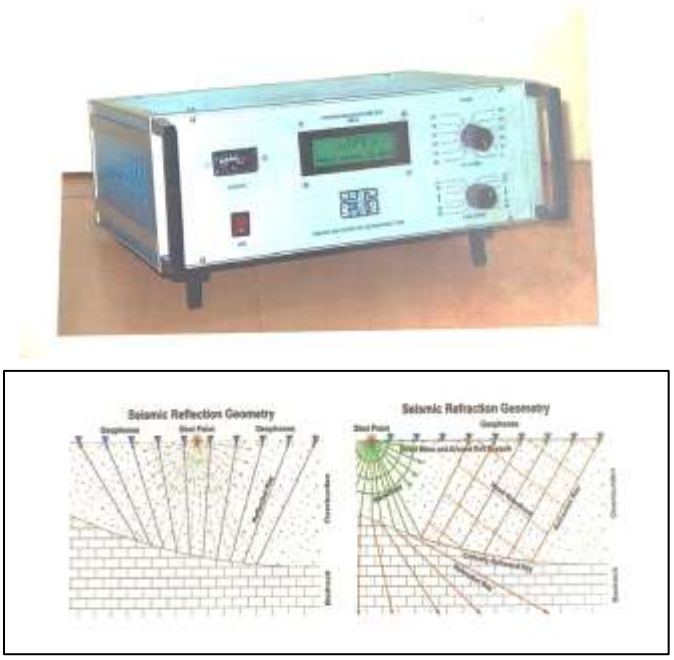

Fig. 1.3. Seismic reflection and refraction geometry

Reflection seismic methods provide fine structural detail and refraction methods provide precise estimates of depth to lithologies of differing acoustic impedance (Fig. 1.3). The refraction method has been used in mineral investigations to map low-velocity alluvial deposits such as those that may contain gold, tin or sand and gravel (Dave et al., 1986).

Radioactivity Method:

The radioactive method is relatively unimportant in comparison with other geophysical techniques. Most of this activity has involved the use of geophysical tool, i.e. radiation detectors such as Geiger counters or scintillation counters. At least twenty naturally occurring elements are now known to be radioactive, only uranium (U), thorium (Th) and an isotope of potassium (K) are of importance in exploration. The two elements, uranium and thorium are important today as source of fuel for the generation of heat and power in nuclear reactors. Thousands of square miles have been surveyed from the air and on the ground in all parts of the world in search of
uranium.

Well Logging/Borehole Method:

Geophysical methods have been applied to the investigation of drill holes for

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about four decades, using the same electrode techniques as in surface exploration. The various instruments and technique, specially designed to suit the different environment in drill holes are used in direct exploration, identification of geologic formations and formation fluids, and correlation between holes. Well logging has become standard operation in petroleum exploration, not however, been used extensively in search of metallic minerals for several reasons. The smaller size holes obtained with the diamond drill, generally less than one-third the diameter of oil wells imposes some limitations on equipments, but this is not the major problem. Well logging is inexpensive as compared to drilling. Geophysical methods which have been applied in well logging include resistivity, self-potential, induction, induced polarization and occasionally other electrical methods, detection of gamma-rays and neutron in radioactivity methods, acoustic logging and measurement of magnetic and thermal properties.

Remote Sensing Method:

Remote sensing includes methods that utilize images obtained in the ultra-violet, visible, and near infrared bands of the electromagnetic spectrum. Thermal infrared observations are also part of remote sensing. Remote sensing data are treated in image format, often in digital form, so that they can be processed conveniently. By comparison with known spectral responses of minerals or mineral groups, iron hydroxide minerals, silica, clay alteration, etc., can be defined over broad areas. Remote sensing can be used in geo environmental studies to map surface alteration patterns (Knepper, 1989) and to identify anomalous vegetation patterns in areas related to abnormal metal content in soil (Birnie and Francica, 1981).

Thermal Methods:

Two distinct techniques are included under thermal methods (a) borehole or shallow probe methods for measuring thermal gradient, which is useful itself, and with a knowledge of the thermal conductivity provides a measure of heat flow, and (b) airborne or satellite-based measurements, which can be used to determine the Earth's surface temperature and thermal inertia of surficial materials, of thermal infrared radiation emitted at the Earth's surface. Thermal noise includes topography, variations in thermal conductivity, and intrinsic endothermic and exothermic sources. Borehole thermal methods have been applied in geothermal exploration, but have seldom been used in mineral exploration. However, this method has potential usefulness in exploration and in geo environmental investigations (Ovnatanov and Tamrazyan, 1970; Brown et. al., 1980; Zielinski et. al., 1985; Houseman et. al., 1989). Causes of heat flux anomalies include oxidizing sulfide minerals and high radioelement concentrations. Thermal infrared imaging methods are a specialized branch of more generalized remote sensing techniques. Images obtained in this wavelength range may be used for photogeologic interpretation or, if day and night images are available, to estimate the thermal inertia of the surface. Unconsolidated or glassy materials can be distinguished by their low thermal inertia. In places, thermal infrared images can distinguish areas of anomalous silicification.

Electromagnetic Methods:

Magnetotellurics (MT) is an electromagnetic geophysical method of imaging the Earth's subsurface by measuring natural variations of electrical and magnetic fields at the Earth's surface. Investigation depth ranges from 300 m by recording higher frequencies down to 10,000 m or more with long-period soundings. Commercial uses include hydrocarbon (oil and gas) exploration, geothermal exploration, mining exploration, as well as hydrocarbon and groundwater monitoring. Research applications include experimentation to further develop the MT technique, long-period deep crustal exploration, and earthquake precursor prediction research.

Ground penetrating radar (GPR) is a geophysical method that uses radar pulses to image the subsurface. This non-destructive method uses electromagnetic radiation in the microwave band (UHF/VHF frequencies) of the radio spectrum, and detects the reflected signals from subsurface structures. GPR can be used in a variety of media, including rock, soil, ice, fresh water, pavements and structures. It can detect objects, changes in material, and voids and cracks. GPR uses transmitting and receiving antennas or only one containing both functions. The transmitting antenna radiates short pulses of the high-frequency (usually polarized) radio waves into the ground. When the wave hits a buried object or a boundary with different dielectric constants, the receiving antenna records variations in the reflected return signal. The principles involved are similar to reflection seismology, except that electromagnetic energy is used instead of acoustic energy, and reflections appear at boundaries with different dielectric constants instead of acoustic impedances. The depth range of GPR is limited by the electrical conductivity of the ground, the transmitted centre frequency and the radiated power. As conductivity increases, the penetration depth also decreases. This is because the electromagnetic energy is more quickly dissipated into heat, causing a loss in signal strength at depth. Higher frequencies do not penetrate as far as lower frequencies, but give better resolution. Good penetration is also achieved in dry sandy soils or massive dry materials such as granite, limestone, and concrete where the depth of penetration could be up to 15 m. In moist and/or clay- laden soils and soils with high electrical conductivity, penetration is sometimes only a few centimetres.

Transient electromagnetics, (also time-domain electromagnetics / TDEM), is a geophysical exploration technique in which electric and magnetic fields are induced by transient pulses of electric current and the subsequent decay response measured. TEM / TDEM methods are generally able to determine subsurface electrical properties, but are also sensitive to subsurface magnetic properties in applications like UXO detection and characterization. TEM/TDEM surveys area very common surface EM technique for mineral exploration, groundwater exploration, and for environmental mapping, used throughout the world in both onshore and offshore applications.

A **telluric current** (from Latin tellus, "earth") is an electric current which moves underground or through the sea. Telluric currents result from both natural causes and human activity, and the discrete currents interact in a complex pattern. The currents are

extremely low frequency and travel over large areas at or near the surface of Earth. Telluric currents flow in the surface layers of the earth. The electric potential on the Earth's surface can be measured at different points, enabling us to calculate the magnitudes and directions of the telluric currents and thence the Earth's conductance.

Electrical Methods:

There are several geophysical techniques which are designed to detect anomalies in the electrical properties of rocks. Among these properties are the conductivity, self potentials and inductive response. From such anomalies it may be possible to locate minerals having distinctive electrical characteristics or to map structural features associated with oil and mineral occurrence (Dobrin, 1976). Electrical methods can be described in five classes:

1. self-potential,
2. electromagnetic,
3. mise-a-la-masse,
4. induced polarization, and
5. direct current resistivity.

In spite of all the variants, measurements fundamentally are of the Earth's electrical impedance or relate to changes in impedance. Electrical methods have broad application to mineral and geoenvironmental problems: they may be used to identify sulfide minerals, are directly applicable to hydrologic investigations, and can be used to identify structures and lithologies.

Self-potential method:

Self-Potential method is based on measuring the natural potential differences which exist between any two points on the ground. Potential differences, partly constant / partly fluctuating are associated with electric currents in the ground. Several possible natural sources generate measurable direct current or quasi-direct current, natural electrical fields or self-potentials. The association of a self-potential anomaly with a sulfide deposit indicates a site of ongoing oxidation and that metals are being mobilized; other self-potential anomalies are due to fluxes of water or heat through the Earth (Corwin, 1990). Mineralization potentials are the main interest when prospecting with self-potential method. They are associated with sulphides of the metals, with graphite and sometimes with the metal oxides such as magnetite. The most common mineralization potentials anomalies occur over pyrite, chalcopyrite, pyrrhotite, sphalerite, galena and graphite. Geo-environmental applications include searching for zones of oxidation and paths of ground water movement.

Electromagnetic method:

Electromagnetic (EM) measurements use alternating magnetic fields to induce measurable current in the Earth. The traditional application of electromagnetic methods in mineral exploration has been in the search for low-resistivity (high-conductivity) massive sulfide deposits. It is not suitable for oil search because it responds best to good electrical conductors at shallow depth. Another method that can be included within

electromagnetics, known as AFMAG (audio-frequency magnetic field), makes use of atmospheric energy resulting from worldwide thunderstorm activity.

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Artificial Intelligence's Perspective on the Human Future

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Introduction Section:

In general, artificial intelligence (AI) is the simulation of human intellect in computers, allowing them to carry out activities like learning, problem-solving and decision-making those usually need human intelligence. AI, which began in the middle of the 20th century, has developed from a mysterious concept to an essential part of everyday life.

Brief Information on AI:

AI is the term used to describe the simulation of human intellect in computers designed to think and behave like humans. It includes a broad range of capabilities, from basic ones like playing games to more sophisticated ones like making music and detecting disorders. The following are some vital characteristics of AI: *(Mohammad Hossein Jarrahi, 2008)*

1) **Learning**: AI systems can gain knowledge from data and gradually enhance their abilities. Because of this, they can anticipate outcomes and adapt to changing situations without needing to be particularly codifying.
2) **Reasoning:** AI can examine data and make judgments from their view. This allows them to resolve issues and make decisions under extremely difficult conditions. For instance, a chess-playing AI is capable of evaluating every move that may be made, analyzing the probable results, and selecting the optimal move to increase its chances of winning.
3) **Perception:** Using sensors like cameras and microphones, certain AI systems can sense their surroundings. As a result, they can engage with their surroundings and collect knowledge. For instance, a self-driving car can observe its environment and drive safely on the road by using cameras and radar.

History of Artificial Intelligence

The history of artificial intelligence (AI) is extensive and fascinating, going all the way back to history. However, the 1950s marked the start of the AI. This is a synopsis of AI's development from the beginning to present year[2]:

1. In 1943, the first step towards the creation of artificial intelligence was taken when Warren McCulloch and Walter Pitts developed a mathematical model for neural networks.

2. In 1950, Alan Turing developed the Turing Test, a tool to assess whether a machine is capable of exhibiting intelligent behavior that is either identical to or unrecognizable from that of a human being.

3. The first artificial intelligence meeting, the Dartmouth conference, was arranged by John McCarthy in 1956. This conference marked the birth of AI as a field of study.

4. 1957: The Perceptron, a kind of neural network with pattern recognition and learning capabilities, was invented by Frank Rosenblatt.

5. **1964:** Joseph Weizenbaum developed ELIZA, a computer program that uses natural language processing to mimic human speech.

6. In 1974, Ted Shortliffe created MYCIN, an expert system that can identify infectious diseases and suggest therapies.

7. In 1985, Terry Winograd created SHRDLU, a system for recognizing natural language that can control virtual world blocks.

8. In 1997, IBM's Deep Blue chess computer overcame world champion Garry Kasparov.

9. Year 2011: In a televised Jeopardy! contest viewed by millions in February 2011, IBM's Watson DeepQA computer made history by defeating the TV quiz show's two foremost all-time champions**, Brad Rutter and Ken Jennings.**

10. 2012: AlexNet, a neural network created by Google's DeepMind, greatly increased picture recognition accuracy.

11. 2016: In the game of Go, DeepMind's computer program AlphaGo overcame the reigning champion.

12. 2018 saw the introduction of OpenAI's GPT-2 language model, which can generate text that mimics that of a human[2].

13.2019 experiences the market for AI can be difficult to size, as the technology is often embedded into larger systems. That said, as per Global Data, the global market size of AI grew at a CAGR of 11.9%, from $ 53.5 billion in 2019 to $ 67.0 billion in 2021.

14. In 2020, natural language systems became significantly more advanced at processing aspects of human language like sentiment and intent, generating language that aligns with human speaking and writing patterns, and even visual understanding, meaning the capability to express understanding about an image through language.

15. Year 2021 marked a pivotal year for AI, with several notable advancements and trends. One of the key areas of development was the integration of AI into various industries. Businesses across sectors recognized the potential of AI in streamlining operations, enhancing customer experience, and making data-driven decisions.

16. The 2022 Gartner Hype Cycle ^{TM} for AI features “must-know” innovations expected to drive extensive benefits to any organization. These innovations go beyond everyday AI techniques already being used to add intelligence to previously static business applications, devices and productivity tools.

17. In 2023, Tech giants’ AI projects were all in full swing towards the end of the first quarter. Open AI launched application programming interfaces (APIs) for ChatGPT and a text-to-speech model called Whisper. OpenAI also released a bunch of plugins for

ChatGPT and officially launched its most advanced AI model, GPT-4 [3].

The progress made in 2023 means generative AI is making its way into the heart of the world's most popular apps, mixed reality is now at the core of a mass-market headset, and smart glasses will let AI see the world from our perspective for the first time. This an extremel exciting time to be building the future.

Overview of The Chapter

One of the interesting topics: artificial intelligence (AI), defined as a man-made form of intelligence. This research chapter explains the views about mankind's future. Our investigation uses a Leonardo AI, to visual outputs to help AI's vision of the future of humanity more understandable. Present research offers an in-depth examination of AI's advancement from the beginning to till today.

The chapter explores the unique perspective regarding the human future developed by AI itself. We will examine the different perspectives of artificial intelligence in various sectors such as the automobile sector industry sectors communication sector and many other sectors as well. This abstract also moves to take a more comprehensive approach, regarding which nation or continent focuses on the development of AI.

Research Methodology

News Articles

We collected the data from various news articles, and sources will be provided in a references' area. Publications like the Times of India, Hindustan Times, and other trustworthy publications are the sources of this article.

Prompt Based System

Together with other well-known AI models, we will utilize the powers of a particular image-generating AI named Leonardo AI to produce attractive representations. Leonardo AI, a company renowned for its sophisticated picture synthesis methods, will be essential in producing realistic diverse visuals.

Interaction of AI with Human life

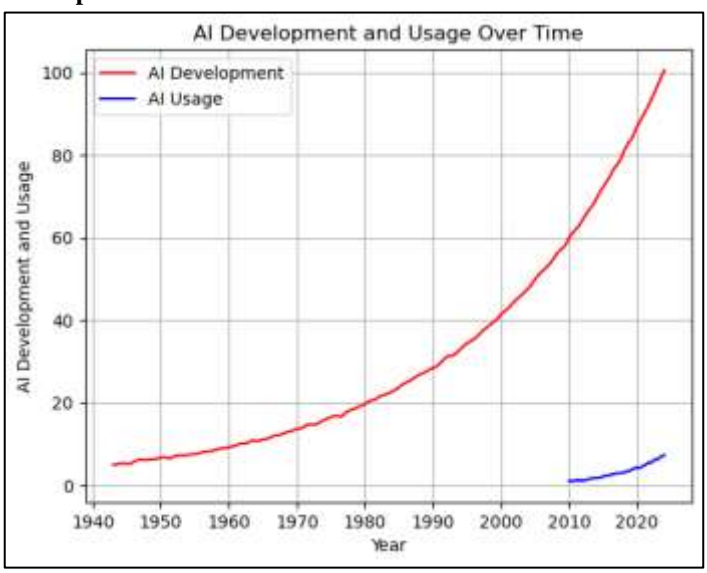
This section explores how artificial intelligence (AI) is integrated into our daily lives, and explores how common it is in the modern world ! The visuals regarding AI usage obtained using Python are covered in this subsection of the chapter. We will also examine various stages of AI development, offering knowledge about the constantly changing field of artificial intelligence. By providing an in-depth understanding of the present status of AI integration and its many applications, this section aims to reveal the broad impact of AI-human interactions.

Popularity of AI in Present Time

Nowadays, it is more and more usual to incorporate artificial intelligence (AI) into our daily lives. AI is changing how we live and work, from self-driving cars to digital assistants. We will look at the current commonality of AI and its effects on society in this subsection. AI can be observed in many aspects of our everyday life, digital personal assistants such as Alexa and Siri are prime examples. These AI-powered assistants are

capable of doing a variety of jobs, such as making phone calls, putting reminders, and even sending grocery orders. They are getting more and more integrated into our daily lives. The healthcare industry is another one where use of AI is spreading. AI-powered systems can identify diseases and suggest remedies by analyzing medical data. They can also assist medical professionals in keeping a closer eye on patients, which can save expenses while enhancing treatment quality. AI is being utilized in a variety of fields, including banking, education, and transportation. AI is being used, to identify fraud in financial transactions, improve traffic flow in cities, and customize learning experiences for students. Although there are obvious benefits of AI becoming more widely used, there are also concerns about how AI will affect society. The possibility of job relocation is a primary concern. There is a chance that a lot of employment may become useless as AI improves at doing activities that people used to complete. This could lead to higher unemployment rates and greater income inequality.

General Graphical representation of Use of AI



Have a look at the graph shown in figure 1 which tells how artificial intelligence has developed and been used throughout time. With a special emphasis on the timeline, the historical context described in the previously stated section serves as the foundation for this graphic depiction. Interestingly, the artificial intelligence development line (illustrated by the red line) shows exponential growth beginning in 1943, an important year. On the other hand, the blue line, which represents artificial intelligence's real-world applications, demonstrates the way it came into use starting around the year 2010. The graph is drawn with the help of Python and on the basis of data collected from various sources across the web and by our own observation.

Fig 1. Development of artificial intelligence and use overtime (Drawn with Python)

Different Stages of AI: There is not a single, accepted framework for AI phases, the

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following common framework outlines seven potential stages of AI development:

1. **Stage 1:** Reactive Machines (Rule-Based Systems) : These are the most basic types of AI; they primarily target at particular jobs with clear guidelines. Imagine simple chatbots or machines that can play chess. They are incapable of learning or adapting; they only respond to signals that have been preprogrammed.
   Examples: Spam filters, autopilots, and expert systems.
2. **Stage 2:** Context Awareness but Limited Memory: These AI systems can adjust to certain situations within a limited area because they store some recollection of previous interactions. Consider a chatbot for customer support that remembers your past exchanges and adjusts its replies appropriately.
   Examples: Recommendation engines, anomaly detection systems, and personal assistants like Siri and Alexa.
3. **Stage 3:** Perceptual Learning (Subject Expertise): These AI systems do exceptionally well on certain tasks, frequently outperforming humans in their field. They have the ability to detect and evaluate information, gain knowledge from experience, and make judgments in that specific field.
   Examples: AI for medical diagnostics, self-driving automobiles, and face recognition software.
4. **Stage 4:** Problem-Solving and General Learning (Reasoning): These AI systems are capable of handling more complicated circumstances and navigating larger environments because they have fundamental reasoning and problem-solving abilities. Within a limited framework, they can apply what they have learned from a variety of sources to new situations.
   Examples: obstacle-navigating robots, AI assistants that arrange and manage calendars, and AI that plays games and can adjust tactics.
5. **Stage 5**: Artificial General Intelligence (AGI): This hypothetical stage is an example of AI comparable to that of humans, able to understand and pick up any intellectual skill that a person can. It would be intelligent in general, smart in common sense, creative, and flexible enough to adjust to changing situations. While research is moving quickly forward, this level is still theoretical and has not yet been reached.
6. **Stage 6:** Artificial Super Intelligence (SI): In this more hypothetical period, artificial intelligence is said to exceed human intellect in every way. It would have far greater creativity, knowledge, and problem-solving skills, which might have unexpected and revolutionary effects. This level is totally hypothetical and regarded as a far-off future possibility.
7. **Stage 7**: The Singularity and Beyond: The term "singularity" describes an imaginary moment in the future when ASI-driven technology advancement becomes unexpected, possibly changing the essence of reality. This level is entirely hypothetical and outside of the boundaries of what we now know about technology and its effects.

   Note that, this framework offers a broad perspective of AI's increasing capabilities

and possible future advancements, however these are not perfect. These are referred and derived from various web-based sources [4- 9].

Global Perspective on AI: The Global AI Index is used to compare countries based on the amount of money they invest, how innovative they are, and how they use artificial intelligence. We got the data set from the Kaggle the source is mentioned in the reference section you can refer to it [10].

About the data set: (Note: The text in this section is copied from the respective Dataset Description Page from source.)

The Dataset **"AI Global index"** includes The Global AI Index itself and seven indicators affecting the Index on 62 countries, as well as general information about the countries (region, cluster, income group and political regime). The **Global AI Index** is the first index to benchmark nations on their level of investment, innovation and implementation of artificial intelligence. Talent, Infrastructure and Operating Environment are the factors of **AI Implementation** group of indicators, which represents the application of artificial intelligence by professionals in various sectors, such as businesses, governments, and communities.

1. **Talent** indicator focuses on the availability of skilled practitioners for the provision of artificial intelligence solutions.
2. **Infrastructure** indicator focuses on the reliability and scale of access infrastructure, from electricity and internet, to super computing capabilities.
3. **Operating Environment** indicator focuses on the regulatory context, and public opinion surrounding artificial intelligence.
4. **Research** indicator focuses on the extent of specialist research and researchers; investigating the number of publications and citations in credible academic journals.

	Country	Talent	Infrastructure	Operating Environment	Research	Development	Government Strategy	Commercial	Total score	Region	Cluster	Income group	Political regime
0	United States of America	100.00	94.02	64.56	100.00	100.00	77.39	100.00	100.00	Americas	Power players	High	Liberal democracy
1	China	16.51	100.00	91.57	71.42	79.97	94.67	44.02	62.92	Asia-Pacific	Power players	Upper middle	Closed autocracy
2	United Kingdom	39.66	71.43	74.66	36.50	25.03	82.82	18.91	40.93	Europe	Traditional champions	High	Liberal democracy
3	Canada	31.26	77.05	93.94	30.67	25.78	100.00	14.68	40.19	Americas	Traditional champions	High	Liberal democracy
4	Israel	35.76	67.58	62.44	32.63	27.96	43.91	27.33	38.89	Middle East	Rising stars	High	Liberal democracy
...	...	...	...	...	...	...	...	...	...	...	...	...	...
57	Sri Lanka	6.27	34.64	36.79	0.12	0.95	35.57	0.09	6.62	Asia-Pacific	Nascent	Lower middle	Electoral democracy
58	Egypt	1.11	38.84	0.00	2.08	1.54	66.72	0.31	4.83	Middle East	Nascent	Lower middle	Electoral autocracy
59	Kenya	0.75	14.11	29.84	0.07	12.15	7.75	0.31	2.33	Africa	Nascent	Lower middle	Electoral autocracy
60	Nigeria	2.74	0.00	50.10	0.45	2.06	7.75	0.33	1.38	Africa	Nascent	Lower middle	Electoral autocracy
61	Pakistan	0.00	2.43	12.46	2.17	1.59	13.92	0.27	0.00	Asia-Pacific	Nascent	Lower middle	Electoral autocracy

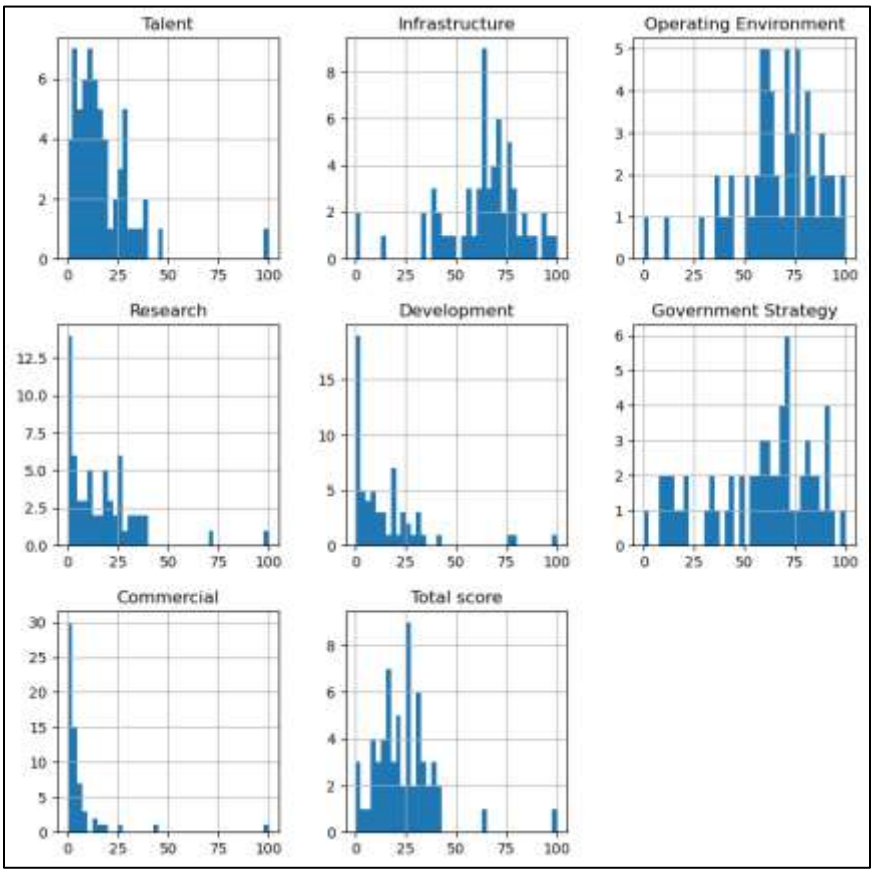
5. **Development** indicator focuses on the development of fundamental platforms and algorithms upon which innovative artificial intelligence projects rely.

Table 1: Global AI Index data set. The data was used in the analytical research - **Artificial Intelligence on the World Stage: Dominant Players and Aspiring Challengers**.

Government Strategy and Commercial are the factors of **Investment** group of indicators, which reflects financial and procedural commitments to AI.

6. **Government Strategy** indicator focuses on the depth of commitment from national government to artificial intelligence; investigating spending commitments and national strategies.
7. **Commercial indicator** focuses on the level of startup activity, investment and business initiatives based on artificial intelligence.

All these seven indicators were calculated by Tortoise Media via weighting and summarizing 143 other indicators.



Statistical Analysis of The Data:

Fig. 2. Distributions of Numerical Features from the dataset (Drawn with

Python), (a) Talent, (b) Infrastructure, (c)Operating Environment, (d) Research, (e) Development, (f) Government Strategies, (g) Commercial, (h) Total Score. The operating environment and infrastructure have a slight rightward skew, whereas the other numerical variables have a significant leftward skew.

Correlation Analysis: The total score demonstrates moderate correlations with Government Strategy and Operating Environment variables. And on the other hand it is highly correlated with Research (0.945877), Development (0.866337), Talent (0.861969), and Commercial (0.857985) variables.

	Talent	Infrastructure	Operating Environment	Research	Development	Government Strategy	Commercial	Total score
Talent	1.000000	0.463297	0.159305	0.810255	0.682931	0.321658	0.795071	0.861969
Infrastructure	0.463297	1.000000	0.413042	0.617192	0.509444	0.551934	0.379933	0.716481
Operating Environment	0.159305	0.413042	1.000000	0.197111	0.155285	0.399741	0.114281	0.368566
Research	0.810255	0.617192	0.197111	1.000000	0.845912	0.384878	0.847353	0.945877
Development	0.682931	0.509444	0.155285	0.845912	1.000000	0.424061	0.775929	0.866337
Government Strategy	0.321658	0.551934	0.399741	0.384878	0.424061	1.000000	0.249303	0.531821
Commercial	0.795071	0.379933	0.114281	0.847353	0.775929	0.249303	1.000000	0.857985
Total score	0.861969	0.716481	0.368566	0.945877	0.866337	0.531821	0.857985	1.000000

Table 2: Correlation Analysis (Drawn with Python)

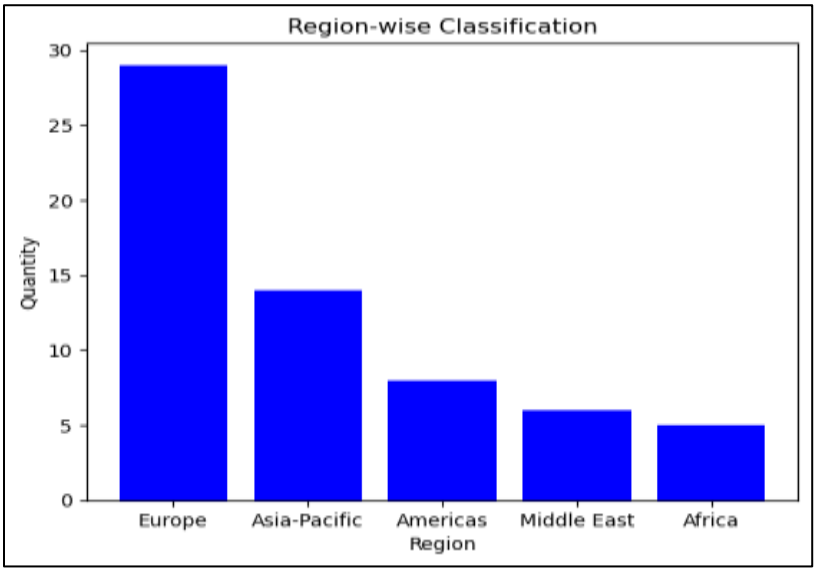
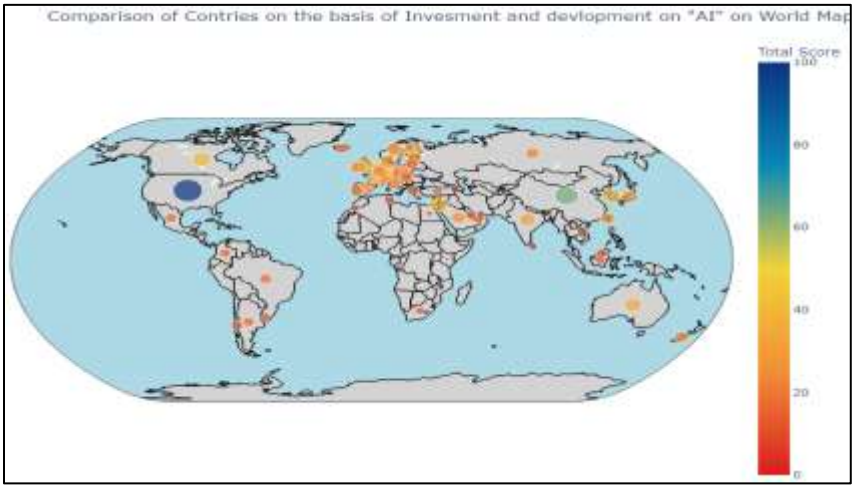


Fig. 3 Region-wise classification of dataset (Drawn with Python)

From the above figure 3 we conclude that the European countries focus more than other in case of development of AI. Aisa is the runner up in this line. Global AI total score: figure 4 represents a comparison based on the continents or countries that invest more in the research field and the development of AI.



AI's Perspective on Different Sectors

Fig. 4 Comparison of Countries on the basis of investment and development on AI on world map (Drawn with Python)

In this section, we will provide a variety of prompts, which instruct an AI that generates images based on its artificial viewpoint. Let's explore the capabilities of AI, in various sectors, such as:

1. **Automobile Sector:** We give AI the task of visualizing and producing visuals regarding developments, designs, and inventions in the automobile industry.
2. **Infrastructure Sector:** By concentrating on the construction industry, we instruct AI to produce visuals that represent smart cities, infrastructure development, and architectural ideas of the future.
3. **Industries:** By navigating factories, we instruct AI to provide visuals that show various industries' production procedures, robots, and technology developments.
4. **Working Offices:** Using workspace-related inputs, the AI imagines and generates pictures of contemporary office layouts, teamwork spaces, and technological integration in the workplace.

Through this experiment, we can observe the creative potential of AI in a variety of industries and get a peek at possible future developments in technology.

Automobiles Sector:

Command is given to Leonardo AI, an image-generating AI, about making predictions regarding automobile features in 2070. Prompt: "Generate vivid and innovative images illustrating the future of the automobile sector post-2070. Envision and depict advanced features and technologies that may become integral parts of vehicles. Include elements like cutting-edge solar panel integration, advancements in sustainable energy sources, futuristic designs, and state-of-the-art safety features. Imagine the evolution of materials used in manufacturing, potential autonomous driving enhancements, and the integration of next-generation connectivity. Visualize a day in the

life of a 2070 vehicle, considering advancements in user interfaces, entertainment systems, and any other groundbreaking technologies that might redefine the automotive landscape. The images should encapsulate a futuristic vision, blending aesthetics, sustainability, and technological marvels that could shape the automobiles of tomorrow."

Fig.5AIGeneratedFutureCars1

Fig. 6 AI Generated Future Cars 2

The outcomes we got:

We can observe that AI predicts doors will open based on gesture recognition or sensors, offering a futuristic and touchless experience to us. Curved and bullet train-like shapes will be used in cars to overcome air resistance. AI predicted the cars will rely on cameras to project real-time surroundings inside the car, eliminating mirrors and increasing safety.

Infrastructure Sector:

Command is given to Leonardo AI, about making predictions regarding mobile phone features in 2070.

Prompt: "Generate captivating visuals that depict the future of the Infrastructure Sector, with a focus on smart cities, innovative infrastructure development, and futuristic architectural concepts. Instruct the artificial intelligence (AI) to envision and craft images showcasing the evolution of urban landscapes, integrating advanced technologies and sustainable practices. Imagine the construction industry beyond 2070, visualizing smart cityscapes with interconnected systems, energy-efficient buildings, and cutting-edge transportation networks.

Fig. 7 Future Buildings (1)

Explore architectural designs that harmonize with nature, incorporating green spaces, renewable energy sources, and eco-friendly materials. Illustrate the integration of AI-driven solutions in construction processes, from automated building systems to advanced project management. Your task is to paint a compelling picture of a future where infrastructure seamlessly blends technology, sustainability, and visionary design."

Figures 7, 8, and 9 generated by AI might think that the future generations of mankind will acknowledge the importance of nature in their lives due to a growing awareness of environmental issues**.**

Fig. 8 Future Buildings (2)

Fig. 9 Future Buildings (3)

Especially, the huge quantity of greenery surrounding the massive buildings depicted in the pictures suggests a greater understanding of the value of nature. Furthermore, picture 9 depicts an odd car-shaped structure along the riverfront, raising the possibility that new forms of transportation may be used in the future. Vehicle by a river suggests that waterways may be included in transportation networks similar to those found on roads, opening the door to the possibility of a new form of aquatic transportation.

Industries: Command is given to Leonardo AI, about making predictions regarding future industries.

Prompt: "Generate compelling visuals depicting industrial landscapes beyond the year 2070. Show the advanced production procedures, cutting-edge robotics, and technological developments within various industries. Envision and portray futuristic factories with state-of-the-art automation, innovative manufacturing processes, and the integration of AI-driven systems. Explore how technology transforms the production lines, from smart machinery to efficient logistics. Highlight advancements in materials, energy efficiency, and sustainable practices within industrial settings."

Fig. 10

Fig. 11

Fig. 12

Fig. 10, 11, 12 Future Industries

Figures 10, 11, and 12 offer a fascinating look at how global companies will develop in the future. These pictures show an environment where several cutting-edge machineries are carefully planned and arranged in different industries. These devices are ready to take on jobs completed by people because they can operate with a level of accuracy that exceeds human capacity. In this predicted future, human responsibilities become more observational and supervisory, ensuring that these highly automated industrial processes run smoothly and effectively.

Work Offices: Command is given to Leonardo AI, about making predictions regarding future work offices.

Fig. 13

Fig. 14

Fig.15

Fig. 13, 14, 15 Work Stations in Future

Prompt: "Generate visionary images showcasing the future of work offices post-2070. Envision and craft visuals depicting cutting-edge office layouts, collaborative teamwork spaces, and the seamless integration of advanced technologies in the workplace. Imagine the evolution of work environments with futuristic designs, innovative office structures, and the use of AI-driven systems to enhance productivity and collaboration. Explore concepts such as virtual workspaces, augmented reality interfaces, and sustainable office practices."

Figures 13, 14, and 15 illustrate how workstations have evolved into quite advanced environments. These pictures show rooms that are fascinating, and futuristic. These graphics effectively convey the amazing progress of technology, especially in the context of the workplace.

Conclusions:

In conclusion, this chapter explores the complex field of artificial intelligence (AI), providing an in-depth review of its history, current applications, and possible future developments. The journey starts with an introduction to artificial intelligence (AI). Then follows the development of AI across time, from theoretical discussions to practical applications. We used a prompt-based methodology to study deeply. We examined how AI interacts with human beings, highlighting how common it is in modern culture and demonstrating its several developmental stages. Examining the global AI Index, which displays investment, innovation, and application across national borders, offers a worldwide view of AI. Correlations, distributions, and region-specific classifications are all included in the research to give a comprehensive picture of the worldwide AI environment. The chapter then shifts to AI's viewpoint on several industries, which is the main part of this chapter, instructing the AI model to produce pictures that predict how the infrastructure, automotive, industries, and workplaces would look in the future.

At the end, the chapter emphasizes the need to have an in-depth understanding of AI's future vision. Through a combination of historical background, worldwide viewpoints, industry-specific knowledge, and AI's innovative products, this study seeks to enhance our understanding of AI's influence on the trajectory of humankind.

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"हिंदी साहित्य में आदिवासी कवयित्रियों का योगदान"

प्रा. डॉ.पवार राजभाऊ श्रीहरी
अध्यक्ष हिंदी विभाग, वाणिज्य एवं विज्ञान
जयक्रांती कला वरिष्ठ महाविद्यालय, लातूर
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सार:

आदिवासी समाज और हिंदी की आदिवासी कवयित्रियों का पारस्परिक संबंध जल और मीन की तरह रहा है। आदिवासियों का ज्ञान, चिंतन मानव समाज के लिए कल्याणकारी रहा है। आदिवासी लोग प्राकृतिक औषधियों से अपने उपचार कर लेते थे। जो काम उपचार के क्षेत्र में आदिवासियों ने किया वह आज के वैज्ञानिक भी नहीं कर पाते। उनका ज्ञान कौशल हमारे लिए दिशादर्शक रहा है। आदिवासियों को सदा ही हीन समझाया गया है। उन्हें 'हाशिए का समाज' कहा गया है। वे आदिम, बर्बर, जंगली भी कहलाए क्योंकि वह मुख्य धारा से दूर वनों और पहाड़ी प्रदेशों में रहा करते हैं। वे ना तो बाहरी दुनिया से पहले भली-भांति परिचित थे और नहीं बाहरी दुनिया से संवेदनशील। वे कटे-छंटे अपने समूह समाज में अपना जीवन निर्वाह करते, संगीत की ताप पर श्रमशील होते जीवन जीते। 21वीं शताब्दी में भी आदिवासी समाज अपनी मौलिकता, आदिम परंपरा, संस्कृति और जीवन शैली को बचाए रखने के लिए प्रयत्नशील है। इस आदिवासी समाज में औद्योगीकरण के कारण उथल-पुथल मच गई है। कल तक जो जल, जंगल और जमीन का मालिक था आज वही आदिवासी उससे वंचित हो गया है। उन्हें अपनी जमीन से बेदखल कर दिया गया है। आज आदिवासी समाज में अनेकों समस्याएं उभर कर सामने आ रही है। आज आदिवासी लोग विस्थापित हो चुके हैं। साथ ही उनके रोजगार की समस्या भी उभर कर सामने आ रही है। आज वैश्वीकरण के कारण आदिवासी संस्कृति दूषित हो रही है वैश्वीकरण के इस दौर में आदिवासी समाज की अस्मिता अस्तित्व संकट में है। आज आदिवासी समाज में मुख्य रूप से विस्थापन, पलायन, बेकारी, भुखमरी, अशिक्षा और नारी शोषण की समस्या देखने के लिए मिल रही है। आदिवासी समाज और हिंदी आदिवासी कविताओं में आदिवासी कवयित्रियों के योगदान का अध्ययन करने का तात्पर्य यही है कि हम आदिवासी समाज और उनकी समस्याओं को जान सकें। जंगल अर्थात वनों में रहने के कारण आदिवासी वनवासी कहलाए। "आर्य-अनार्य संग्राम श्रृंखला के दरमियान आर्यों के द्वारा जो मूल-जन की विजित कर लिए गए और दास सेवक या शूद्र के रूप में जिनके साथ व्यवहार किया गया वह आज का दलित समाज है। उसी ने मुख्य रूप से अछूत होने का दंश सहा। जो जन समूह विजेताओं की पकड़ से बाहर रहे, खदेड़े गए या बच बचाकर दूर दराज सुरक्षित दुर्गम जंगलों और पहाड़ों में शरण लेने को विवश हुए वे आज के आदिवासी कहे जा सकते हैं।"[1] भारतीय आदिवासी समुदायों पर लिखने की शुरुआत अंग्रेज शासन काल में हुई हिंदी साहित्य जगत में डी.डी. कौषबी, भगवत शरण उपाध्याय, राहुल सांक्रत्यायन, ब्रह्मादेव शर्मा, राम चरण जोशी आदि हिंदी लेखकोंने आदिवासियों पर लेखन कार्य किया है। 18 वीं सदी की औद्योगीकीकरण की प्रक्रिया और आधुनिकता बोध से आदिवासियों के प्रति हमारा ध्यान आकर्षित हुआ। उनकी पहचान आजीविका और जमीन पर सरकारी नियंत्रण शुरू हुआ। अंग्रेज सरकार ने वनों को आरक्षित करने की शुरुआत की। धीरे-धीरे वन राज्य की संपत्ति हो गए। इसी के साथ आदिवासियों के संघर्ष और यातना का प्रारंभ हो गया। धीरे-धीरे उनसे लगाना वसुलाजाने लगा। उनके ऊपर पुलिस का अत्याचार बढ़ता गया। इसी दौरान बिरसा मुंडा प्रतिरोध के कारण जननायक के रूप में उबरकर सामने आये। गोरी सरकार, गौर साहब, ठेकेदार, जागीरदार शोषक बने। "सन 1991 के बाद आर्थिक उदारीकरण, विदेशी कंपनियों के निवेश और पसरती बाजारवाद से एक बार फिर आदिवासियों और उनके प्राकृतिक संपदाओं पर हस्तक्षेप बड़ा। तब प्राकृतिक संसाधनों के दोहन के विरोध में शिक्षितों के माध्यम से राष्ट्रीय स्तर पर आदिवासियों की रचनात्मक ऊर्जा को पहचान मिली जिसे आदिवासी साहित्य की संज्ञा दी गई।"[2] बीसवीं शताब्दी के अंतिम दशक में साहित्य के क्षेत्र में कई आंदोलन उभर कर सामने आए। दलित साहित्य, स्त्रीवादी साहित्य तथा आदिवासी साहित्य इसी का परिणाम है। इस प्रकार आदिवासियों की यातना का बखान करने का काम आदिवासी साहित्य ने किया है।

आदिवासी साहित्य में अनेकों कवयित्रीयों ने अपना महत्वपूर्ण योगदान दिया है। आदिवासी कवयित्रियों ने आदिवासी समाज की त्रासदी ही नहीं स्त्री होने की पीड़ा को भी रेखांकित किया है। संस्कृति, समाज, धर्म और पुरुषसत्ता की संरचना में स्त्री को अबला बनाने की जो कोशिश हुई, कविता उनका प्रतिरोध करती है। स्त्री की एक जाति होने पर भी परिस्थिति विशेष आजीविका, आर्थिकता, शिक्षा और विभिन्न संस्कृतियों के कारण उनका यथार्थ भिन्न होता है। श्रमशिला होने के कारण दलित और आदिवासी स्त्री को एक साथ नहीं रखा जा सकता।

दलित तो समाज को मुख्य धारा के भीतर निचले पायदान पर खड़ा किया गया, जबकि आदिवासी 'वनवासी' बना दिया गया और अब वनों तक में उसे सुरक्षित नहीं रहने दिया जा रहा है। जबकि जंगल जंगल जमीन उसकी पहचान है। "समस्या यह है कि उनकी स्थिति या संसाधनों से छेड़छाड़ किए बगैर उनका विकास कैसे हो? यहां समस्या सरकार की हो सकती है लेकिन आदिवासियों को अपनी जमीन जंगल पर अधिकार चाहिए। अंततः आदिवासी कविता समूह विशेष की यानी वंचितों की वेदना, विद्रोह व स्वप्न की अभिव्यक्ति है।"[3] कविता कवि की हो या कवयित्री की यह सदा ही क्रूरर्ता व अन्याय का विरोध करती है। आदिवासी कवियों की कविता भी उनके मूल्य, संस्कृति का रक्षण करने का काम करती है। हिंदी कविता के क्षेत्र में विशेष कर आदिवासियों में सबसे पहले सुशीला सामदने आदिवासियों पर कविता लिखी है। इनका काव्य संग्रह 1634 ई. में प्रकाशित हुआ था। हिंदी में दूसरा आदिवासी काव्य संग्रह जुलायचंद्र मूंडा का 'नव पल्लव' सन 1966 ई. में प्रकाशित हुआ था। पिछले दो दशकोंसे आदिवासी लेखकोंने अपनी पहचान बनाई है। आदिवासी लेखन में विशेष कर संजीव का नाम लिया जा सकता है। लेखकों की तरह हिंदी में अनेकों कवयित्रीयों ने आदिवासी कविताएं लिखकर अपनी पहचान बनाई है। इनमें विशेषकर झारखंड की संथाली कवयीत्री निर्मला पुतुल, ग्रेस कुजूर, वंदना टेटे, महादेव रोप्पो, अनुजु लुगुन, जसिंता केर केड्डा, वाहरू सोनवणे, तथा हरिराम मीणा आदि नाम प्रमुख है। आदिवासी साहित्यकार अपनी लेखनी के द्वारा आदिवासी संस्कृति उनके जीवन, उनकी परंपरा तथा अस्तित्व के ऊपर आए संकट का चित्रण अपने साहित्य में करते हैं। आदिवासी कवयित्री ने अपनी कविता के माध्यम से आदिवासी जीवन संस्कृति तथा संघर्ष को समझने का प्रयास किया है। आदिवासी कवियत्रियां प्रकृति संरक्षण के प्रति बेहद गंभीर रही है चिपको आंदोलन की प्रारंभकर्ता व संचालक स्त्रियां कहीं जाती है। चाहे फिर वह राजस्थान की बिश्नोई जाति की स्त्रियां हो या उत्तराखंड के पर्वतीय क्षेत्र चमीली, कुमाऊ, गढ़वाल और पिथौरागढ़ ग्रामीण क्षेत्र की निरक्षर स्त्रियां, स्त्रियों का तादात्म्य प्रकृति से बड़ा गहरा रहा है।

आदिवासी कवयित्रियों में प्रमुख रही ग्रेस कुजूर ने अपनी कविताओं में आदिवासी विमर्श को अंजाम दिया है। ग्रेस कुजूर भारत की एक प्रमुख आदिवासी कवयित्रि रही है। उनकी मातृभाषा 'कुडूख' है। प्रकृति के साथ वह हो रही छेड़छाड़ पर ग्रेस कुजूर अपनी कविता में लिखती है - "इसलिए फिर कहती हूं

न छेड़ो प्रकृति को
अन्यथा यह प्रकृति करेगी भयंकर बगावत और तब
ना तो तुम होंगे
न हम होंगे।"[4]

आदिवासी कविता में प्रकृति के साथ छेड़छाड़ को लेकर आक्रोश पाया गया है। यह आक्रोश विरोध व प्रतिरोध उसे व्यवस्था के प्रति है, जिससे जल जंगल और जमीन से छेडछाड हो रही है, उन घुसपैठिये के प्रति है जो वैध अवैध तरीके से उन्हें उजाड़ रहे हैं, जिन्हें, वह अपने दिल दिमाग से चाहते हैं। ग्रेस कुजूर अपनी कविता में लिखती है -

हे संगी क्यों घूमते हो। झूलाते हुए खाली गुलेल
क्या तुम्हें अपनी धरती की,
सेंधमारी सुनाई नहीं दे रही...?

ग्रेस कुजूर ने अपनी प्रतिभा के बल पर हिंदी में आदिवासी विमर्श को लेकर 40 से भी ज्यादा कविताएं लिखी है। उनकी कविताओं में आदिवासी संस्कृति, प्रकृति के प्रति रागात्मक संबंध, आदिम सौंदर्य बोध, गायन, वादन, नृत्य, उत्सव, पर्व, सामाजिक संस्कार, जीवन मूल्य, धार्मिक विश्वास आदि सबकुछ पाया जाता है।

आदिवासी कवयित्रियों की कविता में प्रकृति प्रेम तथा संस्कृति प्रेम अधिक पाया गया है। आदिवासी कविता में आक्रोश अधिक है। प्रकृति के साथ छेड़छाड़ पर उन्हें अधिक क्रोध आता है। ग्रेस कुजूर की तरह निर्मला पुतुल ने भी आदिवासी साहित्य में अपना महत्वपूर्ण योगदान दिया है। उन्हें बाहरी घुसपैठ बर्दाश्त नहीं है। निर्मला पुतुल ने 'नगाड़े की तरह बजते शब्द 'काव्य ग्रंथ के माध्यम से अपनी प्रतिभा का परिचय दिया है। निर्मला पुतुल एक संथाली कवयित्री है। भारतीय समाज पितृसत्ताक पद्धति को अपना कर चलता है। लेकिन आदिवासी समाज में मातृसत्ता को अपनाया गया है। भोगवादी समाजने स्त्री को सदा ही अपने से निचा समझा है। नारी आज अपने अस्तित्व को लेकर संघर्षरत है। नारी के संघर्ष और आक्रोश को व्यक्त करते हुए अपनी कविता निर्मला पुतुल लिखती है-

"तन के भूगोल से परे
एक स्त्री के,
मनकी गांठे खोलकर
कभी पड़ा है तुमने,

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उसके भीतर का खोलता इतिहास?
पढा है कभी
उसकी चुप्पी की दहलीज पर बैठे
शब्दों की प्रतीक्षा में उसके चेहरे को?"[5]

निर्मला पुतुल की कविताओं ने नारी को लेकर अनेंको प्रश्न उठाए गए हैं। नारी की वेदना उनकी कविता की आत्मा बन गई है। नारी पुरुषों के साथ रहकर अपनी सुरक्षा की कामना करती है। पुरुष केवल नारी का उपभोग लेता है। अपनी कविता 'इतनी दूर मत ब्याहना बाबा' में एक बेटी की यातना को स्पष्ट करते हुए वह लिखती है -

"क्या हूं मैं तुम्हारे लिए?
एक मात्र तकिया.... जिस पर सिर टिका दो?
एक खूंटी...जिस पर कमीज टांग दो? एक डायरी जिस पर जो चाहे लिखा जा सके।
एक चादर... जिसे जहां चाहे बिछा दिया जाए?"[6]

आज भी नारी चाहे कोई भी हो उसकी यातना कम होने की बजाय बढ़ती ही जा रही है। निर्मला पुतुल नारी वेदना को 'अपने घर की तलाश' कविता में कुछ इस प्रकार स्पष्ट करती है-

"धरती के इस छोर से उसे छोर तक
मुठी भर सवाल लिए मैं दौड़ती, हांफती-भागती
तलाश रही हूं सदियों से निरंतर अपनी जमीन
अपना घर अपना होने का अर्थ! ।।"[7]

आदिवासी कवित्रियों में एक महत्वपूर्ण नाम सरिता सिंह बड़ाइक है। आज की सच्चाई को अपनी कविता में व्यक्त करते हुए वे लिखती है -

"विचरते हैं अब वहां उग्रवादी वीरप्पन जैसे
छिपते फिरते हैं खंदको और खाइयो में
गूंजती है बंदूकों की ध्वनि, धधकती है पत्ती पत्ती
बमों के धुंए प्रदूषित करती वादियों को
छाया है आतंक का साम्राज्य चहुँ ओर।"[8]

इस प्रकार आदिवासियों की यातना के साथ-साथ हिंसाचार की शिकार जनता का चित्रण 'आज का जंगल' कविता में किया गया है। सरिता सिंह बडाइक ने प्रस्तुत कविता में नक्सलवाद, अलगाववादी प्रवृत्ति, सशस्त्र हिंसा के क्रूर यथार्थ को इस कविता में वाणी दी है। आदिवासी दोहरी हिंसा के शिकार है। वह पुलिस और नक्सलवादियों के बीच सशस्त्र हिंसा के साये में जीते हैं। मंजू ज्योत्सना का नाम भी आदिवासी कवयित्रियों में बड़े आदर के साथ लिया जाता है। उन्होंने अपनी कविताओं में विस्थापित आदिवासियों की समस्या को विषद किया है। विस्थापन आदिवासियों की एक महत्वपूर्ण समस्या है। आंकड़ों के अनुसार अकेले झारखंड में 10 लाख से अधिक आदिवासी विस्थापित हो चुके हैं। आज बड़े शहरों में यह विस्थापित आदिवासी घरेलू नौकर के रूप में काम करते नजर आ रहे हैं। आज इन विस्थापित आदिवासियों की स्थिति बिना जड़ वाले पेड़ की तरह हो चुकी है। उनका जंगल के प्रति मोह आज भी बना हुआ है। लेकिन एक बार शहर में बसा आदिवासी वापस गांव जाने का नाम नहीं ले रहा है। विस्थापितों की इस समस्या को मंजू ज्योत्सना ने अपनी कविता 'विस्थापित का दर्द' में कुछ इस प्रकार बयान किया है। -

"आऊंगा अगले वर्ष
कहा था बेटे ने
बार-बार कहने के बावजूद
पिछले कई वर्षों से नहीं आया था
शिकायत है उसे अब अपने गांव में
पलाश के फूल नहीं रहे
सरई के वन नहीं रहे।"

आदिवासी कवित्री रोज केर कट्टा ने भी आदिवासी कविता के क्षेत्र में अपना नाम रोशन किया है। आदिवासी कवयित्री ने इस

समुदाय की व्यथा, विडंबना और संघर्ष को वाणी दी है। उन्हें सतत क्रियाशील रह कर आगे बढ़ने की प्रेरणा दी है। तुम्हारे घर से कविता में रोज केर कट्टाजी ने यही संदेश दिया है। वे कविता में लिखती है -

"राहें है खत्म नहीं हुई।
कहीं और फासले तय करने हैं।
शायद रास्ता एक ऐसा बनाना है।
जो अब तक तय नहीं किया गया।

ऊपरी आदिवासी कवयीत्रीयों के साथ-साथ वंदना टेटे ने भी अपनी कविताओं में आदिवासी स्त्री की यातना को स्पष्ट किया है। आदिवासी स्त्री में वीरता साहस, संघर्ष, प्रेम कूटकूट कर भरा हुआ- होता है। आदिवासी कवित्री वंदना टेटे ने अपनी कविता 'औरत 1' में नारी के संघर्ष पूर्ण जीवन को इस प्रकार विशद किया है।

"कोई कोई मोर्चे पर खड़ी
लड़ रही औरत
भीड़ में अकेली अनवंरत
थकती टूटती फिर मजबूत करती खुद को खुद से।
खेतों खलियानों में
जंगल मर-भूमि में
घर में आंगन में।"[10]

आदिवासी संस्कृति ने पूरे संसार के लिए एक मार्गदर्शन का काम किया है। लेकिन आज आदिवासी कंई तरह की समस्याओं से जूझ रहे हैं। अंतः आवश्यकता इस बात की है कि आदिवासी विमर्श के द्वारा इन समस्याओं का निराकरण हो। आदिवासी कवयित्रियों ने अपनी कविता के द्वारा इन सारी समस्याओं को सामने लाने का काम किया है। आदिवासी कवयित्रीयों की कविता में आदिवासियों का संघर्ष, कठोर श्रम, विस्थापन की समस्या, सशस्त्र हिंसा, प्रदूषण, छटपटाती स्त्री को देखा जा सकता है। आज इन सब में परिवर्तन की आवश्यकता है। निर्मला पुतुल अपनी कविता में लिखती भी है -

"चाहती हूं मैं नगाड़े की तरह बजे।
मेरे शब्द और निकल पड़े लोग।
अपने अपने घरों से सड़क पर।"

नि:संदेह कहा जा सकता है कि, आदिवासी कवित्रियों की कविता हमारे लिए दिशा दर्शक है।

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ग्रामीण कृषी जीवन विकासाचे मार्ग

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गोषवारा (Abstract):-

ग्रामीण भागात कृषी उपजीविकेच्या प्रगतीसाठी एक बहुआयामी दृष्टिकोन समाविष्ट करतो यात विकास शाश्वतता आणि समाजातील समृद्धी वाढवण्याच्या उद्देशाने विविध धोरणांचा समावेश आहे या मार्गामध्ये आधुनिक शेती तंत्राचा परिचय कृषी आधारित उद्योगाना चालना देणे तंत्रज्ञान आणि माहितीची उपलब्धता वाढवणे शेतकऱ्यांमध्ये कौशल्य विकास सुलभ करणे सिंचन आणि वाहतूक यासारख्या पायाभूत सुविधांमध्ये सुधारणा करणे आणि चांगल्या आर्थिक संधीसाठी बाजारपेठेतील संबंध सुनिश्चित करणे यासारख्या उपक्रमांचा समावेश आहे

ग्रामीण कृषी जीवनावरच भारत भूमीतील मानवांचे जीवन अवलंबून आहे भारतातील ग्रामीण कृषी विकास हा देशाचा सामाजिक आर्थिक भूप्रदेशाचा एक अविभाज्य पाया आहे ज्यामुळे विविध क्षेत्रांमध्ये बहुआयामी वेतन मिळते या सर्व समावेशक परिवर्तनामध्ये देशाच्या प्रगतीवर लक्षणीय परिणाम करणाऱ्या फायद्याचा समावेश आहे आर्थिक दृष्ट्या ते उत्पादन उत्पादकता वाढवून उपजीविका निर्माण करून आणि देशाच्या जीडीपीमध्ये भरीव योगदान देऊन वाढीला उत्तेजन देते दारिद्र्य निर्मूलनाला त्याचा पाया सापडतो कारण सुधारित कृषी पद्धती असंख्य ग्रामीण कुटुंबांना उदरनिर्वाह देतात त्यांचे जीवनमान उंचावतात वाढत्या लोकसंख्येला उदरनिर्वाह सुनिश्चित करून वाढीव उत्पादन पिकांचे विविधीकरण आणि आधुनिक शेती पद्धती द्वारे अन्नसुरक्षेची रचना अधिक घट्ट केले जाते ग्रामीण शेतीमधील तांत्रिक प्रगती कार्यक्षमता खर्च प्रभावित्ता आणि वाढीव उत्पन्न भारताच्या कृषी पराक्रमाला चालना देते त्याचवेळी पायाभूत सुविधांची भरभराट होते सिंचन दळणवळण आणि साठवण सुविधांचे पालन पोषण शेतकरी आणि ग्रामीण समुदायांना मोठ्या प्रमाणावर फायदा होतो शिवाय सामाजिक आर्थिक समृद्धी बहरते कारण कृषी विकास या समुदायांना सशक्त बनवतो का शिक्षण आरोग्यसेवा यामध्ये प्रवेश वाढवतो आणि त्याची सामाजिक आणि आर्थिक स्थिती वाढवतो भारतातील ग्रामीण विकासाच्या दिशेने होणारी ही प्रगती केवळ आर्थिक समृद्धीलाच चालना देत नाही तर पर्यावरणीय शाश्वतता संसाधनाचे संवर्धन आणि पर्यावरण पूरक पद्धतीने प्रोत्साहन देते

गरीबी दूर करण्यात आणि सामायिक समृद्धी वाढविण्यात कृषी आणि ग्रामीण विकासाची भूमिका महत्त्वाची आहे जगातील तीन चतुर्थांश गरीब ग्रामीण भागात राहतात आणि बहुतेक त्यांचा उदरनिर्वाह शेतीतून करतात त्यामुळे दारिद्र्य निर्मूलनासाठी कृषी उत्पादकता वाढविणे आवश्यक आहे या व्यापक दृष्टिकोनातून ग्रामीण कृषी समुदायांची सामाजिक आर्थिक स्थिती उंचावणे त्यांना भरभराटीसाठी सक्षम बनवणे आणि कृषी क्षेत्रांच्या आणि देशाच्या सर्वांगीण विकासात महत्त्वपूर्ण योगदान देणे हे उद्दिष्ट आहे

कीवर्ड :- ग्रामीण विकास, कृषी नवोपक्रम,तंत्रज्ञानाचा अवलंब, कृषी आधारित उद्योग, शाश्वत शेती, पायाभूत सुविधांचा विकास, पर्यावरण संवर्धन

प्रस्तावना:- ग्रामीण भारतातील कृषी लँडस्केप बदलण्यासाठी आणि उन्नत करण्यासाठी डिझाईन केलेले एक व्यापक ब्लूप्रिंट आहे हा उपक्रम देशाच्या ग्रामीण विस्तारामध्ये कृषी कार्यात गुंतलेल्या लोकांच्या जीवनाचे पालन पोषण आणि प्रगती करण्यावर केंद्रित असलेल्या बहुआयामी दृष्टिकोनाचे प्रतिनिधित्व करतो यामध्ये आधुनिक शेती तंत्राचा परिचय करण्यापासून ते कृषी आधारित उद्योगांची सुविधा तांत्रिक एकात्मता शैक्षणिक सशक्तिकरण पायाभूत सुविधा वाढवणे आणि बाजारपेठेतील कनेक्टिव्हिटी सुलभ करणे अशा अनेक धोरणांचा समावेश आहे हा मार्ग आखून ग्रामीण कृषी समुदायांना सक्षम बनवणे त्यांना उत्पादकता वाढवणे त्यांची सामाजिक आर्थिक स्थिती सुधारणे आणि कृषी पद्धतीमध्ये शाश्वत वाढ सुनिश्चित करणे हे मुख्य उद्दिष्ट आहे ग्रामीण कृषी जीवन विकासाचे मार्ग एक परिवर्तनवादी दृष्टिकोन समाविष्ट करते त्याची उद्दिष्ट केवळ कृषी पद्धतीमध्ये क्रांती घडवून आणणेच नाही तर भारताच्या कृषी वारसात खोलवर रुजलेल्या लोकांचे जीवन आणि उपजीविका सुधारणे देखील आहे भारतीय ग्रामीण समाजाचा मुख्य व्यवसाय शेती आहे हा व्यवसाय इतर व्यवसायापेक्षा वेगळा व अगदी वैशिष्ट्यपूर्ण आहे शेती ही ग्रामीण लोकांची प्रमुख आर्थिक क्रिया असल्यामुळे ग्रामीण जीवनावर या आर्थिक क्रियेचा पूर्ण अभाव पडलेला आहे

अभ्यासाची उद्दिष्टे :-

1) ग्रामीण भागात पीक उत्पादन आणि एकूण उत्पादकता वाढवण्यासाठी कृषी तंत्र तंत्रज्ञान आणि पद्धती सुधारणे

2) रोजगारांच्या संधी निर्माण करण्यासाठी अन्नप्रक्रिया कृषी पर्यटन आणि कृषी उत्पादन यासारख्या शेतीशी निगडित उद्योगांच्या वाढीस प्रोत्साहन देणे

3) शेतीमध्ये कार्यक्षमता अचूकता आणि टिकाऊपणा वाढवण्यासाठी आधुनिक तंत्रज्ञान आणि नवकल्प नाना शेती पद्धतीमध्ये समाविष्ट करणे

4) शिक्षण आणि कौशल्य विकास तसेच पायाभूत सुविधांचा विकास आणि सामाजिक आर्थिक सशक्तिकरण करण्यास प्रोत्साहन देणे

5) शाश्वत कृषी पद्धतीने प्रोत्साहन देऊन नैसर्गिक संसाधनाचे संरक्षण करून पर्यावरणाचे रक्षण करणे

वरील उद्दिष्टे एकत्रितपणे ग्रामीण कृषी जीवन उन्नत करणे शेतकऱ्यांचे जीवनमान सुधारणे आणि भारताच्या कृषी क्षेत्रामध्ये शाश्वत आणि सर्वसमावेशक वाढ घडवून आणणे हे आहे

गृहीतके :-

1) आधुनिक शेती तंत्र तांत्रिक प्रगती आणि चांगल्या पायाभूत सुविधांची अंमलबजावणी केल्याने कृषी उत्पादकता वाढते

2) शैक्षणिक उपक्रम कौशल्य विकास आणि बाजारपेठेतील सुधारित प्रवेश ग्रामीण लोकसंख्येच्या सामाजिक आर्थिक विकासास हातभार लावतील

3) शेती पद्धतीमध्ये तंत्रज्ञानाचे एकत्रीकरण केल्याने कार्यक्षमता वाढेल खर्च कमी होईल आणि उत्पादनात सुधारणा होईल ज्यामुळे शेतकऱ्यांना फायदा होईल

4) शाश्वत कृषी पद्धतीनं चालना दिल्याने पर्यावरण संवर्धन नैसर्गिक संसाधने जतन आणि दीर्घकालीन पर्यावरणीय समतोल राखण्यात मदत होईल

वरील मुद्दे भारतातील ग्रामीण कृषी जीवनाचा सर्वांगीण विकास आणि प्रगतीसाठी उद्दिष्ट असलेल्या ग्रामीण कृषि जीवन विकास मार्गाच्या अंमलबजावणीच्या अंतर्गत अपेक्षित परिणाम किंवा गृहीतके स्पष्ट करतात

शोधनिबंधात महत्वाचे मुद्दे :-

ग्रामीण कृषी जीवन विकासाचे मार्ग या एका शोधनिबंधात अनेक गंभीर मुद्दे शोधले जाऊ शकतात येथे काही महत्त्वाचे मुद्दे आहेत जे अशा शोधनिबंधाचा कणा बनू शकतात

1) **प्रभाव मूल्यमापन :-** सामाजिक आर्थिक घटक कृषी उत्पादकता आणि एकूणच जीवनातील सुधारणा यांचा विचार करून ग्रामीण कृषी समुदायावर या विकास मार्गाचा प्रत्यक्ष प्रभावाचे मूल्यांकन करण्याची सखोल विश्लेषण केले जाते.

2) **तांत्रिक एकात्मता :-** या मार्गाद्वारे सादर केलेल्या तांत्रिक हस्तक्षेपाची प्रभावित आणि अवलंबन दर तपासा कृषी पद्धती आणि उत्पादकतेवर त्यांच्या प्रभावाचे मूल्यांकन केले आहे

3) **पायाभूत सुविधांची भूमिका :-** सुधारित पायाभूत सुविधांच्या भूमिकेचे मूल्यमापन करा जसे की सिंचन व्यवस्था साठवण सुविधा आणि बाजारपेठेतील संबंध कृषी उत्पादन आणि शेतकऱ्यांचे जीवनमान वाढविणे

4) **सामाजिक आर्थिक परिणाम:-** उत्पन्न निर्मिती शिक्षण आणि आरोग्य सेवा आणि ग्रामीण समुदायांचे सक्षमीकरण यासह या विकासाच्या मार्गामुळे होणारे सामाजिक आर्थिक परिणाम आणि बदल करणे आवश्यकआहे

5) **शाश्वतता आणि पर्यावरणीय प्रभाव :-** या मार्गाद्वारे सादर केलेल्या कृषी पद्धतीच्या टिकाऊ पणाच्या पैलूचे परीक्षण करा त्यांचा पर्यावरणावर होणारा परिणाम संसाधनाचे संवर्धन आणि दीर्घकालीन पर्यावरणीय समतोल यांचे विश्लेषण करणे आवश्यकआहे

6) **आव्हाने आणि मर्यादा :-** आर्थिक अडचणी तांत्रिक अडथळे आणि त्यांच्या परिणामकारकतेला बाधा आणणाऱ्या सामाजिक सांस्कृतिक पैलू सह या विकासात्मक दृष्टिकोनाची अंमलबजावणी करताना येणाऱ्या आव्हाने आणि त्यांचे विश्लेषण करणे आवश्यक आहे.

7) **धोरण परिणाम:-** ग्रामीण कृषी जीवन विकासाचे मार्ग याला समर्थन देणाऱ्या धोरणाच्या चौकटीचे मूल्यांकन करा आणि त्यांची यशस्वी अंमलबजावणी आणि प्रमाणे करण्यासाठी धोरणात्मक हस्तक्षेपंची शिफारस महत्वाची आहे.

8) **तुलनात्मक विश्लेषण:-** भिन्नता आणि सर्वोत्तम पद्धती समजून घेण्यासाठी भारतातील विविध प्रदेश किंवा राज्यांमध्ये या मार्गाच्या अंमलबजावणीतून मिळालेल्या परिणामांची आणि धड्याची तुलना करणे आवश्यक आहे.

9) **सामुदायिक सहभाग आणि सशक्तीकरण :-** ग्रामीण भागातील कृषी विकासाशी संबंधित निर्णय प्रक्रियेत समुदायांचा सहभाग तसेच सहभाग आणि सशक्तिकरण यांच्या पातळीची तपासणी करणे महत्वाची आहे.

10) **दीर्घकालीन व्यवहार्यता आणि भविष्यकालीन संभाव्यता :-** या विकासाच्या मार्गाची टिकाऊपणा आणि मापन क्षमतेचे मूल्यमापन करा आणि बदलत्या सामाजिक आर्थिक आणि पर्यावरणीय गतिशीलतेचा विचार करून त्यांच्या दीर्घकालीन व्यवहार्यतेसाठी उपाय सुचवणे आवश्यक आहे.

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वरील मुद्दे भारतातील ग्रामीण कृषी विकासाच्या संदर्भात ग्रामीण कृषी जीवन विकास मार्ग याबाबतचे परिणाम आव्हाने आणि सुधारण्याचे संभाव्य मार्ग शोधून काढणाऱ्या सर्व समावेशक अभ्यासामध्ये संशोधनाचे केंद्रबिंदू म्हणून काम करू शकतात

शिफारशी :- ग्रामीण कृषी जीवन विकासाचा मार्ग यासंबंधी काही व्यापक शिफारशी येथे आहेत

1) **तांत्रिक पायाभूत सुविधांमध्ये गुंतवणूक :-** तंत्रज्ञानाच्या पायाभूत सुविधांमध्ये गुंतवणूक वाढवा आणि ग्रामीण शेतकऱ्यांमध्ये आधुनिक शेती पद्धती आणि तंत्रज्ञानाचा उत्तम अवलंब सुनिश्चित करण्यासाठी प्रशिक्षण कार्यक्रम प्रदान करा

2) **आर्थिक सहाय्य आणि सबसिडी :-** शेतकऱ्यांना प्रगत कृषी तंत्राचा अवलंब करण्यासाठी आधुनिक उपकरणे खरेदी करण्यासाठी आणि पिकामध्ये विविधता आणण्यासाठी प्रोत्साहित करण्यासाठी आर्थिक सहाय्य अनुदाने आणि प्रोत्साहने ऑफर करा

3) **कृषी आधारित उद्योगांना प्रोत्साहन :-** अनुकूल धोरणे तयार करून प्रोत्साहन देऊन आणि कृषी उत्पादनांना मूल्य जोडण्यासाठी बाजारपेठेतील संबंध वाढवून कृषी आधारित उद्योगांची वाढ सुलभ करा

4) **शाश्वत पद्धतीवर लक्ष केंद्रित करा :-** नैसर्गिक संसाधनाचे जतन करण्यासाठी सेंद्रिय शेतीला प्रोत्साहन देण्यासाठी आणि शेतीच्या क्रियाकलापाचा पर्यावरण प्रभाव कमी करण्यासाठी शाश्वत कृषी पद्धतीचा अवलंब करण्यावर भर द्या

5) **शिक्षण आणि कौशल्य विकास :-** ग्रामीण शेतकऱ्यांसाठी तयार केलेले शैक्षणिक कार्यक्रम आणि कौशल्य विकास उपक्रमांना बळकटी द्या त्यांना आधुनिक शेती तंत्र आर्थिक साक्षरता आणि बाजारांच्या ट्रेंड बद्दल ज्ञान प्रदान करा

6) **धोरणात्मक सुधारणा :-** चांगल्या वाहतूक पायाभूत सुविधा साठवण सुविधा आणि शेतकरी उत्पादक संस्था याची स्थापना करून वाजवी किंमत सुनिश्चित करण्यासाठी आणि काढणीनंतरचे नुकसान कमी करून बाजारपेठेतील प्रवेश वाढवा तसेच अल्पभूधारक शेतकऱ्यांच्या गर्जांना प्राधान्य देणाऱ्या जमिनीशी संबंधित समस्येचे निराकरण करणाऱ्या आणि सर्वसमावेशक आणि शाश्वत कृषी विकासाला चालना देणाऱ्या धोरणात्मक सुधारणांची अंमलबजावणी करा

7) **सहयोग आणि ज्ञानाची देवाणघेवाण :-** ग्रामीण कृषी विकासासाठी ज्ञान संसाधने आणि सर्वोत्तम पद्धतीची देवाण-घेवाण करण्यासाठी सरकारी संस्था स्वयंसेवी संस्था संशोधन संस्था आणि खाजगी क्षेत्रासह विविध भागधारकांमधील सहकार्याला प्रोत्साहन द्या

वरील शिफारशीचा उद्देश तंत्रज्ञानाचा अवलंब शाश्वत पद्धती बाजारपेठेतील प्रवेश शिक्षण धोरणात्मक सुधारणा आणि सामुदायिक सहभाग यासारख्या महत्त्वाच्या घटकाना संबोधित करून ग्रामीण कृषी जीवन विकास मार्ग ची परिणामकारकता वाढवणे आणि शेवटी ग्रामीण कृषी जीवनाच्या सर्वांगीण विकासात योगदान देणे हे आहे

निष्कर्ष:- ग्रामीण भारतासाठी आशा आणि प्रगतीचा किरण म्हणून समाप्त होतो या सर्वसमावेशक रोड मॅप ने आधुनिक तंत्रे पायाभूत सुविधांचा विकास शिक्षण आणि सामाजिक आर्थिक सशक्तिकरण यांचा मिलाप करून कृषी क्षेत्रामध्ये क्रांती घडवून आणण्यासाठी क्षमता दर्शविली आहे शाश्वत कृषी वाढ आणि एकूण ग्रामीण विकासासाठी शेतकरी आणि ग्रामीण समुदायाचे जीवन उन्नत करण्याच्या उद्देशाने त्याचा सर्वांगीण दृष्टीकोन महत्त्वपूर्ण आहे या परिवर्तनीय प्रवाशाचा समारोप होताच तो एक अमित छाप सोडतो जो कृषी क्षेत्रात गुंतलेल्यांना सक्षम बनवण्याच्या महत्त्वावर भर देतो ज्यामुळे लवचिकता समृद्धी आणि भारताच्या मध्यभागी एक आशादायक भविष्य निर्माण होते

संदर्भ:-

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प्रस्तावना :

भारत हा कृषीप्रधान अर्थव्यवस्था असलेला देश म्हणून ओळखला जातो. देशाच्या अर्थव्यवस्थेत शेतीचे स्थान अतिशय महत्त्वपूर्ण आहे. वाढत्या आर्थिक विकासाबरोबर शेतीवरील लोकसंख्येचे अवलंबित्व कमी होत जाणे हे जरी खरे असले तरी ही अवस्था साध्य करण्याकरीता शेती क्षेत्राची मदत आवश्यक असते. १९७९ मध्ये थिओडोर शुल्झ यांना विकासात्मक अर्थशास्त्रासाठी नोबेल पारितोषिक मिळाले. या विकासाचा महत्त्वाचा पाया म्हणून सर्वप्रथम त्याने कृषी क्षेत्राच्या महत्त्वाची जाणीव करून दिली. युनोच्या Food and Agriculture Organisation च्या अहवालानुसार फळे, दूध, चहा, मसाले, ज्यूट, उत्पादन करणारा भारत अव्वल देश आहे. गहू आणि तांदूळ उत्पादनात भारत दुसऱ्या क्रमांकाचा देश आहे. भारतासारख्या देशात GDP मध्ये १८.९८% वाटा असणारे कृषीक्षेत्र ६४% लोकसंख्येला रोजगार पुरविते. त्यामुळे कृषीक्षेत्र देशात महत्त्वाची सामाजिक आणि आर्थिक भूमिका पार पाडते हे लक्षात येते. जपानसारख्या वेगाने विकसीत झालेल्या देशात सुद्धा शेतीने विकास प्रक्रियेला हातभार लावला आहे. देश विकसीत झाला तरी वाढत्या लोकसंख्येची अन्नधान्याची आणि विविध उद्योगांची कच्च्या मालाची गरज हेच क्षेत्र पूर्ण करते. भारताच्या एकूण निर्यातीत कृषीक्षेत्राचा वाटा साधारणतः ९.९% इतका आहे.

भारताचा जवळजवळ ७०% भाग हा ग्रामीण भाग आहे. ३०% भाग शहरी आहे म्हणून भारताचा सर्वांगीण विकास ग्रामीण भागाच्या विकासावर आधारीत आहे. ग्रामीण भागाचा विकास झाला तरच भारताचा एकूण विकास होणार आहे. ग्रामीण भागातील लोकांचा प्रमुख व्यवसाय शेती हा आहे म्हणून ग्रामीण विकासात शेतीचे योगदान किंवा भूमिका महत्त्वाची आहे. कृषी पर्यटनाच्या माध्यमातून ग्रामीण भागातील शेतकर्यांच्या आर्थिक प्रगती करण्यास संधी प्राप्त होईल.

शोध निबंधाचे उद्दिष्टे : प्रस्तुत शोध निबंधाचे पुढील उद्दिष्टे निश्चित करण्यात आली आहे.

१) शेती विकासात कृषीपर्यटनाचे महत्त्व अभ्यासणे.

२) कृषीपर्यटन व शेती विकास यांच्यातील सहसंबंध तपासणे .

३) कृषीपर्यटन व्यवसायामुळे निर्माण झालेल्या रोजगार संधीचा अभ्यास करणे.

संशोधन पद्धती : प्रस्तुत संशोधनासाठी संशोधक संशोधन कार्यासाठी सर्वेक्षण पद्धतीचा वापर करणार आहे. प्रस्तुत संशोधनासाठी माहिती संकलन करतांना संशोधकास संख्याशास्त्राच्या वेगवेगळ्या पद्धतींचा वापर करावा लागतो. त्यासाठी योग्य माहिती संकलित करावी लागते. अश्या माहितीच्या संकलनासाठी पुढील पद्धतींचा वापरल्या जातात.

अ) प्राथमिक स्रोत :

प्राथमिक स्रोत/ सामग्री हा महत्वाचा तथ्य संकलनातील भाग आहे. प्राथमिक स्रोत/ सामग्री स्वतः संशोधकाने एकत्रित केली आहे. त्यामुळे हि माहिती अधिक वस्तुनिष्ठ आहे. प्राथमिक स्रोत/ सामग्रीमध्ये वेगवेगळे स्रोत वापरले आहेत.

ब) दुय्यम स्रोत:

कृषीपर्यटन केंद्रांचे माहितीपत्रक, कृषीपर्यटनाबाबत संदर्भपुस्तके, तसेच नियतकालिके, वर्तमान पत्रे, इंटरनेट इ. द्वारे आवश्यक ती माहिती संकलित केली.

प्राथमिक आणि दुय्यम स्रोतातून प्राप्त होणा-या माहितीवरून विश्लेषण करून अभ्यासअंती -निष्कर्ष, मार्गदर्शक सूचना, तत्वे, समस्यावरील उपाय योजना इ. बाबी सुचविण्याचा प्रयत्न केला आहे.

भारताच्या ग्रामीण विकासातील शेतीची भूमिका पुढील मुद्यांद्वारे स्पष्ट करता येते.

१) उदरनिर्वाहाचे साधन ग्रामीण भागातील लोकांच्या उपजिविकेचे किंवा उदरनिर्वाहाचे साधन शेती हे आहे. ग्रामीण भागातील प्रमुख

व्यवसाय शेती हा आहे. ग्रामीण भागात औद्योगिक विकास झालेला नसतो म्हणून ग्रामीण भागातील लोक स्वतःकडे शेती असेल तर शेती करीत असतात आणि ज्यांच्याकडे शेती नाही ते दुसऱ्याच्या शेतावर कामाला जाऊन आपला उदरनिर्वाह भागवित असतात.

२) रोजगार पूरविणारे साधन ग्रामीण भागातील लोकांचे शेती हे रोजगार पुरविणारे महत्त्वाचे साधन आहे. ग्रामीण भागातील अनेक कुंटूबे आज केवळ शेतीवर टिकून आहे. शेतीच्या कामासाठी विशेष शिक्षण, प्रशिक्षणाची गरज नसते. अनुभवाच्या आधारे शेतीतील कामे करता येतात. त्यामुळे शेती क्षेत्रात अशिक्षित लोकांनाही रोजगार मिळतो. ग्रामीण भागात साक्षरतेचे प्रमाण कमी आहे. निरक्षर किंवा अल्पशिक्षित लोकांना शेतात काम मिळून त्यांचा रोजगाराचा प्रश्न मिटतो.

३) दारिद्र्य निर्मूलन - ग्रामीण भागातील लोकांचे दारिद्र्य दूर करण्यात शेतीची भूमिका महत्वाची आहे. शेती क्षेत्रात कुणालाही काम मिळते. कोणत्याही वयोगटातील लोक शेतीची कामे आपल्या वयानुसार करु शकतात. ७-८ वर्षाच्या मुलापासून ते ८०-९० वर्षाचे वृध्द आपल्या परीने शेती कामांचा भार उचलत असतात. तसेच शेतीची कामे करण्यासाठी विशेष शिक्षणाची गरज नसते त्यामुळे संपूर्ण कुटूंबाला शेती क्षेत्रामुळे रोजगार मिळतो. तसेच शेतातून मिळणारा लाकूड फाटा, कचरा, पिकांचे अवशेष यातून शेतमजूर कुटूंबाचा इंधनाचा खर्च भागतो. भाजीपाला, धान्य यावरील खर्च वाचतो अशा रितीने शेतमजूरांना रोज कमी मिळत असला तरी त्याला बऱ्यापैकी जीवनमान जगता येते.

४) पूरक व्यवसाय - शेतीच्या आधारे शेतकरी कुटूंबाला अनेक जोड व्यवसाय किंवा पूरक व्यवसाय करता येतात. लहान शेतकऱ्यांच्या दृष्टीने हे पूरक व्यवसाय महत्वाचे असतात. कुक्कुटपालन, दुग्धोत्पादन, गाडी भाड्याने देणे, भाजीपाला, फुले, फळे यांची लागवड करुन विक्री करणे यासारख्या पूरक व्यवसायातून शेतकऱ्यांना आर्थिक हातभार लागतो.

५) कच्च्या मालाचा प्रमुख स्रोत: साखर, कापड, ताग, यासारख्या उद्योगांना आवश्यक असणारा कच्चा माल शेतीतूनच पुरविला जातो. यादृष्टीने औद्योगिक विकास शेतीवरच अवलंबून आहे. म्हणून शेतीला उद्योगाचा आधार म्हणतात.

६) अन्नोत्पादन : देशातील एकूण लोकसंख्येपैकी ३/४ लोकसंख्येला अन्नपुरवठा शेतीतून होतो. शिवाय भारतातील पशूना आवश्यक असणारा चारा (खाद्य) शेतीतूनच प्राप्त होते.

७) जमीनीचा सर्वाधिक उपयोग : देशाच्या एकूण ३२.८८ कोटी हेक्टर जमिनीपैकी १६.३८ कोटी हेक्टर म्हणजे ५३.८ टक्के जमीन शेती लागवडीखाली आहे. म्हणजेच जमिनीच्या उपयोगाच्या दृष्टीने भारतीय अर्थव्यवस्थेत शेतीचे महत्त्वपूर्ण स्थान आहे.

८) विदेशी व्यापारात महत्त्व : आयात आणि निर्यात अशा दोन्ही दृष्टीने भारतीय विदेशी व्यापारात शेतीचे महत्त्वाचे स्थान आहे. १९७४-७५ मध्ये देशातील एकूण निर्यातीत ४३ टक्के वाटा शेती उत्पादनाचा होता तर आयातीत त्याचा वाटा ३४ इतका होता.

९) आर्थिक विकासात महत्त्व : देशाच्या आर्थिक विकासात राष्ट्रीय उत्पन्नात बाढ करणे हे उद्दिष्ट असते. त्याव वाढ करण्यासाठी कृषी उत्पादनात वाढ करणे आवश्यक असते. शिवाय कृषी क्षेत्र अन्य उद्योगांच्या विकासाला चालना देत असल्याने त्याक विकास करणे आवश्यक आहे. अशाप्रकारे कृषी क्षेत्राचे आर्थिक विकासात महत्त्वाचे स्थान आहे.

भारतात शेतीमध्ये यांत्रिकीकरणात वाढ होत आहे. त्याचप्रमाणे काही नवीन तंत्रज्ञानाचा वापर करण्यात येत आहे.

१) मोबाईल ॲप : इंटरनेटद्वारे माहिती मोबाईल ॲपने मिळविली जात आहे. शेती विषयक पीक, जमीन, हवामान, तंत्रज्ञान, बाजारपेठ, शेतमाल किंमती, खते, औषधे यासाठी शेतकऱ्यांमध्ये स्मार्ट फोनचा व मोबाईल ॲपचा वापर वाढला आहे. शेती आधारीत अनेक ॲप बनविले जात आहे व त्याचा शेतकरी सल्ला, मार्गदर्शन व माहितीसाठी वापर करू लागले आहे. हे ॲप इंग्रजी व स्थानिक भाषेत माहिती उपलब्ध करून देतात.

२) ग्रीन हाऊस : हवामान नियंत्रित करून विविध भाजीपाला व फुले यांचे उत्पादन घेतले जात आहे. अवकाळी पाऊस, गारा, हवामान बदल यामुळे उघड्यावरील शेती पेक्षा तात्पुरते किंवा पक्के शेडनेट व ग्रीन हाऊस शेतीकडे कल वाढत आहे. उघड्यावरील शेती उत्पन्नाचा ८९२ अधिक उत्पन्न ग्रीन हाऊस मध्ये घेता येत आहे.

३) माती व जल सेन्सर तंत्रज्ञान : सर्वात तात्काळ व प्रभावी उपकरण म्हणजे माती व जल सेन्सर होय. सेन्सर हे जमिनीतील आर्द्रता, नायट्रोजन पातळी ओळखू शकतात. त्यामुळे शेतात पूर्व निधारीत वेळापत्रकाप्रमाणे पाणी व खते, औषधे देण्यापेक्षा यांचा वापर नेमका कधी करावा यासाठी सेन्सर तंत्रज्ञान हे उपयुक्त आहे.

४) व्यापक संचालन : शेतीला पाणी देण्यापासून तर ठिबक सिंचन, फवारणी इ. कामे संगणक व इंटरनेटच्या माध्यमातून रोबोटिक्स तंत्रज्ञानाचा वापर केला जाऊ शकतो. तसेच वर्टिकल फार्मिंग तंत्रज्ञान येऊ घातले आहे. हा शहरी शेतीचा एक भाग आहे. उभ्या स्टेक्डलेयरमध्ये अन्न तयार करणे. मोठ्यामोठ्या रॅकमध्ये ट्रे मध्ये भाजीपाला पिकांचे उत्पादन घेता येणार आहे. अशा प्रकारे ताजे अन्न कमी किंमतीला उपलब्ध होईल. तथापि उभी शेती (वर्टिकल फार्मिंग) केवळ शहरी भागापुरती मर्यादित न राहता. उपलब्ध क्षेत्राचा चांगला वापर ग्रामीण भागात सुद्धा होईल.

शेती या प्राथमिक व्यवसायाबरोबर कृषी पर्यटन हा तृतीय क्षेत्रातील व्यवसाय शेतकऱ्यांना पूरक व्यवसाय बनला आहे. कृषी

पर्यटन म्हणजे कृषी जीवन अनुभवण्यास प्रोत्साहन देणे होय. कृषी पर्यटन स्थळी अनेक उद्योग प्रक्रिया केंद्र, हरितगृह नर्सरी, इमूपालन, वाईनरी प्रकल्प, गुन्हन्हाळ प्रकल्प यासारखे प्रकल्प राबविता येतात. तसेच कृषी पर्यटनामुळे यातील संस्कृतीचे जतन केले जाते. त्या अनुषंगानेच २००५ मध्ये भारतात ॲग्री टुरिझम डेव्हलपमेंट कार्पोरेशन ही संस्था स्थापन झाली. या संस्थेच्या माध्यमातून बरेचसे शहरी पर्यटक स्थानिक शेतकरी व कुशल कारागीर यांना एकत्र आणले जाते.

महाराष्ट्र हे भारतातील प्रमुख पर्यटन केंद्रांपैकी एक आहे. महाराष्ट्रमध्ये कृषी-पर्यटन विकसित करण्याची मोठी संधी व क्षमता आहे. कृषी* पर्यटनाच्या वाढत्या प्रस्थामुळे पर्यटनाला तर चालना मिळतेच, पण त्यामुळे कृषी क्षेत्रालाही फायदा होऊ शकतो. लोकांना, नवीन पिढीला शेतक-याचं जीवन, त्यांचे कष्ट जवळून पहायला, अनुभवायला मिळतात. शेतक-याविषयी त्यांच्या मनात आदराची भावना निर्माण व्हायला मदत होते. शेतक-यानाही आपल्या शेतीला जोडून आर्थिक उत्पन्नाचं एक साधन निर्माण होत आहे. लहान क्षेत्र असलेले शेतकरी एकत्र येऊन सगळ्यांच्या जमिनीचा योग्य तो वापर करून लोकांसाठी पर्यटनाचा पर्याय निर्माण करु शकतात. कृषीपर्यटनामुळे निर्माण होणाऱ्या रोजगाराच्या, शेतक-याच्या आर्थिक विकासाच्या शक्यता लक्षात घेऊन राज्य तसेच केंद्र सरकारच्या कृषी खात्याकडूनही कृषी पर्यटनाला उत्तेजन मिळत आहे.

कि वर्ड (key keywordword) – शेती विकास, कृषीपर्यटन

कृषीपर्यटन- अर्थ आणि व्याख्या –

शेती व्यवसायाला जोड व्यवसायाची साथ देऊन उत्पादनात भर घालता येणारा प्रकल्प म्हणजे 'कृषी पर्यटन'. कृषी पर्यटन हा पर्यटनाचा नवीन चेहरा झाला आहे. कृषी पर्यटनातून ग्रामीण विकास आणि ग्रामीण विकासातून महाराष्ट्राचा विकास घडवून आणणे शक्य झाले आहे. उदा. ऑस्ट्रेलीयासारख्या विकसित देशाच्या अर्थव्यवस्थेचा पाया कृषी पर्यटन आहे.

व्याख्या :-

'कृषीपर्यटन' म्हणजे "एक प्रवास जो कृषी किंवा ग्रामीण संस्कृतीचा मिलाफ करतो. त्यातून कृषी क्रियांची उत्पादने सर्व कृषीपर्यटकांना पर्यटनाच्या माध्यमातून अनुभवता येतात." श्री. पांडुरंग तावरे (मुख्य प्रवर्तक) **'कृषीपर्यटन विकास कॉर्पोरेशन'** (एटीडीसी, पुणे)

शेतीतील उत्पन्नास आलेली मर्यादा विचारात घेता शेतीपूरक व्यवसायांना चालणा देणे आता गरजेचे झाले आहे. नैसर्गिक डोंगर, दऱ्या खोऱ्यात वसलेली गावे, गड-किल्ल्यांचा परिसर, निसर्ग रम्य पठारे, वनसंपदा, सागरी किनारा, धार्मिक स्थळातील कलाकुसर अशी विविध संपन्नता लाभली आहे. यासाठीच महाराष्ट्रात कृषी पर्यटन वाढीसाठी भरपूर संधी आहेत. महाराष्ट्राची लोकसंख्या ११.२४ कोटी आहे. त्यातले ४५.२ टक्के लोक हे शहरांत राहतात. यातील ७३ टक्के जनता ही ग्रामीण भागात पर्यटनास जाऊ इच्छिते. यामुळे कृषी पर्यटन व्यवसायास वाढीस भरपूर वाव आहे. अगदी थोड्या जागेत कमीत कमी गुंतवणुकीत शेतकरी पर्यटन उद्योग सुरू करू शकतो. कृषी पर्यटनामुळे कृषी आणि सेवा ही दोन क्षेत्रे एकमेकाशी जोडली जाऊ शकतात. शेतमाल उत्पादनांना बाजारपेठही मिळू शकते. यातून रोजगार, ग्रामीण विकास, संस्कृती संवर्धन होऊ शकेल. शहरातील पैसा ग्रामीण भागात येऊ लागल्याने विकासाचा समतोलही राखला जाईल.

२००५ नंतर महाराष्ट्रात कृषी पर्यटन विकास

शेतीचा काही भाग जाणीवपूर्वक पर्यटनाच्या दृष्टीने विकसित करणे म्हणजे कृषी पर्यटन. भारतात सर्वप्रथम १९७० च्या दरम्यान बारामती येथे कृषितज्ज्ञ अप्पासाहेब पवार व त्यांच्या सहकाऱ्यांनी कृषी पर्यटन विकास महामंडळाची स्थापना केली. पण राज्यात २००५. नंतर खऱ्या अर्थाने कृषी पर्यटनास चालना मिळाली. इंटरनेट आणि आयटीचा विकास झपाट्याने झाल्यानंतर आठवड्याची सुट्टी घालवण्यासाठी शहरातील नोकरदार लोक ग्रामीण भागात येऊ लागले. २००५ मध्ये फक्त दोनच कृषी पर्यटन केंद्रे होती. पण जसा शहरात औद्योगिक विकास झाला तसा ग्रामीण भागाकडे पर्यटन म्हणून पाहण्याचा दृष्टिकोन वाढू लागला.

कृषी पर्यटनातून ग्रामीण विकास आणि ग्रामीण विकासातून महाराष्ट्राचा विकास हे उद्दिष्ट समोर ठेवून २००८ मध्ये महाराष्ट्र राज्य कृषी व ग्रामीण पर्यटन सहकारी महासंघाची (मार्ट) स्थापना करण्यात आली. त्यानंतर खऱ्या अर्थाने महाराष्ट्रात कृषी पर्यटन ही नवी संकल्पना उदयाला आली. २०१० मध्ये राज्यात ८० कृषी पर्यटन केंद्रे कार्यरत होती. पडिक जमिनीचा विकास व उत्पन्नाचा नवा स्रोत म्हणून याकडे पाहीले गेले. ग्रामीण निसर्ग सौंदर्य व संस्कृती संवर्धनाच्या दृष्टीने पर्यटनास चालना देण्यात आली. त्यामुळे २०१३ मध्ये राज्यात १२५. केंद्रे सुरु झाली. आता २०१९ मध्ये ही संख्या ३०० च्यावर गेली आहे.

मार्टने भौगोलिक विचार करून कृषी पर्यटनाचे राज्यात सहा विभाग केले आहेत. त्यामुळे प्रत्येक विभागात पर्यटन केंद्रांना भेडसावणाऱ्या समस्या ह्या वेगळ्या आहेत. कृषी पर्यटन विकास महामंडळाच्या पाहणीनुसार २०१४ मध्ये ४ लाख, २०१५ मध्ये ५.३ लाख, २०१६ मध्ये ७ लाख पर्यटकांनी कृषी पर्यटन केंद्रांना भेटी दिल्या आहेत. यातून 358 लाख रुपये उत्पन्न शेतकरी कुटुंबांना मिळाले.

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महाराष्ट्र पर्यटन विकास कॉर्पोरेशन **(MTDC) – पर्यटन संचनालय** मार्फत देखील कृषीपर्यटनविकास कार्यक्रम हाती घेण्यात आला आहे. कृषीपर्यटणामुळे पर्यटनविकास आणि पर्यावरण रक्षण या दोन्हीमुळे आर्थिक प्रगती असा तिहेरी लाभ होतो. तसेच पर्यटणामुळे विभिन्न प्रांतातील लोकांमध्ये जी सांस्कृतिक देवाणघेवाण होते त्यामुळे परस्परांमध्ये एकात्मता निर्माण होते व बंधुत्वाची भावना वाढीस लागते. **१६ मे** हा जागतिक '**कृषीपर्यटन दिन'** म्हणून साजरा केला जातो.

शेतीतील उत्पन्नास आलेली मर्यादा विचारात घेता शेतीपूरक व्यवसायांना चालणा देणे आता गरजेचे झाले आहे. नैसर्गिक डोंगर, दऱ्या खोऱ्यात वसलेली गावे, गड-किल्ल्यांचा परिसर, निसर्ग रम्य पठारे, वनसंपदा, सागरी किनारा, धार्मिक स्थळातील कलाकुसर अशी विविध संपन्नता लाभली आहे. यासाठीच महाराष्ट्रात कृषी पर्यटन वाढीसाठी भरपूर संधी आहेत. महाराष्ट्राची लोकसंख्या ११.२४ कोटी आहे. त्यातले ४५.२ टक्के लोक हे शहरांत राहतात. यातील ७३ टक्के जनता ही ग्रामीण भागात पर्यटनास जाऊ इच्छिते. यामुळे कृषी पर्यटन व्यवसायास वाढीस भरपूर वाव आहे. अगदी थोड्या जागेत कमीत कमी गुंतवणुकीत शेतकरी पर्यटन उद्योग सुरू करू शकतो.

सारांश:

कृषी पर्यटनामुळे कृषी आणि सेवा ही दोन क्षेत्रे एकमेकाशी जोडली जाऊ शकतात. शेतमाल उत्पादनांना बाजारपेठही मिळू शकते. यातून रोजगार, ग्रामीण विकास, संस्कृती संवर्धन होऊ शकेल. शहरातील पैसा ग्रामीण भागात येऊ लागल्याने विकासाचा समतोलही राखला जाईल.

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सार:

दुनिया में सबसे तेज गति से बढ़ने वाला सेवा उद्योग पर्यटन समझा जाता है। पर्यटन एक ऐसी यात्रा को कहते हैं जो मनोरंजन या फुर्सत के समय का आनंद उठाने के लिए की जाती है। (Tourism is travel for pleasure, and the commercial activity of providing and supporting such travel) पर्यटन से व्यक्ति के जीवन में एक नई उमंग और उत्साह भर जाता है । जब हम किसी स्थान पर पर्यटन के लिये अर्थात भ्रमण के लिए निकलते हैं तो वहाँ की संस्कृति और जीवन के बारे में जानने को मिलता है। भ्रमण, पूर्व ऐतिहासिक काल से ही अज्ञात को खोजने के लालसा, नये और अनोखे स्थानों का अन्वेषण, हवा पानी के बदलाव, तथा नए-नए अनुभव ग्रहण करने के लिए मनुष्य को आकर्षित करता रहा। इन उद्देश्यों की पूर्ति करने वाला शब्द 'पर्यटन' भ्रमण की अपेक्षा आधुनिक संकल्पना है। जिसकी उत्पत्ति पोहले विश्वयुद्ध के बाद हुई। फुर्सत के क्षणों में वृद्धि, परिवहन के साधनों का विकास, आय में वृद्धि, नागरिकरण, औद्योगिकीकरण का विकास तथा शिक्षा में सुधार जैसे कारकों ने पर्यटन को लोकप्रिय बनाने में सहयोग दिया। पर्यटन, सामाजिक, आर्थिक विकास, रोजगार के अवसरों का सृजन तथा आय की प्राप्ति के साधन के रूप में स्थापित हो चुका है।

पर्यटन का अर्थ: पर्यटन को अंग्रेजी मे टुरिझम कहा जाता है. टुरिजम इस शब्दका जन्म, लेटिन भाषा से अवतरित हुआ है।(1) इसका मूल अर्थ यात्राचक्र होता है। लगबग. 1943 में इस शब्द का उपयोग विभिन्न जगहों की यात्रा, मनोरंजन, भ्रमण, पर्यटन तथा अनेक राष्ट्रीय व क्षेत्रों के स्थान की यात्रा करने के लिये किया गया था। आगे चल कर यात्राचक्र यह शब्द का उपयोग होने लगा। अगर कोई व्यक्ति किसी उद्देश्य से एक जगह से दूसरी जगह पर जाता है और फिर अपने मूल स्थल पर वापिस आता है, इस काल में उस व्यक्ति ने जो भ्रमण किया उसी क्रिया को यात्रा चक्र अथवा पर्यटन कहा जाता है। पर्यटन यह शब्द अट् इस संस्कृत धातू से बना हुआ है। इसका अर्थ भ्रमंती करणा है। संस्कृत साहित्य में **पर्यटन** को, आराम के लिए और ज्ञान पाने के लिए यात्रा करने के उद्देश्य से अपने निवास स्थान को छोड़ना है। **देशाटन** अन्य शब्द है जिसका अर्थ आर्थिक लाभों के लिए भ्रमण करना है। **तीर्थाटन** तीसरा समतुल्य शब्द है जिसका अर्थ धार्मिक उद्देश्य के लिए यात्रा करना है। इस प्रकार तीनों शब्द संस्कृत में पर्यटन के अर्थ और अवधारणा को अधिक अच्छे ढंग से प्रेषित करते हैं। (2) यात्रा का उद्देश्य तिनों शब्दों के बीच अंतर व्यक्त करता है। पर्यटन, मनोरंजन एवं ज्ञान हेतु, देशाटन देश से बाहर आर्थिक लाभ के लिए, तथा तीर्थाटन धार्मिक उद्देश्यों की पूर्ति के लिए की गई यात्रा के लिए प्रयोग किया जाता है।

परिभाषा: प्रो, माउंट के अनुसार, "पर्यटन का अर्थ समस्त मानवीय क्रियाओके क्षेत्र तथा समस्त प्राकृतिक पहलुओं में जिज्ञासा रखना या खोज करना है।" इससे यह स्पष्ट होता है कि पर्यटन मनुष्य के भीतर की जिज्ञासा को शांत करने की एक प्रक्रिया है।

डॉ. जेभिडिड्न के अनुसार पर्यटन एक सामाजिक आंदोलन है, जिससे आराम, विनोद, क्रेडा, एंव सांस्कृतिक आवश्यकताओं की पूर्ति होती है। इस परिभाषा से पर्यटन को सामाजिक आंदोलन बताने के साथ ही व्यक्ति के विश्राम से जोड़ते हुए उसकी ज्ञान संबंधी आवश्यकता की पूर्ति का माध्यम भी बताया गया है। स्पष्ट है की पर्यटन समाज की ऐसी क्रिया है जिससे सभी स्तरों पर व्यक्ति को लाभ होता है।

शोधकर्ता एरिक लॉस के अनुसार, पर्यटन लोगों में सूझ-बूझ और सांस्कृतिक विनिमय के क्षेत्र का निर्माता है।

लीग ऑफ नेशन ने पर्यटन को परिभाषित करते हुए कहा है, पर्यटन एक सामाजिक किया है, जिसमें व्यक्ति 24 घंटे से ज्यादा समय के लिए अन्यत्र यात्रा करता है। अर्थात यह परिभाषा यात्रा तक ही सीमित रहती है।

हुजीकर : पर्यटन उन सर्वोत्कृष्ट पहलुओं से संबंधित है, जिसमें कोई बाह्य व्यक्ति अपने निवास स्थान से दूर स्थानों पर ठहरने के लिए यात्रा करता है। उसका ऐसा स्थान पर ठहराव किसी व्यावसायिक गतिविधि से संबंधित नहीं होता है।(3)

जिवादिन जौविक: पर्यटन एक सामाजिक गतिशीलता है। जो आराम करने की भावना के साथ सांस्कृतिक आवश्यकताओं को पूरा करने के लिए किया जाता है।

फिरयूलर : 1905 मे पर्यटन को परिभाषित करते हुए बताया कि, ये वर्तमान समय की प्रमुख घटना है। यह यात्रा मनोरंजन के उद्देश्य से की जाती

है। प्राकृतिक सुंदर दृश्यों का अवलोकन करना पर्यटन का अंग होता है।

आर डीमेयर : पर्यटन मानव गतिशीलता का एक सामूहिक शब्द है। यह इससे संबंधित सभी गतिविधियों को शामिल करता है।

बरनेकर **:** पर्यटन उन सेवाओं व रिश्तों का समूह है जो गैर व्यवसायिक अथवा गैर व्यापारिक कारणों से लोगों को अपने निवास स्थान में अस्थायी तौर पर परिवर्तन करने से है।

वास्तव में पर्यटन पर्यटक की उस गतिविधि को शामिल करता है, जिसमें उसकी यात्रा अपने निवास स्थान से दूर कुछ समय के लिए अस्थायी रूप से ठहराव से संबंधित होती है। यह यात्रा या ठहराव गैर व्यावसायिक होता है। पर्यटन मानव का अपने स्थायी निवास से अन्यत्र स्थान पर रहने से संबंधित है। वर्तमान समय में पर्यटन को एक मनोरंजन क्रिया का नाम दिया जाता है। अनेक देशों में पर्यटन को वाह्य मनोरंजन यह नाम दिया गया है। वास्तव में, पर्यटन और मनोरंजन दोनों शब्दों को एक ही माना जाता है। लेकिन यह आवश्यक नहीं कि सभी पर्यटन मनोरंजन की दृष्टि से हो। मनोरंजन वह क्रिया है जिससे मानव को आराम, तनाव से मुक्ति व आमोद प्रमोद का अनुभव होता है। यद्यपि यह सुविधाएं उसे अपने स्थायी आवास पर मिल सकती है, लेकिन वह इन्हें पाने के लिए अन्यत्र ठहराव पसंद करता है। वह अपने खाली समय का उपयोग आराम के लिए करता है। एक सर्वेक्षण के अनुसार पर्यटकों की कुल संख्या का 60% आमोद प्रमोद हेतु भ्रमण करता है। पर्यटन एवं मनोरंजन खाली समय का सही उत्पाद है।(4)

पर्यटन और पर्यटक : जो व्यक्ति पर्यटन करता है वही वास्तविक रूप में पर्यटक होता है। पर्यटन और पर्यटक का परस्पर पूरक संबंध है। सामान्यतः जो व्यक्ति कम से कम एक रात्रि के लिए यात्रा करने वाले देश में ठहरते हैं, तथा जिनकी यात्रा का उद्देश्य मनोरंजन, अवकाश, स्वास्थ्य लाभ, अध्ययन, क्रीड़ा, व्यापार आदि से संबंधित होता है। विख्यात अर्थशास्त्री नोरोल के अनुसार प्रत्येक वह व्यक्ति जो विदेशों में स्थायी रूप में निर्वासित होने या रोजगार की दृष्टि के अलावा अन्य कारणों से प्रवेश करता है, तथा जो अपने अस्थायी ठहराव के दौरान इस देश में धन को व्यय करना चाहता है, 'पर्यटक' कहलाता है।

इस प्रकार कहा जा सकता है कि पर्यटन का अर्थ केवल आराम, मनोरंजन तथा आनंद तक ही सीमित नहीं है। बल्कि इसके अंतर्गत व्यापार संबंधी यात्राएं एंव अन्य समस्त किस्म की यात्राएं सम्मिलित है। जिनका वेतन युक्त रोजगार से कोई संबंध नहीं है। यात्रा विलासिता नहीं बल्कि व्यापार की आवश्यकता है, और सभी लोगों का मूल अधिकार है। पर्यटन के संदर्भ में विश्व यात्रा पर्यटन परिषद का यह कथन दरअसल पर्यटन और पर्यटकों के निरंतर व्यापक होते स्वरूप की ओर इंगित करता है।

पर्यटन पर प्रभाव डालने वाले कारक: पर्यटन को प्रभावित करने में निम्न कारक अधिक प्रभावशाली है।

1. परिवहन तकनीक
2. प्राकृतिक सौंदर्य
3. पर्यटन स्थल की ऐतिहासिकता
4. आवास सुविधा
5. आय में अतिरिक्त वृद्धि
6. आराम और मनोरंजन
7. खाली समय की उपलब्धता
8. सस्ती पर्यटन सुविधाएं
9. शैक्षिक एवं सांस्कृतिक जागरूकता
10. जनसंख्या में वृद्धि एवं नये पर्यटन स्थल

यह बात सत्य है की आधुनिक परिवहन व्यवस्था ने समय की बचत के साथ दो दूरस्थ स्थानों के बीच की दूरी कम कर दी है। इसने गतिशीलता को बढ़ावा दिया है। लेकिन इसके साथ साथ लोगों को आय में वृद्धि, उसके कार्यकुशलता में वृद्धि के कारण अतिरिक्त समय के उपलब्धि, सोच में परिवर्तन, अर्थात खाली समय का सदुपयोग आदि बातों का भी प्रभाव पड़ा है। अनेक देश अपने अपने कर्मचारियों को हॉलिडे पैकेज देकर उन्हें पर्यटन के लिए प्रोत्साहित करते हैं। यही कारण है कि वर्तमान समय में पर्यटन ने एक उद्योग का रूप ले लिया है।

पर्यटन का ऐतिहासिक विकास : ऐसा माना जाता है कि पर्यटन शब्दों का सर्वप्रथम प्रयोग 19 वीं शताब्दी में किया गया। लेकिन इस कथन को नहीं झुठलाया जा सकता कि भारतीय पर्यटन उतना ही पुराना है जितनी पुरानी इसकी सभ्यता। पुरातत्व प्रमाण से इस बात की पुष्टि होती है कि, ई.सा.पूर्व 3000 से 1500 वर्ष को हड़प्पा के लोग सुमेर व फारस की खाड़ी स्थित कस्बों से व्यापार करने के लिए नियमित यात्राएं करते थे। वैसे भी प्रमाण मिले हैं कि, हड़प्पा के लोगों ने अनेक देशों की यात्रा की। उन्होंने नदियों का प्रयोग आने-जाने में किया। मेसोपोटामिया में हड़प्पा की मुद्राओ का मिलना इस बात का संकेत करता है कि, भारत और इराक के बीच व्यापारिक संबंध थे। इस प्रकार प्राचीन समय में भारत

व्यापारिक यात्राओके लिए पहचाना जाता था।(6)

वैदिक काल में आर्ये लोग भारत में आए। इन्हे मध्य एशिया में बदलती जलवायु व रहने की सुविधाओं में आने वाली कठिनाइयों के कारण भारत आना पड़ा। इन्होंने घोड़ों व रथों का प्रयोग अपनी यात्रा मे किया। वैदिक ग्रन्थों में समुद्री यात्राओं का वर्णन आता है। जो संकेत करता है कि उस समय समुद्री यात्रा का अस्तित्व था। महाभारत में पांडवों की यात्राओ का वर्णन मिलता है। रामायण ग्रंथ में भी भगवान राम की यात्राओ का वर्णन आता है।

प्रारंभिक काल में पर्यटन यात्राएं : ईसा पूर्व 563 में गौतम बुद्ध का जन्म कपिलवस्तु में हुआ था। उन्होंने 29 वर्ष की अवस्था में अपना घरबार छोड़कर 12 वर्ष तक चिंतन किया और उन्हें बोधगया में पीपल के वृक्ष के नीचे 41 वर्ष की आयु में ज्ञान प्राप्त हुआ। (7) इसके पश्चात वह लगभग 40 वर्ष तक बौद्ध धर्म के आदर्श व संदेशों का प्रचार करने के लिए दूर दूर विभिन्न स्थानों पर घूमते रहे। यही कारण है कि सारनाथ, कुशीनगर, कौशाम्बी, नालंदा, गया बौद्ध धर्म के केंद्र के रूप में विकसित हो गयें।

भगवान महावीर का जन्म ईसा पूर्व 540 में हुआ था, वह भी 30 वर्ष की अवस्था में तपस्वी बन गये और अपने साधना से आत्मज्ञान प्राप्त किया। इसके बाद उन्होंने जैन धर्म का प्रचार किया व अनेक राजधानी नगरों की लगातार 12 वर्षों तक यात्राएं की। इससे धार्मिक यात्रा ओं को बल मिला।(8)

ग्रीक शासक ने जब भारत पर आक्रमण का निश्चय किया तब इस उद्देश्य से अलेक्जैंडर महान ने 326 ईसा पूर्व में भारत की यात्रा की। (9) इसके कारण यूरोप के साथ भारत के सीधे संपर्क बने। इससे भारत और यूरोप के मध्य स्थल व जल मार्गों का विकास हुआ। अनेक ग्रीक व्यापारियों, शिल्पकारों ने भारत की यात्रा की। इससे यात्रा और व्यापार सुविधाओं का विस्तार हुआ। चंद्रगुप्त मौर्य ने तो उसके अधीन नगरों को सड़कों से जोड़ा था। इससे देश के भीतर यात्रा करना सुगम हो गया। इस काल में अनेक विदेशी यात्रियों ने पाटलिपुत्र राजधानी नगर की यात्राएं भी की थी। इन यात्रियों के लिए सुविधाओं का विशेष ध्यान रखा जाता था। मैगस्थनीज ऐसा ही एक ग्रीक देश का यात्री था जो चंद्रगुप्ता के राजदरबार में रहता था। उसने मोर्य की राजधानी का विस्तृत वर्णन इंडिका ग्रंथ में प्रस्तुत किया। सम्राट अशोक के शासनकाल में आनेक यात्राएं शांति एवं सद्भावना की दृष्टि से की गई। उसने मध्य एशिया के अनेक देशों में। अपने धर्मदूत भेजे।(10) जिन्होंने बौद्ध धर्म का प्रचार किया। सम्राट अशोक ने ग्रीक राजधानी के साथ साथ अनेक नगरों में शांति के दूतों को भेजा। अशोक ने स्वयं भी 256 दिन तक लगातार धार्मिक भ्रमण किया। उसने यात्रियों व तीर्थयात्रियों के लिए धर्मशालाओं, सड़कों और कुओं का निर्माण भी करवाया था। दूसरी शताब्दी में रेशम मार्ग जो चीन व रोम के बीच विकसित था। वह भारत-अफगानिस्तान-ईरान होते हुए, पश्चिम एशिया के देशों को जोड़ने वाला रेशम मार्ग बन गया।

गुप्तकाल: गुप्त शासकों ने पर्यटकों को बढ़ावा देने में अपना बहुमूल्य योगदान दिया। इसी गुप्त काल को स्वर्ण युग के नाम से भी जाना जाता है। इसी काल अजन्ता गुफाओं की रचना हुई।(11) जिनमें गौतम बुद्ध की जीवन काल की प्रमुख घटनाओं को चित्रित किया गया। नालंदा विश्वविद्यालय में भी बौद्ध धर्मों से संबंधित स्तूपों का निर्माण किया गया। इसी काल में मूर्ति पूजा का प्रचार बढ़ा तथा अनेक उत्सवों का आयोजन किये जाने लगा। चंद्रगुप्त द्वितीय के समय में चीनी यात्री फ़ाहियान भारत आया। उसने चन्द्रगुप्त साम्राज्य के लोगों की जीवनशैली पर विषद वर्णन प्रस्तुत किया है। इससे चीन व समीपवर्ती देश के लोगों की भारत यात्रा के बारे में रुचि जागृत हुई। एक अन्य चीनी यात्री ह्यु-एन-त्सग ने हर्षवर्धन के शासनकाल में भारत की यात्रा की, वह भारत में लगभग 17 वर्ष तक रहा। उसने नालंदा विश्वविद्यालय में बौद्ध धर्म का गहन अध्ययन किया तथा अनेक भव्य ग्रंथों का संग्रह किया। इसकी यात्रा ने भारत और चीन के बीच धार्मिक यात्राओं को प्रोत्साहित किया।(12)

मध्यकालीन युग में लोगों की धर्म के प्रति रुचि बढ़ी। और वह धार्मिक स्थलों की यात्रा के लिए प्रोत्साहित हुए। इस देश के विभिन्न भागों में मंदिर, मठ, तपोवन और आश्रम का निर्माण किया गया। इन धार्मिक स्थलों व उनके निकट ठहरने, भोजन व चिकित्सकीय सुविधाओं को विकसित किया गया। इस समय के साथ यह धार्मिक पर्यटन स्थल शिक्षा और ज्ञान के केंद्र बन गए। गया,हरिद्वार का उदाहरण इस बात की पुष्टि करता है। उत्तर भारत में कुशीनगर, अयोध्या, प्रयाग, काशी, मथुरा, हस्तिनापुर, यह तीर्थ पर्यटन स्थल है।

उत्तर भारत में राजपूत राजाओं ने पर्यटन के विकास में अपना महत्वपूर्ण योगदान दिया है। उन्होंने भारतीय संस्कृति का प्रचार किया। अनेक स्थानों पर भव्य इमारतों के रूप में किले, महल, मंदिर निर्माण कराया। जहाँ विशेष रूप से पर्यटकों की आवाजाही बढ़ गई। इस अवधि में भव्य मंदिरों का निर्माण हुआ। कोनार्क का सूर्य मंदिर जो वास्तु कला की दृष्टि से आज भी श्रेष्ठ है। इस तरह भुवनेश्वर में स्थित लिंगराजा मंदिर, पुरी का जगन्नाथ मंदिर, उत्तर भारत में मथुरा, वाराणसी और दिलवाड़ा मंदिर भी ऐसे मंदिर हैं जो पर्यटकों को अपने ओर आकर्षित करते हैं।(13)

मुगल काल में पर्यटन : 12 वीं शताब्दी के अंत में भारत में मुस्लिम साम्राज्य का आगमन हुआ। मुस्लिम शासकों के समय कुतुब मीनार का निर्माण अल्तमश ने कराया। यह सूफी संत कुतुबुद्दीन बख्तियार काकी की स्मृति में बनाया गया है। इस कुतुब मीनार पर पर्यटकों को आकर्षित करने के लिये मोहम्मद बिन तुगलक ने इस के समीप आराम घरों का निर्माण कराया। दिल्ली से दौलताबाद को सड़क मार्ग से जोड़ा गया। मोरोंको इस देश से आया हुआ इब्न बतूता नामक प्रवासी भारत में आया और मोहम्मद तुगलक के मेहमान के रूप में भारत में आठ वर्ष रहा। 13 वीं और

14 वीं शताब्दी में भारत के विदेशी व्यापार में काफी बढ़ोतरी हुई। यहाँ से सोना, चांदी और वस्त्रों का निर्यात बड़े पैमाने पर पश्चिमी एशिया के देशों को होने लगा।

पानीपत युद्ध में इब्राहिम लोधी को हराकर बाबर देश का पहला मुगल शासक बना। उसने लाहौर व आग्रा नगरों में अनेक उद्योगों को प्रोत्साहित किया। इसके साथ ही देश के अन्य भागों में भी उद्योगों की स्थापना, पर्यटन को बढ़ावा देने में अपना योगदान दिया। बाबर के बेटे हुमायूँ ने देश पर शासन किया। उसकी याद में दिल्ली में हुमायूँ की कब्र का निर्माण किया गया। यह मकबरा आज भी पर्यटकों के आकर्षण का केंद्र है। हुमायूँ को हराकर शेरशहा दिल्ली का शासक बना। उसने भारत देश में पर्यटन को बढ़ावा देने के लिए अनेक रचनात्मक कदम उठाए। शेरशाह ने पेशावर से पश्चिम बंगाल के सोनार गांव को जोड़ने वाली सड़क का निर्माण किया। सम्राट अकबर जब शासन में आया तो उसने पर्यटन को बढ़ावा देने के लिए बहुत सारे कदम उठाए। उसने आग्रा और फतेहपुर सीकरी में भव्य किलों का निर्माण कराया। फतेहपुर सीकरी के इस किले के मुख्य दरवाजे को बुलंद दरवाजा कहा जाता है। वह दरवाजा 54 मीटर ऊंचा है। इसके साथ ही आग्रा शहर में लाल बलुआ पत्थर से लाल किला बनाया गया। इन वास्तुओं को देखने के लिए आज भी हजारों पर्यटक उस स्थल पर जाते रहते हैं। अकबर के बाद जहांगीर ने अपनी बेगम नूरजहाँ की याद में कश्मीर के श्रीनगर में शालीमार बाग का निर्माण कराया। शाहजहाँ ने मुगल शासन के रूप में गद्दी प्राप्त की। उसी ने ताजमहल का निर्माण कराया जो मुगल वास्तुकला का उत्कृष्ट उदाहरण है। इसी के कारण भारत में विदेशी पर्यटकों का इतनी अधिक संख्या में आगमन रहता है। शाहजहाँ ने आग्रा के लाल किला के मोती मस्जिद तथा दिल्ली में लालकिला एवं जामा मस्जिद का निर्माण कराया था, जो आज सभी पर्यटकों के आकर्षण का केंद्र है। (14) दिल्ली का चांदनी चौक शाहजहाँ की देन है। यहाँ भारतीय शिल्प कला का उत्तम नमूना मिलता है। अता स्पष्ट है कि मुगल भारत में सड़क मार्गों का विकास विदेशों से व्यापारिक रिश्तों की स्थापना, सराय का निर्माण, भव्य महलों, किलो का निर्माण आदि के कारण सभी प्रकार के पर्यटकों को बढ़ावा मिला। इनकी कृतियाँ वर्तमान समय में घरेलू व विदेशी दोनों प्रकार के पर्यटकों के लिये आकर्षण का केंद्र रहा है।

भारतीय पर्यटन पर यूरोपीय व्यापारियों का प्रभाव: सन 1498 में वास्कोडिगामा नामक पुर्तगाली यात्रा ने समुद्री मार्ग के रास्ते भारत की धरती पर कदम रखा। उसका यह कदम भारत को दुनिया से जोड़ने के लिए मील का पत्थर साबित हुआ। पोर्तुगालियों ने भारत में मसालों का व्यापार प्रारंभ किया। कुछ समय पश्चात अंग्रेज और डच लोगों ने पोर्तुगालियों का अनुसरण करते हुए भारत में अपने व्यापारिक कार्यालय स्थापित किए। 1664 में फ्रांसीसी लोगों ने भी भारत में ईस्ट इंडिया कंपनी की स्थापना करते हुए कलकत्ता के निकट चंद्र नगर और दक्षिण में पाँडेचरी में की थी। जब ब्रिटिश और फ्रांसीसी ईस्ट इंडियन कंपनियों में परस्पर संघर्ष बढ़ गया तब ऐसी दशा में दोनों ने समझौता करते हुए फ्रांसीसी ईस्ट इंडिया कंपनी को ब्रिटिश ईस्ट इंडिया कंपनी में मिला लिया। इससे ब्रिटिश लोगों के ताकत बढ़ी और उन्होंने बंगाल मे नवाब सिराजुद्दौला को हराकर भारत में राजनीतिक ताकत हासिल की। (15) ब्रिटिश सरकार ने अपने इस शासन काल में पर्यटन को बढ़ावा देने के लिए निम्न महत्वपूर्ण कदम उठाए।

1. **रेल मार्गों की स्थापना** : 1853 में प्रथम रेल मार्ग मुंबई से थाने के बीच स्थापित किया गया। धीरे धीरे देश के प्रमुख नगरों को रेल मार्गों से जोड़ने के साथ साथ उन्हें समुद्री बंदरगाह नगरों से जोड़ा गया। जिससे विदेशी पर्यटकों का भारत में आना तथा पर्यटन स्थलों की यात्रा करना सुगम हो गया।(16)
2. **संचार सेवाओं का विकास** : 1853 में ब्रिटिश सरकार ने डाक व तार सेवा की स्थापना की, प्रथम तार लाइन कलकत्ता से आग्रा के बीच स्थापित की गयी।(17)
3. **वायु सेवाओं का विस्तार :** 1924 मे भारत में पहली बार वायु सेवाओं का विस्तार किया गया। 1924 से 53 के दौरान देश में अनेक वायु सेवाओं की उपलब्धता बढ़ाने से पर्यटन क्षेत्र में भारी प्रगति हुई। विदेशी पर्यटकों को आकर्षित करने में इनका विशेष योगदान रहा।
4. **बृहत् उद्योगों की स्थापना:** देश में बड़े बड़े उद्योगों के स्थापन को प्रोत्साहन मिलने से व्यापारिक गतिविधियों के विकास को अवसर मिला। देश में विदेशी लोग व्यापार के साथ साथ कुशल कार्यकर्ता के रूप में आने लगे। इसमें पर्यटन को अप्रत्यक्ष रूप से बढ़ावा मिला।
5. **होटल की स्थापना :** होटल पर्यटन का सबसे आवश्यक अंग है। 20 वीं शताब्दी के तीसरे दशक में पंचतारा होटलों के निर्माण को सरकार ने प्रोत्साहन दिया। इस श्रृंखला में टाटा समूह ने मुंबई में ताज होटल का निर्माण कराया। इस प्रकार ओबेरॉय और वेस्ट ईस्टन होटल भी अस्तित्व में आया। इन सब होटलों का निर्माण ब्रिटिश व्यापारियों को ठहरने के लिए किया गया था।
6. **बंदरगाह नगरों का विकास :** अंग्रेजों ने बंदरगाह नगरों में होटलों का निर्माण के साथ साथ निर्यात आयात गृहो का निर्माण कराया। इसके प्रभाव से भारतीय पर्यटन में काफी वृद्धि हुई। मुंबई बंदरगाह इसका प्रत्यक्ष प्रमाण है।

स्वतंत्र भारत में पर्यटन का विकास: भारत ने पर्यटन को एक आर्थिक क्रिया के रूप में स्वीकार किया है। इस देश में पर्यटन को बढ़ावा देने के लिए 1949 में भारत सरकार ने टुरिस्ट ट्रैफिक ब्रांच इस संस्था की स्थापना की। इस से देश में पर्यटन विकास को मदद मिली। पर्यटन विकास। की

महत्ता को ध्यान में रखकर भारत सरकार ने मई 1998 को पर्यटन मंत्रालय को स्वतंत्र मंत्रालय का दर्जा प्रदान किया। इस मंत्रालय के द्वारा पर्यटन विकास के लिए विभिन्न योजनाएं स्थापित कर दी। राष्ट्रीय अखंडता, अंतर्राष्ट्रीय सद्भाव और विदेशी मुद्रा की आय को बढ़ावा देने के अलावा सामाजिक, आर्थिक उद्देश्यों को हासिल करने में पर्यटन को बढावा दिया जा रहा है । रोजगार उत्पन्न करने की भारी संभावनाओं को बढ़ावा, पर्यटन को आर्थिक विकास के एक तंत्र के रूप में प्रतिष्ठित करना, आर्थिक विकास तथा ग्राम्य पर्यटन, पर ध्यान देना निश्चित किया। व्यवसाय तथा भारत की असीम पर्यटन संभावनाओं का लाभ उठाने के लिए भारत को विश्व स्तर के रूप में प्रतिष्ठित करना सरकार के साथ मिलकर निजी क्षेत्र के कार्य करने के लिए उत्प्रेरक की महत्वपूर्ण भूमिका पर बल दिया गया।(18)

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ग्रामीण क्षेत्र में शिक्षा का विकास: एक चिकित्सक अध्ययन

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अमूर्त

ग्रामीण क्षेत्रों में शिक्षा प्रदान करने के लिए मोबाइल शिक्षक स्कूलों की स्थापना करके ग्रामीण शिक्षा की शुरुआत की गई। यह भी देखा गया कि केवल साक्षरता बढ़ाने से सुधार नहीं होता। यदि शिक्षा में कृषि सुधार, स्वास्थ्य ज्ञान, हस्तशिल्प और सामाजिक दृष्टि को शामिल कर लिया जाए तो गांव का पुनरुद्धार हो सकता है। मानव विकास के एजेंडे को तभी साकार किया जा सकता है जब ग्रामीण साक्षरता की प्राथमिक समस्या में सुधार किया जाए। ग्रामीण शिक्षा प्रणालियों में अक्सर उचित बुनियादी ढाँचे, निवेश और बेहतर शिक्षण विधियों का अभाव होता है और सामाजिक असमानताओं और अन्य कारकों से इसमें और बाधा आती है। ग्रामीण शिक्षा वह शिक्षा है जो ग्रामीण जीवन और पर्यावरण के अनुरूप हो। ग्रामीण जीवन और शहरी जीवन के बीच बहुत बड़ा अंतर है। आवास, स्वास्थ्य सुविधाओं, सड़कों और परिवहन, सांस्कृतिक और मनोरंजक सुविधाओं और सार्वजनिक जीवन के मामले में शहरों की तुलना में गांवों में कई कमियां हैं।

मुख्य शब्द: ग्रामीण शिक्षा, महिला शिक्षा, समानता, गरीब, विकास, ग्रामीण संस्कृति, सुविधाएं, डिजिटल शिक्षा आदि।

परिचय:

शिक्षा हर किसी के लिए महत्वपूर्ण है, चाहे वे नए तथ्य, कौशल या व्यापार सीख रहे हों। सीखने का अवसर मिलने से व्यक्ति को हमेशा लाभ होता है। पिछले वर्षों में, हमने दुनिया भर में महिलाओं को शिक्षा प्रदान करने पर ध्यान केंद्रित करते हुए देखा है, यह तर्क देते हुए कि लड़कियों को पुरुषों से कम शिक्षा नहीं मिलती है। हालाँकि, यदि हम एक कदम आगे बढ़ते हैं, तो हम समुदायों, विशेष रूप से ग्रामीण समुदायों को शिक्षित करने के बारे में सोच सकते हैं। इस तरह के नुकसान और दुनिया से अलगाव ग्रामीण शिक्षा को बहुत प्रभावित करता है। छात्रों, अभिभावकों, शिक्षा, शिक्षा अधिकारियों, पाठ्यक्रम, शैक्षिक प्रशासन और शिक्षा व्यय पर विचार करते समय गाँव की वास्तविकता पर विचार करना आवश्यक है। मोटे तौर पर ग्रामीण शिक्षा के चार घटक हैं। देश में प्रचलित शिक्षा प्रणाली का प्रसार और ग्रामीण क्षेत्रों में इसकी कठिनाइयाँ शिक्षा के सभी चरणों जैसे पूर्व-प्राथमिक, प्राथमिक, माध्यमिक, औद्योगिक, कॉलेज और वयस्क को कवर करती हैं। एक अन्य विचार शैक्षिक के साथ-साथ शैक्षिक तकनीकों से भी संबंधित है। यह देखा जाना चाहिए कि गांव में शैक्षणिक समस्याओं को दूर करके गांव के लोगों को अधिक और बेहतर शिक्षा दिलाने के लिए विभिन्न तकनीकों का उपयोग कैसे किया जा सकता है। तीसरा भाग यह है कि क्या ग्रामीण लोगों के लिए नागरिक शिक्षा प्रणाली से भिन्न शिक्षा प्रणाली होनी चाहिए? चौथा विचार यह है कि व्यापक ग्रामीण विकास के लिए वयस्क शिक्षा का उपयोग कैसे किया जा सकता है।

अनुसंधान समस्या:

शहर प्री-प्राइमरी से लेकर कॉलेज शिक्षा तक सभी प्रकार की शिक्षा सुविधाएँ प्रदान करते हैं। उनकी तुलना में ग्रामीण क्षेत्रों में सुविधाएं बहुत अपर्याप्त हैं। ऐसा अंतर विकसित और अविकसित दोनों देशों में देखा जाता है। विकसित देशों में भी, एक छोटे से गाँव में केवल एक प्राथमिक विद्यालय हो सकता है। छोटे-छोटे गाँवों में भी माध्यमिक एवं उच्च शिक्षा की सुविधा उपलब्ध नहीं है। ग्रामीण क्षेत्रों में अच्छी शिक्षा उपलब्ध कराने में अनेक कठिनाइयाँ आती हैं। बच्चों की कम संख्या के कारण स्कूलों को बंद नहीं किया जा सकता है और यदि बंद किया जाता है तो सभी कक्षाएं एक ही शिक्षक को सौंपनी होंगी। शहरी शिक्षक गाँवों में जाने से कतराते हैं। गर्ल्स स्कूल के लिए शिक्षक नहीं मिल पा रहे हैं। शिल्प, विज्ञान, चित्रकला, गायन आदि। विषयों के लिए विशेष शिक्षक उपलब्ध नहीं है।

अनुसंधान के उद्देश्य:

जांचकर्ता सीमा पार करने में अनिच्छुक हैं इसलिए पर्यवेक्षण कम रहता है और शिक्षा की गुणवत्ता निम्न होती है। चूंकि समाज पिछड़ा हुआ है इसलिए वह शिक्षक पर अनुचित अधिकार और अधिकार का प्रयोग करता है। भवन, उपकरण, पुस्तकालय, प्रयोगशाला आदि।

गाँवों में शैक्षणिक सुविधाएँ दुर्लभ हैं। ग्रामीण स्थिति को ध्यान में रखते हुए मौजूदा स्थिति में बेहतर शिक्षा प्रदान करने के लिए कुछ विशेष तकनीकों और उपायों का उपयोग किया जा सकता है। तीन या चार छोटे स्कूलों को एक बड़े केंद्रीय विद्यालय में समेकित करके शिक्षा की गुणवत्ता को बनाए रखा जा सकता है।

अनुसंधान का महत्व:

मोबाइल शिक्षकों या मोबाइल कारों या रेलवे कोचों का उपयोग करके विज्ञान, हस्तशिल्प आदि। विषयों की शिक्षा को सुगम बनाया जा सकता है। यदि शिक्षकों को रहने के लिए घर, खेत और दुधारू जानवर दिए जाएं तो वे वहां स्थायी रूप से रह सकते हैं। यदि मध्याह्न भोजन, दूध, किताबें, कपड़े आदि उपलब्ध कराए जाएं तो बच्चों की उपस्थिति बढ़ सकती है। यदि कृषि कार्य के मौसम को टाल दिया जाए तो अधिक बच्चे स्कूल जा सकते हैं।

अनुसंधान का दायरा:

रेडियो, टेलीविजन आदि। विभिन्न प्रकार की शिक्षा को साधनों के माध्यम से गाँवों तक पहुँचाया जा सकता है। ग्रामीण क्षेत्रों में कार्यरत शिक्षकों को विशेष प्रशिक्षण दिया जा सकता है. सारांश देश, काल और संसाधनों के अनुरूप शोधपरक मानसिकता और प्रयोगात्मक मनोवृत्ति के साथ विभिन्न तकनीकों को अपनाकर ग्रामीण शिक्षा को समग्र बनाया जा सकता है। लोकतंत्र और समान अवसरों की दृष्टि से ऐसा भेदभाव अवांछनीय है। अगर कम उम्र में ही बच्चों की जिंदगी गांव में बांध दी जाएगी तो महत्वाकांक्षी बच्चों को आगे आने का मौका नहीं मिलेगा।

अनुसंधान की सीमा:

ग्रामीण-शहरी विभाजन बढ़ेगा। इसके विपरीत एक और पक्ष है जो कहता है कि ग्रामीण शिक्षा अलग और स्वतंत्र होनी चाहिए। ग्रामीण क्षेत्रों से शहरों की ओर बच्चों के प्रवाह को रोका जाना चाहिए। इसके लिए उन्हें शुरू से ही कृषि शिक्षा दी जानी चाहिए। इन बच्चों के लिए शहरी पाठ्यक्रम कठिन है, जिससे स्कूल छोड़ने की संख्या बढ़ जाती है। यदि प्राथमिक से लेकर उच्च शिक्षा तक ग्रामीण शिक्षा की अनूठी व्यवस्था की योजना बनाई जाए तो ग्राम विकास के लिए कार्यकर्ता मिल सकते हैं। हालाँकि, ग्रामीण शिक्षा की योजना बनाते समय इन दोनों विचारों को त्यागना होगा और बीच का रास्ता अपनाना होगा। ऐसी स्थिति कि सामान्य शिक्षा छात्रों के बौद्धिक और व्यक्तिगत विकास के लिए समान होनी चाहिए और आगे की शिक्षा को ग्रामीण और शहरी व्यवसायों के संदर्भ में अलग किया जाना चाहिए, सभी को संतुष्ट करेगी।

शोध की अवधि:

उक्त शोध का संचालन करते हुए शोधकर्ता ने ग्रामीण क्षेत्रों में शिक्षा के महत्व का अध्ययन करते हुए २०२३-२४ के माध्यमिक संसाधनों के संबंध में सदस्य अनुसंधान पूरा किया है।

तलाश पद्दतियाँ:

इस शोध को करते समय शोधकर्ता ने कई प्रकार के द्वितीयक शोध का प्रयोग किया है। इसमें शोध पत्रों, लेखों, पत्रिकाओं, समाचार पत्रों, संदर्भ पुस्तकों, धारावाहिक पुस्तकों, वार्षिक रिपोर्टों आदि का प्रबंधन करके शोध किया गया है।

अनुसंधान क्रियाविधि:

ग्रामीण क्षेत्रों में शिक्षा के महत्व का अध्ययन करते हुए शोधकर्ताओं ने वर्णनात्मक विश्लेषण पद्धति का उपयोग करते हुए इस शोध को किया है और ग्रामीण क्षेत्रों में शिक्षा की गुणवत्ता बढ़ाने के दृष्टिकोण से भी वर्णनात्मक विश्लेषण किया है।

परिणाम और चर्चा:

ग्रामीण शिक्षा न केवल ग्रामीण समुदाय के जीवन स्तर को ऊपर उठाने के लिए बल्कि देश की समग्र प्रगति और विकास के लिए भी महत्वपूर्ण है। भारत में शिक्षा प्रणाली के विषय पर विचार करते हुए, शहरी क्षेत्र अत्यधिक उन्नत शैक्षणिक संस्थानों का दावा नहीं कर सकते। शिक्षा ग्रामीण निवासियों को आधुनिक अर्थव्यवस्था में पूरी तरह से भाग लेने के लिए आवश्यक कौशल और ज्ञान प्रदान करती है। यह सामाजिक बाधाओं को तोड़ने में भी मदद करता है और लोगों को अपने समुदायों में नेतृत्व की भूमिका निभाने का आत्मविश्वास देता है। गरीबी, गर्भावस्था, स्कूल-आधारित हिंसा, बाल विवाह और भेदभावपूर्ण लिंग मानदंड दुनिया भर में लड़कियों की शिक्षा में प्रमुख बाधाओं में से कुछ हैं।

ग्रामीण विकास:

ग्रामीण समुदाय अधिक उत्पादक कार्यबल प्राप्त करके, अपनी समग्र आय में वृद्धि करके शिक्षा से लाभ उठा सकते हैं। शिक्षा किसी व्यक्ति की समूह का सफलतापूर्वक और प्रभावी ढंग से नेतृत्व करने की क्षमता बढ़ाती है क्योंकि यह उन्हें अधिक जानकारी, आत्मविश्वास, कौशल और अनुभव प्रदान करती है। यदि कार्यक्रमों को ग्रामीण क्षेत्रों तक विस्तारित करना है और उनका उपयोग करना है, तो सबसे पहले उनकी आर्थिक स्थिति में सुधार किया जाना चाहिए और उनकी आय में वृद्धि की जानी चाहिए, इसलिए ग्रामीण विकास योजनाओं में सामाजिक

कल्याण कार्यक्रमों को कम महत्व दिया जाना चाहिए और अधिक जोर दिया जाना चाहिए कृषि और अन्य व्यवसायों की उत्पादकता बढ़ाने पर ध्यान दिया जाना चाहिए।

बुनियादी ढांचे की कमी:

ग्रामीण क्षेत्रों के कई स्कूलों में बुनियादी सुविधाओं जैसे स्वच्छ पानी, शौचालय, बिजली और पर्याप्त कक्षाओं का अभाव है, जिससे छात्रों के लिए अपनी पढ़ाई पर ध्यान केंद्रित करना मुश्किल हो जाता है। आलोचनात्मक सोच विकसित करने के लिए शिक्षा आवश्यक है। उच्च वेतन वाली नौकरियाँ पाने में शिक्षा महत्वपूर्ण भूमिका निभाती है। विद्वान बच्चे प्रभावी ढंग से संवाद कर सकते हैं। शिक्षा लैंगिक समानता को बढ़ावा देती है और एक ऐसे समाज के निर्माण में मदद करती है जो वंचितों को सशक्त बनाता है। ढहते बुनियादी ढांचे, शिक्षकों की कमी और शैक्षिक प्रगति की कमी के कारण दक्षिण अफ्रीका की शिक्षा प्रणाली कई बच्चों को पीछे छोड़ देती है। केवल 20% पब्लिक स्कूल ठीक से काम कर रहे हैं, उनके द्वारा प्राप्त परिणामों और अन्य 80% पब्लिक स्कूलों के परिणामों के बीच एक बड़ा अंतर है।

बाल शिक्षा:

अन्नामृता जैसे कई संगठन और गैर सरकारी संगठन बच्चों की बेहतर शिक्षा के लिए सरकारी कार्यक्रमों का समर्थन कर रहे हैं। सामुदायिक समर्थन और भागीदारी इन प्रयासों और लड़कियों की साक्षरता की प्रगति को काफी मजबूत कर सकती है।

शिक्षा की गुणवत्ता:

मौजूदा शैक्षिक बुनियादी ढांचे और शिक्षा की गुणवत्ता में सुधार करना। सरकारी स्कूलों में योग्य शिक्षकों, अधिमानतः अधिक महिला शिक्षकों की भर्ती। स्कूलों की संख्या बढ़ाकर या स्कूलों तक आने-जाने के लिए सुरक्षित मार्ग सुनिश्चित करके स्कूलों को अधिक सुलभ बनाना। बालिका शिक्षा के महत्व के बारे में जागरूकता पैदा करना।

ग्रामीण शिक्षा:

भारत सरकार ने 1978 में एकीकृत ग्रामीण विकास कार्यक्रम शुरू किया और 1980 में इसे लागू किया। कार्यक्रम का उद्देश्य गरीब लोगों को रोजगार के अवसर प्रदान करने के साथ-साथ उनके जीवन स्तर में सुधार के लिए कौशल विकसित करने के अवसर प्रदान करना है। कई अन्य उद्योग भी अपने विकास के लिए कृषि पर निर्भर हैं। ग्रामीण विकास इन अग्रणी उद्योगों के प्रभावी और कुशल विकास के लिए ऐसी सामग्रियों की गुणवत्ता और प्रवाह को बनाए रखने में मदद करता है जो राष्ट्रीय विकास में महत्वपूर्ण भूमिका निभाते हैं।

ग्रामीण क्षेत्रों में शिक्षा का महत्व:

परंपरागत रूप से, कृषि ग्रामीण अर्थव्यवस्था और ग्रामीण रोजगार का मुख्य क्षेत्र रहा है। कृषि से अधिक उत्पादक गैर-कृषि क्षेत्र में उत्पादन और व्यवसाय की संरचना में परिवर्तन को ग्रामीण और समग्र अर्थव्यवस्था में आर्थिक विकास और परिवर्तन का एक महत्वपूर्ण स्रोत माना जाता है। अधिकांश भारतीय स्कूलों में पाठ्यक्रम रटने पर आधारित है, जिसमें समझने के बजाय याद करने पर जोर दिया जाता है। इससे आलोचनात्मक सोच कौशल की कमी हो जाती है और छात्रों के लिए जो सीखा जाता है उसे वास्तविक जीवन में लागू करना कठिन हो जाता है।

महिला शिक्षा:

माता-पिता, शिक्षकों और बच्चों को ग्रामीण सरकारी स्कूलों में नामांकन बढ़ाने और स्कूल छोड़ने की दर को कम करने के लिए प्रोत्साहित किया जाता है, खासकर लड़कियों के लिए। स्कूल प्रबंधन समितियों को स्कूल के बेहतर और टिकाऊ कामकाज के लिए उनकी क्षमता बनाने के लिए सहायता और प्रशिक्षण प्रदान किया जाता है। उचित बुनियादी ढांचे तक पहुंच ग्रामीण क्षेत्रों में प्रचलित दूरी और अलगाव की चुनौतियों को दूर करने में मदद कर सकती है। बुनियादी ढांचे के विकास में कक्षाओं का निर्माण, शौचालय और स्वच्छ पेयजल उपलब्ध कराना शामिल हो सकता है।

बुनियादी ढांचे का विकास:

ग्रामीण क्षेत्रों में शिक्षा की गुणवत्ता में सुधार के लिए ढांचागत विकास एक आवश्यक कारक है। उचित बुनियादी ढांचे तक पहुंच ग्रामीण क्षेत्रों में प्रचलित दूरी और अलगाव की चुनौतियों को दूर करने में मदद कर सकती है। बुनियादी ढांचे के विकास में कक्षाओं का निर्माण, शौचालय और स्वच्छ पेयजल उपलब्ध कराना शामिल हो सकता है। इसके अतिरिक्त, स्कूल बस या साइकिल जैसी परिवहन सुविधाएं प्रदान करने से बच्चों को नियमित रूप से स्कूल जाने में मदद मिल सकती है।

डिजिटल शिक्षा:

महामारी ने डिजिटल शिक्षा के महत्व पर जोर दिया है। भारत सरकार का डिजिटल इंडिया कार्यक्रम ग्रामीण क्षेत्रों में डिजिटल बुनियादी ढांचा और इंटरनेट कनेक्टिविटी प्रदान करने पर केंद्रित है।

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डिजिटल शिक्षा छात्रों को ऑनलाइन संसाधन, मल्टीमीडिया सामग्री और इंटरैक्टिव शिक्षण उपकरण प्रदान करके शिक्षा की गुणवत्ता को बढ़ा सकती है। यह शहरी क्षेत्रों में अनुभवी शिक्षकों द्वारा ग्रामीण क्षेत्रों में छात्रों को गुणवत्तापूर्ण शिक्षा प्रदान करने में सक्षम बनाता है।

समुदाय की भागीदारी:

शिक्षा व्यवस्था में सामुदायिक भागीदारी महत्वपूर्ण है। स्थानीय समुदाय बुनियादी ढांचे, स्कूल की आपूर्ति और शिक्षकों के रूप में स्वयंसेवा प्रदान करके स्कूलों का समर्थन कर सकते हैं। अभिभावक-शिक्षक संघ शिक्षा की गुणवत्ता की निगरानी और एक सुरक्षित और सहायक शिक्षण वातावरण बनाने में महत्वपूर्ण भूमिका निभा सकते हैं।

शिक्षक प्रशिक्षण:

ग्रामीण क्षेत्रों में शिक्षा की गुणवत्ता में सुधार के लिए शिक्षक प्रशिक्षण एक आवश्यक रणनीति है। ग्रामीण क्षेत्रों में शिक्षकों के पास अक्सर प्रशिक्षण और अनुभव की कमी होती है, जिससे शिक्षा की गुणवत्ता ख़राब होती है। शिक्षकों के लिए नियमित प्रशिक्षण सत्र उनके शिक्षण कौशल और ज्ञान को बेहतर बनाने में मदद कर सकते हैं, जिससे छात्रों के लिए सीखने के बेहतर परिणाम प्राप्त होंगे।

बहुभाषी शिक्षा:

बहुभाषी शिक्षा उस भाषा बाधा को दूर करने में मदद कर सकती है जो अक्सर ग्रामीण क्षेत्रों में मौजूद होती है। ग्रामीण इलाकों में बच्चे अक्सर स्कूलों में इस्तेमाल की जाने वाली भाषा से अलग भाषा बोलते हैं, जिससे संचार में बाधाएं आती हैं और सीखने के परिणाम खराब होते हैं। बच्चे की मातृभाषा में पढ़ाने से इन बाधाओं को दूर करने और सीखने के परिणामों में सुधार करने में मदद मिल सकती है।

समग्र शिक्षा:

समग्र शिक्षा बच्चे के शारीरिक, मानसिक और भावनात्मक कल्याण सहित समग्र विकास पर केंद्रित है। यह आलोचनात्मक सोच, रचनात्मकता और समस्या सुलझाने के कौशल पर जोर देता है। एक समग्र दृष्टिकोण बच्चे के व्यक्तित्व को विकसित करने और उन्हें भविष्य की चुनौतियों के लिए तैयार करने में मदद कर सकता है। स्कूलों, गैर सरकारी संगठनों और सरकार के बीच साझेदारी और सहयोग ग्रामीण क्षेत्रों में शिक्षा की गुणवत्ता में सुधार करने में मदद कर सकता है। गैर सरकारी संगठन बुनियादी ढांचे के विकास, शिक्षक प्रशिक्षण और सामुदायिक भागीदारी का समर्थन कर सकते हैं। सरकारें धन और नीतिगत सहायता प्रदान कर सकती हैं, जबकि स्कूल बच्चों के लिए एक सुरक्षित और सहायक शिक्षण वातावरण बना सकते हैं।

निष्कर्ष:

शिक्षा के कार्यों में सामाजिक परिवर्तन लाना, व्यक्तिगत सामाजिक स्थिति और रहने की स्थिति में सुधार करना, ग्रामीण और सांस्कृतिक विकास में सक्रिय रूप से भाग लेना, ग्रामीण लोगों की जरूरतों को पहचानने की महत्वपूर्ण क्षमता विकसित करना, उनके अधिकारों का दावा करना और निर्णयों पर अधिक नियंत्रण रखना, प्रभावित करना शामिल है। पिछड़े देशों में ग्रामीण शिक्षा की दो महत्वपूर्ण समस्याएँ हैं। एक सार्वभौमिक प्राथमिक शिक्षा की सुविधा प्रदान करना है। दूसरे, परिपक्व ग्रामीण लोगों, जिन्होंने अपने जीवन में कभी कोई शिक्षा प्राप्त नहीं की है, को साक्षरता, स्वास्थ्य, कृषि, हस्तशिल्प, सामाजिक जीवन आदि सीखने का अवसर दिया जाता है। शिक्षा प्रदान करके विषयों को सभ्य बनाना। यह वयस्क शिक्षा और ग्राम विकास दोनों को जोड़ता है। उन्नत और पिछड़े दोनों देशों ने ग्रामीण शिक्षा और ग्रामीण विकास की समस्याओं को अपनी-अपनी परिस्थितियों के अनुसार हल करने का प्रयास किया है।

संदर्भ:

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डिजिटल लायब्ररी: एक व्यापक विहंगावलोकन

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परिचय:

भौतिक पुस्तके आणि दस्तऐवज ठेवणाऱ्या पारंपारिक लायब्ररींच्या विपरीत, डिजिटल लायब्ररी त्यांची सामग्री मजकूर, प्रतिमा, ऑडिओ, व्हिडिओ आणि इतर मल्टीमीडिया घटकांसारख्या डिजिटल स्वरूपात संग्रहित करतात. हे संग्रह डिजिटल सिस्टीम वापरून व्यवस्थापित आणि पुनर्वापरासाठी साठवले जातात, ज्यामुळे वापरकर्त्यांना संगणक नेटवर्कद्वारे दूरस्थपणे सामग्रीमध्ये प्रवेश आणि संवाद साधून वापर करता येतो. आधुनिक ग्रंथालय तंत्रज्ञान विकसित करतना त्या मध्ये येणाऱ्या समस्या, आव्हाने अशा गोष्टींवर कशा प्रकारे मात करता येईल हे पाहणे गरजेचे आहे. हे तंत्रज्ञान कसे विकसित झाले त्या मध्ये कशा प्रकारे उत्क्रांती झाली आहे हे आपण बघू शकतो. यामध्ये डिजिटल ग्रंथालय व त्याचा ऐतिहासिक विकास, डिजिटल ग्रंथालायचे घटक, डिजिटल ग्रंथालय तंत्रज्ञान, त्या समोरील आव्हाने व भविष्यातील वेध याच बरोबर इतर मुद्द्यांवर प्रकाश टाकलेला आहे.

डिजिटल लायब्ररीची व्याख्या:

"डिजिटल लायब्ररी हे ज्ञान आणि माहितीचे जतन, सामायिकरण आणि प्रसार करण्याच्या उद्देशाने संयोजित केलेल्या आणि वापरकर्त्यांसाठी बनविलेल्या डिजिटल मालमत्तेचा संग्रह आहे."

माहिती तंत्रज्ञान युगातील आधुनिक ग्रंथालायचे महत्त्व आणि भूमिका

ऐतिहासिक विकास

डिजीटल लायब्ररीचा इतिहास १९६० च्या दशकाचा आहे जेव्हा प्रोजेक्ट गुटेनबर्ग सारख्या प्रकल्पांनी पारंपारिक साहित्याचे डिजीटलीकरण केले. १९९० च्या दशकात, वर्ल्ड वाइड वेबच्या आगमनाने मिलियन बुक प्रोजेक्ट सारख्या प्रयत्नांसह डिजिटल लायब्ररीच्या वाढीला चालना दिली. २१ व्या शतकात Google Books आणि युरोपीयाना यासह प्रमुख डिजिटल लायब्ररींची स्थापना झाली. मोफत वापराच्या हालचाली, माहिती पुनर्प्राप्ती तंत्रज्ञानातील प्रगती आणि संस्थात्मक भांडारांच्या वाढीमुळे डिजिटल लायब्ररींच्या उत्क्रांतीची आणखी प्रगती झाली आहे. आज, ते विविध डोमेनमध्ये जागतिक माहिती प्रवेश, संरक्षण आणि सहयोगी ज्ञान-प्रदान करण्यासाठी उपलब्ध आहेत.

डिजिटल ग्रंथालयाचे घटक

डिजिटल संग्रह:

डिजिटल लायब्ररीमधील मध्ये विविध प्रकारच्या इलेक्ट्रॉनिक संसाधनांचा समावेश होतो, सुलभ प्रवेश आणि पुनर्प्राप्तीसाठी पद्धतशीरपणे नियोजित केले जाते. या संग्रहांमध्ये पुस्तके, हस्तलिखिते आणि नियतकालिके यांसारख्या पारंपारिक लायब्ररी सामग्रीच्या डिजिटल आवृत्त्या तसेच प्रतिमा, ऑडिओ रेकॉर्डिंग आणि व्हिडिओ यासारख्या मल्टीमीडिया सामग्रीचा समावेश आहे. बऱ्याचदा विशिष्ट थीम, विषय किंवा ऐतिहासिक कालखंडाभोवती माहितीचे संकलन केलेले आढळते, डिजिटल ग्रंथालयाचे उद्दीष्ट सांस्कृतिक वारसा, शैक्षणिक संशोधन आणि अद्वितीय कलाकृतींचे जतन करणे आणि बनवणे हे आहे.

मेटाडेटा आणि कॅटलॉगिंग:

मेटाडेटा आणि कॅटलॉगिंग, संस्थेमध्ये आणि डिजिटल लायब्ररी सामग्रीच्या वापरासाठी महत्त्वपूर्ण भूमिका बजावतात. मेटाडेटा, डिजिटल वस्तूंबद्दल वर्णनात्मक माहिती म्हणून कार्य करते. तसेच माहितीचा कार्यक्षम शोध आणि पुनर्प्राप्ती सुलभ करते. यात शीर्षक, लेखक, तारीख आणि विषय यासारख्या तपशीलांचा समावेश आहे. विशिष्ट संसाधने शोधणाऱ्या वापरकर्त्यांसाठी संदर्भ प्रदान करणे, कॅटलॉगिंगमध्ये या मेटाडेटा रेकॉर्डची पद्धतशीर निर्मिती आणि देखभाल समाविष्ट आहे.

प्रवेश प्रणाली (ॲक्सेस):

अ) प्रमाणीकरण आणि अधिकृतता:

डिजिटल लायब्ररी वापरकर्त्याच्या भूमिका किंवा परवानग्यांवर आधारित प्रवेश पातळी नियंत्रित करण्यासाठी वापरकर्ता ओळख

आणि अधिकृतता यंत्रणा सत्यापित करण्यासाठी प्रमाणीकरण प्रक्रिया वापरतात. हे डिजिटल संसाधनांमध्ये सुरक्षित आणि वैयक्तिकृत प्रवेश सुनिश्चित करते.

ब) शोध आणि पुनर्प्राप्ती यंत्रणा:

मेटाडेटा, अनुक्रमणिका आणि पूर्ण-मजकूर शोध क्षमता वापरून, ऍक्सेस सिस्टम कार्यक्षम शोध प्रणाली (सर्च इंजिन) आणि पुनर्प्राप्ती यंत्रणा समाविष्ट करतात. ही वैशिष्ट्ये वापरकर्त्यांना लायब्ररीमधील संबंधित डिजिटल सामग्री द्रुतपणे शोधण्यास आणि पुनर्प्राप्त करण्यास सक्षम करतात.

जतन आणि संग्रहण:

अ) दीर्घकालीन साठवणूक आणि माहिती संग्रहण (स्टोरेज आणि बॅकअप):

संरक्षण आणि संग्रहण यामध्ये डिजिटल सामग्रीच्या दीर्घकालीन संचयनासाठी प्रणाली आणि प्रक्रियांची स्थापना समाविष्ट आहे.

ब) मेटाडेटा आणि दस्तऐवजीकरण:

जतन करण्याच्या प्रयत्नांमध्ये अनेकदा तपशीलवार मेटाडेटा आणि डिजिटल वस्तूंबद्दल दस्तऐवजीकरण तयार करणे आणि देखभाल करणे समाविष्ट असते. हा मेटाडेटा डिजिटल सामग्रीचा संदर्भ, स्वरूप आणि उद्गम याविषयी आवश्यक माहिती प्रदान करतो, त्याचे भविष्यातील व्यवस्थापन, स्थलांतर आणि सतत प्रवेशयोग्यतेमध्ये मदत करतो.

डिजिटल लायब्ररीच का?

डिजिटल लायब्ररी अनेक फायदे देतात, ज्यामुळे ते आधुनिक माहितीच्या विस्तारीकरणामध्ये एक महत्त्वपूर्ण घटक बनतात. डिजिटल लायब्ररी आवश्यक का आहेत याची मुख्य कारणे पुढील प्रमाणे देता येतील:

अ) जागतिक प्रवेशयोग्यता:

डिजिटल लायब्ररी माहितीवर अप्रतिबंधित प्रवेश प्रदान करतात, नेटवर्कच्या माध्यमाद्वारे भौगोलिक अडथळ्यांवर मात करतात आणि जगभरातील वापरकर्त्यांना फक्त इंटरनेट कनेक्शनसह संसाधने पुनर्प्राप्त करण्यास सक्षम करतात.

ब) बहुमुखी सामग्री:

त्यांच्याकडे विविध प्रकारच्या डिजिटल संसाधनांचा समावेश आहे, ज्यात मजकूर, प्रतिमा, ऑडिओ आणि व्हिडिओ यांचा समावेश आहे.

क) शोध आणि पुनर्प्राप्ती कार्यक्षमता:

डिजिटल लायब्ररी प्रगत शोध आणि अनुक्रमणिका तंत्रज्ञान वापरतात, पारंपारिक लायब्ररींच्या तुलनेत माहिती पुनर्प्राप्तीची गती आणि अचूकता वाढवतात.

ड) जतन आणि संवर्धन:

डिजिटल लायब्ररी नाजूक किंवा जुन्या भौतिक वस्तूंचे डिजिटायझेशन आणि संग्रहण करून सांस्कृतिक वारसा आणि दुर्मिळ सामग्रीचे जतन करण्यात योगदान देतात.

इ) परस्पर क्रियाशीलता आणि प्रतिबद्धता:

काही डिजिटल लायब्ररी वापरकर्त्यांच्या परस्परसंवादाला प्रोत्साहन देतात, वापरकर्त्यांना समुदायाची भावना वाढवून, योगदान देण्यास, टिप्पणी करण्यास आणि माहितीच्या सामग्रीमध्ये व्यस्त ठेवण्यास अनुमती देतात.

फ) खर्च-प्रभावीता:

डिजिटल लायब्ररी भौतिक जागा, देखभाल आणि कागदावर आधारित संसाधनांशी संबंधित खर्च कमी करतात, ज्यामुळे ते दीर्घकाळासाठी अधिक किफायतशीर आणि टिकाऊ बनतात.

ग) अद्ययावत (रिअल-टाइम अपडेट):

डिजिटल लायब्ररी रिअल टाइममध्ये अद्ययावत (अपडेट) केल्या जाऊ शकतात, वापरकर्त्यांना नवीनतम माहिती आणि संसाधने त्यांच्याकडे प्रवेश मिळेल याची खात्री करून उपलब्ध केली जातात.

ह) पर्यावरणीय परिणाम:

भौतिक साहित्याची गरज कमी करून, डिजिटल लायब्ररी कागदाचा वापर कमी करून आणि पारंपारिक ग्रंथालयांशी संबंधित कार्बन फूटप्रिंट कमी करून पर्यावरण संवर्धनासाठी योगदान देतात.

ई) नाविन्यपूर्ण तंत्रज्ञान:

डिजिटल लायब्ररी बऱ्याचदा आर्टिफिशियल इंटेलिजन्स (कृत्रिम बुद्धिमत्ता), ब्लॉकचेन आणि मुक्त वापर (ओपन-सोर्स) प्लॅटफॉर्म ज्यामुळे एकूण कार्यक्षमता व अनुभव वाढतो.

डिजिटल लायब्ररीचे दोन प्रणेते:

डिजिटल लायब्ररींच्या विकासात आणि प्रगतीसाठी महत्त्वपूर्ण योगदान देणारे दोन प्रणेते म्हणजे वान्नेवर बुश आणि ब्रूस्टर काहले.

१. वान्नेवर बुश:

एक अमेरिकन अभियंता आणि संशोधक, वान्नेवर बुश यांना माहिती विज्ञानातील दूरदर्शी म्हणून ओळखले जाते. त्यांच्या 1945 च्या निबंध "अस वी मे थिंक" मध्ये मेमेक्स या काल्पनिक मशीनची संकल्पना मांडली आहे जी माहिती संग्रहित करू शकते, पुनर्प्राप्त करू शकते आणि (जोडू) लिंक करू शकते.

२. ब्रूस्टर काहले:

ब्रूस्टर काहले हे एक संगणक अभियंता आणि इंटरनेट उद्योजक आहेत जे १९९६ मध्ये इंटरनेट आर्काइव्हच्या स्थापनेसाठी ओळखले जातात. इंटरनेट आर्काइव्ह ही एक ना-नफा डिजिटल लायब्ररी आहे ज्याचा उद्देश "सर्व ज्ञानाचा सार्वत्रिक प्रवेश" प्रदान करणे आहे. हे वेबसाइट, पुस्तके, संगीत आणि व्हिडिओंसह डिजिटल सामग्रीचा एक विशाल संग्रह संग्रहित करते आणि उपलब्ध करून देते, जे जागतिक स्तरावर डिजिटल वारसा जतन करण्यासाठी महत्त्वपूर्ण योगदान देते.

डिजिटल लायब्ररीतील तंत्रज्ञान: भारतीय डिजिटल लायब्ररी, प्रवेश, संरक्षण आणि एकूण कार्यक्षमता वाढविण्यासाठी विविध तंत्रज्ञानाचा वापर केला जातो. यातील काही प्रमुख तंत्रज्ञान खालील प्रमाणे आहेत.

i) **डिजिटल रिपॉझिटरी प्लॅटफॉर्म:**

भारतीय डिजिटल लायब्ररी अनेकदा डिजिटल संग्रह व्यवस्थापित करण्यासाठी आणि व्यवस्थापित करण्यासाठी (डी-स्पेस) DSpace आणि (ई-प्रिंट) EPrints सारख्या डिजिटल रिपॉजिटरी प्लॅटफॉर्मचा फायदा घेतात.

ii) **ओपन सोर्स सॉफ्टवेअर:**

अनेक भारतीय डिजिटल लायब्ररी त्यांच्या सिस्टमसाठी सामग्री व्यवस्थापन प्रणाली, डेटाबेस आणि वेब सर्व्हरसह मुक्त-स्रोत सॉफ्टवेअर वापरतात.

iii) **मेटाडेटा मानके:**

डब्लिन कोर सारख्या मेटाडेटा (मोठ्या प्रमाणात माहिती) मानकांचे पालन केल्याने डिजिटल वस्तूंचे सातत्यपूर्ण आणि प्रमाणित वर्णन सुनिश्चित होते.

iv) **डिजिटायझेशन तंत्रज्ञान:**

डिजिटायझेशन प्रक्रियेमध्ये स्कॅनर, ऑप्टिकल कॅरेक्टर रिकग्निशन (ओसीआर) आणि प्रतिमा प्रक्रिया साधने यासारख्या तंत्रज्ञानाचा समावेश आहे ज्यामुळे भौतिक दस्तऐवजांना डिजिटल स्वरूपात रूपांतरित करता येतात.

v) **वेब तंत्रज्ञान:**

भारतीय डिजिटल लायब्ररी वापरकर्ता-अनुकूल इंटरफेस, परस्परसंवादी वैशिष्ट्ये आणि दूरस्थ प्रवेश प्रदान करण्यासाठी वेब तंत्रज्ञानाचा वापर करतात. यामध्ये रिस्पॉन्सिव्ह वेब डिझाइन, API (ऍप्लिकेशन प्रोग्रामिंग इंटरफेस) आणि वेब-आधारित ॲप्लिकेशन्सचा समावेश आहे.

vi) **क्लाउड कॉम्प्युटिंग:**

भारतातील काही डिजिटल लायब्ररी हस्तांतरित आणि लवचिक संग्रह (स्टोरेज) सोल्यूशन्ससाठी क्लाउड कॉम्प्युटिंग सेवांचा लाभ घेतात, ज्यामुळे मोठ्या प्रमाणात डिजिटल सामग्रीचे कार्यक्षम व्यवस्थापन सक्षम होते.

डिजिटल लायब्ररीमधील आव्हाने

i) पायाभूत सुविधा आणि संप्रेषण (कनेक्टिव्हिटी):

मर्यादित इंटरनेट पायाभूत सुविधा आणि विशिष्ट प्रदेशांमध्ये विसंगत कनेक्टिव्हिटी डिजिटल संसाधनांपर्यंत व्यापक प्रवेशास अडथळा आणते.

ii) आधुनिक विभागणी:

लोकसंख्येच्या काही विभागांना डिजिटल लायब्ररी संसाधनांमध्ये गुंतण्यासाठी आवश्यक असलेल्या तंत्रज्ञान आणि कौशल्यांमध्ये मर्यादित प्रवेशासह सामाजिक-आर्थिक असमानता (डिजिटल) तांत्रिक विभाजनास हातभार लावतात.

iii) सामग्री विविधता आणि भाषा:

वैविध्यपूर्ण आणि प्रदेश-विशिष्ट सामग्री सुनिश्चित करणे हे एक आव्हान आहे. संपूर्ण भारतातील भाषिक विविधतेची पूर्तता करण्यासाठी डिजिटल लायब्ररींना बहुभाषिक सामग्री आवश्यकता पूर्ण करण्याची आवश्यकता असते.

iv) कॉपीराइट (कृतीस्वाम्य) आणि परवाना समस्या:

कॉपीराइट आणि परवाना संबंधित समस्या विशिष्ट सामग्रीचे डिजिटायझेशन आणि प्रसार हे गुंतागुंत करू शकतात, सर्वसमावेशक डिजिटल संग्रहांच्या उपलब्धतेमध्ये अडथळा आणू शकतात.

v) निधी आणि टिकाऊपणा:

अनेक डिजिटल लायब्ररी चालू ऑपरेशन्स, देखभाल आणि तंत्रज्ञान अपग्रेडसाठी पुरेसा निधी मिळवण्यासाठी संघर्ष करतात. हे आव्हान डिजिटल लायब्ररी उपक्रमांच्या टिकाऊपणा आणि दीर्घकालीन व्यवहार्यतेवर परिणाम करू शकते.

vi) डिजिटल संरक्षण:

डिजिटल सामग्रीचे दीर्घकालीन संरक्षण सुनिश्चित करणे महत्वाचे आहे आणि मजबूत संरक्षण धोरणांच्या अभावामुळे कालांतराने मौल्यवान डिजिटल सामग्रीचे नुकसान होऊ शकते.

vii) तांत्रिक कौशल्ये आणि प्रशिक्षण:

ग्रंथपाल आणि वापरकर्त्यांना डिजिटल लायब्ररींमध्ये प्रभावीपणे नेव्हिगेट करण्यासाठी आणि योगदान देण्यासाठी पुरेसे प्रशिक्षण आवश्यक आहे. तांत्रिक कौशल्ये आणि जागरुकतेचा अभाव डिजिटल लायब्ररी प्रणालीच्या यशस्वी अंमलबजावणी आणि वापरामध्ये अडथळा आणू शकते.

कायदेशीर आणि नैतिक समस्या:

डिजिटल लायब्ररींमधील कायदेशीर आणि नैतिक विचार कॉपीराइट (कृतीस्वाम्य) अनुपालन, गोपनीयता संरक्षण आणि जबाबदार माहिती व्यवस्थापनाभोवती फिरतात. कॉपीराइट (कृतीस्वाम्य) कायद्यांचे पालन करणे या मध्ये सर्वोत्कृष्ट आहे. प्रवेश आणि निर्मात्याच्या अधिकारांमध्ये संतुलन राखणे, मजबूत डेटा संरक्षण, उपायांद्वारे वापरकर्त्याच्या गोपनीयतेचे रक्षण करणे या नैतिक जबाबदाऱ्या आहेत.

तांत्रिक आव्हाने

डिजिटल लायब्ररीच्या संदर्भात तांत्रिक आव्हाने या प्लॅटफॉर्मच्या विकास, देखभाल आणि उपयोगितेवर परिणाम करणाऱ्या अनेक समस्यांचा समावेश करतात.

i) पायाभूत सुविधांच्या मर्यादा:

नेटवर्क कनेक्टिव्हिटी आणि हार्डवेअर मर्यादांसह अपुरी तंत्रज्ञान पायाभूत सुविधा, डिजिटल लायब्ररींच्या कार्यक्षम कार्यात अडथळा आणू शकतात.

ii) डेटा सुरक्षा आणि गोपनीयता:

डिजिटल सामग्री आणि वापरकर्ता डेटाची सुरक्षा आणि गोपनीयता सुनिश्चित करणे हे एक सतत आव्हान आहे, विशेषत: सायबर सुरक्षा धोक्यांची वाढती वारंवारता लक्षात घेता.

iii) डिजिटल संरक्षण:

वेगवान तांत्रिक प्रगती, संभाव्य स्वरूप अप्रचलितपणा आणि चालू असलेल्या स्थलांतर धोरणांची गरज यामुळे डिजिटल सामग्रीचे दीर्घकालीन संरक्षण आव्हानात्मक आहे.

iv) आंतरकार्यक्षमता (इंटरऑपरेबिलिटी):

विविध प्रणाली, डेटाबेस आणि डिजिटल लायब्ररी प्लॅटफॉर्म यांच्यात अखंड एकीकरण आणि आंतरकार्यक्षमता साध्य करणे हे एक जटिल तांत्रिक आव्हान आहे.

निधी आणि टिकाऊपणा:

या मध्ये क्रियाशील (ऑपरेशनल) खर्च, जसे की कर्मचारी पगार आणि देखभाल, दीर्घकालीन आर्थिक सहाय्य आवश्यक आहे. अनुदान, महसूल-उत्पादक सेवा आणि धोरणात्मक नियोजन शाश्वत निधीसाठी योगदान देतात. वापरकर्ता समुदायाला गुंतवून ठेवणे, सदस्यता शुल्क मिळवणे आर्थिक बाबीची स्थापना करणे एक स्थिर आर्थिक पाया तयार करते. यशस्वी डिजिटल लायब्ररी एक बहुआयामी दृष्टीकोन वापरतात, सुरुवातीच्या गुंतवणुकीमध्ये सतत कार्यक्षमतेची खात्री करण्यासाठी आणि विकसित होत असलेल्या तांत्रिक विसारीकरणाशी जुळवून

घेण्याची क्षमता चालू असलेल्या धोरणांसह संतुलित करतात.

भविष्यातील वेध

डिजिटल लायब्ररीमध्ये कृत्रिम बुद्धिमत्ता

i) सामग्री शोध आणि शिफारस प्रणाली:

AI (Artificial Intelligence) कृत्रिम बुद्धिमत्ता, अल्गोरिदम वैयक्तिकृत शिफारसी प्रदान करण्यासाठी, डिजिटल लायब्ररीमध्ये सामग्री शोध सुधारण्यासाठी, वापरकर्ता वर्तन, प्राधान्ये आणि सामग्री मेटाडेटा विश्लेषित करतात.

ii) नैसर्गिक भाषा प्रक्रिया (NLP):

Natural Language Processing (NLP) - मानवी भाषेचे आकलन आणि प्रक्रिया, प्रगत शोध क्षमता, अर्थपूर्ण विश्लेषण आणि मजकूर स्रोतांमधून अर्थपूर्ण माहिती काढणे सुलभ करते.

iii) स्वयंचलित मेटाडेटा निर्मिती:

एआय तंत्र, जसे की मशीन लर्निंग, वर्णनात्मक मेटाडेटा तयार करणे, प्रणाली मध्ये वाढ करणे आणि लायब्ररीमधील डिजिटल सामग्रीची सुलभता स्वयंचलित करू शकते.

iv) मजकूर आणि प्रतिमा ओळख:

एआय-संचालित साधने मजकूर आणि प्रतिमांमधून माहिती ओळखू शकतात आणि काढू शकतात, कार्यक्षम अनुक्रमणिका, वर्गीकरण आणि मल्टीमीडिया संसाधने पुनर्प्राप्त करण्यास सक्षम करतात.

v) चॅटबॉट्स आणि आभासी सहाय्यक:

एआय -चालित चॅटबॉट्स आणि व्हर्च्युअल असिस्टंट रिअल-टाइम सहाय्य प्रदान करून, प्रश्नांची उत्तरे देऊन आणि वापरकर्त्यांना डिजिटल लायब्ररी संसाधनांद्वारे मार्गदर्शन करून वापरकर्ता परस्परसंवाद वाढवतात.

ब्लॉकचेन तंत्रज्ञान:

ब्लॉकचेन व्यवस्थापनामध्ये माहिती संरक्षित करण्यासाठी खातेवही प्रणालीचा वापर करून विकेंद्रित आणि सुरक्षित रेकॉर्ड-कीपिंगचा समावेश असतो. क्रिप्टोग्राफी आणि अल्गोरिदम वापरून, माहितीचा प्रत्येक ब्लॉक जोडला जातो, एक अपरिवर्तनीय साखळी तयार केली जाते. ब्लॉकचेन पारदर्शकता, शोधण्यायोग्यता आणि छेडछाड-प्रतिरोधक डेटा सुनिश्चित करते, मानवी हस्तक्षेपाची गरज दूर करते. डिजिटल लायब्ररीमध्ये, ब्लॉकचेन व्यवहारांवर विश्वास वाढवू शकते, डिजिटल मालमत्ता प्रमाणित करू शकते आणि कॉपीराइट व्यवस्थापन सुव्यवस्थित करू शकते.

मुक्त प्रवेश आणि सहयोग:

सहयोगी उपक्रम, अनेकदा डिजिटल प्लॅटफॉर्मद्वारे सुलभ केले जातात, माहितीची देवाणघेवाण, संसाधने एकत्र करणे आणि सामूहिक विकासास प्रोत्साहन देतात. खुला प्रवेश आणि सहयोग माहितीचे लोकशाहीकरण करते, ज्यामुळे संशोधक आणि वाचक/ जनतेला फायदा होतो. शेअर्ड रिपॉझिटरीज आणि इंटरऑपरेबल सिस्टीम अखंड संसाधन शोध आणि वापर सक्षम करतात. या पद्धती डिजिटल लायब्ररीची प्रवेशयोग्यता आणि प्रभाव वाढवतो, एक जागतिक समुदाय जोपासतात जे एकत्रितपणे सहयोगी आणि मुक्त वातावरणात सामूहिक ज्ञान संग्रहामध्ये योगदान देते, संरक्षित केले जाते आणि त्याची समृद्धी होते.

केस स्टडीज:

एक अनुकरणीय केस स्टडी म्हणजे युरोपीयाना (Europeana), एक यशस्वी डिजिटल लायब्ररी जी युरोपियन संग्रहालये, गॅलरी आणि लायब्ररीतील लाखो सांस्कृतिक वारसा वस्तू एकत्रित करते २००८ मध्ये लाँच केलेले, युरोपिया (Europea) कलाकृती, हस्तलिखिते आणि ऐतिहासिक दस्तऐवजांसह डिजीटाइज्ड कलाकृतींच्या विस्तृत श्रेणीमध्ये मुक्त प्रवेश प्रदान करते. प्लॅटफॉर्म प्रगत शोध कार्यक्षमता, बहुभाषिक मेटाडेटा आणि अखंड नेव्हिगेशनसाठी वापरकर्ता-अनुकूल इंटरफेस वापरतो. युरोपियनचे यश त्याच्या सहयोगी दृष्टिकोनामध्ये आहे, ज्याने संपूर्ण युरोपमधील सांस्कृतिक संस्थांना एकत्र आणले आहे. हे मुक्त प्रवेशाच्या सामर्थ्याचे उदाहरण देते, शैक्षणिक आणि संशोधन प्रयत्नांना प्रोत्साहन देते. चालू असलेल्या तांत्रिक प्रगती, सहयोगी भागीदारी आणि वापरकर्ता प्रतिबद्धता धोरणांद्वारे, युरोपीयाना (Europeana) एक समृद्ध डिजिटल लायब्ररीचे प्रदर्शन करते जे युरोपच्या सांस्कृतिक वारशासाठी जागतिक प्रवेशयोग्यता प्रदान करताना त्याच्या समृद्ध संग्रहाचा विस्तार करत आहे.

निष्कर्ष:

शेवटी, डिजिटल लायब्ररी माहितीच्या विस्तारीकरणात गतिशील आणि परिवर्तनीय शक्ती दर्शवतात. ते AI – कृत्रिम बुद्धिमत्ता,

ब्लॉकचेन आणि आधुनिक ग्रंथालय - ओपन ऍक्सेस (मुक्त प्रवेश) तत्त्वे यांसारख्या तंत्रज्ञानाचा फायदा घेतात ज्यामुळे आपण ज्ञान अर्जन करतो, शेअर करतो आणि जतन करतो. यशस्वी अंमलबजावणी, युरोपियन सारख्या उपक्रमांद्वारे उदाहरणे, सहयोगी प्रयत्नांची क्षमता, मुक्त प्रवेश आणि वापरकर्ता-केंद्रित डिझाइनचे प्रदर्शन करतात. तथापि, निधी आणि टिकाऊपणापासून कायदेशीर आणि नैतिक विचारांपर्यंत आव्हाने कायम आहेत. या आव्हानांना तोंड देण्यासाठी सतत नावीन्य, धोरणात्मक नियोजन आणि सर्वसमावेशकतेची बांधिलकी आवश्यक आहे. डिजिटल लायब्ररी विकसित होत असताना, शिक्षण, संशोधन आणि सांस्कृतिक संरक्षणावर त्यांचा प्रभाव वाढतच जातो, उदयोन्मुख तंत्रज्ञानाशी जुळवून घेण्याचे आणि माहितीच्या लोकशाहीकरणासाठी समर्पित जागतिक समुदायाला प्रोत्साहन देण्याचे महत्त्व अधोरेखित करते.

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