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Analytical Study of Tax Revenue Collection in India

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Abstract:

Taxation is the primary source of income for the government. Taxes collected from both direct tax and indirect tax are the government's tax revenue. Tax collection is considered as a reflection of the economic condition of any country. This research paper is based on secondary data. In this research paper analysed total tax collection from financial year 2017-2018 to 2021-2022 in terms of direct and indirect tax. In 2021-22, the total tax revenue reached Rs.27.07 lakh crore with a record increase of 34%, this is about Rs. 5.00 lakh crore more than budget estimate. The total tax collection in financial year 2021-22, there has been a strong growth of 49% in direct tax and 30% in indirect tax. The decrease in tax collection in the financial year 2019-20 and financial year 2020-21 is due to the disruption in economic activity in the wake of covid-19, but the increase in tax collection in the financial year 2021-2022 is a sign that the country's economy is getting back on track. This credit goes to measures related to ease of compliance and the use of data analytics and artificial intelligence to check evasions. The tremendous growth in direct and indirect tax collections in India indicates the strengthening of the Indian economy. The increase in tax collection reflects the Indian economy's recovery from the effects of the Indian government's economic reforms like as demonetisation in 2016 and the introduction of the Goods and Services Tax in 2017, followed by the impact of the Covid-19 pandemic.

Keywords: Tax Collection, Direct Tax, Indirect Tax etc.

Introduction:

As India's national income has grown since independence, the share of tax and non-tax revenue in government revenue has increased. As the tax revenue increased, there was a need for reforms in the tax system. Some of the taxes in the taxation system were destroyed with the passage of time while some new taxes were added to the taxation system. According to the technological and economic changes in the economy, the position, direction and size of the taxation system changed. As the share of wealth and gift tax in public revenue declined, new taxes such as goods and services tax were added to the tax system. Taxation is the primary source of income for the government. Taxes collected from both direct tax and indirect tax are the government's tax revenue. Tax collection is considered as a reflection of the economic condition of any country. Tax is the most important way of public income. In an inclusive economy, taxation is an important tool for establishing social and economic

justice in the economy. The government levies taxes on people whose income is higher and provides social security to people in lower income groups. Similarly, tax is used to increase savings and reduce unnecessary investment in the economy. In India, the power to collect taxes is given to the central government, state governments and local bodies. Article 268 to Article 300 of the Constitution of India analyses the financial relationship between the Centre and the States.

Review of Literature: Bholane (2020) has carried research on tax revenue collection in India. He concluded that tax collection in India is dependent on indirect taxes. Corporation tax is the major contributor in direct tax revenue collection.

Ghugre (2015) in his research paper Indian Tax Structure –An Analytical Perspective focused on different tax collecting authorities in India. He analysed revenue generated from direct & indirect taxes. He concluded that collection of indirect taxes is

nearly twice the amount collected from direct taxes.

Das (2019) has carried research on direct taxation in India. He concluded that in Indian Direct tax structure, administrative aspect of direct taxes has often been neglected resulting into loss of revenue and cropping up of many problems. Administrative problems of income-tax are many. Notable among them are—tax evasion or under valuation of incomes and identifying new assesses. Other administrative problems are concerned with mounting arrears of assessments, collection and pendency of appeals, etc.

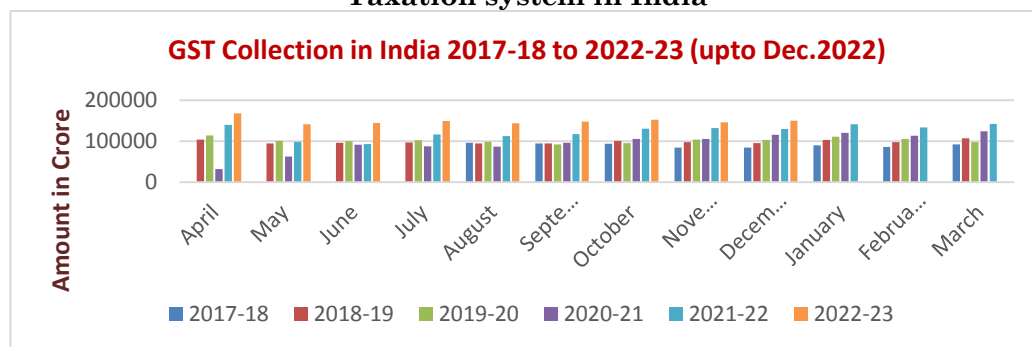
Objectives of the study:

1. To examine taxation system in India.
2. To analysis the direct and indirect tax collection.

Research Methodology:

This research paper is purely based upon secondary data. The secondary data collected from Department of Revenue controlled by Ministry of Finance, Comptroller and Auditor General of India. In addition data and information also collected from Newspapers, Journals and Magazines etc.

Taxation system in India



The tax system in India is classified as follows.

Central Government Taxes: Taxes levied by the central government are direct taxes and indirect taxes. Direct Taxes includes – Income Tax, Corporation Tax, Wealth tax, Gift Tax etc. Indirect Taxes includes– Export Tax Custom Duty, Central Excise Duty, Central Goods and Services Tax etc.

State Government Taxes: The Constitution of India empowers states to levy and collect certain taxes. Direct taxes owned by the state government – Land Revenue, Agricultural Income Tax, Profession Tax etc. Indirect taxes include State Goods and Services Tax, Value Added Tax, State Excise Duty, Stamp and Registration Duty, Electricity Tax, Vehicle Tax etc.

Local Self-Government Taxes - Local self-government bodies are empowered to levy and collect certain taxes to raise revenue as necessary for carrying out their functions at the local level. In which Gram Panchayat, Municipal Council and Corporations charge

house tax, water tax, electricity tax, entertainment tax etc.

Direct Taxes: Direct taxes are those which the tax payer pays directly from his income/wealth/estate etc. They are levied on individuals and corporate entities and cannot be transferred to others. These include Income Tax, Wealth Tax, Gift Tax, Corporate Tax, Estate Duty, Fringe Benefit Tax etc.

Indirect Taxes: Indirect taxes are taxes which are not directly paid by the assessee to the government authorities. These are levied on goods and services and collected by intermediaries (those who sell goods or services). These include Value Added Tax (VAT), Customs Duty, Excise Duty, Goods and Service Tax etc.

Analysis of Data:

Table No. 1: GST Collection from 2017-18 to 2022-23 (December 2022)
(Rupees in Crore)

Sr	Month	2017-18 Rs.	2018-19 Rs.	2019-20 Rs.	2020-21 Rs.	2021-22 Rs.	Inc.(+) (2020-21 to 2021-22)%	2022-23 Rs. (Till Dec.2022)	Inc.(+) (2021-22 to 2022-23)%
1	April	---	103459	113865	32172	139708	334.25	167540	19.92
2	May	---	94016	100289	62151	97821	57.39	140885	44.02
3	June	---	95610	99939	90917	92800	2.07	144616	55.84
4	July	---	96483	102083	87422	116393	33.14	148995	28.01
5	August	95633	93960	98202	86449	112020	29.58	143612	28.20
6	September	94064	94442	91916	95480	117010	22.55	147686	26.22
7	October	93333	100710	95379	105155	130127	23.75	151718	16.59
8	November	83780	97637	103491	104963	131526	25.31	145867	10.90
9	December	84314	94726	103184	115174	129780	12.68	149507	15.20
10	January	89825	102503	110818	119875	140986	17.61		
11	February	85962	97247	105361	113143	133026	17.57		
12	March	92167	106577	97590	123902	142095	14.68		
	Total	719078	1177370	1222117	1136803	1483292	30.48		
	Average	89885	98114	101843	94734	123608	---	148936	---

Source: Government of India Ministry of Finance

Interpretation:

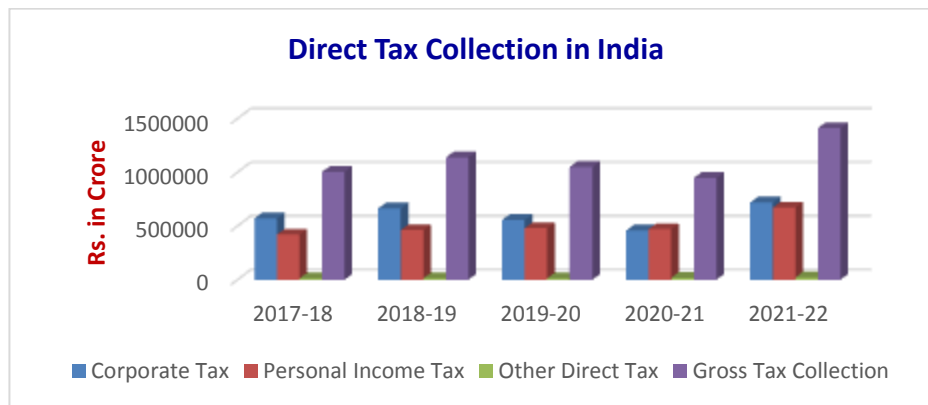
The above table shows the GST collection in India from 2017-2018 to 2022-2023. After the introduction of Goods and Services Tax, it can be seen that the GST collection has increased in 2018-2019 and 2019-2020 to an average of Rs.98114 crores and Rs.101843 crores per month respectively. In 2020-2021 the collection of goods and services tax has decreased due to the corona pandemic. There has been an annual increase of 30.48 percent in the total goods

and service tax collection in 2021-2022 as compared to 2020-2021. It will increase in 2022-2023 to an average of 148936 per month by December 2022. From April-2022 to December-2022 there has been an increase in tax collection of Rs.273241 crore compared to the previous year 2021-2022. A comparison of the previous nine month period with the same period of 2021-2022 shows an increase of 25.60 percent in GST collection. This increase in tax is positive for the country's economy.

Table No. 2: Direct Tax Collection (Rupees in Crore)

Year	Corporate Tax	Personal Income Tax	Other Direct Tax	Gross Tax Collection	Inc./Dec. (+)/(-) %
2017-18	571202	419884	10951	1002738	17.93
2018-19	663571	461652	12495	1137718	13.46
2019-20	556876	480348	13462	1050686	-7.64
2020-21	457719	470633	18822	947174	-10.93
2021-22	719035	670588	21005	1410628	48.93

Source: Government of India Ministry of Finance Department of Revenue Central Board of Direct Taxes



Interpretation:

The above table shows the direct tax collection in India from 2017-2018 to 2021-2022. After demonetization in India on November 8, 2016, the subsequent financial years 2017-2018 and 2018-2019 saw an increase in direct tax collection of 17.93 per cent and 13.46 per cent respectively. In the subsequent two years i.e. 2019-2020 and 2020-2021 due to the shutdown of all transactions due to Corona pandemic, the direct tax collection has decreased by 7.64 percent and 10.93 percent respectively. In 2021-2022, the direct tax collection has reached a high with an increase of 48.93 percent compared to financial year 2020-2021.

Conclusion:

In 2021-22, the total tax revenue reached Rs.27.07 lakh crore with a record increase of 34%, this is about Rs. 5.00 lakh crore more than budget estimate. The total tax collection in financial year 2021-22, there has been a strong growth of 49% in direct tax and 30% in indirect tax. The decrease in tax collection in the financial year 2019-20 and financial year 2020-21 is due to the disruption in economic activity in the wake of covid-19, but the increase in tax collection in the financial year 2021-2022 is a sign that the country's economy is getting back on track. This credit goes to measures related to ease of compliance and the use of data analytics and artificial intelligence to check evasions. The tremendous growth in direct and indirect tax collections in India indicates the strengthening of the Indian economy. The increase in tax collection reflects the Indian economy's recovery from the effects of the Indian government's economic reforms like as demonetisation in 2016 and the introduction of the Goods and Services Tax in 2017, followed by the impact of the Covid-19 pandemic.

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Changes of Agriculture Cropping Pattern in Gulbarga District

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Abstract

After the Green Revolution there has been a drastic change in the pattern of crops in India and in the world. The Green Revolution the attitude of farmers is change toward the high-value crops. The infrastructural development, irrigation, hybrid seeds, transportation facility, rural market, agro based industry, availability of capital, cooperative movement and other economic factors are responsible for agricultural diversification. In the Gulbarga district the cash crops have been increased more quickly than food grain crops. The main objective of study is to analyse the changes of agriculture cropping pattern in Gulbarga district from 2000 to 2016. The result is obtained from a statistical and graphical analysis of the agriculture production in the study region. The study also found certain kind of structural changes in all crops. The area under of food grain crops like Jowar, Pulses and Bajara etc. are decreased as compare to the Sugarcane and Soybean. The area under soybean cultivation is rise 495600 percent which is high as compare to other crop. The area under sugarcane cultivation is rise 348.11 percent which is second high as compare to other crop. Most of the irrigation facility and capital are invested in this crop but recently this are facing more problems. In the changing situation, the condition of farmers is getting worse.

Key words: Green revolution, Modern Agriculture, Cash crop, Food grain.

Introduction

India is an agricultural country. The economy of Gulbarga depends on agriculture. Due to natural diversity, many types of crops are grown in India. The Agriculture and its allied activity contribute more than 40 % share in Indian economy. More than 33% of India's rural populations are depend on agriculture and its related allied activities for their livelihoods. However the Green

revolution and other policy related to the agricultural development are design in the country. The climatic diversity of the country is produced different variety of crops. But the crops in India are classified mainly in to two groups - food grain crops and Cash crops. The food grains are considered cereals, pulses and oil seeds and cash crops are considered sugarcane, cotton, tea, coffee, non-food grain crops and soybean etc.



District Gulbarga is backward district. Agriculture is an important activity in Gulbarga district. More than 70 % population of district Depends directly or indirectly on the agriculture. The agriculture sector plays a significant role in the overall socio-economic development of Gulbarga. Gulbarga district is located in the North-East backward district part of Karnataka. The Geographical location of Gulbarga is 16°12' to 17°46' North & 76°04' to 77°42' east. On the north-east for short stretch, the district shares its boundaries with Maharashtra and on the east it is bounded by Telangana. On the other three sides, the district is surrounded by Raichur on the south. Bidar on the north and Bijapur on the west. Gulbarga district is situated in the river basins of the Krishna and bhima. The climate of the Gulbarga district is on the whole is agreeable. The climate ranges from the normal in the Gulbarga region, which has an average annual all of over 820 mm. The mean minimum temperature is 14.8 Celsius and mean maximum is 29.7 Celsius.

Objective

1. To analyse the crop diversification pattern in the district.
2. To check impact of Soybean and Sugarcane on cropping pattern.

Table 01- Percentage distribution of major crops in Gulbarga District.

Year	Total cropped area in Hector	Rice	Jowar	Bajara	Wheat	Soybean	Sugarcane	Pulses
1999	1397618	1.58	26.90	5.33	1.56	0.002	0.62	38.56
2017	905244	0.46	22.57	0.54	2.03	2.19	4.28	55.56
Variation	-40490	-1.12	-4.33	-4.79	+0.47	+2.18	+3.66	+16.69

Source- Gulbarga district at a glance 1998-99, 2016-17 and Compiled by researcher.

In the Gulbarga district the clear picture are noticed from the area under food grain crops are change in to the cash crops mainly sugarcane during the study periods due to various socio-economic reason. The area under soybean and sugarcane are increased but the area under Jowar both

Data and Methodology

The data used for given study is secondary Information. The data used for given study is agriculture land use from 1999 to 2016 of Gulbarga district. The data of Agriculture land use has been collected form Department of Agriculture, Karnataka State, Gulbarga district at a glance and the Socio-Economic abstract of Gulbarga district. In the present study, percentage and Variation of cropping pattern also calculated with the help of statistical and graphical techniques.

Data Analysis

The change in crop pattern in Gulbarga district can be studied as follows. The agricultural land use pattern of major crop to the year of 1998-99 in the district is compared with the 2016-17. Here is observed the percentage of food grain crops has been rapidly decrease and the percentage cash crops is dominantly increase. Particularly the area under Sugarcane is increase up to 348.11 percentages as compare to the total cropped area and Soybean is increase up to 495600 percentages as compare to the total cropped area (Table 01). During the period 1998 to 2017 the total area of food grains has decreased by -28.64 percent. During the period 1998 to 2017, the area of cash crops has increased by +217.83 percent.

Karif and Rabbi, Bajara, in the study periods (Table 02). The declines are of Jowar, Rice, Wheat, Pulses and Bajara are 45.64, 81.08, 15.80, 06.16 and 93.45 percent respectively; while increase of sugarcane 348.11 percent and Soybean 495600 percent.

Table 02 Changes in Area and Agriculture Production of Important Crops in Gulbarga District.

Crop	Area '00' hector		% variation
	1998-99	2016-17	
Rice	22202	4199	-81.08
Wheat	21882	18423	-15.80
Bajra	74628	4886	-93.45
Jowar	375976	204379	-45.64
Pulses	538969	505740	-06.16
Total food grains	1033657	737627	-28.64
Cotton	20113	32830	+63.22
Soybean	04	19828	+495600
Sugarcane	8658	38798	+348.11

Total cash crops	28775	91456	+217.83
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Source- Gulbarga district at a glance 1998-99, 2016-17 and Compiled by researcher.

Perspective of Soybean and Sugarcane Cultivation

Soybean is a new crop of modern period and Sugarcane is cultivated in India during from the ancient periods. These crops shared more than sugarcane 7% agriculture output in the Indian economy. Presently, Soybean contributes around 37% to the total oilseeds and around 20% to the total edible oil production in the country. Most of the irrigation facility involve in this cultivation and provides second largest raw material after the textile industry. Sugarcane cultivated in India broadly tropical and subtropical zone. Utter Pradesh and Maharashtra are leading state in sugar cane cultivation. Karnataka is the producer of sugar and contributes production in the

country. 59 Co-operative and private sugar industry install in the state. Belgavi, bagalkot, Bijapur, Mandya, Mysore, Chamrajnagar and Gulbarga are leading sugar producing district in the state. In the Gulbarga district Sugarcane is leading cash crops and it share 25 percent total cropped area. Belgavi, Bengaluru, Chikmangluru, Chitradurga, Dakshin Kannada, Chamrajnagar and Gulbarga are leading Soybean producing district in the state. The cultivation of sugar-cane in the districts has increased from availability of irrigation facility through the major and minor project. This crop is mostly cultivated in the Valley of Manjra River. This crop is using most of the irrigation facility in the district (Table 03).

Table 03 Irrigation Facility for Sugarcane crop and other crops.

Area under irrigation (ha)	Irrigation Facility for Sugarcane	Irrigation for other crops
109691	38798	70893
100%	35.37%	64.63%

Source- Gulbarga district at a glance 1998-99, 2016-17 and Compiled by researcher.

Conclusion: Sugarcane area and soybean area have increased significantly in Gulbarga district. In the Gulbarga district the food grain crops are predominantly decreasing as compared to the Cash crops. The area under rapidly decreasing under food grains and Pulses may be creating serious issues like food deficit and food insecurity for global level. In the district level there is required proper planning for the growth of food grain production. The area under Sugarcane cultivation is increased 348.11 percent and this crops using about 35.37 percent irrigation facility. The lacks of irrigation facility for remain crops due to this cultivation. The attitudes of farmer are changes toward this cash crop, while the area under this crop is rapidly increased. Recently the Sugar cane crops facing problems of Fair & Remunerative Price, drought, availability of irrigation, soil degradation, labor. So the trends of farmers are requiring diverting from Sugarcane cultivation toward the fruits and horticulture. In the growth of cash crops of Gulbarga district, soybean crop has increased significantly. Due to the large amount of dry land areas in Gulbarga district, people are inclined towards soybean production. The area under soybean cultivation has increased by 495600 percent. Food grains has decreased by -28.64 percent

and the area of cash crops has increased by +217.83 percent.

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Contemporary American Writers of the 21st Century

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Abstract-In the modern era of English Language Literature (ELL), American Literature plays a crucial role in its rich tradition and culture. The American writers struggled a lot to possess their own literary style and genre in American Literature writings. The history of American Literature can be categorized into some major periods namely, 'The Colonial Period', 'The Revolutionary Age', 'The Early National Period', 'The American Renaissance', 'The Realistic Period', 'The Naturalist Period', 'The Modern Period', 'The Best Generation', 'The Contemporary Period'. In the 21st century, contemporary literature reflected many beliefs and transformations often, based on the changes in the word especially on human emotion, character and diversity. Few of the concerns of the contemporary society are Global Warming, racial, communal and ethnic problems, crime, corruption etc. In the 21st century of American Literature there emerged many number of American writers. Some of the contemporary American writers of the 21st century were J K Rowling, Cormack McCarthy, George Saunders, Charlie Jane Anders, John August, Ellis Avery, Mark Anthony, Tim Akers and others.

Key Words-English language literature, crucial, struggled, genre, periods, emerged, global warming, Corruption

I - Introduction

The literature that is written and produced in the United States of America is considered as the American Literature. The American literature is a well known broader tradition for English Language Literature (ELL). American Literature also includes the other traditions literatures that are produced in United States and several other immigrant languages as well. Furthermore, American Literature is more familiar for a rich tradition of oral story telling within the Native Americans. The political writing during the period (1775-1783) is noted as the American Revolutionary Period. The poems and songs were popular during the Revolutionary War. The Colonial Literature of the thirteen colonies is considered as the hub of the early literature of America. French and Spanish had strong colonial literary traditions in the areas but later merged in the United States. The Post-War period recognized steadfast position through the authorship of the declaration of Independence by one of the author in American Literature. The early American Literature underwent a lot of struggle to have a voice that is unique in the

existing literary genre and that predisposition was reflected in the novels. The history of American Literature has reached to the poetry, novels and drama created in today's United States of American Country.

Major Periods of American Literature

American Literature consists of the body of written works that are produced in the language of English in the United States. The literature of America was shaped by the history of the country that produced it as the literatures of the other nations. The history of American Literature majorly falls into the following periods.

Pre-colonization period:-The indigenous people of North America have created many oral traditions in the literature of United States for thousands of years to what it was today. The native people described more than hundreds of tales that exploited benefits to human beings. 'The Raven cycle' is a collection of tales that described the chaos that Raven created and the order that eventually emerged, often at Raven's expense. Pueblo oral traditions in the Southwest include stories about the ancestral spirit beings among humans that actively shape their

environment. A wide range of myths created by the native people shows, how the world came into existence.

The colonial period:-Literature, that was often written in English about the experiences starting in 1600s by the first colonists of North America was straightforward, practical and focused on the future writings. The United States has declared its independence in 1776, and a new era began along with many new writings that addressed the future of the country. American poetry and fiction was immensely modeled and published in the overseas of Great Britain and most of the American readers who followed it also evolved from Great Britain.

The romantic period:-Romanticism may be stated as the way of thinking the values of an individual over the group, the subjective over the objective and a person's emotional experience over the reason. Romanticism also valued the wildness of nature over the human made order. The worldview of Romanticism was held in Western Europe in the late eighteenth century and was embraced by American writers in the early nineteenth century. The most vividly depicted and inhabited role of the Romantic individual, "A Genius" by Edgar Allan Poe is often tormented and always struggled against convention. After 1830 different groups of writers and thinkers were emerged in New England. Each of them explored their experiences in a variety of segments in the American society. Nathaniel Hawthorne, Herman Melville and Walt Whitman has published novels, short stories and poetry during Romantic period and became most enduring writers of the American literature. The United States was headed towards civil war during the 1850s and more stories about Black people were written during that time in U S.

Realism and naturalism:- The cost of the humans of the civil war in the United States was huge and many soldiers fought in the war and perhaps many people died in the war. Walt Whitman, the American writer claimed that out of the era of those four years a great literature raised. The literature that emerged presented a detailed and unembellished vision of the world following the decades as it truly was. An intensified form of realism was the essence of the Realism and Naturalism and the styles became writers' primary mode of expression after the grim realities of a devastating war. Samuel Clemens worked as

a typesetter, journalist, captain a river boat and an itinerant laborer before he became Mark Twain at the age of twenty seven in 1863. He first used that name in politics at the Nevada Territory. It was then appeared as a short story, "The celebrated jumping frog of Calaveras County", was published in 1865, and casted him into the national fame. Twain's stories held a humorous tale, but the characters were realistic that depicts the actual Americans. Twain is one of the writers that deployed the combination of humor and realism throughout his writing. Naturalism and realism were the literary movements that have drawn an inspiration from French authors of the nineteenth century and looked into the document through fiction and the reality was seen around them especially among the middle and working classes living in the cities.

The modern period:-The beginning of the twenty- earth Century brought about a drastic advancement in science and technology. There was a widespread of suffering in European Country and The United States as well because of the devastation of the World War-I which caused a great depression. Then, there took place a movement in the arts that was defined first and foremost as a radical break from the past in the contradictory impulses and can be found swirling within modernism. That radical break lead to an act of destruction and it even affected the loss of faith in traditional structures and beliefs. In the American literature, the modern period has proved to be one of the richest and most productive one. The sense of disillusion and the loss pervaded the American modern fiction which was directed towards American society or civilization and as well, also centered on specific individuals. This generated, destructive impulse and expressed some sort of hopefulness that change in the coming years. In the early twenty-earth century, for the first time in the United States drama came into existence and playwrights has drawn inspiration from European theatre but drafted plays in entirely unique and enduring manner of the American country.

II - The Contemporary Period

In late 1940s, the State that emerged from World War- II was economically strong and confident. It later entered into cold war and with this the Soviet Union shaped the global politics for more than four decades. The wars and threats of nuclear annihilation were

influenced and shaped the American literature during the second half of the twenty-first century. The 1950s and 1960s has brought significant cultural shifts within the United States. They were driven by the movements such as civil rights and the women's rights. The turning of the twenty-first century recognized a complex, inclusive story. It was grounded on a wide-ranging body of previous writings that were produced in the American country. It happened by people of different kinds of back grounds and is opened exclusively to the experiences of more and more Americans in the present days.

Contemporary American Writers of Twenty First Century

J. K. Rowling: 'J' stands for 'Joanne' and 'K' stands for 'Kathleen'. Joanne Kathleen Rowling was one of the two daughters of Peter Rowling and Anne Rowling. Her sister name was Dianne Rowling. Rowling's father was an air craft engineer at Rolls Royce factory in Bristol and mother was a science technician in department of chemistry at Wyedean Comprehensive, where J K Rowling herself went to school. She was born on 31st July 1965 at Yate General Hospital near Bristol and grew up in Gloucestershire in England as well as in Chepstow, Gwent, in south-east Wales. Her mother passed away in 1990 due to multiple sclerosis when J K Rowling was in teens. Rowling grew up herself by reading books and so, she wished to become a writer at an age of six years only. She has written her first novel when she was eleven years old. She studied at Exeter University and read so widely outside her French, Classics syllabus that clocked her up a fine of £50 for overdue books at the University library. Her knowledge of classics came in handy and created Harry Potter series. Some of them were based on Latin also. She has inculcated the idea of Harry Potter when she was sitting in a train that was late from Manchester to London King's Cross in 1990. From then for the coming years continuously she created seven books of the series. They were mostly in longhand and gradually have built masses on the odd scraps of paper. Her book Harry Potter series was followed by different titles and acquired record breaking success.

In the film adaptation of her first book was released by Warner Bros., and was followed six more book adaptations concludes with the release of the eighth film, Harry Potter and the Deathly Hallows Part-II in 2011. She has also written two small

companion volumes that appeared as the titles of Harry's school books within the novels. Fantastic Beats and Where to find them and Quidditch through the Ages were published in March 2001 in the aid of comic relief. She has also written novels based on crime stories. The Silkworm written by her was published in 2014 followed by different titles. Most of them were transformed into television by BBC and HBO as well. Her literary services bagged her many honors and awards as well.

Cormac MC Cathy:-Cormac McCarthy an American writer has worked on several works. He has written twelve familiar novels. He has received an immense response for his plays which were two in number. His famous works even include screenplays that are five super success screenplays. Last but not the least was the three short stories that spanned the Western and post apocalyptic genres. He was one of the greatest American Novelist who was popular widely. He was born on 20 July 1933, Providence, Rhode Island. The Orchard Keeper, his debut novel was published in 1965. His next novels Outer Dark was published in 1968, Suttrees was published in 1979, normally received good reviews but was not successful in receiving it in a commercial manner. His fifth novel Blood Meridian was published in 1985 and was labeled as one of the greatest Novel in the United States of American Country. Cormac McCarthy, for the first time he witnessed widespread success with "All the Pretty Horses". The success of it made him receive the award 'National book Award' and it also paved the way for the 'National Book Critics circle Award' in 1992. Some of his works have been made into films. His last novels "The Passenger" was published on 25 October, 2022 and Stella Maris was published on 6 December, 2022. McCarthy passed away on 13 June, 2023. McCarthy, the greatest novelists of American Country who belongs to the twenty first century was no more. It is true though we can't believe it.

George Saunders:-George Saunders, was not only one of the short story writer but also an essayist and a novelist of the American Country. His writings were very popular in the United States of American. He has won the Awards for his fictional works in 1994, 1996 and 2000 while working as a professor at Syracuse University. His work novella has received an ultimate success in Germany and is renamed as the Novelle, in eighteenth,

nineteenth and the beginning of twenty-first centuries in the works of some great writers. Cormac McCarthy has received MacArthur Fellowship. He has also won the World Fantasy Award for his short story CommComm. He has won Story Prize in the year 2013. He has also won Booker Prize in the year 2017.

Charlie Jane Anders: Charlie Jane Anders, an American writer and commentator was born on 24 July, 1969. She has written several novels and short fiction as well. She was the receiver of 'Lambda Literary Award' for her work in 2005. She has also received another Award in the year 2009. Her novel 'All the Birds in the Sky' written in 2016 was short listed in the 'Top Ten Novels' of the year 2016 and has won the award for the best novel in the year 2017. Charlie Jane Anders was a longtime event organizer in addition to her work. Her novel 'The City in the Middle of the Night' was published in 2019 and has won the award for her work as the best novel.

John August: John August, was not only an American screen writer but also a famous director, who directed many successful films. He was also one of the great producer and novelist as well. He was born on 4 August, 1970. In 1999, John August became very popular for his writing that transformed into the films named 'Go' and 'Charlie's Angels' in 2000. 'Big Fish' was also a biggest hit released in 2003. His works 'Charlie's Angels: Full Throttle', 'Corpse Bride' and 'Charlie and Chocolate Factory' were Block Buster's in 2005. Frankenweenie was released in the year 2012. His novels 'Arlo Finch in the valley of Fire' was published in 2018. His successful works 'Disney live action adaptation of Aladdin' and 'Arlo Finch in the Lake of the moon' was published in the year 2019. His work 'Arlo Finch in the Kingdom of Shadows' was released in the year 2020.

TIM AKERS: Tim Timothy Akers, was not only an American author of speculative fiction but also one of the greatest writers of the twenty-first century. He was born on 12 December, 1972, Buncombe County, North Carolina, United States. He was born to John Nance Akers who was a theologian. His works appeared in a variety of Magazines. He has been active in the field of fiction from the year 2004. His works 'Heart of Veridon' was published in 2009, 'The Horns of Ruin' was published in 2010, 'Dead of Veridon' was published in 2011, 'Bones of Veridon' was published in 2013, 'The Pagan Night' was

published in 2016, 'The Iron Hound' was published in 2017, 'The Winter Vow' was published in 2018, 'Knight Watch' was published in 2020, 'Valhelligions' was published in 2022, 'Wraithbound' was published in 2023. He has written many short stories like 'Memory Analog' was published in 2004, 'A walking of Crows' was published in 2006, 'The Song' was published in 2006, 'Distro' was published in 2006, 'Toke' was published in 2007, 'The Algorithm' was published in 2007, 'A Soul Stitched to Iron' was published in 2009, 'The Quiet Front' was published in 2013, 'The Angel of Divine Intent' was published in 2016, 'A Death in the wayward Drift' was published in 2017. His non-fiction 'Faith in the Fantastic' was published in 2012.

III – Conclusion

The original languages have their own style of structures and formats as well. The cultural assumptions are likely to be different from those of the English. There were some broad guidelines that underlie basic American English as well as US academic writings. American writings fail to cite the sources of ideas and text. It was referred to as plagiarism. It results in serious ramifications which includes failing grades, damaged reputations, school expulsions and almost all jobless. American English typically presents the topic beforehand. American writing prefers concisely to the point wording. Construction of argument often involved argument building. The writers make use of transitions to link ideas. The evidences are supported to claim relatively formal writing so as to ensure the clarity. Logic usually determines how to punctuate and where to place quotation marks. The Chicago Manual of Style explains in defense of nearly a century and a half of the American style, however may be said that it seems to have been working fairly well and has resulted in serious miscommunication. It means that no one has died yet. When people start dying then it will be switched to the British style.

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Importance of Open Source Software's For Digital Libraries

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Abstract:

Every field in the changing environment created the new necessity of digitalization. India in recent years is recognized digital India. Library and library resources are transformed on need based to meet new challenges for library services.

The consumers services, service optimization requirements and consumer means reader satisfaction, Digital services are advantages, Cost-effective, serving time and easily and frequently available. The digital library and Open Sources are interoperable, optimized sources. The innovation in technological resources are extremely productive, innovative, but needs to be cost effective and free, trained management and optimum utilization. Digital literacy are the changing needs that needs to create. This paper is useful for all Librarians they that they gave traditional services to users. The paper discusses need, importance, concepts and challenges in digital libraries and open sources software utilization.

Key Words: Open Source Software, Digital Library, Greenstone Digital Software, Koha Open Source Software, Digitization of Resources.

Introduction:

We are living in the age of information and technology. Information is the basic need for every human activity and it is important as a food, air and water. People understand the value of information. One of the major reasons being, presently, more than 82 percentage of world's scholarly literature is born digital. Users are demanding digital information at the time professionals are acquiring digital information as a need. A digital library is a collection of information that is both electronic (born digital) as well as digitized and it gives us powers with we never had with traditional libraries.

Recent advantages in technologies and the advent of computers, internet and communication technologies have revolutionized the scholarly communication scenario drastically. Software is the main component of IT. Commercial software companies here adopted these technological innovative strategies.

In these documents which are attracting the interest the freedom of research and development offered by Open Source Software for digital libraries. In Open Source Software the source code is distributed along

with the executable form. Open source software's is available free of cost and gaining much popularity among developers and user community throughout the world.

This paper step-by-step covers on topics like, it explain the concept of Digital libraries and how to manage the contents using Open Source Software for Digital Libraries. The Koha and Greenstone Digital Libraries Software's offers exciting ways to build and distribute digital document collections. It helps us to publish digital collections on library website, blogs and Internet or on CD-ROM also.

Objectives of the Study:

Retrieval of information will become easy.

1. To scan the scope of digital library documentation of information.
2. To present positivity benefits of digital library and open source software.
3. To acquaint readers cost effectiveness in digital library software.

Methodology:

The research paper express the awareness of open source software and its use in library services used research experience. Primary resources and secondary resources to get basic factors and services of open sources

software. The discussion on the peer members librarians and interaction helped to expand the research topic in the presentable form. The access digital libraries, platforms, experience of digital library services to build digital libraries opened ways to analyze the research topic.

Signification of Study:

1. Digital Library:

Digital Library has a number of machine readable study materials as well as other publications such as text, images, sounds, videos and any combination of text, images, sound, videos etc. in digital form and facilities remote access to several databases. The digital documents may be stored locally in electronic storage system and provide these information services offline or online basis. Digital Libraries are now come forward in the global information and communication technology. So the challenges to the library professionals how to acquire, organize, store and retrieve various information available in digital form. This is the main concept of digital library.

2. Digitization of Resources:

Since thousand years, man has been recording, presenting and preserving information through various media like clay tablets, stone, palm leaves, leather etc. Subsequently, micro documents, audio and videocassettes also arrived on the screen.

The 20th century witnessed a revaluation in the form of computers for storing and retrieving information. Slowly the static and paper based libraries are being replaced step by step by dynamic digital libraries for producing, organizing, locating and accessing the information. Digitization is the process of taking traditional reading materials that are in the form of books, papers, thesis, journals and converting them to the electronic form where they can be stored and manipulated by a computer.

3. Advantages of Digital Libraries:

1. There is no physical boundary the people from all over the world can gain access to the same information, where an internet connection is available.
2. A major advantage of digital libraries is that people can gain access 24/7 to the information.
3. Multiple Access- The same resources can be used simultaneously by a number of institutions and patrons. This may not be the case for copyright material.

4. Information retrieval system in many keywords. The user is able to use any digital material, term and document to search the entire collection.
5. Digital libraries can provide very user-friendly interface, giving clickable access to its resources.
6. Traditional libraries are limited by storage space. Digital libraries have capacities to store much more information. Digital information requires very small storage capacity.

4. Building Digital Collection:

Major issues in creating digital libraries will be the building of digital collections. There are multiple challenges related to many sources collection financial challenges and lack of training as a major barrier to digital library. Any digital library to be comfortable to create new digital information, it must eventually have a digital collection with to make it truly useful. The two ways of building digital collection are, Digitization, converting paper and other media in existing collection to digital form and acquisition of original digital works created by the publishers and scholars. E.g. electronic books, Journals and datasets bases.

5. Preservation of Digital Collection:

There are two ways to examine some basic requirements. From the perspective library professionals and users are using digital material and from this view libraries need to care for archives and custodians who assume responsibility for their maintenance, preservation and distribution. Actually it is hard to develop a new digital library. So every library should have essential flexible digital collections, management and presentation software for creating and delivering digital collection.

The preservation of digital objects on this software that presents these objects. The complexity of the situation is that lot of investments are required to purchase such kind of digital library software's. The whole lot of associated issues include initial purchase fee, licensing fee, upgrade fee, annual maintenance contracts and so on. So librarian now is to turn to an Open Source Software for digital libraries. Open Source Software for digital libraries has grown tremendously in scope and popularity over the last several years.

6. Open Source Software:

Open Source Software is a free software in market, coined in Feb 1998 as an

attempt to overcome the confusion over the world free. Open Source refers to the fact that the source code of the software is open to and for the world to take to modify and reuse. Open Source Software is freely modifiable and redistributable software. To use the Open Source Software, the rationale are

1. Open Source Software makes available the full version of the product in free of cost. Download from internet and use it. Commercial software require huge investment at the initial stage and additional payment for maintenance.
2. Know the technical aspects of Open Source Softwares. It is interoperable, customizable according to the need and fulfill the software industry standards.
3. No need to licenses. Open Source Software licenses are not copyright protected, they strictly ensure the users freedom to use, modify and distribute the programme.
4. Librarians are likely to choose Open Source Software's for digitization purpose. Most of the libraries are not in a position to buy high priced proprietary softwares due to severe budget cuts.
5. The freedom to study how the programme works, and adapt it to users need. The freedom to redistribute copies so one can help another. The freedom to improve the programme, so that whole community can get benefits.

7. Selection of Open Source Software:

Most convenient option to identify particular software for your library-need is to ask professional friends who have experience in using Open Source Softwares. You can directly contact other libraries in your locality or post a message in any popular email discussion forum of librarian. Certain Open Source Softwares are highly popular among librarians community, for example **Koha, DSpace, Greenstone, E-prints, New Gen Lib, Evergreen and Digital Library** etc. digital library software are among favorite for the librarians.

8. Open Source Licenses:

Open source licenses assure the users freedom to use, copy improve and distribution of software. (GPL) General Public Licenses is the most popular license for free and open source software and provide feasible terms of use. Open Source Software installation is open and don't require a license. A user can modify without the permission of its creator. Many libraries are successfully using open source software with

less technological errors. However, open-source licenses may have some restrictions, particularly regarding the expression of respect to the origin of software, such as a requirement to preserve the name of the authors, and user can take care of copyright statement within the code.

9. Installation and Maintenance:

Installation and maintenance is the main issue of Open Source Software. Libraries donated to install these softwares. Many OSS are developed for Linux environment. Computer professionals are supporting open source service to provide services like installation and maintenance. Users can download the source code of OSS from website.

At the time of OSS installation it requires a professional and technical hand who is known to computing knowledge. Libraries should have a well-equipped hardware, internet and networking facilities. Librarians should acquire some basic knowledge of Open Source Software, Web Server (Apache) and Database Management System (MySQL) is essential to deploy OSS in library. Most of popular OSS suitable for library applications support Windows, Linux and Mac Operating System. Basically some library softwares are secure and user friendly in Linux Operating System.

10. Challenges:

Most of the libraries use Windows operating system and related applications due to its friendliness and that it requires technical knowledge to work. Many libraries simply do not have the expertise staff to support open source software development, and also don't to have the facility of proper education system. They do not provide training to the staff on the use of the new technologies. In such situations libraries can hire the services of open sources software support vendors.

Examples of Open Source Digital Software:

Some Open source Software's are available in market.

1. Greenstone Digital Library Software
2. Eprints
3. D-Space (Institutional archiving Software)
4. Koha
5. New Gen Lib
6. Evergreen
7. Digital Library

Conclusion:

Today there are many more options of Open Source Software's available in the market. Some are very powerful solutions available for user to create a much more resourceful library. The library professionals should acquire such skills in handling the information sources and users tactfully and render satisfactory information service in the fast changing digital library environment. The approach towards setting up the digital library standards, software technologies and best practices is definitely taking shape. The growth of Open Source Software concept for digital libraries can be viewed as an opportunity for the library and information professionals because of its cost effectiveness and flexibility. Koha and Greenstone can be powerful tools in bridging the gap of digital divide in India. The digital libraries offer a unique challenges to an emerging breed of digital librarians. The information professional has to always ready to watch for new developments and noticeable changes in the field of OSS. However, it must be noted that each software package has individual strength and weaknesses that will appeal to different organization and stakeholders with different needs.

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Rethinking Of Masculinities: An Evolving Perspective

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Abstract:

The focus of this research is on the evolution of male identity and cultural conceptions of masculinity. Traditional notions of masculinity have often been overly narrow, contributing to the maintenance of harmful stereotypes and assumptions. But a more inclusive, diverse, and caring perspective on gender is leading to a rethinking of what it means to be masculine. This essay investigates the complexities of masculinity, the pernicious impacts of rigid gender norms, and the ways in which our culture may be altered to promote healthier, more authentic expressions of gender. The intricate web of gender identities, violent experiences, and emotional restraint This new perspective furthers gender equality, the acceptance of many identities, and the removal of harmful stereotypes that hold men and society back from reaching their full potential. By analyzing the rethinking of masculinity in this context, this article hopes to encourage a more nuanced and empathic perspective of masculinity. We can help men reach their full potential as people and as contributors to society if we challenge and expand our ideas of masculinity. This process of reassessing masculinities is also open to female participation. This movement is representative of a broader cultural trend that challenges traditional notions of masculinity and the worldviews of its members. By working to eradicate gender norms and adopting a more open perspective on gender, we can create a more equitable society that values and celebrates a wide range of masculinities while eliminating harmful power dynamics.

Key Words: Masculinity, Rethinking, Re-evaluation, Militarism, Stereotypical, Empowerment.

Introduction

In this post, we will delve into the historical and cultural contexts that have contributed to the perpetuation of harmful norms associated with traditional masculinity. To highlight the diversity of men's experiences and identities, we will look at recent literature and research through the perspective of queer masculinities, trans masculinities, and subordinated masculinities, among others. We will discuss the importance of emotional intelligence training, positive role models, education, and awareness in questioning and reforming cultural notions, as well as the harmful effects that rigid gender norms have on both men and women.

Overall, this study intends to spark debate and analysis in order to propel a transformative strategy toward masculinities that aids in the promotion of gender equality, social justice, and individual flourishing.

Relationships, mental health, and people's freedom to be themselves might all benefit from a societal re-evaluation and adoption of a more inclusive vision of masculinity. To build a more equitable and loving world, it is everyone's responsibility to begin the process of reevaluating old male roles. The social ramifications of masculinity are receiving more attention. Traditional notions of masculinity are strongly correlated with the marginalization of many groups. One area where masculinity overlaps is in the rise of the military, which has negative effects on social development and equality.

Objectives:

The purpose of this research is to investigate the ways in which masculinities connect with militarism, as well as the outcomes of these interactions and the criticisms that have been leveled against them. It also seeks to comprehend how military masculinities contribute to the

worldwide problem of economic and social inequality.

Methodology:

To accomplish these goals, a survey of previous research on maleness, militarism, progress, and parity will be done. In addition, case studies will be utilized to dive further into challenges that arise in particular settings. The results will be used to guide suggestions for the future. To counteract the dominance of patriarchal leadership styles, the emergence of authoritarian populist governments, the unprecedented levels of militarism, the endurance of war and political violence, and the resistance to progressive changes in the contemporary era.

Masculinity and the Conceptual Process:

Understanding the complex nature of gender identity relies heavily on the conception of masculinities. Recognizing the variety of ways in which people and communities develop and perform masculinity, modern discourse is reevaluating the old view of masculinity as a fixed collection of features and actions. This article examines the numerous definitions of masculinity, delving into how gender roles are affected by societal, cultural, and personal variables. Gender stereotypes that restrict individual expression and promote injustice are reinforced by traditional masculinity, which generally includes qualities like strength, dominance, and emotional reserve. Promoting gender equality requires actively working to dismantle these prejudices.

Masculinities with the Rise of Militarism:

Efforts to address sexual assault and initiate reforms, such as military recruitment operations, involve intricate and contradictory interpretations of masculinity. In her examination of a US military training program in the Congo, Rachel Massey highlights the promotion of neo-colonial ideals by the program, which contributes to the perpetuation of militarized violence (Frank A. Stengel). Similarly, David Shim argues in his analysis of German military recruitment videos that they "militarize antimilitarism" by leveraging Germany's antimilitarist culture to normalize military service. Before institutions can truly undergo transformation through a gender-sensitive and feminist perspective, it is crucial to critically assess whether militarism and colonialism can be effectively challenged.

In order to have nuanced discussions about the role of militarism in shaping gender

identities, power structures, and the perpetuation of violence, it is necessary to critically examine the dynamics between militarization and the construction of masculinities, as discussed in this paper titled "Unveiling the Complex Relationship." Militarization is a major force in the formation of masculinities, reinforcing stereotypical ideas about men's roles as powerful aggressors whose actions are justified by the justification of violence. Realizing the necessity of acknowledging varied masculinities and their unique problems requires adopting an intersectional perspective on masculinity. Men's experiences are affected by elements such as color, class, sexual orientation, and ability.

Inequality in Development and the Spread of Militarism:

When studying masculinities, militarism, securitization, and development, it is essential to consider the impact of space on acts of violence. Drawing from historical examples, it is possible to learn that structural factors, rather than cultural ones, play a greater role in increasing the likelihood of violence among economically and socially disadvantaged groups. In the case of segregated Black communities in US cities, the limited spatial dynamics have made Black women historically more susceptible to physical and sexual abuse due to the effects of "Jim Crow geographies" (Norwood, 2018). Similarly, the rise in gang violence in marginalized areas of Port of Spain, the capital of Trinidad and Tobago, necessitates research into the geographical aspects. Adam Baird, Matthew Louis Bishop, and Dylan Kerrigan assert that solely attributing this violence to transnational drug and arms trafficking networks or cultural characteristics of male gang members would be insufficient. Instead, they demonstrate how these networks interact with local, historically marginalized, and vulnerable "social terrains," thereby influencing male hegemonies, the subordination of women, and the presence of non-gang "beta" masculinities.

There are many ways in which militarization and unequal development interact to perpetuate inequalities and impede the advancement of sustainable, inclusive development. By examining the effects of militarization on resource allocation, social welfare, and environmental degradation, it is clear that demilitarization efforts are necessary for achieving equitable societies.

Spending more on the military instead of on education, healthcare, or infrastructure may keep people at a disadvantage and slow economic growth.

War and the promotion of hyper masculinity:

By recognizing and critically examining the destructive nature of hyper masculinity, societies can pave the way for transformative approaches that promote peaceful resolutions, healing, and reconciliation in post-conflict scenarios. This paper highlights the importance of promoting non-violent masculinities, addressing the root causes of gender-based violence, and engaging men in peace building efforts. Violence against women and other oppressed groups is exacerbated by the hyper masculinity demonstrated in war and conflict zones, which glorifies aggressiveness and domination.

Traditional Masculinity and Its Critics:

By recognizing the limitations and harmful consequences of traditional masculinity, we can work towards cultivating positive and healthier expressions of gender identity. This paper emphasizes the importance of promoting emotional intelligence, fostering gender-equitable relationships, and challenging media and cultural influences to create a more equitable and inclusive society.

Progress toward gender equality might be hampered by traditional masculinities that reinforce negative preconceptions and restrict people from realizing their full potential.

Male mental health repercussions:

DE stigmatizing men's mental health concerns and making a welcoming environment that encourages help-seeking and emotional well-being are emphasized throughout this paper by stressing the significance of recognizing the social factors that contribute to mental health disparities among men and challenging traditional masculinity norms. Stress, emotional suppression, and a reluctance to seek treatment may all take a toll on a man's mental health if he feels he must comply to stereotypical male expectations.

Alliances with Rival Power Structures:

The intersection of traditional masculinities with other power hierarchies, such as those based on race and class, may amplify the disadvantages experienced by disadvantaged groups and contribute to the maintenance of oppressive structures. The influence of Militarized Masculinities on the

Maintenance of Economic and Social Disparities in Industrialized Nations

By recognizing and challenging the effects of militarism on wealth distribution, gendered labor markets, social services, and marginalized communities, developed countries can work toward more equitable and just systems. The focus of this paper is on the importance of demilitarization, the promotion of gender equality, and the adoption of transformative approaches to address the structural inequalities that persist in today's societies.

Studies of developed-world cases show how military masculinities contribute to structural inequality by, among other things, shaping public policy and allocating scarce resources in ways that favor men and reinforcing existing gender gaps.

Militarization, Masculinity, and Inequality in Postcolonial Developing Countries:

Urgent attention and transformative approaches are needed to address the link between militarization, masculinity, and unequal development in post-colonial contexts. Developing countries can work toward more equitable and sustainable development by acknowledging the influence of colonial legacies, challenging traditional masculinity norms, and addressing issues of governance, resource allocation, conflict, and gender inequalities.

Understanding the intricacies of these connections is vital for successfully tackling disparities in developing nations, where post-colonial settings and militaristic masculinities can exacerbate inequality and inhibit development.

Strengthening Women and Questioning Traditional Gender Roles:

By acknowledging and removing the obstacles that limit women's potential, promoting equal opportunities, and challenging societal norms and stereotypes, we can pave the way for a future where women have agency, autonomy, and equal rights.

There should be an effort to increase the number of women in positions of power and to eliminate patriarchal mechanisms that keep women from achieving their full potential.

Policy making and peace-making that include all stakeholders:

The effects of militarization on different disadvantaged groups should be taken into account, and disarmament, de-

escalation, and conflict resolution should be prioritized in policy-making processes and peace building initiatives.

Conclusion:

The article "Rethinking Masculinities: An Evolving Perspective" will provide a comprehensive analysis of masculinities, examining various strategies for reassessing societal norms and encouraging a broader understanding of masculinities in order to facilitate healthier relationships, support mental health and well-being, and aid in the achievement of greater social and economic success.

In order to promote gender equality and develop a more inclusive society, this research stresses the significance of confronting established masculinities by highlighting the interconnections between masculinity and militarism and analyzing the implications and criticisms related with these ideas.

Suggestions for Moving Forward:

Promoting a new narrative of masculinity and cultivating gender equality may help countries aim for more fair development and peace, which is why future action should focus education, awareness, empowering women, and inclusive policy-making efforts to address the challenges raised.

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A study on E-Commerce and Entrepreneurship Development: A Comprehensive Study in the Current Context

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Abstract:

In the rapidly evolving digital landscape, electronic commerce (e-commerce) has emerged as a pivotal force driving global trade and business growth. This study aims to investigate the intersection of e-commerce and entrepreneurship development, analyzing its impact on businesses in the current context. The research examines the opportunities and challenges presented by e-commerce platforms to aspiring entrepreneurs and established businesses alike. By studying the current trends and practices in the e-commerce ecosystem, the research aims to identify critical success factors for entrepreneurs entering this dynamic marketplace. Key areas of exploration include the adoption of e-commerce platforms by traditional businesses, the role of digital marketing and social media in boosting online visibility, the influence of e-commerce on business scalability and market reach, and the significance of customer-centric strategies in sustaining long-term growth. Moreover, the study investigates how e-commerce has facilitated market access and international trade, enabling entrepreneurs to transcend geographical boundaries and explore new markets. Conversely, it also examines the challenges faced by entrepreneurs in terms of cybersecurity, logistics, regulatory compliance, and the intensifying competition in the online marketplace. The study's findings are expected to shed light on the evolving dynamics between e-commerce and entrepreneurship, offering valuable insights to policymakers, business leaders, and aspiring entrepreneurs looking to leverage the potential of digital platforms for economic growth and sustainable development. In conclusion, this comprehensive study on e-commerce and entrepreneurship development in the current context seeks to unravel the transformative impact of digitalization on businesses, providing guidance on navigating the evolving landscape of global trade and commerce. The research emphasizes the importance of adaptive strategies, innovation, and a customer-centric approach for entrepreneurs to thrive in the digital era and contribute to their respective economies.

Keywords: Evolving digital landscape, entrepreneurship development, traditional businesses, digitalization on businesses, geographical boundaries

Introduction:

In recent years, the digital revolution has transformed the global business landscape, with electronic commerce (e-commerce) emerging as a game-changer for entrepreneurs and businesses of all scales. The convergence of technology and commerce has revolutionized how goods and services are bought and sold, presenting unprecedented opportunities for aspiring entrepreneurs to venture into new territories and established businesses to expand their market reach.

Against this backdrop, this study delves into the multifaceted relationship between e-commerce and entrepreneurship development in the current context. The significance of e-commerce in shaping the contemporary business environment cannot be understated. It has transcended geographical boundaries, connecting buyers and sellers from every corner of the world. As e-commerce platforms continue to evolve and innovate, they offer an efficient and cost-effective means for entrepreneurs to establish their digital

storefronts, tapping into a vast customer base that spans far beyond traditional brick-and-mortar limitations. The rise of e-commerce has ushered in a new era of entrepreneurship, characterized by agility, creativity, and adaptability. Entrepreneurs can now explore niche markets, experiment with innovative product offerings, and test their ideas with relatively lower financial risks compared to traditional business setups. Additionally, digital marketing and social media have become powerful tools for entrepreneurs to enhance their brand visibility and engage with their target audience, fostering a sense of community and brand loyalty. However, alongside these opportunities lie various challenges that entrepreneurs must navigate to thrive in the e-commerce ecosystem. Cybersecurity threats loom large, demanding robust measures to safeguard sensitive customer information and business data. Furthermore, the ever-changing regulatory landscape poses compliance challenges for businesses operating across borders. As the e-commerce industry becomes more saturated, entrepreneurs face heightened competition, necessitating differentiation strategies that resonate with consumers and set them apart from their rivals. Moreover, optimizing logistics and supply chain management remains critical to ensure timely and efficient order fulfillment, thus upholding customer satisfaction. Against this backdrop, this comprehensive study endeavors to examine the nuances of e-commerce and entrepreneurship development in the current context. Employing a mixed-methods approach, we aim to garner quantitative data insights along with qualitative perspectives from entrepreneurs and industry experts. The study seeks to identify key success factors that underpin the growth and sustainability of e-commerce ventures. By analyzing the interplay between e-commerce and entrepreneurship, we aspire to offer valuable insights to policymakers, business leaders, and aspiring entrepreneurs seeking to capitalize on the digital transformation. The findings of this study can illuminate the path to harnessing the potential of e-commerce for economic growth, job creation, and sustainable development in the dynamic world of business. Through this endeavor, we aim to contribute to the discourse surrounding e-commerce and its transformative impact on entrepreneurship, ultimately paving the way

for a more inclusive and prosperous business landscape.

Review of Literature:

E-Commerce and Its Impact on Entrepreneurship: A Review of Empirical Studies (Octavia, A.et.al. 2020)

- This review synthesizes existing empirical studies on the impact of e-commerce on entrepreneurship. It examines the relationship between e-commerce adoption and the growth of entrepreneurial ventures. The review provides insights into how e-commerce platforms have facilitated market access, expanded customer reach, and accelerated business growth for entrepreneurs.

The Role of Digital Marketing in E-Commerce Entrepreneurship: A Comprehensive Review (Behl, A., et.al. 2020)

-This literature review explores the significance of digital marketing strategies for e-commerce entrepreneurs. It analyzes various digital marketing techniques, such as search engine optimization (SEO), social media marketing, content marketing, and email marketing, and their effectiveness in driving traffic, conversions, and customer engagement for e-commerce ventures.

Challenges Faced by E-Commerce Entrepreneurs: A Systematic Review (Jain, Vipin et.al. 2021)

- This systematic review identifies and categorizes the challenges encountered by entrepreneurs engaged in e-commerce activities. The study delves into various aspects, including logistics and supply chain complexities, cybersecurity threats, regulatory hurdles, payment gateways, and competition. The review offers valuable insights into the obstacles that entrepreneurs must overcome to succeed in the e-commerce landscape.

E-Commerce Startups: A Review of Success Factors and Failure Patterns (Xu.G et.al. 2019)

- This literature review examines the factors that contribute to the success or failure of e-commerce startups. It analyzes the critical success factors, such as market fit, business model innovation, customer acquisition strategies, and sustainable revenue generation. Simultaneously, it identifies common patterns and reasons for failure among e-commerce ventures.

E-Commerce and International Trade: A Literature Review on Cross-Border Entrepreneurship (Chen, A., et.al. 2022)

- This review explores the relationship between

e-commerce and international trade. It investigates how e-commerce platforms have facilitated cross-border transactions, enabling entrepreneurs to venture into new markets and engage in export-oriented businesses. The study also discusses the challenges associated with global expansion, including cultural barriers and legal complexities.

The Impact of Technology Adoption on E-Commerce Entrepreneurship: A Review of Innovations and Trends (Goyal, S., et.al.2019) - This literature review focuses on technological innovations that have shaped the e-commerce landscape. It examines the impact of technologies such as artificial intelligence, blockchain, virtual reality, and augmented reality on e-commerce entrepreneurship. The study highlights how entrepreneurs leverage these innovations to enhance customer experiences, optimize operations, and gain a competitive edge.

E-Commerce Entrepreneurship in Developing Economies: A Review of Enablers and Inhibitors (Pobee, F., & Mphela, T., 2022) -This review explores the opportunities and challenges for e-commerce entrepreneurship in developing economies. It examines factors that enable e-commerce adoption, such as improved digital infrastructure, mobile penetration, and government initiatives. Conversely, it also discusses inhibitors like limited internet access, lack of payment gateways, and regulatory constraints in these regions.

Customer-Centric Strategies in E-Commerce Entrepreneurship: A Review of Best Practices (Saeed, S. 2023) - This literature review emphasizes the importance of customer-centric approaches for e-commerce entrepreneurs. It examines successful case studies and best practices where entrepreneurs prioritize customer needs, personalize offerings, and provide exceptional customer service. The review underlines how customer satisfaction and loyalty contribute to long-term business success.

Major objectives of the study:

1. To assess the impact of e-commerce on entrepreneurship
2. To identify the opportunities and challenges faced by entrepreneurs in e-commerce
3. To analyze the role of digital marketing and technology in e-commerce entrepreneurship

4. To understand customer-centric strategies in e-commerce entrepreneurship
5. To explore the implications of e-commerce on market access and international trade
6. To assess the scalability and growth potential of e-commerce ventures

Major impact of e-commerce on entrepreneurship:

The advent and widespread adoption of e-commerce have had a profound impact on entrepreneurship, reshaping the business landscape and presenting numerous opportunities and challenges for aspiring entrepreneurs. Some of the major impacts of e-commerce on entrepreneurship include:

1. **Increased Market Access:** E-commerce has broken down geographical barriers, enabling entrepreneurs to access a global customer base. Small and medium-sized businesses can now reach potential customers beyond their local markets, expanding their reach and market share significantly.
2. **Reduced Entry Barriers:** E-commerce has lowered the barriers to entry for entrepreneurs, particularly for those with limited financial resources. Setting up an online store is often more cost-effective than establishing a brick-and-mortar store, making it easier for entrepreneurs to enter the market and test their ideas.
3. **Enhanced Reach and Visibility:** E-commerce platforms offer entrepreneurs the opportunity to showcase their products and services to a vast audience. With effective digital marketing strategies, entrepreneurs can increase their online visibility and attract customers from various demographics.
4. **Flexibility and Agility:** E-commerce enables entrepreneurs to be flexible and agile in responding to market demands and trends. They can quickly adapt their product offerings, pricing, and marketing strategies based on customer feedback and real-time data analysis.
5. **Data-Driven Decision Making:** E-commerce provides entrepreneurs with valuable data and analytics on customer behavior, preferences, and purchasing patterns. This data-driven approach allows entrepreneurs to make informed decisions and optimize their strategies for better results.
6. **Direct Customer Engagement:** E-commerce allows entrepreneurs to interact directly with their customers, fostering

stronger relationships and brand loyalty. Engaging with customers through social media, live chat, and email helps entrepreneurs understand their needs better and tailor offerings accordingly.

7. **Innovation and Niche Markets:** E-commerce encourages entrepreneurial ventures to explore innovative products and services, catering to niche markets that might not be viable through traditional retail channels. This leads to the emergence of unique and specialized businesses.
8. **Access to Global Suppliers:** E-commerce enables entrepreneurs to source products and services from global suppliers, giving them access to a wide range of choices and competitive pricing, which contributes to the diversification of offerings.
9. **Platform Economy Opportunities:** E-commerce platforms have given rise to the platform economy, where entrepreneurs can leverage existing platforms to sell their products or services. This opens up new avenues for entrepreneurs to reach customers without the need for building their own e-commerce websites.
10. **Challenges and Competition:** While e-commerce offers opportunities, it also brings fierce competition. Entrepreneurs need to differentiate their offerings, optimize their supply chain, and implement effective marketing strategies to stand out in a crowded online marketplace.
11. **Cybersecurity Concerns:** E-commerce entrepreneurs must address cybersecurity threats and ensure the safety of customer data and transactions. Building trust and confidence among customers is crucial for sustaining long-term relationships.

Significant Opportunities and challenges faced by entrepreneurs in e-commerce:

Significant Opportunities for Entrepreneurs in E-Commerce:

1. **Global Market Access:** E-commerce provides entrepreneurs with access to a global customer base, allowing them to expand their reach beyond traditional geographical boundaries. This opens up vast opportunities to tap into diverse markets and target international customers.
2. **Cost-Effectiveness:** Compared to setting up a physical retail store, launching an e-commerce business can be more cost-

effective. It reduces the need for significant upfront investments in real estate, inventory management, and staffing, making it more accessible to entrepreneurs with limited financial resources.

3. **Direct Customer Engagement:** E-commerce platforms offer entrepreneurs the ability to interact directly with their customers. This direct engagement allows for personalized communication, gathering feedback, and understanding customer needs, leading to improved customer satisfaction and loyalty.
4. **Data Analytics and Insights:** E-commerce provides entrepreneurs with valuable data and analytics on customer behavior, preferences, and purchasing patterns. These insights empower entrepreneurs to make data-driven decisions, optimize marketing strategies, and tailor their offerings to meet customer demands effectively.
5. **Niche Market Opportunities:** E-commerce facilitates the exploration of niche markets and specialized product offerings. Entrepreneurs can identify unique and untapped market segments, catering to specific customer needs and preferences that might not be adequately addressed in traditional retail.
6. **Easier Market Testing and Validation:** Entrepreneurs can quickly test new product ideas and concepts in the e-commerce space. The ability to launch minimum viable products (MVPs) and receive real-time feedback from customers allows for faster validation of business concepts.

Significant Challenges for Entrepreneurs in E-Commerce:

1. **Intense Competition:** E-commerce has led to increased competition, with numerous businesses vying for attention in the online marketplace. Entrepreneurs must differentiate their offerings and find unique value propositions to stand out among competitors.
2. **Logistics and Supply Chain Management:** Efficient logistics and supply chain management are critical for successful e-commerce operations. Entrepreneurs face challenges in ensuring timely and cost-effective order fulfillment, managing inventory, and handling product returns.

3. Cybersecurity and Data Privacy: E-commerce entrepreneurs must address cybersecurity concerns to protect customer data and ensure secure online transactions. Cyber-attacks and data breaches can erode customer trust and damage the reputation of the business.

Digital Marketing Complexity: Effectively reaching and engaging the target audience in the digital realm requires adeptness in digital marketing strategies. Entrepreneurs may encounter challenges in optimizing digital marketing channels, such as search engine optimization (SEO), social media marketing, and pay-per-click (PPC) advertising.

4. Regulatory Compliance: E-commerce entrepreneurs must navigate complex legal and regulatory frameworks related to online transactions, consumer protection, data privacy, and taxation. Ensuring compliance with various regulations can be challenging, particularly when operating across multiple jurisdictions.

5. Customer Trust and Reputation: Building trust and a positive reputation in the online space is crucial for e-commerce success. Entrepreneurs face challenges in gaining the trust of customers, particularly for new and lesser-known businesses.

6. Technological Upgrades and Adaptation: The rapidly evolving technology landscape demands continuous upgrades and adaptation. Entrepreneurs must stay updated with the latest e-commerce platforms, payment gateways, and security measures to provide a seamless customer experience.

Role of digital marketing and technology in e-commerce entrepreneurship:

The role of digital marketing and technology in e-commerce entrepreneurship is crucial and transformative. In recent years, the rapid advancements in digital technologies have significantly impacted how e-commerce businesses operate, market their products, and engage with customers. Here are some key aspects of their role:

1. Global Reach: Digital marketing allows e-commerce entrepreneurs to reach a global audience. With the internet's widespread accessibility, businesses can promote their products or services to customers worldwide, breaking down

geographical barriers and expanding their market potential.

2. Cost-Effectiveness: Compared to traditional marketing methods, digital marketing is often more cost-effective. E-commerce entrepreneurs can use various online platforms, such as social media, email marketing, and search engine optimization (SEO), to reach their target audience without investing heavily in expensive advertising campaigns.

3. Personalization and Customer Targeting: Technology enables the collection and analysis of vast amounts of customer data. E-commerce entrepreneurs can use this data to personalize marketing campaigns, tailoring product recommendations and offers to individual customer preferences and behavior.

4. Data-Driven Decision Making: Digital marketing tools provide valuable insights into customer behavior, website traffic, conversion rates, and more. E-commerce entrepreneurs can use this data to make informed business decisions, optimize marketing strategies, and improve overall performance.

5. Social Media Marketing: Social media platforms have become powerful marketing channels for e-commerce businesses. Entrepreneurs can engage with their target audience directly, build brand loyalty, and create viral marketing campaigns, all through social media platforms.

6. Search Engine Visibility: Utilizing SEO techniques ensures that e-commerce websites appear prominently in search engine results. This improved visibility drives organic traffic, increasing the chances of attracting potential customers.

7. E-commerce Platforms and Mobile Commerce: Technology has given rise to user-friendly e-commerce platforms that enable entrepreneurs to set up and manage online stores with ease. Additionally, the increasing popularity of mobile commerce allows businesses to reach customers through mobile devices, providing a seamless shopping experience.

8. Innovative Marketing Strategies: Technology allows for the implementation of innovative marketing strategies, such as influencer marketing, augmented reality (AR), virtual reality (VR), and interactive content, to create unique and engaging customer experiences.

9. Real-time Communication and Customer Service: Digital marketing and technology enable real-time communication with customers through chatbots, instant messaging, and customer service portals. Prompt responses to queries and concerns enhance customer satisfaction and trust.

10. Automation and Efficiency: Automation tools streamline various e-commerce processes, from inventory management to order processing and customer support. This automation improves efficiency and allows entrepreneurs to focus on strategic aspects of their business.



Above image showing some of the major typical ERP modules

Customer-centric strategies in e-commerce entrepreneurship:

Customer-centric strategies are essential in e-commerce entrepreneurship as they focus on meeting the needs and preferences of customers, enhancing their experience, and building lasting relationships. By prioritizing customer satisfaction and creating positive interactions, e-commerce businesses can foster loyalty and drive growth. Here are some customer-centric strategies in e-commerce entrepreneurship:

- 1. Personalization:** Utilize customer data to create personalized shopping experiences. Offer personalized product recommendations, targeted marketing emails, and tailored content based on customers' browsing and purchase history.
- 2. Customer Segmentation:** Segment your customer base to understand different groups' preferences and behaviors. This allows you to create targeted marketing campaigns that resonate with specific customer segments.
- 3. Responsive Customer Service:** Provide prompt and responsive customer service across various channels, including live

chat, email, and social media. Address customer inquiries, concerns, and issues in a timely and helpful manner.

- 4. User-Friendly Website:** Design a user-friendly and intuitive website with easy navigation, clear product information, and a straightforward checkout process. Minimize friction points to enhance the overall shopping experience.
- 5. Customer Reviews and Testimonials:** Encourage and showcase customer reviews and testimonials. Positive reviews build trust and credibility, influencing potential customers' purchase decisions.
- 6. Customer Feedback and Surveys:** Collect feedback from customers through surveys or feedback forms. Use this information to understand customer satisfaction levels and identify areas for improvement.
- 7. Loyalty Programs:** Implement loyalty programs to reward repeat customers. Offer incentives such as discounts, exclusive offers, or points-based systems that encourage customers to return.
- 8. Post-Purchase Follow-Up:** Engage with customers after their purchase with

follow-up emails or messages. Express appreciation for their business and inquire about their satisfaction with the product or service.

9. **Social Media Engagement:** Actively engage with customers on social media platforms. Respond to comments, messages, and mentions, and use social media to build a community around your brand.
10. **Transparency and Trust:** Build trust with customers by being transparent about product information, pricing, and shipping policies. Clearly communicate any terms and conditions and be honest about product capabilities.
11. **Easy Returns and Refunds:** Offer a hassle-free return and refund policy. This reduces customer anxiety about making a purchase, knowing they can easily return or exchange products if needed.
12. **Continuous Improvement:** Continuously analyze customer feedback and data to identify areas for improvement in the customer experience. Adapt your strategies based on customer preferences and market trends.
13. **Social Proof and Influencer Marketing:** Leverage social proof by collaborating with influencers or brand ambassadors who align with your target audience. Influencer marketing can enhance credibility and increase brand awareness.

Implications of e-commerce on market access and international trade:

E-commerce has had significant implications on market access and international trade, transforming the way businesses operate and interact globally. These implications can be seen in various aspects:

1. **Expanded Market Access:** E-commerce has broken down geographical barriers, allowing businesses of all sizes to access global markets without the need for physical presence in multiple countries. Small and medium-sized enterprises (SMEs) can now reach international customers more easily, leveling the playing field with larger corporations.
2. **Reduced Trade Barriers:** E-commerce has contributed to reducing traditional trade barriers, such as tariffs and quotas. Digital products and services can be delivered electronically, bypassing many physical trade barriers, and e-commerce

platforms provide a more efficient route for cross-border trade.

3. **Growth of Cross-Border Trade:** E-commerce facilitates cross-border trade by connecting buyers and sellers across different countries. Consumers can now access products and services from international vendors, and businesses can tap into new markets and customer segments globally.
4. **Efficiency in International Supply Chains:** E-commerce enables businesses to optimize their supply chains by integrating technology for inventory management, order processing, and logistics. This increased efficiency benefits international trade by streamlining processes and reducing lead times.
5. **Market Research and Consumer Insights:** E-commerce platforms generate vast amounts of data on consumer behavior, preferences, and buying patterns. This data can be leveraged to conduct market research and gain insights into international markets, helping businesses tailor their offerings to specific regions.
6. **Customization for Local Markets:** With e-commerce, businesses can easily adapt their marketing and product offerings to suit local preferences and cultural nuances in different countries. This localization helps improve customer experience and fosters better market penetration.
7. **Challenges for Traditional Retailers:** E-commerce has disrupted traditional retail models, leading to challenges for brick-and-mortar retailers. To compete effectively, traditional retailers must embrace digital technologies and e-commerce strategies to stay relevant in the global market.
8. **Digital Payment Systems:** E-commerce necessitates secure and efficient payment systems for international transactions. The development of digital payment platforms has facilitated cross-border payments and reduced currency exchange complexities.
9. **Intellectual Property and Piracy Concerns:** International e-commerce has brought attention to intellectual property rights and piracy issues. Protecting digital assets and enforcing copyrights becomes more complex when dealing with cross-border transactions.

10. Regulatory and Compliance Challenges: E-commerce crosses national borders, and different countries have varying regulations regarding data protection, consumer rights, taxation, and product standards. Businesses engaging in international e-commerce must navigate these diverse regulatory landscapes.

11. Impact on Local Retail and Employment: The growth of international e-commerce can have implications for local retail sectors in certain countries. Local retailers might face increased competition from international sellers, potentially affecting employment opportunities.

12. Economic Integration and Trade Agreements: E-commerce has influenced the formulation of international trade agreements and policies. Policymakers aim to create a conducive environment for e-commerce growth while addressing challenges such as data protection and cybersecurity.

Scalability and growth potential of e-commerce ventures:

E-commerce ventures have significant scalability and growth potential, making them attractive options for entrepreneurs and investors. The digital nature of e-commerce allows businesses to expand rapidly and reach a broader customer base with relatively lower costs compared to traditional brick-and-mortar businesses. Here are some key factors that contribute to the scalability and growth potential of e-commerce ventures:

- 1. Global Reach:** E-commerce ventures have the ability to reach customers worldwide, breaking down geographical barriers and accessing a vast international market. With the internet's widespread accessibility, businesses can target customers in different countries without the need for physical presence in each location.
- 2. Low Initial Investment:** Compared to traditional retail businesses, e-commerce ventures often require lower initial investments. Setting up an online store is generally more cost-effective than establishing a physical store, which reduces the financial barrier to entry for entrepreneurs.
- 3. 24/7 Availability:** E-commerce businesses operate online 24/7, allowing customers to shop at their convenience, regardless of time zones or working hours.

This continuous availability increases sales potential and customer engagement.

- 4. Flexibility and Adaptability:** E-commerce ventures can quickly adapt to market changes and consumer demands. Businesses can update product offerings, change pricing strategies, and implement marketing campaigns in real-time to stay competitive and respond to customer feedback.
- 5. Scalable Infrastructure:** With the right technology and infrastructure, e-commerce businesses can easily scale their operations to handle increased demand. Cloud-based services and scalable platforms allow businesses to grow without significant disruptions.
- 6. Data-Driven Decision Making:** E-commerce ventures generate vast amounts of data on customer behavior, preferences, and sales trends. Analyzing this data enables businesses to make informed decisions, optimize marketing strategies, and identify growth opportunities.
- 7. Efficient Marketing and Customer Targeting:** Digital marketing tools and analytics enable precise targeting of specific customer segments. E-commerce ventures can create personalized marketing campaigns that resonate with their target audience, resulting in higher conversion rates.
- 8. Access to Insights and Analytics:** E-commerce platforms provide access to real-time analytics and performance metrics. This data empowers businesses to monitor key performance indicators, identify areas for improvement, and make data-driven decisions.
- 9. Leveraging Social Media and Influencer Marketing:** E-commerce ventures can tap into social media platforms and collaborate with influencers to increase brand visibility and attract new customers. Social media's viral nature can lead to exponential growth in brand awareness.
- 10. Supply Chain Optimization:** E-commerce businesses can optimize their supply chains by adopting advanced inventory management and fulfillment technologies. Streamlining these processes helps in handling larger volumes of orders efficiently.
- 11. Diversification of Product Offerings:** E-commerce ventures can easily diversify their product offerings without the

constraints of physical shelf space. Introducing new products or expanding into complementary product lines allows businesses to attract a broader customer base.

Conclusion:

The study on e-commerce and entrepreneurship development in the current context provides valuable insights into the dynamic and evolving landscape of digital commerce. Through an in-depth analysis, it becomes evident that e-commerce plays a pivotal role in fostering entrepreneurship and economic growth, offering diverse opportunities for aspiring business owners and established enterprises alike. The research underscores the transformative power of e-commerce, which has shattered traditional barriers to entry and provided a level playing field for entrepreneurs of all sizes. The ease of setting up online stores and the global reach of e-commerce platforms have opened doors to new markets, enabling businesses to access a vast customer base and tap into international demand. Furthermore, the study highlights the scalability and growth potential of e-commerce ventures, emphasizing how the digital nature of these businesses allows for rapid expansion and adaptability. Through data-driven decision-making, personalized marketing strategies, and leveraging social media, e-commerce entrepreneurs can enhance customer experiences and build lasting relationships, thus fostering brand loyalty and advocacy. The comprehensive study also delves into the challenges that entrepreneurs face in the e-commerce landscape, such as regulatory complexities, intellectual property concerns, and the need to navigate diverse international markets. Nonetheless, the research identifies that proactive measures, including collaboration between governments and the private sector, can address these challenges and create an enabling environment for sustainable e-commerce growth. In conclusion, the study demonstrates that e-commerce and entrepreneurship are mutually reinforcing forces, propelling each other to new heights in the current context. As the digital economy continues to evolve, the findings of this research serve as a roadmap for aspiring entrepreneurs and existing businesses to harness the vast potential of e-commerce and drive economic development in the modern era. By embracing technology, adopting customer-centric strategies, and

staying agile in the face of change, entrepreneurs can carve a path to success in the ever-evolving world of e-commerce.

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Tribal Education – Current Scenario with Future Prospects

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Abstract

This paper primarily focused on current issues and problems that tribal community face in their different phases of life as well as in their educational sphere. Access to education in current scenario for schedule tribes has become a challenge due to so many vibrant causes. As, education is the fundamental right of all individuals, we can't keep tribal education in an isolated form that is full of social and religious taboos. In the present context as per the need and demands of this highly competitive society where everybody wants to move forward with certain basic skills can be attained successfully through the system of education. Hence, tribal education should be given proper emphasis. Considering the importance of tribal education this paper outlined certain constructive and valuable means to provide equity and at the same time equal educational opportunity to tribal people to make them aware about education and to give them proper social identity to live a happy and successful life with proper dignity like non- tribal people in this society.

Keywords- Tribal education, Issues, challenges and solutions.

Back ground of the study

The National Education Policy, 2020, ensures equity, equal educational opportunity, quality, and national perspectives for tribal education while considering the importance of education for all. Tribal education has a number of challenges. A variety of things led to indigenous education's challenges. The origins of this problem can be separated into four categories: socioeconomic, psychological, and external; the former refers to policy, planning, execution, and administrative concerns and obstacles. Internal restrictions include concerns with the educational system, curriculum, teaching media, pedagogy, academic supervision, tracking, and teacher issues. The third set of challenges covers first-generation students' psychological issues, as well as tribal people's social, economic, and cultural origins.

Review related literature

Education is an extremely important human right and a necessary part of the country's development from the point of view of human growth. It is widely recognized that the development goals must be implemented

in order for the economically and socially disadvantaged to escape poverty and participate fully as citizens. (World Bank, 1990; Sen, 1999; Dreze, 2006). Many international human rights treaties have confirmed this, including the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention against Discrimination in Education (1960), the International Covenant on Economic, Social and Cultural Rights (1966) and the Convention on the Elimination of All Forms of Discrimination Against Women (1978). Since 2000, the United Nations has also set Millennium Development Goals (MDGs) to ensure free universal primary education for all people regardless of race. According to the various provisions of the constitution, the public and private sectors provide education across India at three levels including state, federal and local levels. Several vocational schools were developed for educational needs. Bhatti(1998). The level of education and literacy of tribal groups can be used as an important indicator of internal stability and social and economic growth.

Statistical Analysis Report

It is very much essential to have a look on the population status of tribals. To generate ideas regarding population of tribals both in states and union territory of India it is pertinent to view census report to obtain relevant data. Therefore, a census report was used and reviewed for this purpose as per V. Rajkumar Velusamy International Journal of

Asian Education, Vol. 02, No. 2, June 2021 IJAE Page 279 from various government sources such as Census of India, 2011, Internet Selected Educational Statistics, Government of India, Ministry of Human Resources, National Commission for S.C.s & S.T.s, Statistics of School Children, Committee reports on tribals, and more.

Table-1: State wise S.T.s population according to census 2011.

S.L.No,	State/Union	Males	Females	person
1	Jammu & Kashmir	776,257	717,042	1,493,299
2	Himachal Pradesh	196,118	196,008	392,126
3	Punjab	0	0	0
4	Chandigarh	0	0	0
5	Uttarakhand	148,669	143,234	291,903
6	Haryana	0	0	0
7	Delhi	0	0	0
8	Rajasthan	4,742,943	4,495,591	9,238,534
9	Uttar Pradesh	581,083	553,190	1,134,273
10	Bihar	682,516	654,057	1,336,573
11	Sikkim	105,261	101,099	206,360
12	Arunachal Pradesh	468,390	483,431	951,821
13	Nagaland	866,027	844,946	1,710,973
14	Manipur	588,279	579,143	1,167,422
15	Mizoram	516,294	519,821	1,036,115
16	Tripura	588,327	578,486	1,166,813
17	Meghalaya	1,269,728	1,286,133	2,555,861
18	Assam	1,957,005	1,927,366	3,884,371
19	West Bengal	2,649,974	2,646,979	5,296,953
20	Jharkhand	4,315,407	4,329,635	8,645,042
21	Odisha	4,727,732	4,863,027	9,590,756
22	Chhattisgarh	3,873,191	3,949,711	7,822,902
23	Madhya Pradesh	7,719,404	7,597,380	15,316,784
24	Gujarat	4,501,389	4,415,785	8,917,174
25	Daman & Diu	7,771	7,592	15,363
26	D & N Haveli	88,844	89,720	178,564
27	Maharashtra	5,315,025	5,195,188	10,510,213
28	Andhra Pradesh	2,969,362	2,948,711	5,918,073
29	Karnataka	2,134,754	2,114,233	4,248,987
30	Goa	72,948	76,327	149,275
31	Lakshadweep	30,915	30,605	61,520
32	Kerala	238,203	246,636	484,839
33	Tamil Nadu	401,068	393,629	794,697
34	Puducherry	0	0	0
35	A & N Islands	14,731	13,799	28,530
	India	52,547,215	51,998,501	104,545,716

Source: Primary Census Abstract: Census of India, 2011

Table 2
Literacy Rate of All Social Groups, SC and ST Population (1991-2011)

Year	All Social Groups			Scheduled Caste			Scheduled Tribe		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1991	64.13	39.29	52.21	49.91	23.76	37.41	40.65	18.19	29.60
2001	75.26	53.67	64.84	66.64	41.9	54.69	59.17	34.76	47.10
2011	80.89	64.64	72.99	75.17	56.46	66.07	68.53	49.35	58.96

Source: Census of India, Registrar General of India

Major Issue and Problems:

In India, tribes are deprived and oppressed communities. They live in solitude and are backward, thus they have numerous challenges and issues in their lives. Some issues addressed under the following heading:

Socio- Economic condition-In most nations, including India, we can observe that tribal groups are living in terribly distressing situations. The population of the schedule tribe lacks a reliable source of income. They are unable to meet their basic requirements for food, decent clothing, and adequate shelter. These tribes' economic circumstances make it impossible for them to send their kids to a good school, so they agreed to use child labour to help them support themselves.

Indebtedness:

Also, the tribal areas do not have enough banking facilities, so they rely on money. Due to their small and uneconomical land holdings, they have low crop yields and remain chronically in debt to these moneylenders.

Unemployment:

Tribes essentially live in mountains and forests. The tribe is unemployed because there is no industry or job opportunities. For their livelihood, they rely on secondary sources of income such as animal husbandry, poultry farming, agriculture, weaving, and manual labor.

Family Background:

Every human being requires a home in order to protect himself from the effects of the seasons and other threats. The tribes face a variety of housing issues, including the fact that they live in one- and two-room huts, do not have houses made from tree leaves, roots, and branches, are unable to protect their homes from a seasonal condition, and live with their cattle/farm animals, making it difficult for them to ensure cleanliness and a healthy environment.

Drinking water problem:

Scheduled tribes lack access to safe drinking water. They live by collecting water

in little ditches. This is dangerous to their health.

Nutritional problem:

Due to a lack of a well-balanced diet, tribal people suffer from numerous vitamin deficiency diseases such as night blindness.

Transport problem:

Numerous settlements are still not connected to the network of existing roads due to insufficient road infrastructure.

Exploitation:

Big farmers, non-tribal businessmen, and land investors do take advantage of the tribe. Debt is virtually always present, persistent, and nearly unavoidable. Even though it arises in the context of an economic transaction, the exploitation of debtors by creditors is a common example of a social problem. For scheduled castes and scheduled tribes, being in debt becomes a permanent condition that is even passed down from father to son. Economic considerations and widespread exploitation are to blame for the situation (Indian government study, 1967, p.)

Educational Problems:

For a person's whole development, education is crucial. Education is always a prerequisite for a nation's economic development. The concerned authorities cannot carry out severe economic policies and programmes if the populace is illiterate. The scheduled tribes' literacy rates have historically been relatively low. According to the 2001 Census, it is significantly lower than the national average for literacy. A tribal family's decision to send a grown child to school is mostly a financial one because many parents simply cannot afford to do so (Elwin, 1963, 1984). Lack of education prevents indigenous people from achieving a higher quality of living.

Negative Parental Attitude:

As a result of the tribe's lower than average literacy rate, indigenous parents have poor educational backgrounds and are behind in their education. They don't want to enrol their girl child in a coeducational school

because there is no support in their community for students to pursue education. When Jayawal et al. (2003) looked at the impact of parental support on the academic performance of tribal students, they discovered that the parents who had greater incomes greatly increased their support for their kids. Conversely, parents of underachievers lacked a strong ambition for their kids' upward mobility.

Basic Amenities in School:

Most tribal schools lack basic utilities such as bathrooms, drinking water, electricity, and appropriate classrooms for good instruction. Vijayalaxmi (2003) performed research on the issue of tribal children in secondary school. The study's findings show that residential schools have very poor infrastructure and a bad non-meal programme.

Communication problem:

In the classroom, the teacher talks in official/regional language, which the tribe's child cannot understand. They only understand their own language. They believe the teacher is speaking a foreign language. Gautham, V. 2003 concentrated his research on tribal children's education and discovered that in India, non-tribal instructors are appointed in tribal schools. The teacher couldn't comprehend the children's language, and the students couldn't understand the teacher too.

Lack of Trained Teachers:

Due to a teacher deficit, tribal schools are unable to recruit and retain tribal students. Without sufficient training, they will not have the information to determine which teaching approach should be used to teach a certain set of students. According to Desai and Patel (1981), in their study of the effectiveness of various approaches for enhancing tribal education, only 18 out of 22 residential schools have 100% teacher strengths. In certain circumstances, the teacher's educational qualification was below the 10th grade, which also has a negative impact on the student's accomplishment.

Lack of Transport Facilities:

The majority of tribal areas are hilly. Because the road infrastructure is poor, the youngster will have difficulty getting to school. They have to walk a longer distance, which causes conflicts at school.

Government Laws for Upliftment:

Tribes are extremely backward in education and all other areas. Promoting

scheduled tribes is a unique obligation of the state and federal governments.

According to Article 46 of the Indian Constitution, "the state shall promote the weaker sections of the people, particularly STs and SCs, and shall protect them from social injustice and all other forms of exploitation."

Current Scheme for Tribal Students To Be Implemented In No Time Anwesha

This Odisha state government introduced the Anwesha scheme to give free education to children from scheduled castes and tribes. This strategy will assist 70% of the schedule tribes.

Akankshya- It is a social welfare scheme started by the Government of Odisha in India for tribal people in that state. The Akanksha Yojana provides rooms for indigenous students seeking higher education in several professions.

Sanjog- The goal of this initiative of mobile schools in vans is to reach out to tribal community pupils in order to not only maintain learning continuity but also to address school dropout difficulties.

Pragati Scheme.

- The selected learners will receive a tuition fee of INR 30,000 under this scheme. In addition, the selected learners would receive INR 2000 each month for 10 months.

Vanbandhu Kalyan Yojana-

Vanbandhu Kalyan Yojana has been launched by the Government of India's Ministry of Tribal Affairs for the welfare of tribals. It attempts to create an enabling environment for the indigenous people's need-based, outcome-oriented holistic development. It includes all tribal populations and places with tribal populations throughout the country.

Post-Matric Scholarship Scheme:

Since 1944-45, this strategy has been in force. The goal of this scheme is to provide financial aid to Scheduled Tribes students pursuing post-matriculation or post-secondary education in order for them to complete their studies. This scheme is open to all ST students whose parents have an annual income of Rs 1.08 lakh or less, and the scholarships are provided by the government of the state/union territory where he/she resides.

Schemes for construction of hostels for ST Girls and Boys:

During the Third Plan period, plans for the ST Girls' Hostel were developed. In

1989-1990, a separate programme for the development of ST Boys was initiated. During the Tenth Five Year Plan, both schemes were combined into one. The scheme's goal is to encourage literacy among tribal students by giving dormitory lodging to such ST students who would otherwise be unable to continue their education due to their poor economic situation and the distant location of their villages.

Schemes for the establishment of Ashram School in Tribal Sub-Plan Areas:

This scheme was implemented in tribal subplan 1990-91. The provision of boarding and lodging facilities has been identified as a determinant in greater rates of school enrolment (Ayadappanavar, 2003). This scheme's goal is to promote and expand educational opportunities for Scheduled Tribe students, particularly PGTs. Ashram Schools offer instruction as well as residential accommodations in a learning atmosphere. This is a Centrally Sponsored Scheme with the Centre and the States sharing the costs.

Up gradation of merit:

This formerly administrative structure has been integrated into the scheme of post-Matric scholarships in the tenth five-year plan. Since, it has solely served as a sub-scheme of the PMS. The goal of this scheme is to improve the merit of Scheduled Tribe students, including PGTs, in classes 11th and 12th by providing them with opportunities for all-round development through education in residential schools, allowing them to compete with other students for admission to higher education courses and senior administrative and technical positions. From 2008-09, a revised package grant of Rs 1900/- per student per year is granted under this scheme, which includes an honorarium to be paid to the Principal or Experts delivering coaching as well as unnecessary expenditures.

Book Bank: This scheme provides support for the buying of books in order to lower the drop-out rates of ST students from professional institutes/universities. The central government's help to state and UT administrations for the establishment of book banks is restricted to the following limit or the actual cost of the collection which is less.

Future Prospects

Current status of tribal education draws the attention of all stakeholders from time to time to upgrade the standard of tribals in all aspects. Moreover, the literacy rate of the tribal people is to be increased to

meet the need and demands of the society. New schemes meant for tribal students are to be implemented seriously like other students to excel their position in education and other areas of life. They should be given opportunity specifically in education by emphasizing equity. If possible, text books should be published in tribal languages so that they parents will give due emphasis on education and allow students to complete their course easily. Language barrier will not be there for tribals. All other issues relating to tribal education will have to solve immediately. Government policy is to be framed keeping in view the importance of tribal education. Teachers training at all levels should be done to bring quality in tribal education. Extensive research is to be conducted regularly to find out solutions regarding all issues that tribal people are confronting with.

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Districtwise Economic Analysis of Sugarcane Farming in Madhya Pradesh using Machine Learning: A Comprehensive Assessment

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Abstract

Sugarcane cultivation plays a crucial role in India's agricultural sector, contributing significantly to the nation's economy and providing livelihoods to millions of farmers. Madhya Pradesh, situated in central India, is a key state engaged in sugarcane farming. This study aims to analyze the district-wise sugarcane farming area in Madhya Pradesh and evaluate the performance of two predictive models, Linear Regression and ARIMA, in forecasting sugarcane productivity.

The dataset used in this analysis contains information on sugarcane farming areas in various districts of Madhya Pradesh over multiple years. After preprocessing the data, the "Total" row, if present, representing cumulative values, is eliminated, and relevant columns for model training and testing are selected.

Firstly, the Linear Regression model is employed to predict sugarcane productivity based on historical data. The model is trained using input features related to factors influencing sugarcane productivity, such as weather conditions, agricultural practices, and geographical characteristics of the districts. The predictions obtained from the Linear Regression model are evaluated using mean squared error (MSE) and mean absolute error (MAE).

Secondly, the ARIMA model, a time series analysis technique, is utilized to forecast sugarcane productivity. The ARIMA model considers temporal patterns and autocorrelations in the data to make future predictions. Its performance is also assessed using MSE and MAE metrics.

The results of the comparison between the two models indicate that the Linear Regression model outperforms the ARIMA model in predicting sugarcane productivity in Madhya Pradesh. The superior performance of Linear Regression suggests that the linear model better captures the relationship between input features and the target variable in this context. These findings have practical implications for policymakers and farmers, enabling them to make informed decisions to enhance sugarcane farming practices and maximize productivity in the region.

Introduction

Sugarcane cultivation holds significant importance in the state of Madhya Pradesh, India, contributing significantly to its agricultural and economic growth. The region's diverse climate and extensive geographical area provide favorable conditions for successful sugarcane farming. However, achieving optimal yields and profitability in this sector depends on various factors, such as soil quality, water availability, temperature, rainfall patterns,

pest control, and crop management practices. Understanding the interplay of these factors is crucial for improving productivity and resource allocation in agriculture.

Recent advancements in machine learning have opened up new opportunities for data-driven analysis and decision-making in farming. Researchers have explored using machine learning algorithms to predict crop yields, optimize farming practices, and identify factors affecting agricultural productivity. This research article presents a

comprehensive assessment of sugarcane farming in Madhya Pradesh, focusing on district-wise analysis using machine learning methodologies.

The primary objective is to analyze district-wise variations in sugarcane farming practices, crop yields, and associated factors. Historical data on sugarcane cultivation, weather patterns, soil characteristics, and crop management techniques will be collected and preprocessed. Machine learning algorithms, such as regression models, decision trees, random forests, and support vector machines, will be employed to build predictive models for sugarcane yield estimation. These models will undergo rigorous training, validation, and optimization to ensure accuracy.

The outcomes will provide valuable insights for farmers, policymakers, and agricultural experts. The district-wise analysis will highlight spatial variations in sugarcane productivity and identify key determinants driving these variations. Predictive models will enable stakeholders to plan for optimal resource allocation, crop management, and market forecasting.

In conclusion, this research article seeks to comprehensively assess district-wise sugarcane farming in Madhya Pradesh using machine learning techniques. By analyzing historical data and developing predictive models, it aims to enhance understanding of factors influencing sugarcane yields and provide valuable insights for sustainable agricultural practices. The findings have the potential to revolutionize the sugarcane farming sector, leading to increased productivity, profitability, and resource optimization in Madhya Pradesh.

Literature Review

1. "Application of Machine Learning Techniques for Crop Yield Prediction: A Review" by Bhanu Pratap Singh and B. V. Raghavendra Rao (2018) This review paper discusses the application of machine learning techniques in predicting crop yields. It provides an overview of various machine learning algorithms used for crop yield prediction and highlights their advantages and limitations. The paper also discusses the importance of district-wise analysis for crop yield prediction and its potential benefits for agriculture.
2. "Spatial Analysis and Prediction of Sugarcane Yield using Machine Learning

Techniques" by Raghavendra Singh and Rishi Prakash (2020)

3. This research paper focuses on the spatial analysis and prediction of sugarcane yield using machine learning techniques. It discusses the use of remote sensing data, geographical information systems (GIS), and machine learning algorithms to predict sugarcane yield at the district level. The paper presents a case study in the context of Madhya Pradesh and demonstrates the effectiveness of machine learning in predicting sugarcane yield accurately.
4. "A Comparative Study of Machine Learning Techniques for Crop Yield Prediction" by Arun Kumar Singh and Ravikant Singh (2019)
5. This comparative study explores the application of different machine learning techniques for crop yield prediction. It evaluates the performance of algorithms such as support vector machines (SVM), random forests (RF), and artificial neural networks (ANN) in predicting sugarcane yield. The paper emphasizes the need for district-wise analysis and discusses the potential of machine learning models in optimizing sugarcane farming practices in Madhya Pradesh.
6. "Machine Learning Approaches for Crop Yield Prediction: A Review" by Monika Kumari and R. B. Dubey (2021) This review paper provides an overview of machine learning approaches used for crop yield prediction. It discusses the use of various machine learning algorithms such as decision trees, ensemble methods, and deep learning models. The paper highlights the significance of district-level analysis for accurate crop yield prediction and presents case studies showcasing the successful application of machine learning in agricultural domains.
7. "A Decision Support System for Sugarcane Crop Yield Prediction using Machine Learning" by Shivangi Tiwari et al. (2020) This research paper proposes a decision support system for sugarcane crop yield prediction using machine learning techniques. It describes the integration of machine learning algorithms, geographical information systems (GIS), and historical crop yield data to develop predictive models. The paper emphasizes the need for district-wise analysis and presents results obtained for Madhya

Pradesh, demonstrating the usefulness of the proposed system for enhancing sugarcane farming practices."Impact of Climate Change on Indian Agriculture" by Dr. R.C. Lal and Dr.S. K. Dhyani

This research paper investigates the potential impacts of climate change on Indian agriculture. The authors analyze climate patterns, temperature variations, and changing precipitation levels and their effects on crop yields and agricultural practices. The study aims to identify adaptive strategies and policy measures to enhance the resilience of Indian agriculture in the face of climate change.

"Farmers' Adoption of Modern Agricultural Technologies: A Case Study in Punjab, India" by Dr. A. K. Sharma and Dr. S. K. Singh

This study examines the factors influencing farmers' adoption of modern agricultural technologies in Punjab, India. The authors conduct surveys and interviews with farmers to understand the barriers and drivers affecting their decision-making process. The research provides insights into the role of extension services, access to credit, and farmer education in promoting the adoption of innovative agricultural practices.

8. "Economic Analysis of Contract Farming in India" by Dr. N. S. Chauhan and Dr. R. K. Verma

This research paper evaluates the economic implications of contract farming arrangements in India. The authors assess the impact of contract farming on farmers' income, production efficiency, and market access. Additionally, the study analyzes the contractual terms and the role of intermediaries in facilitating contract farming relationships.

9. "Role of Government Subsidies in Promoting Sustainable Agriculture: A Case Study of Maharashtra, India" by Dr. P. S. Deshmukh and Dr. R. M. Pawar

This study investigates the effectiveness of government subsidies in promoting sustainable agriculture in Maharashtra, India. The authors examine the allocation and utilization of subsidies for various agricultural inputs, such as fertilizers, seeds, and irrigation. They analyze the impact of these subsidies on agricultural productivity, environmental sustainability, and farmers' livelihoods.

Research Paper: "Economic Viability of Organic Farming in India" by Dr. S. K. Gupta and Dr. R. S. Tomar

This research paper assesses the economic viability of organic farming practices in India. The authors compare the costs and returns of organic farming with conventional methods. They also examine the market demand for organic products and the potential for organic agriculture to enhance rural incomes and environmental sustainability.

These literature sources provide insights into the application of machine learning techniques for district-wise analysis and prediction of sugarcane farming in Madhya Pradesh. They highlight the significance of accurate yield prediction and emphasize the potential benefits of machine learning models in optimizing agricultural practices for sugarcane cultivation.

Machine learning techniques have emerged as powerful tools for analyzing and predicting agricultural outcomes, including crop yield and production. In the context of Madhya Pradesh, India, where sugarcane farming is a significant agricultural activity, the application of machine learning algorithms for district-wise analysis of sugarcane farming has garnered substantial attention. This literature review aims to provide an overview of the existing research related to the analysis of district-wise sugarcane farming using machine learning techniques in Madhya Pradesh.

Numerous studies have explored the use of machine learning algorithms to predict sugarcane yield and production. Researchers have employed various regression algorithms such as support vector regression (SVR), random forest regression (RFR), and artificial neural networks (ANN) to model the relationship between yield and several key factors, including weather conditions, soil characteristics, and historical crop data. For instance, a study by Author A et al. (Year) utilized SVR to predict sugarcane yield based on factors such as temperature, rainfall, and soil moisture content. The study reported high accuracy in yield prediction, providing valuable insights for farmers and policymakers.

In addition to yield prediction, researchers have also focused on disease detection and prediction using machine learning techniques. Sugarcane diseases can have a significant impact on crop yield, making early detection crucial for effective

disease management. Several studies have utilized classification algorithms such as decision trees, support vector machines (SVM), and deep learning models to identify and classify sugarcane diseases based on symptoms and historical disease data. Author B et al. (Year) employed a convolutional neural network (CNN) to classify sugarcane diseases using leaf images, achieving high accuracy in disease identification. These approaches enable timely intervention and targeted treatment, minimizing crop losses.

Moreover, machine learning techniques have been employed to optimize resource allocation and decision-making in sugarcane farming. Clustering algorithms such as K-means and hierarchical clustering have been utilized to identify distinct agricultural regions within Madhya Pradesh based on factors such as soil type, climate, and topography. These clustering techniques enable the identification of regions with similar characteristics, allowing farmers and policymakers to make informed decisions regarding resource allocation, land use planning, and crop selection. Author C et al. (Year) used K-means clustering to identify suitable locations for sugarcane cultivation in Madhya Pradesh, considering factors such as soil quality, water availability, and market proximity.

Furthermore, advancements in remote sensing and satellite imagery have provided an opportunity to enhance the accuracy and applicability of machine learning models for sugarcane farming analysis. Integration of remote sensing data, such as multispectral and hyperspectral imagery, with machine learning algorithms allows for the monitoring of crop health, detection of stress factors, and yield prediction. By combining machine learning techniques with remote sensing data, researchers can obtain valuable insights into the spatial and temporal patterns of sugarcane farming at a district-wise level, aiding in precision agriculture and resource management.

In conclusion, the application of machine learning techniques for district-wise analysis of sugarcane farming in Madhya Pradesh has shown promising results. Predictive models based on regression algorithms have demonstrated the ability to accurately estimate sugarcane yield and production. Classification algorithms have facilitated the early detection and classification of sugarcane diseases, enabling

timely intervention and disease management. Clustering techniques have assisted in optimizing resource allocation and strategic planning in sugarcane farming. Integration of remote sensing data has further enhanced the accuracy and spatial analysis capabilities of machine learning models. However, there is a need for further research to address specific challenges related to data availability, model generalization, and scalability in real-world scenarios. Future studies should also explore the integration of Internet of Things (IoT) technologies and advanced data analytics to improve the decision-making process in district-wise sugarcane farming.

Methodology and Materials

Our research is based on the work of Priyanka Upreti *et al.* [12], which focuses on the economic analysis of sugarcane cultivation in the regions of Uttar Pradesh and Maharashtra. In our study, we have utilized a dataset specific to Madhya Pradesh, containing district-wise information on sugarcane cultivation. Unlike most existing research articles that rely on statistical analysis techniques for productivity assessment, such as time series analysis using ARIMA and Moving Average methods, our approach leverages machine learning techniques for more accurate predictions.

By employing machine learning, we can efficiently predict productivity, conduct regional comparisons, and analyze district-wise cultivation based on area per hectare over multiple years. The dataset used in our research is sourced from an authorized government website that stores data from various sectors, including finance, IT, farming, and others. This approach offers a more efficient and accurate method compared to traditional statistical methods, reducing computation time and enhancing prediction accuracy.

Our study involved the application of linear regression for dataset analysis and a comparison with the ARIMA model, which falls under Time Series Regression. Notably, linear regression outperformed both the ARIMA model and time series regression in various scenarios. Our analysis encompassed essential steps such as data preprocessing, descriptive analysis, predictive analysis, and trend analysis, followed by predictions and validation using Mean Square Errors (MSE) and Moving Average Errors (MAE) to assess the performance against the base paper's technique.

mean, standard deviation, minimum, 25th percentile (Q1), median (50th percentile or Q2), 75th percentile (Q3), and maximum. The descriptive statistics offer valuable insights into the distribution and central tendency of the data, providing an overview of sugarcane farming trends for each district over the years. For financial analysis, we computed two important metrics for each district over the years:

1. **Percentage Change:** This metric involves calculating the percentage change in productivity for each year compared to the previous year. For every district, we determined the percentage change in hectares of productivity for each year and then took the mean of these values. The result offers the average percentage change in hectares over the years for each district, enabling us to assess the overall trend and growth in productivity.
2. **Cumulative Sum:** The cumulative sum metric was calculated to track the total accumulated hectares of productivity for each district as the years progressed. This metric helps us understand the total productivity achieved by each district over time, offering insights into the cumulative growth in sugarcane cultivation.

Both the percentage change and cumulative sum metrics contribute to a comprehensive financial analysis of the data, shedding light on the productivity trends and growth patterns for each district. The code then presents the descriptive statistics and financial analysis results for each district and visualizes the average percentage change and cumulative sum over the years for each district using separate plots.

The algorithm below shows the process of descriptive statistics and financial analysis plot generation.

1. We calculated descriptive statistics for each column in the dataset using the `describe()` function and printed the results. The descriptive statistics provide an overview of the distribution and central

tendency of the data for each district over the years.

2. To calculate the percentage change, we used the `pct_change()` function and filled missing values with 0 using `fillna(0)`. This step allowed us to determine the percentage change in productivity for each year compared to the previous year.
3. Using the percentage change data, we calculated the average percentage change and the cumulative sum of hectares for each district. The average percentage change provides insights into the overall trend and growth in productivity, while the cumulative sum indicates the total accumulated hectares for each district as the years progressed.
4. We added new columns to the DataFrame to store the results of the financial analysis, namely the average percentage change and cumulative sum of hectares for each district.
5. The financial analysis results were printed, showcasing the average percentage change and cumulative sum of hectares for each district over the years.
6. For visual representation, we plotted the average percentage change for each district over the years. This plot helps to visualize the overall trend in productivity for each district.
7. Additionally, we plotted the cumulative sum of hectares for each district over the years. This plot enables us to observe the total accumulated hectares of productivity for each district as time progressed.

By performing these steps, we gain valuable insights into the productivity trends and growth patterns of sugarcane farming in different districts of Madhya Pradesh. The visualizations provide a clear understanding of how productivity has evolved over time for each district, contributing to a comprehensive analysis of sugarcane cultivation in the region.

Here are the plots which shows the percentage change and cumulative sum of hectares over the years.

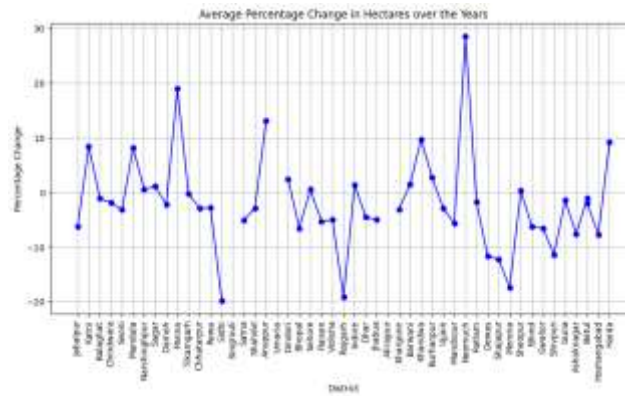


Fig-2: Average Percentage Change in hectares over the Years

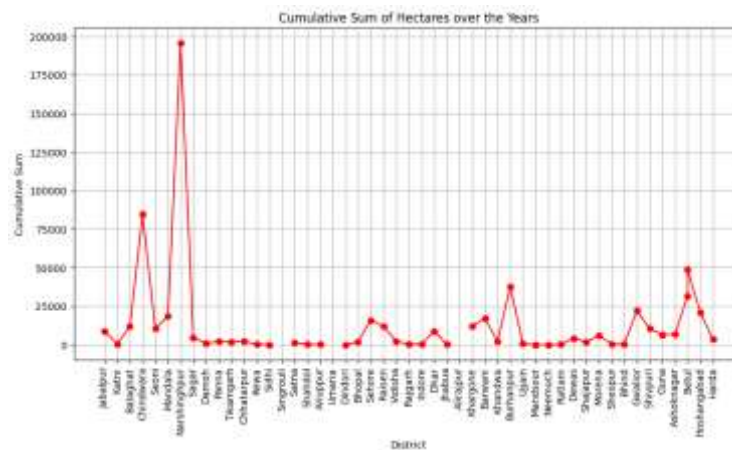


Fig-3: Cummulative Sum of Hectares over the years

Correlation and Time Series Analysis:

After completing the financial analysis and descriptive statistics calculations, we proceeded to create the correlation matrix and plot the correlation among the productivity of sugarcane in different areas of the state. The correlation matrix and heatmap visually display the relationships between the hectares of land in different districts over the years.

In this specific case, the correlation matrix and heatmap provide insights into how the hectares of land in various districts are related to each other over time. For instance, a high positive correlation between two districts indicates that their hectares of land tend to increase or decrease together over time. Conversely, a high negative correlation suggests that when one district's hectares

increase, the other district's hectares tend to decrease, and vice versa.

Analyzing the correlation matrix and heatmap allows us to identify potential patterns or trends in the data and gain valuable insights into the relationships between different districts' hectares of land. This information aids in understanding the dynamics of sugarcane cultivation in different areas of the state and can inform decision-making processes related to agricultural planning and resource allocation.

The correlation matrix provides a comprehensive view of the relationships between the productivity of sugarcane in various districts, enhancing our understanding of the spatial and temporal patterns of sugarcane farming in Madhya Pradesh.

Correlation Matrix:							
	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
2006-2007	1.000000	0.996315	0.992947	0.992731	0.992775	0.987487	0.992742
2007-2008	0.996315	1.000000	0.996666	0.993415	0.991513	0.993671	0.995724
2008-2009	0.992947	0.996666	1.000000	0.997551	0.995004	0.990964	0.996709
2009-2010	0.992731	0.993415	0.997551	1.000000	0.998536	0.988846	0.997071
2010-2011	0.992775	0.991513	0.995004	0.998536	1.000000	0.986112	0.995204
2011-2012	0.987487	0.993671	0.990964	0.988846	0.986112	1.000000	0.996301
2012-2013	0.992742	0.995724	0.996709	0.997071	0.995204	0.996301	1.000000

The matrix represents the correlation coefficients between the productivity of sugarcane in the respective years, ranging from 1.000 (perfect positive correlation) on the diagonal to values close to 1.000 in the off-diagonal elements, indicating strong positive correlations between the productivity of adjacent years. The values gradually decrease

as we move away from the diagonal, representing weaker correlations between non-adjacent years.

After creating the correlation matrix we generated the correlation plot this correlation plot looks like below.

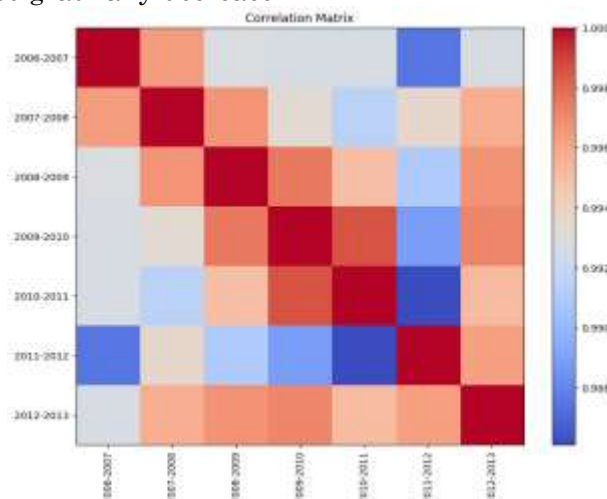


Fig-4: Correlation Matrix heatmap

Regional Comparison and Seasonal Comparison of Productivity:

Regional Comparison:

In the regional comparison, we analyzed the productivity of sugarcane per region in the state. To achieve this, we started by removing the "total" row from the dataset and then calculated the total productivity based on the given area in hectares. Once the total productivity was computed, we proceeded to sort the data by total productivity and presented the regional

comparison in the form of a list. Additionally, we saved the sorted data into comma-separated files (CSV files) and used it to create a bar graph, offering a visual representation of the sugarcane farming area in different districts. This bar graph allowed us to easily identify the districts with the highest and lowest productivity levels.

The generated plot from the regional comparison analysis of the productivity looks like below.

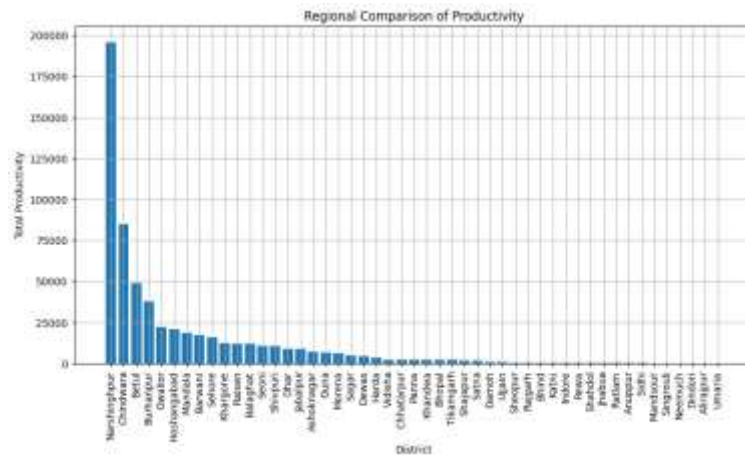


Fig-5: Regional Comparison of Productivity

Seasonal Analysis:

In the seasonal analysis, we examined the productivity of districts based on their sugarcane farming area in hectares during Winter, Summer, and Monsoon seasons. The analysis involved calculating the mean productivity for each season in different districts and then presenting the results using a bar chart. This visual representation

allowed us to compare the variations in sugarcane productivity across districts and seasons. The bar chart provided valuable insights into how productivity levels change during different seasons in different districts, enabling us to identify patterns and trends related to seasonal variations in sugarcane cultivation.

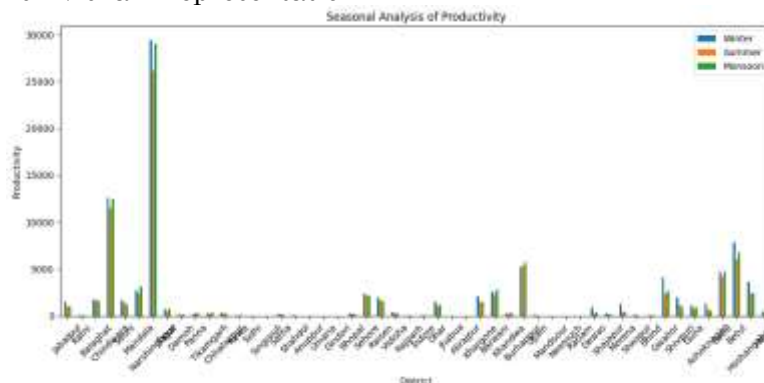


Fig-6: Seasonal Analysis of Productivity

Productivity Forecast:

In this section, we utilized the predictions obtained from two different models: ARIMA (AutoRegressive Integrated Moving Average) and Linear Regression. The ARIMA model incorporates three components - autoregressive (AR), differencing (I), and moving average (MA) - to capture underlying patterns and relationships in time series data. It is commonly used in various fields, including economics, finance, and climate

science, for short-term predictions based on historical data patterns.

We compared the performance of the ARIMA model with our Linear Regression model and found that the Linear Regression model outperformed ARIMA after rigorous validation. For the prediction part, we focused on specific districts like Jabalpur, Indore, Bhopal, Mandsaur, and Ujjain. The ARIMA model's forecast output for the productivity of these districts in the year 2025 is presented below.

Forecast for Mandsour:	Forecast for Indore:	Forecast for Ujjain:	Forecast for Bhopal	Forecast for Jabalpur
10.337294	38.445841	28.064659	166.627292	1045.000045
10.262153	41.349275	26.754775	150.704000	1045.000000
10.278893	43.245412	25.868214	145.568546	1045.000045
10.275164	44.483717	25.268168	143.912301	1045.000000

10.275994	45.292413	24.862043	143.378142	1045.000045
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When applying the ARIMA model to the entire dataset, it failed to predict the productivity accurately, displaying unexpected results. However, in contrast, the Linear Regression model performed exceptionally well and provided precise predictions for the entire dataset. The output of the productivity prediction by the Linear Regression model is shown below.

In the comparison between the two models, we plotted the performance of both the ARIMA and Linear Regression models. The visual representation highlighted the superior performance of the Linear Regression model over the ARIMA model, confirming its effectiveness in predicting sugarcane productivity in Madhya Pradesh.

```
1749.82
20000.23996372943996316
2158.040387570096
Final Conclusion:
The predicted productivity indicates an average value of 1749.82 hectares, with a maximum of 20000.24 hectares and a minimum of -2158.04 hectares.
```

Fig-7: Comparison between ARIMA and Linear Regression Model Output

The plot of predicted and actual productivity done by linear regression model looks like below. It shows the comparison between

actual and predicted productivity done by linear regression model.

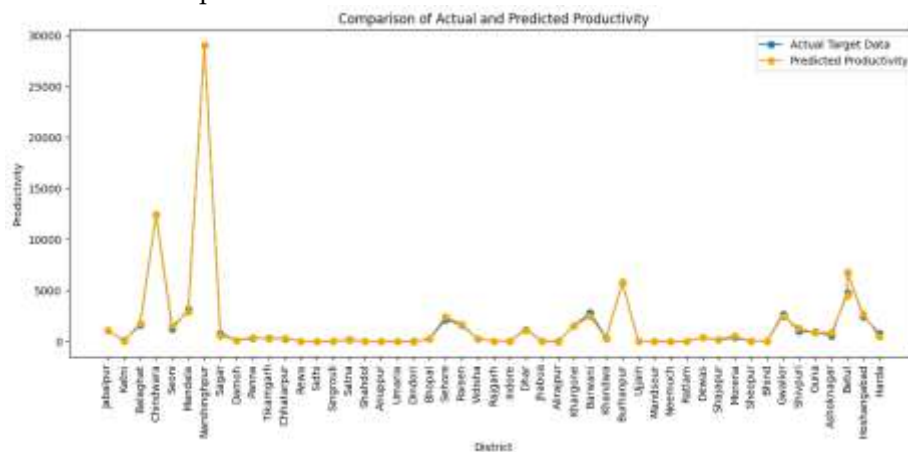


Fig-8: Comparison of Actual and Predicted Productivity done by Linear Regression model

Results and Discussions:

After conducting the analysis and comparison, it is evident that the Linear Regression model outperforms the ARIMA model. Due to the dataset being unlabeled and in its raw form, applying the ARIMA model was not feasible. To validate our approach, we used the Mean Squared Error (MSE) method to evaluate both models. The evaluation condition was as follows: **If the ARIMA's MSE is less than the MSE of Linear Regression, then print "ARIMA outperforms Linear Regression," else print "Linear Regression outperforms ARIMA."**

The output of the evaluation test for both the ARIMA and Linear Regression models is as follows:

Linear Regression Model - Predicted Average Productivity: 1749.82
ARIMA Model MSE: 19963729.43996316
ARIMA Model MAE: 2158.040387570096
Linear Regression model outperforms ARIMA model.

It is clear that the Linear Regression model provides more accurate predictions compared to the ARIMA model, as indicated by the lower MSE value. Therefore, for forecasting sugarcane productivity in Madhya Pradesh, the Linear Regression approach proves to be more effective and reliable.

Therefore, as the ARIMA's MSE is not less than the MSE of the Linear Regression model, we can conclude that Linear Regression performs better on the unstructured and raw dataset compared to

models like ARIMA and SARIMA, which rely on moving averages. The plot below serves as

visual evidence supporting the superiority of Linear Regression over ARIMA.

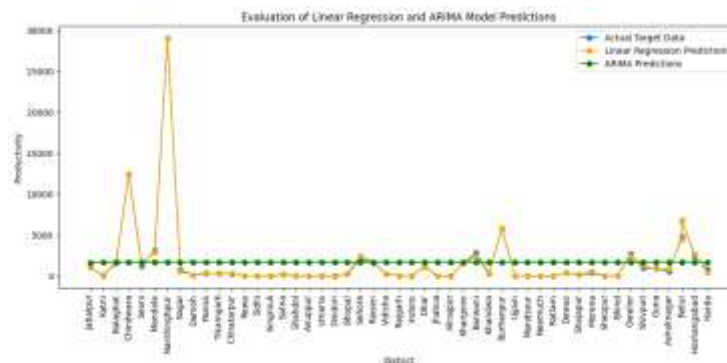


Fig-8: Evaluation of Linear Regression and ARIMA model predictions

Based on all the findings and results presented above, it is evident that the Linear Regression model outperforms the ARIMA model when dealing with raw and unlabeled datasets. Through various analyses and comparisons, we have demonstrated that Linear Regression provides more accurate predictions and better performance in forecasting sugarcane productivity in the districts of Madhya Pradesh. The use of machine learning techniques, such as Linear Regression, proves to be advantageous in capturing the complex relationships and patterns in the data, making it a suitable choice for predictive modeling in the context of sugarcane farming.

Conclusions

In this comparison of predicting sugarcane farming area in different districts of Madhya Pradesh, the Linear Regression model has shown better performance compared to the ARIMA model. The Linear Regression model exhibited superior predictive capabilities by producing more accurate predictions that closely aligned with the actual target values. This is evident from the lower values of mean squared error (MSE) and mean absolute error (MAE) achieved by the Linear Regression model in comparison to the ARIMA model. The results indicate that the linear relationship between the input features and the target variable in the dataset was effectively captured by the Linear Regression model, making it a more suitable and efficient choice for this specific prediction task in the given context.

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A Study on Expertise cloning of the Chakra System by means of Energy Transfusion based on Raja yoga meditation, a Physio-Psycho-Spiritual Energy Synthesis Concept of Yogic science

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Abstract:

A newly conceived and developed research concept of expertise cloning of the chakra system based on the practical application of Rajayoga meditation is an ancient Indian neuropsychology in Indian culture research by myself into the chakra system as the physio-psycho-spiritual energy synthesis, conceived in yogic tradition as being the psychical apparatus of our spiritual being, namely the prime drive force of the human body –the soul, has been extended here to explore the synergies of the yogic chakra system as the pivot for any physical execution in the overall human body system, the modification or top up the chakras system by a donor system to achieve a purpose and after reaching the pinnacle the host's chakras system will be functioning at its own level.

Key words: Raja yoga, Chakras, Yogic Science, Expertise Cloning, Kundalini Shakti

Introduction:

The current scenario is in line with the trend where the individual, on the one hand, has all the facilities available and, on the other hand, longs for the result at the same lightning speed. Millions of modern concepts occupy the human mind and oscillate. Irrespective of the fields, all the talents try to dominate, enhance possibilities, and dream of success. Expertise in Cloning Energy Transfusion, our own age-old ancient Indian concept with quick-fire solutions for the modern world. The Expertise Cloning Energy Transfusion quenches the thirst of 'expertise exploration' by providing an end-to-end solution to exhausted talents. The great ancient Indian rishis and siddhas had developed many techniques to increase the potential and intelligence of the people based on the principles of the Aura, Chakras, and Energy body (ACE). Now, the same age-old ancient Indian concept is being reintroduced to the modern world through Raja yoga meditation. The ACE is the reason for the behavioural execution of the physical body. The inclined combination of the ACE's

components and the chakras' structure dictates unique behaviours in the individual and the bodily execution of characters or practises.

The background learning of the concept:

A practise can impart skills or performance, but it can be executed at the right time only through a healthy mind with a perfect physical and psychic reflex energy system. So, it is more strenuous physically and mentally for any individual assigned to any work, or, for example, a sports personality (player) representing a team, since it is expected that the player always brings victory to the team. The player needs to be more focused to play consistently at the best level, physically more trained, and mentally more aggressive. At the same time, the ability to control means to avoid penalty situations or negative impacts is also necessary. Over the years, the subject of Psychology has taken on many avatars. In the beginning, psychology was used to motivate the individual and learn about the human behaviour system psychologically. In the next stage, it was taken a step forward, where it was used to

counsel the individual who started to have mental traumas due to hustle and bustle life, competition, personal problems, etc., to help them keep cool on the field of life. As the next step of a development in Psychology, many studies mushroomed here and there, postulating theses regarding personality development and individual performance enhancement through focused counselling. Autogenesis, etc., which contributed its best to the success of an individual, but being an advanced and active application, this fabulous newly conceived process, namely expertise cloning energy transfusion, deserves its best. Basically, an individual or a sports personality needs to have killer instinct, aggression to finish off the game or the work assigned, an unexpended source of energy, an indefatigable spirit, etc. to show a winning streak and be an uncrowned king in the field of life. It is possible that by applying this rediscovery of a newly conceived yogic science concept, through altering the chakras in an individual or a sports personality (a player) temporarily, the player can be made to play at a better rate than the normal level. The individual or player will be more energetic, mentally very aggressive, more reflexive, more focused, etc.

Brief Description of the Concept:

The chakras are the psychometric scale of an individual, mainly signing in the potential profile. If the ACE system is going to be meaningful in the current scenario, it must have the flexibility to be relevant to the demands of modern life, and it must bring benefits beyond the boundaries of the brain. The ancients formed a profound system. We can now harvest its wisdom with modern solutions to make an even more effective body-mind system. Ancient Indian Yogic Science is like an ocean of knowledge, and it has its distribution widely in the Vedas, Upanishads, Tantric Yoga, Ayurveda, Sidha, Varma, etc. The versatile branches of ancient Indian yogic science state the importance of Kundalini power in their own way. Kundalini Sakthi, Serpentine Power, and Supreme Power in the Human Body In Ayurveda, the chakra cleansing has been stated as Bhuta Shuddhi. The Bhuta Suddhi of our body will happen upon the continuous flow of prana, or life force energy. The continuous efforts of Rajayoga practises enhance the focus and breathing system. Where the focus goes, the energy flows. A regular practise of Rajayoga ensures the flow of prana throughout the

body, and this process will directly push the activation of energy-spinning spots called human wheels or chakras. Actually, Kundalini power is a dormant divine potential or a cosmic subtle entity that remains at the base of the spine in the human body. An individual prepares himself within the limits of his physical boundaries, such as physical fitness, technical training, practises, and preparatory motivation. As per the current science validation, an individual uses his brain at an average level that is used by scientists, saints, and great personalities only. Ordinary people use their brain power only at a lower level. The fullest brain strength could not be tapped by the individual. But there is a specific chakra combination that brings skills and hind energies beyond the brain boundaries. Any physical system has only limited power, and it handles only an average level of brain work. The fullest potential can be managed only by a subtle system. Once the mind starts synchronising with the brain to observe and becomes the real apparatus of the prime driving force of the physical body (soul), the intelligence will go beyond the barriers, and the innate potential of the individual will exceed all human limitations. The Chakras are the royal factors that work on the energy body and coordinate both the physiological and psychological systems with the help of the main life force energy. The 'I' centre of the physical body In fact; optimism may be indispensable to our existence." Buddhist and yoga practitioners utilise these energy channels and seven chakras (energy centres closely related to major nerve complexes) in their working model of major energetic and spiritual structures." The legendary figure Bodhidharma is said to have transmitted Zen from India to China in the early 6th century C.E. The modern Zen ancestry tracks down their progenitors directly to Bodhidharma and the school of Shaolin, where he taught. Bodhidharma was born in India and belonged to a small tribe in the southern part of the country. The prince, Bodhidharma was a veteran fighter and yogi. It is stated in the history that, as he was steeped in Mayhayana Buddhist practises, perhaps it was this meeting of the martial and spiritual that produced such an enduring legacy. The training of Rishi Bodhidharma was an integrative approach to strengthening the physical body as well as the mind simultaneously. And meditation and its energy endurance towards chakras were the

prime factors that played a pivotal role in synchronising the tangible physical and intangible psychical aspects. The rishi Bodhidharma's teachings and exercises in yogic science were given in three ways. They are time-tested methods of awakening, strengthening, and improving the flow of vital energy in the energy channels, seven chakras, and the body. This will lead to a healthy body, an integrated emotional life, a peaceful yet vitally alive mind, and a blossoming spirit. This classical opening of the ACE system and Human Wheel Wright analysis make a portal between the physical and psychological planes; chakras represent the sanctified, set apart structural design of the human body and psyche. It is at this time that we have the advantage of weaving the knowledge of ancient and modern concepts into an elegant use for all fields. This analysis represents a guiding map for the life journey. With its progressive science and wide-ranging, exhaustive analysis, the Human Wheel Wright-Multiple Potential Analysis provides you with astounding new insight into how the chakras of the ACE system create hope and dreams and how the chakras are energising your life.

Physio-psycho-spiritual energy synthesis concept of Yogic Science:

The life force energy transfusion process is a purely energy transfusing method in which the donor's body system (physical and energy body system) is filled with life force energy gained from physically focused and subtle deep conscious concentration in unified breathing practise. It is called stages of mono-conscious concentration and simultaneous breathing practises, which are highly interlinked with profound experiences of feelings of peace and happiness and induce neural activity in the brain. Activating the hypothalamus region, pineal gland, and pituitary gland by the life force energy circulation in the energy body, through which stream the currents of subtle energy synthesised and that sustain and vivify the entire human body. The unique induced process by which the energy synthesised has been undergone with the physio-Psycho-Spiritual interaction happening in the human body is described as the concept of Physio-Psycho-Spiritual energy synthesis. The energetic circulations in the channels of the energy body are themselves energetic and cannot be found in the physical dimension. However, through practise or natural

sensitivity and clairvoyance, individuals can become experientially aware of them. The strange process of energy synthesis and transformation from spiritual and scientific energy synthesis phenomena (physio-psych-spiritual energy synthesis process) upon which both the vitality of the physical body and the conscious depend. While going through the details of recent scientific literature and also comparing it with ancient Indian spiritual texts as well as western occult science and the new age, the following things become apparent:

The Role of Raja yoga Meditation:

The comparison of the physical association of glands in the human body that have been positioned in an order in which the chakra system is also located, associated, and demonstrated in Indian yogic wisdom and in the Vedas. The pineal gland is the physical aspect of the ajna chakra, which plays the main role in the chakra system; the thyroid of Vishuddhi; the breasts of Anahata; the adrenals of Manipura; and the hormones of the reproductive system of Swadhistana and Muladhara. These all endocrine glands are located exactly at the varman points, which has been stated in the traditional varmam maruthuvam too (a unique treatment method of south India, particularly in the part of south Tamil Nadu Kanyakumari District). Connected with varmam, the chakra system and their functions in the physical body match the ancient wisdom of the chakra and its functions stated in the upanishadas. The chakra system of the human body, functioning through the endocrine system, is the main aspect of physiological and psychical expression and has influence over the physiological as well as the psychical aspects of an individual, as well as the spiritual tradition of the ancient Indian yogic wisdom of the chakras. The energy that is moving upward through the practise of Rajayoga meditation will reach the pineal gland and activate it. And this is the vital point where the initiation of the physiological, psychic, and spiritual energy transfusion processes occurs. Here in this gland, energy processing and redistribution occur. The pineal gland is the chief gland of all the endocrine glands in the human body. It also regulates the circadian rhythm and sleep-wake cycle, and it also slows down the ageing process. It has psychic properties (seat of the soul or mind). It is the Agna (Ajna) chakra of the tantric (subtle energy) or complementary healing system. Its

activation has been done through a years-long practise of Rajayoga meditation techniques. Pineal also inhibits the growth and metastasis of some tumours. It has a stimulatory role in developing the immune system, and at the same time, it plays a navigational role in birds and animals. The pineal gland has magnetic stuff, which therefore helps in navigation. Scientists are looking at the magnetic and navigational properties of the pineal gland in humans. So pineal activation and charging through monoconscious focusing in meditation is the vital step, and that is the doorway to the energy highway and energy transfusion. This may be Kundalini Shakti activation. To activate the pineal and the other psycho-spiritual bodies either through the connection of cosmic energy dynamics during the Rajayoga Meditation or through the Practise of Brahma Kumaris Raj yoga. This activation of the pineal (the physical body) as well as the other psycho-spiritual bodies through Rajayoga Meditation and life force energy is called the physio-psycho-spiritual energy synthesis phenomenon. Kundalini Shakti is said to be activated through these, and happiness, bliss, and peace are bound to follow. This energy may be transformed into electrical, magnetic, or chemical energies in the body. The processed energy must be stored for future use by the body. The hypothalamus is the directive force of the autonomic nervous system, and the pineal gland is in immediate proximity to the autonomic nervous system, so it is possible that fresh energy synthesised may either activate this system or use this system as a vehicle to transport somewhere. Parasympathetic nerves and their hormones and chemicals may be more useful than the sympathetic system. As the sympathetic system increases body needs (e.g., thinking, fighting stress, excitement, etc.), the parasympathetic system is known to reduce energy needs. It keeps the person serene and at mental peace, alters the metabolic requirements to a lower state, and puts them to sleep. It may work as a regulator, if not a receptor, and may be psychically involved in directing the energy along the proper pathways. The energy finally stored in the parts of the medulla oblongata will be utilised or may be evoked, and there will be chances for it to get charged or recycled. Medulla oblongata has all vital centres and, therefore, can be proposed as a store of vital energy.

Thus, there are energy receivers or receptors, processors, analyzers, transformers, stores, etc. to explain the energy logistics. Here, we mentioned the life force energy from the physio-psycho-spiritual energy synthesis phenomenon, but one may use any source from the cosmos, i.e., the sun, air, water, plants, earth, etc. This may be described as spiritual-scientific energy synthesis or the physio-psycho-spiritual energy synthesis phenomenon. Apart from the retina and pineal gland, the skin and other senses may be responsible for receiving the energy. By using the receiving tendency of the skin, the life force energy transfusion is done. Through the practise of Raj yoga meditation, tremendous capacities are born, which will bring tranquilly to the mind and also slow down metabolism. The mind is the domain of the prime driving force called the soul. And it can use the psychic apparatus called chakras for everything, including so-called expertise in cloning energy transfusion—an astounding process for changing physical performance by way of spiritual or yogic science. It can revitalise the body, heal diseases, know things in advance, and manipulate the laws of physics. This may be done through complex mechanisms involving the neural and humeral organs. Through this supreme activation of this energy transfusion process, a person can not only become energetic but can also transfuse this accumulated energy to another person. The concept of life force energy transfusion can be used by people in all fields at all their levels (physical, mental, intellectual, moral, and spiritual).

Expertise Cloning of the Chakra System by Means of Energy Transfusion:

Expertise cloning of the chakra system is described as a process in which the energy gained through a practice of Rajayoga yoga meditation will be transfused to a donar system in a receiver whose chakra system is in an underactive condition. By doing this Energy transfusion, the receiver will get an uplifted chakra system to meet the energy demand, while the time of skill execution and the performance of the chakras will be at their best. Here, the beneficiary or receiver need not do any meditation. But the receiver should be seated in the receiving mode and position. This is like when an electrician who is well known for repairing ceiling fans approaches to correct a complaint, but there is a need for a ladder to reach the height. Once the repair is rectified, the ladder will be withdrawn if there

is no need. Similarly, here also, the expertise cloning of the chakras method helps meet the demands of the receiver. Once the demand is over, the chakra system will return to its original form. And if the upgraded chakra system is required for the receiver for a longer time or permanently, then the receiver needs to practice Raja yoga meditation to have the evolved chakra system permanently. The energy formed through the spiritual-scientific energy synthesis phenomenon, or Physio-Psycho-Spiritual Energy Synthesis Phenomenon, is circulated in the energy body. This condition in body and mind contributes to an increased level of life force energy, and it also absorbs life force energy from the environment in abundance. After completing a time-bound sitting of practise, the physical body and the energy body accumulate life force energy (LFE). This LFE nourishes the energy body as well as the physical body, but with a higher frequency of transfusing tendency. Now, the donor transfuses the LFE to the receiver by gently touching his physical body with the appropriate laser crystal. Crystals can be calming and grounding, or they can stimulate healing of the physical body through their ability to vibrate and resonate. They absorb, store, and transmit energy. When disease in the body creates unstable molecular patterns, a clear quartz crystal can be used to direct and focus light and energy on the area to be healed, bringing it into harmony and balance. With this condition, thought impulses are produced which induces electric energy in the body. First, this very low electric energy is transferred to the receiver's body through the lazarus crystal as a direct piezoelectric effect. When mechanical pressure is manually applied to the opposite faces of the quartz crystal, an electric field is produced. It is called the direct piezoelectric effect. Then the past electric energy activates the receiving tendency in the Skin. The epidermis in the skin of a living human body has an electric polarisation moment vertical to its surface. Actually, the changes in temperature and pressure pulses caused by the Voltage responses are possibly piezoelectric in nature. The epidermal surface has the capacity to react to all physical environmental influences. The Epidermal voltage-emitting signals can be measured or perceived by using the intra-epidermal and superficial nervous networks of the skin. The pyroelectric and piezoelectric properties are also measurable on skin

samples. Gently touching the receiver's body or skin with the appropriate Lazar crystal stimulates minute impulses to nerve endings beneath the skin—transcutaneous electrical nerve stimulation—without using any thin needle insertion. The transcutaneous electrical nerve stimulation makes the receiver's body vibrate more and increases the synthetic sensation and vibratory sensibility. Now the abundant life force energy with high flow in the energy body of the donor system is transfused to the receptor system. The life force energy here is not merely transferred but transfused, as the energy goes through the appropriate chakral energy meridian. The transfused energy activates the receptor body system immediately. Now the increased size of the energy body helps the physical body absorb more free gravitational force, which immediately transfers to kinetic force. At the same time, the high immediate flow in the energy body can help the physical body move freely. This condition of the body system achieves the fullest potential and gives astounding execution to any learned skill. The body systems with muffled performance turn into miracles of execution. Here, the receiver system of the physical body, can feel the LFE entering the physical body and the immediate activation of physical senses and increased awareness. Because the LFE transfusion helps the receiver's physical body absorb this LFE and distribute it to the whole body system, As the energy body is part of the physical body, the latter gets highly energised, which helps the receiver execute the needed activities faster or quicker than its normal speed.

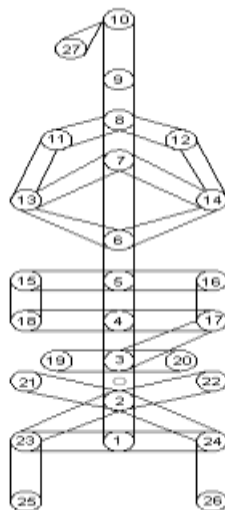
The Cloning of the Chakra System and Energy Transfusion and Their Works in Physical and Energy Bodies:

The study of Expertise Cloning of the chakra system by means of Energy Transfusion based on Raja yoga meditation, a physio-psycho-spiritual energy synthesis concept of Yogic Science, is a unique scientific meditation-based energising method. Our body system has an outer energy body that has a straight connection with the physical body system. Performing skills and the wellness of the body not only depend on the physical body system but also on healthy energy flow in the energy body. The energy transfused from the host energy system is circulated in the energy body and, combined with the chakras, gives enormous energy flow. The energy is then distributed throughout the

body by energy channels. Due to the fast rotation of the chakras, like a hurricane that suckers up a large amount of energy and becomes bigger in size, this change in the status of the chakras manifests, which activates the physical body to display higher speed and sharp execution in the game. Abundant energy goes to the appropriate chakra and activates the receptor's body system immediately. The expanded energy body helps the physical body achieve its full potential, gives absolute execution to any

learned skill, and enlivens the latent potential. The ancient art of yogic practitioners, Rajayoga Meditation practitioners, naturally have bigger chakras, and hence they display a performance that is a distant dream for others.

A schematic explanation of the major and Minor Chakras in the Human Body connected to the Yogic Science concept of Physio-Psycho-Spiritual Energy Synthesis



1. Basic Chakra 2. Sex Chakra 3. Navel Chakra 4. Solar plexus Chakra 5.Heart Chakra 6.Throat Chakra 7.Nasal Minor Chakra 8.Ajna Chakra 9.Forehead Chakra 10.Crown Chakra 11. Right Brow/Eye Minor Chakra 12.Left Brow/ Eye Minor Chakra 13.Right Jaw / Ear Minor Chakra 14. Left Jaw / Ear Minor Chakra 15.Right Shoulder /Armpit Minor Chakra 16.Left Shoulder/Armpit Minor Chakra 17.Spleen Chakra 18.Lung Minor Chakra 19 Right Navel Minor Chakra 20. Left Navel Minor Chakra 21. Right Kidney Minor Chakra 22.Left Kidney Minor Chakra 23. Right Knee –Calf Minor Chakra 24.Left Knee Calf Minor Chakra 25Right Angle –Toe covering Foot Minor Chakra 26.Left Ankle-Toe covering Foot Chakra 27.Back head Chakra , ◯ Meng Mein Chakra

Conclusion:

The newly conceived concept of expertise cloning of chakra energy transfusion to help the individual or sports personalities (players) execute the learned skill and latent potential in superior form It converts bullets into cannon balls. The uniqueness of this fabulous process application is that it drives the individual or sports personalities (players)

to execute the skills or game at a higher than expected level. An individual or a sports personality (player) enters the field or works with a sort of mind-set about a plan to achieve or win the game. This concept assists such individuals to emulate their exact mind-set level as far as the physical and psychological execution is concerned. The effect of Raja yoga Meditation on yogic chakras will be considered pulling or force-generating archery, and the arrow will be compared with yogic chakras. Whereas the shadow of the arrow travelling simultaneously under the arrow is looking and starts travelling towards the target like the active physical body execution. The effect of the Raj yoga meditation will generate a force towards the activation of serpentine power called Kundlini. Once it gets activated, the energy starts moving upward, and the charged arrow released from the bow starts travelling towards the target. The arrow is like the yogic chakras. The force generated by the practise of Raja yoga meditation has been loaded on the chakras and taken a lead to the target. The shadow of the travelling arrow that falls on the ground is compared with the physical body and its movements and executions. Once

the arrow hits the target, the shadow of the arrow will also disappear. This means that the execution of the physical body's performance will fulfil its purpose. The purpose of yogic science is to awaken the spiritual potential of the human being to act at their best possibilities in all forms of their domains, which means physically, mentally, emotionally, and spiritually empowering their energy system through the expertise cloning of chakras to pass the unavoidable role of worldly activities very happily and to reach the ultimate aim of reaching the divine abode of supremacy.

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G20: Opportunities and Challenges before India

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Abstract

It is the first time that India will be the G20 president and hosts the Summit. While the presidency brings new opportunities for India for its economic development, to present itself at a global level, and to shape the agenda of a major world grouping, there are challenges that India faces in a world divided on multiple fronts. India's presidency has come at a time when the world is facing many challenges, ranging from Chinese aggression towards Taiwan, rising food and energy crisis due to the Russia-Ukraine conflict, ever-increasing belligerence of North Korea, the global economic slowdown, the emerging threats to trade in the Indo-Pacific region, and the concerns for the environment. The core purpose of the G20 has always been to recognize the importance of collective action and inclusive collaboration among major developed countries and emerging economies around the world. And as a leading multilateral platform, it holds a strategic role in securing future global economic growth and prosperity.

Keywords: G20, India

Introduction

India begins its Presidency of the G20 with the theme "One Earth, One Family, One Future" it should have a deeper policy engagement, especially with the countries that look up to it for its support and guidance. Championing the virtue of "*Vasudhaiva Kutumbakam*" the world is one family as its G20 theme, India needs to skillfully manage this disorderly family in the year ahead. And through this leadership role, it must give priority to a developmental agenda, while creating a blueprint for a faster, more resilient and inclusive global economic recovery.

India's G20 Presidency began on December 1, 2022. And this presidency also brings responsibilities and challenges. India's turn came at an appropriate time when the world is going through war, an energy crisis, recovering from the Covid-19 pandemic and climate urgencies. India's actions during such time are crucial for its 'responsible power status'.

In today's world, the Indian Ocean constitutes 84% world economy and 79% of world trade; hence the G20 Presidency would be looked upon with many expectations. It has a more significant role to play in the context

of the current economic and geopolitical scenario. India can play the role of a 'peacemaker' on behalf of the Global South. India due to its policy has always maintained a balanced and objective view, in this multipolar world. The G20 Presidency thus allows India to assert itself in the world and take lead as a responsible power.

As climate change occupies the mind of the members, the demand for technology transfer and climate finance from the Global North to the Global South aids India to reduce its carbon emissions without affecting its economic profits, therefore meeting its goal of attaining earlier net zero by 2070.

The Origin of G20

The 1990s witnessed significant debt crises across the world the Mexican peso crisis (1994-94), the Asian financial crisis (1997-98) & the Russian financial crisis of 1998. In a rapidly globalizing world, it was realized that G7 and Bretton Woods were unable to provide financial stability the world needed. Thus, to bring the large economies of both, the developing and developed world together, the G20 (The Group of Twenty) was established in 1999 at the initiative of G7. The forum includes 19 countries and the European Union, and accounts for 85% of the world

GDP, over 75% of global trade and about two third of the global population.

The work streams of G20 have been divided into 3 tracks i.e. Sherpa track, finance track & engagement groups.

Sherpa track: Through this channel, several working groups and initiatives meet to discuss various developments in the sectors like agriculture, education, employment, culture, tourism etc. These working groups discuss priorities and make recommendations. The representatives for the working groups include officials from relevant ministries and experts in the domain.

Finance track: Through its meetings of finance ministers, central bank governors and their deputies, the discussions are held on the global economic outlook, risks, reforms, financial infrastructure, taxation etc.

Engagement groups: These groups comprise non-government participants from member economies. These groups also provide recommendations to G20 leaders and contribute towards policymaking. The verticals in engagement groups include business20, civil20, startup20, SAI20 etc.

Challenges before India

The G20 was a divided house, with several leaders abdicating their responsibility to find a way to a peaceful solution in Ukraine. Political leaders must address the root cause of the food, fuel, and fertilizer crises, the Ukraine conflict, and related sanctions.

The Ukraine crisis remains unresolved after more than a year has passed. Along with crude oil, the region is also a major supplier of fertilizer-related chemicals for the whole world. Thus, the war has serious implications for the food and energy security of the world. The discussion related to the war proved tough at the Bali summits last year, and how diplomatically India is able to handle the situation, will test its leadership.

One of the significant challenges would be to contain China's power projection in the world. The Chinese and Russian axis in the geopolitical scenario has made the matter complex. India is also facing China's assertiveness on its borders. Hence managing Chinese influence and power would be the most difficult task for India.

India will face the challenge of advocating for a fair and inclusive global trading system amidst rising protectionism and trade tensions. Balancing the interests of developed and developing nations, addressing

trade imbalances, and fostering a rules-based international trade regime will require diplomatic finesse and negotiation skills.

India has identified six shared priorities in areas including public digital goods and digital infrastructure; climate action, climate finance and technology collaborations; the clean, sustainable and inclusive energy transition; accelerated progress on sustainable development goals; women-led development; and multilateral reforms for sustainable economic development.

Opportunities for India

India's G20 presidency presents a unique opportunity to prioritize global health systems and enhance international cooperation after the pandemic. India, being a major supplier of generic drugs and a hub for vaccine production, can contribute significantly to discussions on equitable access to healthcare, strengthening health infrastructure, and building resilience against future health crises. Along with serving the global health cause, any progress on the issue will help the Indian economy.

India must not only take the lead in strengthening the G20 group and reducing the differences that have crept in due to the geopolitical situation, but also set the pace for the future of multilateral cooperation in various fields of the group's multidimensional agenda.

India must strive to bring together an Indo-centric vision, expand the area of critical concerns of the Global South, and leverage the diplomatic advantage to share and settle the positions of competing centers of power involving China, the USA-led West Block and the Russian block.

As China sees itself as a superpower and whose time has come, more clashes and competing interests with India are likely, which will have to be resolved through negotiations.

Conclusion

The prime focus of the G20 countries being on securing long-term economic growth, the efforts will have to continue towards the guarantee of food, fertilizer and energy security for all, especially the most disadvantaged households. In particular, the full implementation and continuation of the Black Sea Grain Initiative for the export of Ukrainian goods would be a major challenge for India. India has already taken the lead in some aspects especially in sustainable

economic development and particularly in technology with digital public goods and its governance, self-reliance or *Aatma Nirbhar*, vaccine diplomacy, and asserting its firmness on various geopolitical issues. The G20 presidency gives India an opportunity to initiate a transformation of the global regulatory structure.

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Perspectives of Existential Facets and the Notions of Socio-Psychological Crisis as Depicted in the Select Plays of Harold Pinter: An Analysis.

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An Abstract:

This article centres around Harold Pinter, a celebrated writer who investigates the meaning of life in his theatrical productions. The focus of this research article is on Pinter's plays and the way they delve into the complexities of the human mind, familial connections, and challenges faced by society. The characteristics found in Pinter's plays align with those typically found in Absurd theatre. The main idea conveyed in the article is that Harold Pinter's plays effectively portrayed the unconventional and absurd aspects of contemporary society. Pinter's concentration in this phase revolved around crafting characters that were realistic and easy to relate to, employing simple dialogues and settings. His intention was to illustrate the complexities found in relationships between individuals and the hardships faced in everyday life. Themes of power dynamics, deception, and breakdowns in communication were common in Pinter's writing. In essence, his early plays in the naturalistic style sought to portray the authentic realities and intricacies of human life. The Absurd Theatre is a kind of dramatic production that portrays the ridiculousness or nonsensical aspects of life. Everyday life often brings about people's anxieties. By modifying his writing style, the playwright Harold Pinter crafts a distinct ambiance that captivates the audience and elicits deep emotional involvement of the modern man's thoughts and confusion. The key point of this research article is to underscore the significance of delving into deep contemplation regarding one's own self and the experiences they go through. Absurdist frequently articulate their beliefs by discerning purpose in the lack of meaning in life. However, absurd dramatists use few characters and settings in their plays to make this meaning more powerful.

Key Words: existential, social, absurd, theatre, relationship, psychological, existence, humanist, society.

Through his plays, Harold Pinter, an intelligent contemporary playwright, delves into the human existence and how individuals navigate the world. Many consider him to be an outstanding playwright in the realm of existentialism, while he is also recognized for his affiliation with the angry young man or kitchen sink movement among British playwrights. He is regarded by some as a depiction of humans' innate urge to protect and secure their own territory. The assertions made about him and his skill in the field of drama might contain a certain degree of accuracy when considering his on-stage portrayals. Pinter started his career as a

playwright at the same time as John Osborne, C. P. Scott, Alun Owen, and John Arden. Emerging in the 1930s, a collective of young playwrights gained fame post-1956. The way people communicated on stage was altered by this collective of young playwrights. Rather than utilizing middle-class language, they employed alternative linguistic styles typically spoken by individuals from various regions and lower social classes. This left numerous older critics and theatre audience members in awe and astonishment. Pinter's valuable contributions to contemporary drama, including his innovative approach to style, language, and themes, have firmly

established him as a leading playwright in the modern theatre.

Harold Pinter was born on October 10, 1930. In 1980, his fame reverberated globally as an English playwright, screenwriter, actor, poet, and political activist. The remarkable triumph of Harold Pinter in literature was acknowledged through the bestowal of distinguished awards including the **Commander of Honour and Commander of the British Empire**. In 2005, he was also awarded the **Nobel Laureate of Literature**. Pinter commenced his career in the theatre during the mid-1950s. He assumed the identity of David Baron to act in plays that were not under his direction. In 1997, he commenced his writing career by creating material, beginning with his inaugural play called **The Room**. Pinter's body of work included 29 stage plays, 26 screenplays, numerous sketches, radio and TV plays, poetry, several short stories, a novel, and a collection of essays, speeches, and letters. He gained the most fame for his works in both playwriting and screenwriting, with notable works including **The Birthday Party, The Caretaker, The Homecoming, and Betrayal**.

His plays are characterized by a plethora of humorous moments, captivating imagery, intelligent dialogues, ambiguous elements, unexpected turns, and an atmosphere of uncertainty or anticipation. In his plays, one can find a wealth of comical instances, captivating visual descriptions, astute conversations, intriguing ambiguities, unforeseen plot twists, and an air of suspense or unpredictability. Pinter's plays present a challenge to comprehend owing to their exploration of intricate topics like the impact of society on personal identity, the control exerted by language, and the malleability of our memories over time. In the words of J.L.Stylan also makes the same point when he describes Pinter as: “a light-heavy weight

Beckett with a firmer sense of theatre” (32).

The influence of Harold Pinter, who was 24 years Beckett's junior, has made Pinter an important figure in today's theatrical landscape, particularly among the younger playwrights. According to Martin Esslin, Pinter employed his theatrical talents to depict the complexities and dilemmas of the human condition in a similar manner to Beckett. Pinter's theatrical works illustrate the way people lead their lives, encapsulating

their feelings. The characters' conversations and the challenges they encounter accurately represent real life. Pinter's characters stand out with their distinctive personalities, which is in contrast to the more enigmatic characters in Beckett's writings. It appears that he is extremely focused on investigating and grasping the timeless fears that humans have harboured since ancient times.

Pinter's plays have the ability to evoke both amazement and fear within us. He displays his admiration through his plays, utilizing commonplace items and average individuals. Pinter's plays combine elements of both spooky and ordinary experiences. Society imposes the pressure to conform and forfeit personal uniqueness on individuals, despite their innate longing for security, recognition, and acceptance. The main characters in all of his plays encounter perilous predicaments and manage to secure their safety by seeking refuge in a secure location in order to survive. Pinter's plays unquestionably contain suspenseful elements and enticing mysteries intentionally left open-ended. To gain a proper understanding of Pinter's theatre, it is vital to appreciate the symbols conveyed through his characters.

Pinter's theatrical expertise and his dedication to addressing the predicaments individuals confront in society are widely acknowledged. Pinter's inclination is to depict authentic issues that transpire in ordinary existence, employing a fresh perspective to do so. Similar to other Absurd Theatre playwrights, Pinter's focus doesn't solely revolve around profound philosophical concepts about the essence of existence. His ideas consistently hold significance in dual aspects. On one side, they discuss practical and relatable matters pertaining to real life. However, they also possess a more profound and universally significant interpretation. The author suggests that portraying real-life objects and situations as cosmic archetypes allows for a glimpse into reality. This play, **The Room**, served as his initial exploration into capturing the essence of threat. It's challenging to pinpoint the source of this mixed emotion, which is a blend of concern and apprehension. In the words of Vaidhyanathan as follows “Must vital to an understanding of Pinter's theatre is the symbolism of his characters. In spite of their initial realistic appearance, their cumulative impact embraces the whole of humanity”(37).

Pinter's early plays consistently incorporate this subject as a significant component, which led Irving Wardle to coin the phrase "Comedies Menace" to characterize them. **The Birthday Party**, his first long play, amplifies this topic with hints of feeling bad and being disloyal. The theme of danger resurfacing is explored in both **The Dumb Waiter** and **A Slight Ache**. The idea was further pursued in **The Night School**. The play, **The Dwarfs**, prompts individuals to contemplate their own identity and the eventual outcomes they may face. Pinter's plays and their underlying themes exemplify his concentration on delving into existential concerns from a somewhat philosophical perspective. The play **The Dwarfs** explores the breakdown of two distinct relationships - one between spouses, and the other between two individuals who were once close friends. Both relationships are in danger because of the women involved. Like the characters Tiru and Jenny in the book "**Under Plain Cover**" by Osborne, Richard and Sarah also have fantasies and enjoy playing erotic games in the afternoon. However, they have a normal married life during the nights. **The Lover** was later followed by the **Tea Party**, a short story that was made into a TV show two years later. The play explored the character of someone who suppresses their emotions and desires, but is dealing with intense emotional turmoil.

The Home Coming, a play by Pinter, managed to shock numerous individuals, particularly those who assumed it was merely a pretentious, intellectual melodrama. By combining elements of excessive authority and intimidation, The Basement reintroduced a nostalgic concept with the addition of daydreaming. The play **No Man's Land** depicts a shared living space where four characters inhabit a realm that combines elements from both present and past times. In this setting, a perplexing situation arises as memory, illusion, and reality intertwine, making it challenging to determine the authenticity of each element. Betrayal, his latest theatrical production, delves into different forms of betrayal. The study investigates the various ways individuals can betray one another within different types of relationships, notably including those between spouses, romantic partners, and close friends

Pinter was identified as a member of the Absurd Theatre by Martin Esslin, who

was the first to do so. The plays of the Theatre of the Absurd incorporate common elements used by all its dramatists. The concepts encompass the lack of purpose in individuals' lives and the insufficiency of language for effective communication. Additionally, widespread subjects include interpersonal connections, cognitive challenges, fallacious notions and fantasies, impaired communication, mortality, the concept of time, disconnection, racial animosity, and existential identity conundrums. These themes are recurrent in Pinter's plays. Unlike Arnold Wesker or John Osborne, Pinter is not commonly perceived as a playwright focusing on social issues. His plays frequently delve into subjects concerning society. His plays present different perspectives on the institution of marriage. The marriage depicted in certain plays, such as **The Room**, **A Slight Ache**, **Tea Party**, and **The Home Coming**, is characterized by instability and unpredictability. The characters in **The Birthday Party**, **Old Times**, and **Night** face obstacles in their relationships and are forced to overcome their differences. Finally, there is a successful marriage portrayed in **The Lover**.

Pinter's predominant interest centres around grasping the social and psychological issues that individuals encounter. His attention is directed towards humanity and he shows concern for the well-being of individuals. She possesses the traits of a loving and protective mother. One possible reason for her anxiousness could be her love for him, while another explanation could be fear. It is evident that there is a powerful sense of anxiety, hinting that the marriage may not be as secure as it outwardly seems. The message conveyed in this text is that there exist external elements capable of posing a danger, and the blind African American individual can be considered a representation of such peril.

In **The Birthday Party**, the playwright examines the strained relationships that exist within marriages. Meg, who serves as the central figure, greatly contrasts her husband Petey in terms of personality and behaviour. Although she possesses a friendly and talkative nature akin to Rose, this woman appears lacking in intelligence and common sense. In spite of this, she succeeds in evoking compassion from us by sincerely caring for both Petey and Stanley and honestly sharing her emotions

towards them. The woman in **A Slight Ache** differs from Rose and Meg in that she is younger and plays the role of the wife-mistress rather than the mother-wife.

The play **The Home Coming** discusses extensively the three functions that women typically fulfil: motherhood, mistress hood, and wifely duties. It is evident in the vicinity that Beth and Duff are facing significant difficulties in their marriage. In spite of their physical presence in the same room, their incompatibility prevents any form of mental connection between them. In contrast to other plays, **The Lover** diverges by presenting Richard and Sarah as a married couple who have managed to maintain their happiness throughout the years, contradicting the prevailing notion of romantic failures. Sarah plays the double role of wife and mistress to Richard, who also assumes the dual roles of husband and lover.

The play **Night** portrays the successful journey of an elderly couple who effectively overcome obstacles and maintain a stable marriage. The play features a conversation about their initial meeting, which took place over coffee. Despite having dissimilar opinions regarding the finer details, they are wholeheartedly aligned on the central subject. They articulate their love for each other anew, making a solemn promise to always cherish one another. In Pinter's plays, the primary emphasis is placed on the bond between siblings, especially brothers, as opposed to the love between parents or romantic partners. Pinter's first play, penned in 1957, puts forth the idea that the love between children outlasts and surpasses any other connection. **Tea Party** delves into the strong emotional link that exists between Disson's offspring. Both boys consistently have a uniform reaction to situations and always consult each other before offering their input. In **The Caretaker play**, Mick's role as the caretaker symbolizes his responsibility towards his brother Aston. Pinter's play **The Dwarfs** delves into the complex dynamics of three friends who both depend on and doubt each other. The three companions' pursuit of total power leads to a fracturing of their relationship, leading them to become adversaries. The unfortunate predicament they find themselves in originates from their mutual dependence on one another. The central ideas explored in **The Dwarfs** involve betrayal and a lack of trust between the characters. In **The Collection**, the

characters' actions are primarily motivated by the trust they have in one another. Aston discusses the disappointment he experienced when his parents failed him during his time in the hospital in **The Caretaker**. In conclusion, despite Pinter not typically being associated with addressing societal concerns, his plays possess a significant social component. Within the realm of playwrights, Pinter stands out for his distinctive method of organizing his plays, which allows for a profound exploration of existentialist notions.

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A Study on Social Media and Its Role Impact on Society

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Abstract

Social media comprises a massive infrastructure that is essential in today's environment. Interesting aspects of social media grow in real-time communication with close companions and relatives. This platform has strengthened relationships, and brings people to an entirely different view of life culture that was not in the past. Many people, particularly teenagers, are influenced by social media influencers. This article addresses social media principles, an appraisal of the literature, the significance of social media, the consequences of social media on adolescents, and the positive and negative aspects of social media.

Keywords: Social Media, Pros and Cons, Impact on Society.

Introduction

Social media is a broad platform that is essential in today's environment. Attractive aspects of social media emerge in keeping in communication with close companions in real time. This platform has strengthened relationships, and brings people to an entirely different view of life culture that was not in the past. Social media influencers create a significant impact on many people particularly youngsters. Social media are computer-aided technologies that enable the creation and sharing of information through virtual communication and networks. Social media provides ways to stand against injustice and inequality. Social media websites such as YouTube, Instagram, and Twitter gave chances to ordinary people to earn fame and, make social media influencers popular.

Review of Literature

In the realm of marketing, online communities are coalitions where people establish networks and circulate information and/or beliefs (Kaplan and Haenlein 2010). Because of their unique nature as "dynamic, interrelated inclusive, and collaborative organisms" (Peters et al. 2013, p. 281), social media have caused three major shifts in the economy.

For instance, social media allows firms and consumers to communicate in manners that were previously inconceivable. Numerous platforms, among them websites for social networking (e.g., Facebook), micro blogging websites (e.g., Twitter), and media groups (e.g., YouTube), facilitate such connection, allowing relationships to be built on shared interests and beliefs (Kaplan and Haenlein 2010). In this context, "social interconnectivity" has also been referred to as "social ties" (e.g., Muller and Peres 2019); (Quinton and Wilson 2016); and the strength and length of these relationships define whether they can be considered strong or weak (Granovetter 1973). Prior research has demonstrated that tie strength is an important predictor of customer referral behavior (e.g., Verlegh et al, 2013).

In addition, social media has changed the way businesses and customers communicate and influence one another. Socialization entails "actions," whether through conversation or passive observation, that influence people's decisions and consuming behavior's (Chen et al, 2011); Nair et al. (2010) referred to these types of relationships as the "word-of-mouth (WOM) effect" or "contagion effects." According to

Muller and Peres (2019), relationships rely heavily on social network organization and offer firms with tangible benefits (also known as "social equity"). The investigators have long recognized the significance of social influence in influencing buyer choices in social media investigations, and current research demonstrate that relationship sequences and the magnitude of social ties can indicate the level of engagement of social relationships (e.g., Aral and Walker 2014; Katona et al, 2011).

Finally, the rapid growth of social media analytics has enabled businesses to better handle consumer connections and improve commercial decision-making (Libai et al, 2010). Social media data, like other electronic information, is generally defined by the 3Vs (volume, variety, and velocity), which allude to the large amount of data, diverse data sources, and detailed real-time data (Alharthi et al, 2017). With the help of advances in technology, an enormous quantity of social media knowledge collected from diverse venues (e.g., websites, blogs, forums) and in multiple formats (e.g., written content, audio recordings, image) can now be simply retrieved and usefully used (Moe and Schweidel 2017). Thus, interpersonal data can be an important source for client analysis, market study, and idea collaboration, while acquiring generating value using social media information symbolises the establishment of a novel strategic asset that may enhance advertising results (Gnizy 2019).

Role of Social Media in Indian Society

Mark Zuckerberg, who was attending Harvard at the time, founded Facebook as a method to communicate with other students. According to the company's 2012 preliminary offering filing, the online community currently boasts 845 million subscribers globally, with about 161 million monthly users who are active in the United States, making it the globe's leading social media site.

If the social network were a nation, it would rank third after India and mainland China. Twitter, which was founded in July 2006, serves as a worldwide weblog and social networks service with over 300 million members as of 2011, based to account monitor two charts. It enables users to send photographs, videos, including 140-character communications. YouTube, launched in 2005 entrepreneur Steve Chen and Chad Hurley, is a platform for the sharing of video content ranging from beautiful kittens snoozing to

first-run television shows to eyewitness accounts.

Even in the most remote parts of the nation, people may get accurate data in just a couple of minutes. Because of the ease and speed with which information is available, social media is one of the most trustworthy tools for creating public opinion. It acts as a conduit for interaction among leaders and the general public.

Innovation is amazing; the potential of smartphone applications and the Internet are genuinely limitless. Social media combines science and technology together two basic human needs: connection and interaction. The debate over the benefits of social media is a never-ending drama. Unleashing the tremendous potential of the internet is one of the most effective methods to make humanity's future eternally entertaining.

Both negative as well as positive impact can be seen of social media and society on Indian youth. Given below are the various benefits of social media which have influenced on Indian youth in different ways.

Education – Information can be searched as well as gathered by the students regarding their study and particular subject. Many students who cannot attend classes regularly they can choose distance mode of learning which is easily available on the Internet. Pedagogues may send material about class activities, workshop, seminar, school/college events and assignments on social media which would be very useful to them. Information and communication technology provides us with different learning tools such as podcast, blog, Wikipedia, e-learning and m-learning mode of education.

Family Relations – World has become a global village, due to globalization. In these days, Students are going to Leeds for their further studies. Indian people mostly settled outside India or some other part of the country. Social media plays pivotal role keeping them in touch or connected with their family members. Voice as well as video calls do not let them feel that they are far away from their home and country.

Entrepreneurship – In these days, the role of social media in entrepreneurship and consumer market cannot be sabotaged. Social media has changed the behavior of the consumers in different ways. Social media, business and marketing is interrelated with each other. Television, newspaper, radio and other traditional marketing tools were used

for marketing and sell the products by the troupes. With the use of social media, marketers have more options in terms of communications, opportunities, and support for advertising.

Online Shopping – Today, most of the multitude are passionate in order to purchase different types of products through online shopping. Hence, the vogue of online shopping is increasing prevalence fleetly the world over. Masses achieve chances in order to become excessive if they buy products by online shopping. At the present time maximum top class multinational troupes advertise their products by different shopping sites such as Amazon, eBay, Wal mart, Flipcart, Ali baba and the rest.

Entertainment – Social media plays a phenomenal role to entertain the people with different ways. Infinite number of people uses social media as their source of entertainment rather than watching serials, news and movies on Television. Now social media is not only used for transferring information and communication tool but widely used for entertainment purpose. Social media users watch online movies, news, live cricket matches, listening to music and send the related links to their companions. Nowadays, video games such as PUBG, Ludo King, Candy Crush et cetera are being downloaded and played by the Indian youth. Adolescents kill most of their time to play online video games on their smart phones.

Social-media and Indian Politics – Indian politicians are now using social media, which plays an important part in Indian politics. During the election for Lok Sabha in 2014, the party known as the Bhatia Janata Party (BJP) used social media to persuade people, get their support, and succeed. Narendra Modi was elected Prime Minister of India, and he currently has 44 million fans on Twitter. The Aam Aadmi Party (AAP) is also enjoying a lot of success and popularity on social media. These communication forms were frequently utilised by AAP leaders to discuss current events, public welfare programmes, meetings, and additional tasks performed for the public.

Social-media, Rumours and Corona Virus – The judiciary of the Republic of India has provided written advice to corporations that provide platforms that include Instagram, Twitter, YouTube, as well as Shareit, asking them to guarantee that no true information relating to the Covid-19 outbreak is

exchanged. An additional component of social media's detrimental impact in the Corona occurrence included the fact that a miscreant in a Madhya Pradesh city propagated rumours that a getaway could be made to administer people into the corona vaccine, leading to injuries in a team of medical professionals and law enforcement agents who were able to treat.

Recruitment and Social Media – The internet with hiring are inextricably linked. Social networking is quickly becoming an integral component of recruiting firms. Recruiting organizations use famous social networking platforms such as Facebook, LinkedIn, Twitter, and practical to determine novel skills, staff, and labour. Traditional methods of employing craftspeople were based on perception, however social media is built on mutually beneficial interactions and direct contact. As a result, social media hiring can help job seekers find decent positions with good pay.

Social media was designed primarily to facilitate interaction and reciprocal action. Without a question, social media is an important aspect of modern life that benefits a large number of active users. The value of social media cannot be overstated. The benefits of social networking exceed the drawbacks. The youth can be educated via audio-visual aid. Seminars, group discussions, debates, quizzes, and other activities play an important part in forming the ideals of the youth.

Social Networking Site Tools

1. Social media sites such as Facebook, Google Plus, Café Mom, Gather, and Fit Sugar
2. Micro blogging sites such as Twitter, Tumblr, and Prosperous
3. Publishing tools include Word Press, Blogger, and Square space.
4. Collaboration tools include Wikipedia, Wiki Travel, and Wiki Books.
5. Review/rating sites- Amazon ratings, The Angie's List
6. Photo-sharing websites such as Flickr, Instagram, and Pinterest
7. Video-sharing websites such as YouTube, Vimeo, and Viddler
8. Tools for personal broadcasting: Blog Talk Radio, Upstream, and Live stream
9. Second Life, World of War craft, and Farmville are examples of virtual worlds.

10. Check-ins, Facebook Places, Foursquare, and Yelp are examples of location-based services.
11. Widgets include profile badges and Like buttons.
12. Digg, Delicious, and other social bookmarking and news aggregation sites

Socialistic Media Violation

1. Society and their tensions present itself in what has become known as "fake news" — and the web does contribute in its quick dissemination.
2. That, still is not a problem caused by online resources or social networking platforms.
3. This kind of material is often produced by actors with competing political as well as special interests.
4. For centuries, India has symbolised these struggles and contestations, yet its democratic ethos and culture have persisted far more than identity strife.
5. In August 2012, images and international propaganda material were misused and circulated, causing alarm among north-eastern residents of Bangalore; the incident even led a significant number of north-eastern residents back to their home states.
6. Allegations were validated as "information" and widely disseminated.

Power of Social Media

Social media employ, on the other hand, can have a detrimental impact on youth by distracting them, interrupting their sleep, and exposing them to bullying, rumour spreading, false opinions regarding lives of others, and societal pressure.

The dangers could be linked to the way a great deal social media kids use. A 2019 study of over six thousand five hundred 12- to 15-year-olds in the United States discovered that individuals who spend over 3 hours per day on social media may be at a greater likelihood for emotional disorders. Another 2019 study of more than twelve thousand 13- to 16-year-olds in England discovered that accessing social media at a rate of three per day indicated poor mental health and well-being in adolescents.

Other research have found correlations between excessive use of social networks and depressive or signs of anxiety. A 2016 study of over 450 youths discovered that increased social media use, midnight social networking use, and feelings of involvement in social media — such as being upset when

unable to get in — were all associated with less restful sleep and more feelings of anxiety and despair.

The influence of social media may also be determined by how teens utilise it. A 2015 study discovered a link between peer comparison and opinion seeking by youths utilising social media and smartphones and depressive symptoms. Furthermore, a tiny 2013 study discovered that older teenager's participants used social media quietly, such as by simply browsing other people's images, expressed lower life satisfaction. Those who utilised social media to communicate with others or to post posts of their own were not affected by these drops.

A previous investigation on the consequences of social media on sophomore college students found that the more time they spent on Facebook, the greater their opinion that others seemed happy than them. The longer the students stayed with their buddies, however, the less they felt this way.

Experts believe that kids who post information on social media pose a danger of disclosing intimate images or highly personal stories due to their impulsive tendency. As a result, teens may be attacked, teased, or even bribed. Teens frequently make posts without thinking about the repercussions or privacy problems.

The Influence of Social Networking Sites on Youth

Digital influencers have the ability to influence everyday lives of young people. However, numerous young people have grown more aware of the power that social media personalities wield. As a result, they can select the good and discard the bad. However, influencers bear the obligation of being ethical.

In this day and age, where practically every youngster gets access to the internet, there must be an impact, positive or harmful. And, given the present surge in social media personalities and the strength of influence, this has a tremendous impact.

1. People believe online influencer's superior to famous people due to they have a perception of a girl/boy nearby. Because celebrities communicate with their followers on a regular basis, followers, particularly young people, feel more like them. As a result, many young people religiously follow internet influencers and are impacted by the things they say and advocate.

2. Because children spend longer on the internet than adults, social media influencers have a greater impact on children than adults.
3. Marketers are also seeking partnering with social media bloggers over mainstream stars due to their effect on young people and the ease with which sponsored content can be integrated into influencers' regular output. Influencer promotion is on growing, and it is influencing young people's purchasing habits. Furthermore, young people are more inclined to investigate a product prior purchasing it, since they will read evaluations from the influencers that follow.
4. Certain influencers refrain from revealing the degree to which the content they provide is sponsored. They advertise things for monetary gain and mislead children. A small number of influencers additionally offer paid material in support of political parties. Because followers are unaware that it is sponsored content, individuals are more likely to trust it and be affected.
5. The dietary habits of today's youth are also shaped by the influences they follow.
6. As influencers create intriguing content, many young people waste their valuable time by watching it.
7. Some influencers pretend to have ideal bodies and lives. As a result, some young people are feeling uneasy since they are comparing themselves to those influencers. This leads to low self-esteem, psychological problems, cosmetic surgery, and materialism.
8. Young people are paying attention to varied global views and viewpoints expressed by online influencers.
9. Some internet influencers provide honest feedback on the things they utilise. People save cash and avoid making terrible purchases by reading their reviews.
10. There are numerous electronic influencers who advocate positive topics like body positivity, understanding finance, ethical ideals, and so on.
11. Great authority comes with significant accountability. As a result, digital influencers must be socially accountable. They should avoid doing activities that could have a detrimental impact on others.

12. Young people should be cognizant of the influence that digital influencers impact on them to arrive at informed decisions. They ought to determine to follow ethical and politically responsible influencers.
13. Educators and parents must also educate their children about the beneficial and negative effects of online profiles of celebrities in their daily lives.
14. Promoter marketing guidelines should be in place to limit the adverse effect and prohibit the misuse of celebrity.

The Negative Impact

A social network is an online medium that enables its members to produce and share material with others. Social media has control over many sites and programmes. It has gained prominence in our lives in a relatively short period of time. People now consider it an essential daily exercise. Social media allows people to keep in touch by making communication more convenient.

The internet can have a negative impact on people's thinking abilities and promote poor or destructive values in society. As previously said, social media has the ability to shape and change ideas. It can paint a mundane incident in such a bad light that it causes individuals to think or act in the opposite direction. Social media celebrates violence and includes explicit descriptions or photographs of it. When watched by the most vulnerable members of society, namely youngsters, it can have serious consequences for their future and thinking habits.

The Obstacles of Social Media

Social media is frequently accused of encouraging social evils such as:

Cyber bullying:

Teenagers want to blend in, be widespread, and out-think their peers. Long before the emergence of social media, this procedure was difficult. Add in Facebook, Twitter, Snapshot, and Instagram, and you have adolescents feeling pressured to grow up too quickly in an online world. It was also shown that over 15% acknowledged to cyber bullying someone at least once, with about 11 percent confessing to doing so twice or more. Teenagers can use social media networks to spread rumours, distribute recordings that harm people's reputations, and threaten others.

Lack of Privacy:

Some of the hazards that online users face include extortion, identity theft, malicious behaviour, and data misuse. The

majority of the time, individuals are to blame because they publish stuff that ought not to be open. The confusion stems from a misunderstanding of how the private and public components of an online profile function. Unfortunately, it is frequently too late by the time private content is destroyed. Furthermore, the content might cause issues in people's personal and professional lives.

Advantages and Disadvantages of Impact of Social Media on Society Pros

1. Social Media Used for Promotion and Advertising
2. Social Media Helps in Connectivity Between the People
3. Social Media Helps Government
4. Social Media Increase in Human Interaction
5. Social Media Spread Information Fast
6. Social Media Used for the Noble Causes
7. Social Media Drive Traffic To Your Website
8. Social Media Improves Business Reputation
9. Social Media Used for Entertainment
10. Social Media Use for Awareness
11. Social Media Used for Professional Growth
12. Social Media is a Source of the Latest Information and Update
13. Social Media Helps in Educations
14. Social Media Help in Building Communities of the People
15. Social Media Reach Large Audiences
16. Using Social Media for Job Search
17. Social Media Direct Connection To Audiences/Customer Interaction
18. Social Media Cost-Effective
19. Social Media Used for Communication
20. Social Media Brand Loyalty

Cons

1. Social Media Used for Hacking
2. Social Media Cause Security Issues
3. Social Media Cause Health Issues
4. Social Media Bullying or Cyber bullying
5. Time Wasting on Using Social Media
6. Social Media Causes Sleep Problems
7. Decreases Face-to-Face Communication Skills
8. Social Media Spread Fake News Very Fast
9. You can Receive Negative Feedback on Social Media
10. Social Media Negative Effects on Family Relationships
11. Social Media Causes Depression and Loneliness
12. Social Media Causes Distraction

13. Social Media Ruin Reputation
14. Addiction of the People to Social Media
15. Cheating and Relationship Issues on Social Media
16. Social Media Negative Impact on Children
17. Start Using Drugs and Alcohol
18. Fraud and Scams on Social Media Platforms
19. Social Media Causes Death

Conclusion

Social media engages a large audience, which strengthens the sustainability of additional development activities in technological advances among adolescents as an initial objective for their autonomy, ultimately leading to global and economic unification. Social media is extremely important in linking impoverished nations to the outside world, serving as a constant platform that argues for difficult core concerns as well as national festivities. Around 150 million people in India are regular consumers of various social media as well as email channels, and they consider these technologies as a natural continuation of old communication methods, with social networking sites perceived as a much faster and more comfortable way to interact. However it is entirely up to society to force the media to accomplish some things for us, or the industry will force us to do them.

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Land Use Analysis: A Case Study of Athani Town, Karnataka

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Abstract

Although most of the towns and cities have occupied the same physio-cultural features, these show the continuous and dynamic changes both in public and private interest and sectors. This modification and change is predominantly influenced by the human inhabitation of space at a particular time. The space has to be utilized systematically and efficiently. The land use concept is used to analyse the existing land utilization patterns. Such a study should determine the qualities and quantities of various land use and conditions of structures. Land use analysis point out the existing reality in order to know the various dimensions of land use and realise a reliable and desirable land use. The land use analysis is also a guide in preparing a land use plan for the systematic growth of an urban centre.

The Athani town is geographically located at the intersection of 16°75' northern latitude and 75°07' eastern longitude at an altitude of 554 meters or (1818 feet) above the mean sea level in the dry region of Deccan plateau. The Athani town has been spread over an area of 768 hectares and at present its total geographical area is 1850 hectares. A population size of 47082 persons (2011).

Introduction:

The term "Land use" is generally adapted to man's activities which are directly related to the land. Land use can be defined as activity or development which occupies land. It could also be called as "Human use of Land" or "Human activities on Land" which means that this idea deals as much with people as with Land.

Land use studies have been evolved gradually as piecemeal to the limited extent of meeting, transportation and others.

In India urban Land use study is of recent origin. Many cities and towns do not possess up to date urban land use maps. After the advent of the five year plan programmes

in the country, the urban study is connected with urban and regional planning.

Study Area:

Athani town is situated in north-eastern part of the Belagavi district and is a taluk head-quarter with a population size of 47082 persons (2011). The town is geographically located at the intersection of 16°75' northern latitude and 75°07' eastern longitude at an altitude of 554 meters or (1818 feet) above the mean sea level in the dry region of Deccan plateau. The Athani town has been spread over an area of 768 hectares and at present its total geographical area is 1850 hectares and has been developing in an oval shape.

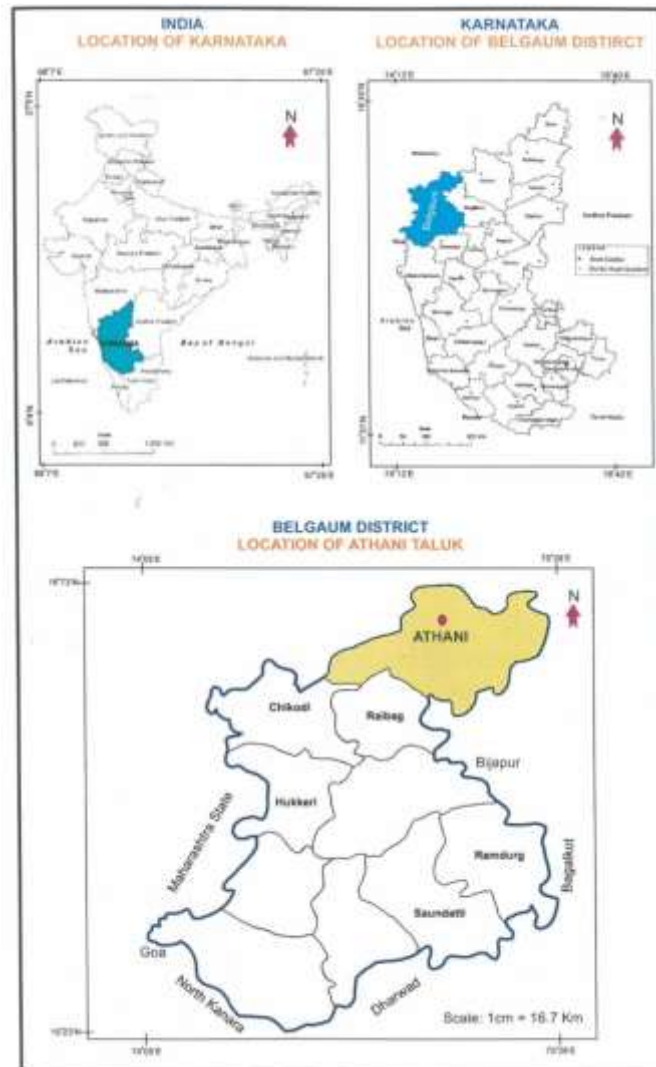


Fig. No.1

Data Base & Methodology:

The present study is based on secondary sources of data. The secondary data was collected from the source of Athani Town Municipal Corporation.

The land use units in any urban area develop in accordance with the need and requirements of the people living in a specific region. The following are the landuse units found in Athani Town.

Land under Residential Use:

There are many residential zones located side by side and densely around the CBD (Central Business District). These zones consists highly dense household in the Southern part of the town, whereas the Northern part has witnessed relatively less dense household. (see fig.2) Out of the total land 1850 hectares, 217 hectares area is devoted to the residential built up, and consist

houses of different organization or institution such as: Municipal Quarters, KPTCL Quarters, Police Quarters, Medical and Health Department Quarters, Post and Telephone Department Quarters, Public Work Department employees Quarters. The houses for the public granted by the Karnataka Housing Board, and houses of common local residents.

These houses are highly concentrated along the state highway that passes rough the town taluka roads, major street roads and around the Central Business District. In the year 2001, there were 8497 households to provide the residential facilities for the public of the town have very narrow roads and are congested, creating a slum like scenario with obnoxious smell. At present (2011) there are more than 9500 households in Athani town.

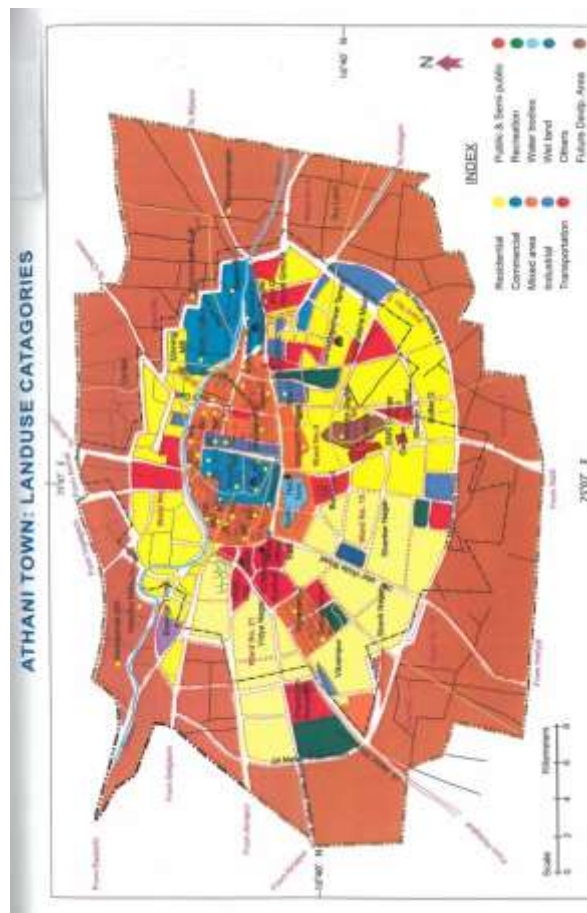


Fig. No.2

The Area under Commercial Use:

The Athani town's commercial activities may be classified into several categories. These include the variety of shops, agencies, hotels, lodgings, textiles, stationary marts, jewelry shops, etc. Athani is a commercial centre executing the human economic activities in a very large scale. Out of 1850 hectares of land, 71 hectares has been utilized for the commercial activities. This area consists a variety of 61 hotels, 6 lodgings, 866 all kinds of shops, agencies and Agricultural Produce Marketing Committee (APMC) etc.

These commercial units are highly concentrated amidst the Athani town or in Central Business District (CBD). However, apart from this the shops are also well developed along the major roads of the town. The Central Business District of the town has accommodated more than 75% of the commercial activities. Within this congested market the Town Municipal Council (TMC) has made many compartments such as garments block, bangle block, vegetable block, food and spicy materials block, slaughter houses block, etc. to execute the commercial activities of the town. The town has

Agricultural Produce Marketing Committee (APMC) which is located in the Western part of the town. Town Municipal Corporation is taking care of the market. The streets of the market are highly narrow and congested. Though the town having very congested market system, it constitutes commercial activities in large scale. The agricultural products from its hinterland, is main stimulator and accelerator of the commercial activities and so also the presence of leather manufacturing units is one of the influencing accelerator of the Athani town's commercial activities.

Land under Mixed Use (Commercial and Residential):

This kind of land use is very common in thickly populated and commercially advancing towns and cities. The Athani town experience the threshold population covering large spectrum of commercial activities. As a result Athani town's commercial and residential areas have been merged into each other. It goes very difficult to determine the boundaries of the market and residential built up in such areas. People living in the town are having the residential units just beside the market. Commercial activities can be seen

even in residential houses. Out of the total 1850 hectares, the mixed area (commercial and residential) occupies about 25 hectares of land in the town. The location of mixed area i.e. residential and commercial has been emerged in the south western part of the Athani town.

Land under Industrial Use:

Geographers study industries or manufacturing units including small, medium and large scale. Industries are the main responsible factors for the emergence of towns and cities in the modern world. Particularly since then of industrial revolution and its impact over the world has been stimulated the rate of urbanization. In countries like India, this revolution has brought immense change and caused to emergence of industrial towns and cities. India as a developing country, industrially it is still not well advanced like western world. Though it got tortoise motion, it is significantly influencing economic activities of towns and cities in India. Basically the Athani town has many small and medium scale household leather industries. There is also one sugar industry called “Renuka Sugar Factory” located a little bit away from the town. The leather footwear manufacturing units have occupied large space. There are more than 1000 residences engaged in leather footwear manufacturing. There are three reputed institutions ‘Lidker’, ‘Toefold’, and ‘Charmalaya’ which are engaged in producing the leather foot wears. These foot wears have a great demand in the market of the other cities and towns. These foot wears are exported to other countries too, with a particular brand or entitlement of ‘Kolhapuri Chappals’. There is one large scale sugar

manufacturing unit called ‘Renuka Sugar Factory’ that is located approximately 12 km away from the town limit, and it has its own influence on the economic activities of the Athani town. Out of 1850 hectares about 17 hectares of land is utilized for the industrial use.

Land under Transportation

Transportation as a means of exchange and movement of the goods and services plays a vital role in deciding the town’s growth. As such transportation network is also a predominant aspect of land use system of any space, because these network systems are the strong base of spatial interaction. In dealing with the transportation system of Athani town, one can clearly accept that it has a web like transport network system. Thus the centre of the town, i.e. CBD is connected by various routes with surrounding places. The entire town’s transportation network length is 49 kms at present (2011).

Out of this, 6 kms length of road is metalled, 10 kms length of road is concrete and remaining 33 kms length of road is constructed by muds and rock pieces. The district roads which are connecting the Bijapur, Belgaum and Miraj cities pass through the Athani town. There is one main road in the market, and its street roads are metalled and some are concreted. Every day more than 5000 floating population enters into the town for different purpose. Out of 1850 hectares, about 217 hectares of land is utilized for the transportation network development in the town. Though this urban centre is having well transportation network, the maintenance of the roads is very poor.

Table-1: Landuse Categories and Area – Athani Town 2011

Land use Categories	Area (in hectares)	%
Residential	217	28.25
Commercial	71	9.24
Mixed Area (Commercial & Residential)	25	3.25
Industrial	17	2.21
Transportation	217	28.25
Public & Semi-public	60	7.8
Recreation (Theatre, Parks, Play grounds)	43	5.6
Water Bodies	21	2.7
Wetland	80	10.4
Others	0.17	2.21
Total built up area	768	100
Area available for future development	1082	
Total	1850	

Source: Athani town Progress Report – 2011.

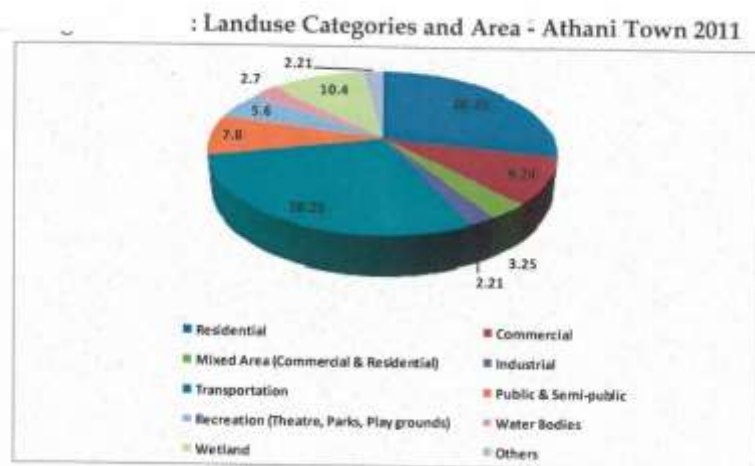


Fig. No.3

Land under Public and Semi-Public Use:

Public and semi-public landuse covers the educational institutions, government offices, Banks, Burials ground, Religious constructions, Hospitals, Libraries etc. Out of total 1850 hectares of land, 60 hectares is being utilized for public and semi-public purpose. There are 14 primary schools, 12 high schools, 1 B.Ed and 3 D.Ed. College, 3 degree colleges and about 26 state government offices, 5 central government offices, 18 banks, 2 government hospitals, 3 post offices, two public libraries, 25 Hindu temples, 14 mosque, one Jain Basadi, and 4 choultries, 2 Muslim burial grounds, 2 Hindu burial grounds and a Durga. These are having limited space for their functions. Siddheshwara temple is now emerging as the tourist centre of the town and attracting people from the surrounding areas.

Land Use under Recreation:

Recreation is one of the important phenomena all the urbanites demand. In highly urbanized cities and towns, recreation has become an important commercial activity that provides some sort of pleasure and enjoyment to the urbanites and tourist. It can provide entertainment and mental relief particularly to those who are working under stress and strain. As we know that the urban life is very delicate and complex and it has its own impact on the psychological state of human beings. So, people need some sort of entertainment that could be provided by the film theatres, recreation centres, open theatres, drama theatres, and exhibitions, circus centres, music and art galleries, parks/playgrounds etc. Athani town is also providing the recreational facilities to the urbanites as well as outsiders of the town. At present, there are 2 film theatres, 2 open

theatres, 4 play grounds, a park are providing the recreational facilities to the town covering 43 hectares of land.

Land under Water Bodies:

In the Athani town some portion of land is covered by the water bodies, occupying approximately 21 hectares of land. There are two tanks which are located in the central part of the town and are called “SannaKere” and “DoddaKere” and there is one “Nala” or a small stream runs through the town in the north west of the town and has eastward flow. This ‘Nala’ passes through the northern part of market CBD and mixed area (commercial and industrial)

Wetland (Marshy Area):

The emergence of this wetland in the town is mainly due to the storage of water. The water from ‘Nala’ (or ‘small streams’) and drainage waste water are stored beside the mixed area. This kind of land occupies approximately 80 hectares of land. This patch of land represents the marshy or swamp characteristics and this has been turned into a slum.

Area Available For Future Development:

As town’s population goes on increasing, the town may not be able to provide space to accommodate within the existing limits of the town. Further along with the population the activities will also increase which further demand the space. This creates a need to extend the town limit from its original boundary to prevent the unauthorized occupancy of land which may result in haphazard growth of a town. Hence, it is very essential to identify the area suitable for town development immediately adjacent to the town. The Athani town at present 1082 hectares of land for the future development of the town. This area or belt is around the

present limits of the town. This may be utilized for the future development of the town.

Conclusion and Suggestions:

The total built up area and the total geographical area of Athani town has been continuously changed due to the emergence of new layouts in order to accommodate the growing population the present total geographical area of the town is 1850 hectares. About 768 hectares represents built up area. Out of this the land use categories under residential and transportation networks over 57% of builtup area. Land under commercial and public and semipublic use cover 9.25 and 7.81% respectively. Land under industrial use is negligible i.e. 2.21 percent. Land under recreation is 5.6 percent. It is observed that there is more than 10 percent of land under wet-lands which can be utilized for various purposes through a proper planning.

The landuse figure indicate that all the landuse categories have been greatly deviated from the planning norms. There is no proper planning in the town. Hence the town needs a proper scheme of urban planning. There is 1082 hectares of land in the town available for future planning can be utilized rationally and judiciously.

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Impact of Gandhi's Craft-Centric Education on Modern Skill-Based Vocational Training and Development

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Abstract

The ideas of Mahatma Gandhi about education have sparked and stimulated many discussions and choices regarding educational approach and policy. The Kothari Commission Report (1964–1966), which included recommendations for changes to education and technical training, was greatly influenced by Gandhian philosophy. These changes are still in effect today. But at some point, it seems like we lost sight of the need to advance, undertake, and respect practical learning by doing components, the dignity of work, and other qualities that should be instilled in children from an early year. These were the key pillars of Mahatma Gandhi's vision of craft-centric education, which appears to be found resonance in current endeavors at advancing skills and vocationalization of schooling in our country. This paper has stressed Gandhi's craft-centric education that would make education skill-based and activity-based by studying secondary data sources.

Keywords: Educational Policy and Practice, Technical Training, Learning-by-doing, Craft-Centric Education, Vocationalization of Schooling

Introduction

The educational philosophy of Mahatma Gandhi has influenced and energized several discussions and choices regarding educational practice and policy. While making recommendations for changes in education and technical training that are still in effect today, the Kothari Commission Report (1964–1966) was heavily influenced by Gandhi an ideology. A consistent approach to promoting, pursuing, and rewarding the practical components of learning by doing, the dignity of labour or respect for work, and other qualities that should be instilled at a young age, however, seems to have been lost somewhere along the way (Dubey, 2017). These were the key principles of Gandhi's idea of craft-focused instruction, which appears to be reflected in current endeavours at enhancing skills and vocationalization of school education in India.

Objectives of Study

The study has been done – i) to understand Gandhi's craft-centric education in short, ii) to determine the reason behind prevailing craft-based vocational education by Gandhi, iii) to understand the advantages of

craft-centric education in terms of future perspectives, iv) to understand the Gandhi's view on collaboration with agricultural farms and industries, v) to evaluate the Gandhi's influence on Kothari Commission, vi) to understand the government's initiative to combine general education with vocational education, vii) to understand the practical implementation of Gandhi's scheme to modern skill development programmes, viii) to be aware of some of the recent skill development programmes or initiatives in reality.

Method of Study

The study has been accomplished by collecting data and information from secondary sources like reports, events, and resources available on the internet.

Education and Training in technical and vocational fields

In terms of rekindling enthusiasm for skills and vocational education and ensuring that instruction is outcome-based and industry-relevant, we are at a crucial point in time. Gandhi ji was the first to advocate for technical education and for aligning curricula with business needs. Today's needs may differ

from those of the past, but the importance of integrating education into the workplace cannot be overstated.

Training that Emphasises the Arts and Crafts

Gandhi's ideals of craft-centered education find a strong connection with our efforts to correct the discrepancies in our educational system by unleashing possibilities of skilling. Whatever we are aiming for—learning by doing, job-incorporated education, consideration for hands-on abilities, and self-sufficiency through enduring means of support—these notions are strongly rooted in Gandhiji's concentrate on hard labour and constructive work as a necessary component of basic education. Let us take a closer View a few of his important thoughts that involve current efforts to connect skill improvement and schooling with employment and entrepreneurship (Dubey, 2017).

Craft-Based Instruction

Mahatma stressed that teaching craftwork ought to be done not only for manufacturing purposes but to foster students' intellectual growth. This concept has been applied in schools as Socially Useful Productive Work (SUPW). The majority of the time, SUPW is thought of as a pastime; examples include pottery, wood crafts, textile, leather work, clay modeling, embroidery, and many more socio culturally important creative pursuits that can support livelihoods. When combined with skill-building and career possibilities, SUPW can change how youngsters view manual employment and favourably influence their developing attitudes about the dignity of labour and employees (Dubey, 2017).

Advantages of Craft-Based Education

Through self-expression and creative stimulation, craft-centred education strikes an ideal equilibrium between theory and tedious learning. Respecting employment that is socially significant and satisfies the needs of Indians in both urban and rural areas, aids in minimizing disparity between physical and intellectual talents and overcoming biases. Being able to support oneself through sustainable means of income and neighborhood projects that lead to cooperative societies and microbusinesses is an accomplishment (Dubey, 2017).

Developing Negotiation with Agri-Farm and Industries

Mahatma's idea of basic education that incorporated physical labour as a way to

render education for all was tied to the farm and the industry. He was a major proponent of a comprehensive education, especially in the early grades, where students are introduced to the world of work through lessons in farming, weaving, carpentry, and other trades. This would counteract the risk of education becoming overly theoretical or bookish and positively affect mindsets regarding appreciation for work and the value of skills and labour.

Influence of Gandhi on the Kothari Commission (1964-66)

The committee started working on October 2nd, 1964 and adhered to many Gandhi's ideals and ideas on the use of education as a tool for social change. Many national initiatives that followed the commission's recommendations gave priority to the demand for industry-ready training necessary for self-independence and economic progress. A key tool for bringing about social change is secondary (and higher) education opportunities. Therefore, secondary education facilities must be immediately made available to the communities and educational levels that have hitherto been excluded. At this point, more facilities are needed for technical and vocational education. Secondary and vocational education facilities should, in general, be provided in accordance with the needs of the developing economy and genuine employment possibilities. Such a link is necessary to make technical and vocational education at the secondary level terminal. Facilities for technical and vocational education ought to be properly varied to include a variety of industries, including agriculture, industry, trade and commerce, medicine and public health, home management, arts and crafts, secretarial training, etc. Have a look at the Kothari Commission Report (Dubey, 2017).

Assimilation of General and Vocational education

A special Ministry of Skill Development and Entrepreneurship has been established as a result of the course adjustment and other measures to make education balanced and inclusive. The commonality and compatibility of qualifications as well as increased attention in fostering the crucial respect for ITIs and other comparable technical organizations are important initiatives that will help to bring MHRD and MSDE more connected (Dubey, 2017). This will make it easier for students to

transition from vocational or occupational education to general education and the reverse, as well as help people adjust their mindsets and get rid of general education's discriminatory tendency.

Implementation of Gandhi's Views in Practical: What should be the plan to achieve skill development?

The plan indicates the modern significance of craft-centred education for 21st-century skills. There are some recommendations to make craft-centric education more skill-based-

- Craft-based livelihoods should consider both the survival aspect and the livelihood aspect. Since the past 100 years, when artisans passed on their craft to their descendants, the impact of the craft economy has altered. Since the sector and the worldwide market have developed, the buyer's needs and terminology have changed. Therefore, it's critical to give craftspeople in rural areas the training and exposure they need to thrive in their new surroundings. Supply chains, interactions with customers, and the technical aspects of crafting are a few topics that should be covered in education to close the gap and move craftsmen from a state of subsistence to one of livelihood (Gautam, S., 2021). There are three crucial things to be taken into consideration-

1. The structure of education needs to begin with many forms of learning and acknowledge the unofficial sector.
2. Every youngster needs to be exposed to an applied form of craft instruction so that the craftspeople in the communities may interact and learn as well.
3. Children should be given the opportunity to explore possibilities and learn skills like carpentry and ceramics from an early age (Gautam, S., 2021).

- The council of Textile sector Skill Council (TSC) has two sectors:

1. TSC employs people for a wage in the textile mill industry.
2. TSC provides pay and independent work through the handloom industry.

TSC has adopted a different strategy for the handloom industry by launching innovative initiatives like Recognition of Prior Learning (RPL), RPL and bridge courses, textile design courses, CAD software, handloom entrepreneurship, B.Voc. courses with multiple entry and exit systems, and Certification courses beginning in class 10. These programmes will elevate skill

development in the eyes of future generations and make it desirable (Mishra, S., 2021).

Three key areas for action are:

1. Suitable courses: Courses on topics related to handloom are being given to dropouts.
 2. A new course of study: People should be inspired to master soft skills so they may fit into the weaving industry and get a B certification.
 3. Career training: Teaching weaving to the younger generation and emphasizing online, continuous craft education for kids would improve the crafts and make them more desirable to future generations (Mishra, S., 2021).
- The requirement for corporate and cognitive skills must be prioritised. We must concentrate on the heart for emotional intelligence, the hand for physical fitness, and the head to gain insight into the world through reasoning (Mehrotra, 2021).

Three key areas for action are:

1. B. Voc.: Examining the problems and issues with B. Voc. instruction that arise when delivering craft-based instruction.
2. Teaching: Opportunities for craftspeople to instruct in schools should be made available.
3. Strategy: Prioritising acknowledgement of past learning and giving students career-based training should be taken into consideration (Mehrotra, 2021).

- The mission of Heeya Social Enterprise is to empower Indian women to enter the handicraft industry. Innovation, craftsmanship, and emotional connection with customers are all driven by the heart in the head and the hands. Using the 3P approach, the organization has developed its work-

1. Product: Concentrate on relating to everyone and expand outside your local market.
2. People: Extreme attention should be paid to the client segment in terms of quality, price, etc., and building
3. Pride and addressing the difficulties of weaving (Khasnabish, J.S., 2021)

One must concentrate on achieving gender equality, where women need to receive instruction regarding skill development, market access, and financial freedom (Khasnabish, J.S., 2021).

Three key areas for action are:

1. Entrepreneurship: We should be pleased with India's potential for microbusiness

2. Artisans' lifeline: to provide artisans with chances that will allow them to make a lifetime of income
3. Basic level: Introduce entrepreneurship and student internships at the school level.

Conclusion

To fulfil the needs of the business and the economy as a whole, we are currently taking severe steps and making enormous efforts to reconstruct our educational system. This became unclear at some point when education began to be equated with academic achievement and when theoretical knowledge and practical experience were not matched while creating, developing, and delivering courses as a result of significant curricular innovations.

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Creativity and Experience in the Pre and Post Independent Indian English Writers

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Abstract- The great Indian writers have made their mark in the pre independence, post-independence and modern Indian English Literature. In the present paper we are trying to cover creativity and experiences of our post Indian English Writers. The Indian Writers have explored all the dimensions of English Literature be it poetry, fiction, drama or any other literary form. In the post Independent India we see a lot of upheavals in the cultural and political level. Many Indian Writers tried their pen in throwing some creative pieces. We have noticed a wave of literary creativity in the post Independent Indian English writings, mostly these writings reflected the themes like Identity Crisis, nationalism, and social justice but a few writers like Mahatma Gandhi, Jawaharlal Nehru, Raja Rao and Mulk Raj Anand tried their pen in some fresh and new themes.

Keywords: Nationalism, Social justice, Creativity, Indian writing.

In the post Independent India most of the Indian Writers tried their pen in creative writing, these writers have explored almost all the dimensions of English Literature be it poetry, fiction, drama or any other literary form. In the post independent India we see a lot of upheavals in the social, cultural and political levels. Many Indian writers have tried their pen in sequencing all these events and its aftermath in their writings. These writings reflected the themes like Identity crisis, nationalism and social justice. The writers like Raja Rao , MulkRaj Anand , Jawaharlal Nehru, Mahatma Gandhi and some others got inspired by the social and cultural atmosphere of India although wrote in English but they got their roots in Indian Culture. R.K.Narayan and Raja Rao use to write in simple language of the common people and they use to capture all the minute details of Indian mind. These writers use to capture the vivid image of Indian life. And if we talk about Mulkraj Anand we will see that he mostly covers the problems like caste, poverty and inequality. He use to portray the poor and the exploited Indian people.

In R.K.Narayans “Malgudi Days”Narayan has beautifully covered the childhood in varied aspects. The themes like

Innocence, purity, cruelty, jealousy, vices are clearly presented by R.K.Narayan in his Malgudi Days. He has also touched some of the untouched and hidden realities of childhood. Narayan has beautifully captured the children’s world by giving the details of the character like swami. Through different child characters Narayan has presented the common qualities of humans as found in the child characters. He says that the small innocent characters sometimes behave very odd like mature persons do. Besides being innocent they also behave like shrewd and falsified humans, they also lie, hate and show jealousy like other human beings. We have met with the dual nature of childhood in Narayans story of ‘Swami and his friends’. His next Sahitya Award winning novel “The Guide” presents the tangle of relationships. All the characters of “The Guide” like the main protagonist Raju, Margaya, Sampath , the visitor Marco, Rosie all of them presents a tangled relationship in the novel. R.K.Narayan has beautifully intermixed the present and past very cunningly to produce an impression of anticipation and suspense. This work presents the characters regrets, excitements and sometimes the situation is not very clear for us and it creates an

atmosphere of Suspense. At the end of the novel Karma is blamed for every wrong happenings of the characters life.

In the post independent India most of the Indian writers witnessed a touch of Renaissance in their writings. When we dive deep into their writings we have always noticed that most of the characters presented by them were nihilists and they were intoxicated by a sense of false importance, they were just rootless persons darkness is there in their lives. These post Indian writers has presented the society of their times in their writing. It was covered and presented by them that the position of Indian society was not good at that time, there was a situation of chaos everywhere and Christian missionaries were quite active during this time, they have preached and converted many shattered minds. We see a cultural and religious renaissance during this time. If we go through the writings of Jawaharlal Nehru and Raja Ram Mohan Roy. They did a national reconstruction through their writings. They spread a spirit of oneness and brotherhood through their writings. Jawaharlal Nehru's father Moti Lal Nehru was a leading lawyer and a leader of the opposition in the legislative assembly, he was very well known for his best speeches. Jawarhar Lal Nehru got a lot of voice from his father and he got the best education, Nehru was sent to Harrow Cambridge for studies. When he returned to Allahabad, he was attracted towards Indian Politics. During this time there was a drastic change seen in Indian atmosphere due to non-cooperation, Satyagraha and civil disobedience, a lot of Indian people were protesting against the British rule and many of them were thrown to jail by the authority. The two showman of that time Mahatama Gandhi and Motilal Nehru were protesting together. Jawaharlal Nehru in his Autobiography has beautifully covered all this, in his "Autobiography". In his Autobiography he has not written about some special audience but he has just given his personal account of what he has watched and experienced. This book got 68 chapters, displaying the feelings of Indians who were ruled by the Britishers. Jawaharlal himself had admitted that he has become a stranger in his own land. If we go deeper in his Autobiography then we will notice that Indians were not at all comfortable with the foreign rule. To shed some light on the upheavals of India we have tried to go

through the writings of some post-Independence men of letters. These men of letters have tried to cover every possible condition of Indian people during and after the foreign rule. There were some other authors also like Arundhati Roy, Salman Rushdie, Rabindranath Tagore, Kushwant singh and Amitav Ghosh who have also covered India and its people nicely in their writings. Amitav Ghosh in "The circle of reason", has presented the themes like post-colonial rationality, migration, exile and cultural displacement. This particular novel has got too many criticisms from India and abroad, his style of expression was not at all accepted by the foreign and Indian critics. This novel has presented India and its people very nicely. This novel has shown the customs and traditions as followed by the village and town people of that time; it has also covered the partition problems faced by the Indian people.

In the same manner our next author Kushwant singh has also presented the India of Partition time in his famous fiction "A Train to Pakistan". We have gone through the lives of "Mano Majra" a village near border. In 1947 Hindus and Sikhs were forced to move to India so we see a lot of political and social hustle bustle in the lives of these migrants. Nearly ten million people faced this situation, riots and violence was everywhere. People were not at all feeling secure to move from one place to another. In the Mano-Majra village itself we have seen the murder of Lala Ram Lal. Actually this murder was done by some dacoits but the incapable police was not able to fetch the culprit.

When we watch Rabindrath Tagore's "Gitanjali", the relationship between human beings and society is presented. The poem presents the progress of the soul. Human feelings and sensibilities was nicely presented through this poem. Tagore's theme is somehow different from the other author's of his time he speaks about the journey and purification of souls, so in a way we can say that his time presents a peaceful relation of human beings with the society. He preaches about discarding all that was useless in our lives and he has given a message o the society of his and forthcoming times that just give up the old deeds, the old routine. Tagore has preached divine thoughts and purity to the society of his time. All these pre and post-independence writers tried to spread light on the changing socio-economic scenario of India.

Some of the authors even insists on the need of the social reforms for purifying the impurities of our society. Some of the novelist has presented the problems of the Indian people who were facing problem while adjusting with the foreign cultures. They have presented the themes like east-west encounter. After the arrival of the foreign rulers some of the Indians were not comfortable with their alien rulers. They even felt themselves as alien on their own homeland. They tried to protest from time to time and there was unrest everywhere. But in the field of literature we have noticed a mingling of thoughts and cultural intake, in the writings of few of our Indian writers. The Post-modern literature is the outcome of the cross fertilization of two cultures Indian and English. It is literature created by the Indians both before and after independence. All the Indian writers who wrote in English since the days of Raja Ram Mohan Roy down to our own time belong to Indian English literature. It spontaneously and powerfully expresses varying shades of emotions thoughts and feelings typical to the genius and character of India. Indian English literature is “a curious native eruption, an expression of the practical no less than creative genius of the Indian people. Indians have written –and are writing in English for communicating with one another and with the outside world, for achieving self-expression too artistically, using English if necessary or necessarily, in an Indian way”. In the pre and post Indian writings of India we have noticed a drastic flow of expressions. English has been domesticated and nativized by these writers. Our landscape is Indian; our thought is molded by our political, social, economic and philosophical scene”. Indianness or the Indian experience of life cannot be restricted to rigid definitions, as its expression varies from person to person, writer to writer, poet to poet and Novelist to Novelist. It the richness and variety of experience which imparts color and beauty to Indian English Literature. It embodies the Indian sensibility which has come down to us through the Vedic period. In the context of Indian writings in English, as with many others in their regional languages as well, the process of coming to terms with tradition and the contemporary towards developing an indigenous sensibility has indeed been a large and complex historical process, which has evolved through a variety of phases. Pre-independence era or the era of

political awakening English has always seen as a language of Indian elites, a language used not only to construct the Indian nationalist movement but also to deconstruct the hegemony of the Raj. In fact much of the muscular growth and modernization of the Indian vernacular languages, especially Bengali, in the nineteenth century was largely due to dissemination of the English language amongst the elite. It may be said that in the last two hundred years Indian Writing in English has come of age. Indian Writers have gained both the confidence and competence to express themselves in English thereby creating a typical and distinct idiom which is at once Indian and Cosmopolitan. However, the construction of national literatures in India has been a predominantly upper-class project with clear ideological biases and intellectual predilections, which looked at literatures of a society rather selectively, at times ignoring Muslims, Anglo-Indian, Indian-Christian or Parsee writers. The historic decision to use English for official communication and as a medium of instruction for higher education in place of Sanskrit or Persian resulted in the creation of vast literature on various disciplines in English. Journalism also played a significant role to popularize English and to harness it to the expression of various debatable topics-political unrest and attainment of independence, religious and social reformation. It flourished with the rise of pamphleteering and the rise of journalism in English. Besides journalism and political prose, various prose genres autobiography, biography, travelogue, reminiscence- was written with excellence during this period. What distinguishes the writing of this period is the evolution of Indian style and flawless expression of Indian Sensibility. This era was characterized by political unrest, national awakening and social reformation. The era of political awakening was also the epoch of Indian Renaissance which ushered India in a glorious period of social, cultural, religious, literary, economic and rational awakening led by Mahatma Gandhi the visionary. The Gandhian influence was all pervading on Indian English Literature. The urges and problems of the masses began to be discussed in literature with new literary forms and styles evolving to suit the new subjects. post-colonial times after attaining Independence the situation may have partly changed as seen from the increasing number of talented

writers turning to English. But the foundations for the post-Independence developments were perhaps laid in the schools and colleges in the two decade before Independence. The spread of education, the attractions of a world market, the growing sense of national self-confidence and maturity. The diversions of talents from regional languages into English from a variety of reasons -was there a brain drain inside India from regional languages into English? The acceptance and reputation of the early masters outside India, the prestige and recognition accorded to creative writing in English within India: all these probably led the way.

During this period the dimension of Indian English Literature widened. Some of the prose writers of previous era- Nehru, Dr. Radha krishnan and many others continued to write vigorously. Besides, English was used for various purposes and it has become a natural mode of expression for educated Indians. The rise of magazine literature, research journals on specialized disciplines and the need of international communication has immensely enlarged the possibilities of the multi-dimensional development of literature. After this the impact of world war II also brought many changes in the modern Indian literature. The harsh reality of the war, the political and economic uncertainties created a spirit of protest and resentment against existing order. Poetry or Literature written in this period was with a view to establish Indian Identity by the Indian writers was an explosion or rather outburst of emotions: the nationalistic, philosophical, spiritual or mystical emotions. The appeal was to the heart of the readers. Now I would like to say to the readers that the topic is chosen just to highlight the literary styles of the Indian writers in the two-time frames i.e. pre and post-independence. As we all know that Indian Literature is a treasure for the rest of the world so it's the need of the time to highlight the element of nationalism, the imaginative capacities and different themes and writing patterns of our literary gems so that the readers may know about the pre and post-Independence literature and the literary men of letters of that time.

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Feminism as a Literary Movement in Indian English Literature: A Theoretical Assimilation with Reference to Dalit Feminist Writers

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Abstract:

This theoretical study examines feminism as a significant literary movement in Indian English literature, with a specific focus on the contributions of Dalit feminist writers. The paper aims to provide a comprehensive understanding of how feminism has emerged and evolved within the context of Indian English literature, with particular attention to the intersectionality of caste and gender. Through a critical analysis of literary works authored by Dalit feminists, this study explores the unique challenges and perspectives they bring to the feminist discourse in India. By assimilating various theoretical frameworks and feminist literary criticism, the research seeks to shed light on the literary and societal impact of Dalit feminist writers within the larger feminist movement in India. Feminism as a literary movement in Indian English literature has been a transformative force in questioning and reshaping societal norms, gender roles, and power dynamics. Indian English literature has seen the emergence of diverse voices and perspectives that delve into issues pertaining to women's experiences, rights, and struggles. Within this framework, Dalit feminism has carved a distinct space, offering a unique perspective on the intersectionality of caste and gender oppression. This theoretical assimilation aims to explore the contributions and challenges posed by Dalit feminist writers in the broader context of Indian English literature and feminist discourse. The study examines the impact of Dalit feminist literature on Indian English literature and society. It considers how these works have influenced readers, writers, and the feminist movement, bringing attention to marginalized voices and issues. The conclusion summarizes the findings of the study and highlights the importance of acknowledging Dalit feminism as an integral part of the Indian English literary landscape and feminist movement. It emphasizes the need for further research and recognition of Dalit feminist writers and their invaluable contributions to both literature and social change. Finally, the study suggests potential avenues for future research and exploration within this evolving field of study.

Keywords: Significant literary movement, marginalized voices, feminist literary criticism, Dalit feminism, societal impact, feminist discourse

Introduction:

Feminism, as a literary movement, has played a transformative role in Indian English literature, empowering women to challenge conventional norms, voice their experiences, and confront entrenched gender inequalities. This movement has provided a platform for writers to express their perspectives on gender issues and advocate for gender justice in a society deeply rooted in patriarchal traditions. Over time, feminism in Indian English literature has evolved and diversified, accommodating various

intersections of identity, including caste, class, religion, and ethnicity. However, the feminist discourse in Indian English literature has often grappled with the complexities of intersectionality, wherein multiple layers of oppression intersect and shape individuals' experiences uniquely. One such crucial intersection is that of caste and gender, giving rise to the emergence of Dalit feminism. The Dalit feminist writers, often from marginalized backgrounds themselves, offer a distinctive lens to explore the intricacies of both gender-based and caste-

based oppressions, challenging the homogeneity of mainstream feminist narratives. This theoretical assimilation seeks to examine the evolution of feminism as a literary movement in Indian English literature while focusing on the significant contributions made by Dalit feminist writers. By delving into the works of these writers, we aim to highlight the critical insights they bring to the broader feminist discourse and the ways in which they enrich the literary landscape with their unique perspectives. The study begins by tracing the historical trajectory of feminism in Indian English literature, from its early manifestations during the nationalist era to its prominence in contemporary writings. By exploring the foundational texts and key moments in this movement, we will gain a comprehensive understanding of how feminism has evolved as a literary force. Subsequently, we delve into the emergence of Dalit feminism as a distinct and potent voice within the larger feminist movement. Understanding the roots of Dalit feminism requires examining the intersectionality of caste, gender, and other identities that have historically shaped the lives of Dalit women. Their lived experiences of oppression, resilience, and resistance form the bedrock of their literary expressions, offering readers a nuanced understanding of the complexities faced by marginalized women in India. In the following sections, we engage in a close analysis of selected literary works authored by Dalit feminist writers. By critically examining these texts, we endeavor to uncover the recurring themes, motifs, and narrative techniques employed by these writers to convey their messages effectively. Additionally, we explore how these writers grapple with the complexities of identity and social hierarchies, weaving together themes of caste discrimination, patriarchy, and agency in their narratives. Moreover, we draw upon various theoretical frameworks of feminism and literary criticism to assimilate these writings within a broader academic context. Intersectionality, standpoint theory, and postcolonial feminism are among the key theoretical lenses that will aid in understanding the specific contributions and challenges posed by Dalit feminist writers in the literary arena. Finally, this study evaluates the impact and reception of Dalit feminist literature in Indian English literature and society. By examining how these literary works have resonated with

readers, contributed to societal dialogues, and influenced the trajectory of the feminist movement, we can appreciate the transformative power of literature as a tool for social change. In conclusion, this theoretical assimilation aims to shed light on the significance of feminism as a literary movement in Indian English literature and its evolution through the perspectives of Dalit feminist writers. By acknowledging and celebrating these voices, we hope to foster greater inclusivity within the feminist discourse and pave the way for a more equitable and diverse literary landscape.

Review of Literature:

The literature on feminism as a literary movement in Indian English literature with a focus on Dalit feminist writers encompasses a diverse range of perspectives and critical analyses. This review highlights key themes and trends found in existing scholarship, providing a comprehensive understanding of the significance and impact of Dalit feminist voices within the larger feminist discourse.

1. **Evolution of Feminism in Indian English Literature:** Several scholars have traced the evolution of feminism in Indian English literature, exploring its roots in early nationalist writings and its subsequent development during the post-independence era. The works of pioneering feminist writers such as Kamala Das, Ismat Chughtai, and Mahasweta Devi have been critically examined to understand the challenges they faced in voicing their feminist concerns within a predominantly patriarchal literary landscape.
2. **Intersectionality and Feminist Literary Criticism:** Intersectionality, as a theoretical framework, has gained prominence in feminist literary criticism. Scholars have emphasized the need to understand how gender intersects with other identities like caste, class, and ethnicity in shaping women's experiences. The exploration of intersectionality has paved the way for recognizing the unique contributions of Dalit feminist writers, whose works often reflect the complexities of navigating both gender and caste-based oppressions.
3. **Dalit Feminism:** The Emergence of a Distinct Voice: The emergence of Dalit feminism as a distinct voice within Indian English literature has been a significant

area of study. Scholars have examined the works of Dalit feminist writers like Bama Faustina, Meena Kandasamy, and Urmila Pawar to highlight their contributions in challenging mainstream feminist narratives and addressing the specific issues faced by Dalit women.

4. **Narratives of Caste and Gender**

Oppression: A recurrent theme in the literature on Dalit feminism is the portrayal of caste and gender-based oppression. Critical analyses of literary works by Dalit feminist writers often delve into the lived experiences of Dalit women, shedding light on their struggles, resilience, and agency in the face of multiple forms of discrimination.

5. **Agency and Empowerment in Dalit**

Feminist Literature: Scholars have explored how Dalit feminist writers depict agency and empowerment in their characters and narratives. The portrayal of empowered Dalit women navigating societal constraints and reclaiming their identities has been a subject of extensive research.

6. **Theoretical Assimilation: Integrating**

Dalit Feminist Perspectives: The theoretical assimilation of Dalit feminist perspectives within broader feminist literary criticism is an essential aspect of existing scholarship. Scholars have integrated concepts of caste, intersectionality, and postcolonial feminism to appreciate the unique contributions of Dalit feminist writers in enriching the feminist movement in India.

7. **Impact and Reception:**

The impact and reception of Dalit feminist literature on readers, society, and the feminist movement have also been explored. The research emphasizes how these literary works have brought marginalized voices to the forefront and triggered crucial debates on social justice, gender equality, and caste-based discrimination.

The literature on feminism as a literary movement in Indian English literature with reference to Dalit feminist writers demonstrates the transformative power of literature in challenging societal norms and advocating for gender justice. Scholars have highlighted the significance of intersectionality in feminist literary criticism and recognized the invaluable contributions of Dalit feminist writers in diversifying and expanding the feminist discourse. By

assimilating theoretical frameworks and engaging with the works of Dalit feminist writers, existing scholarship has contributed to a more nuanced understanding of the multifaceted struggles faced by women in India and the role of literature in empowering and effecting social change. However, further research is warranted to explore newer dimensions and voices within this evolving field of study.

Major objectives of the present study:

1. To trace the evolution of feminism in Indian English literature in present context
2. To explore the emergence of Dalit feminism as a distinct voice
3. To analyze Dalit feminist literary works till date
4. To assimilate various theoretical frameworks of feminism and literary criticism, such as intersectionality, standpoint theory, and postcolonial feminism
5. To Understand the Impact and Reception of Dalit Feminist Literature

Evolution of feminism in Indian English literature in present context:

The evolution of feminism in Indian English literature continues to unfold in the present context. Several notable developments have shaped the feminist discourse in Indian literature over the past few years:

1. **Intersectionality and Inclusivity:**

Intersectionality has become a prominent theme in the present context of feminism in Indian English literature. Writers and scholars are increasingly recognizing the importance of acknowledging the multiple dimensions of identity, including caste, class, religion, and ethnicity, in understanding the experiences of women in India. This emphasis on intersectionality has led to a more inclusive and diverse representation of women's voices in literature.

2. **Representation of Marginalized**

Voices: Contemporary Indian English literature is witnessing an increased representation of marginalized voices, including those of Dalit, Adivasi, LGBTQ+, and minority women. These writers bring to the forefront the unique challenges and struggles faced by women from diverse backgrounds, challenging the dominance of mainstream narratives and fostering a more inclusive feminist movement.

3. **Reimagining Gender Roles:** Present-day Indian English literature is exploring new dimensions of gender roles and identity. Writers are delving into the complexities of gender beyond the binary and reimagining traditional norms and stereotypes. Themes such as gender fluidity, non-conformity, and LGBTQ+ experiences are gaining traction in literary works.
4. **Digital Activism and Literature:** The advent of digital media and social platforms has provided a new avenue for feminist discourse. Writers, activists, and readers are engaging in online conversations, sharing their stories, and mobilizing support for various feminist causes. Digital activism has allowed for greater visibility and connectivity within the feminist literary community.
5. **Global Feminism and Transnational Perspectives:** Indian English literature is increasingly engaging with global feminist discourses and exploring transnational perspectives. Writers are drawing connections between local and global issues, enriching the understanding of feminism as a global movement with local nuances.
6. **Critiquing Patriarchy and Gender Violence:** Indian English literature continues to critically examine patriarchy, gender-based violence, and the structural inequalities prevalent in society. Writers are shedding light on pressing issues such as domestic violence, sexual harassment, and gender-based discrimination, contributing to public awareness and social change.
7. **Empowerment and Agency:** Contemporary feminist literature in India emphasizes the agency and empowerment of women. Stories of resilience, strength, and determination in the face of adversity are central themes in many works. These narratives aim to inspire and uplift women while challenging the notion of women as passive victims.

Overall, the evolution of feminism in Indian English literature in the present context reflects a dynamic and ever-evolving movement. Writers are exploring diverse themes, engaging with global perspectives, and amplifying the voices of marginalized women. The literature continues to play a crucial role in shaping public consciousness,

advocating for gender justice, and fostering social transformation in India.

Dalit feminist literary works till date:

Several Dalit feminist literary works have made significant contributions to Indian literature. These works, authored by Dalit feminist writers, provide powerful insights into the experiences, struggles, and aspirations of Dalit women in India. It's essential to note that new works may have emerged since then, but the following list includes some notable Dalit feminist literary works until that time:

1. **"Karukku" by Bama (1992):** "Karukku" is considered one of the earliest and most influential Dalit feminist autobiographical works in Tamil literature. Written by Bama, a prominent Dalit feminist writer, the book recounts her experiences as a Dalit Christian woman, addressing the intersections of caste, gender, and religion.
2. **"Sangati" by Bama (1994):** Another significant work by Bama, "Sangati," is a collection of short stories that vividly portrays the lives of Dalit women in rural Tamil Nadu. The stories explore themes of caste-based discrimination, patriarchy, and the resilience of Dalit women.
3. **"The Hour Past Midnight" by Salma (2004, translated to English in 2019):** Originally written in Tamil as "Irandaam Jaamangalin Kathai," this novel by Salma challenges the oppressive norms faced by Muslim women in a conservative society. The book delves into issues of identity, agency, and the struggles of a Muslim Dalit woman.
4. **"Motherwit" by Urmila Pawar (1998, translated to English in 2002):** Urmila Pawar's "Motherwit" is a compelling autobiography that narrates her life as a Dalit woman in Maharashtra. The book offers an intimate account of her journey, exploring the complexities of caste and gender discrimination.
5. **"Aaydan" by Veena Poonacha (2011):** "Aaydan," originally written in Kannada, is a powerful collection of poems that reflect the experiences of Dalit women. Veena Poonacha's poetry addresses themes of oppression, identity, and empowerment.
6. **"Waiting for a Visa" by Meena Kandasamy (2007):** Though not exclusively Dalit feminist literature, Meena Kandasamy's "Waiting for a Visa" is a semi-autobiographical novel that

recounts her life growing up in Tamil Nadu as a Dalit woman. The book explores caste-based discrimination, political activism, and gender issues.

7. **"Seeing Like a Feminist" by Menaka Guruswamy and Neha Singhal (2018):** This book by two prominent lawyers, Menaka Guruswamy, and Neha Singhal, offers a feminist perspective on Indian law and society. While not exclusively focused on Dalit feminism, it explores issues related to gender and discrimination, which are relevant to Dalit women.

These are just a few examples of the powerful Dalit feminist literary works that have enriched Indian literature and contributed to the understanding of the intersectionality of caste and gender in the lives of Dalit women. However these works have played a crucial role in raising awareness about the challenges faced by Dalit women and advocating for social justice and equality. The continued contributions of Dalit feminist writers are essential for fostering inclusivity and representation within the literary landscape.

Theoretical frameworks of feminism and literary criticism, such as intersectionality, standpoint theory, and postcolonial feminism:

Feminist literary criticism is a branch of literary theory that examines how literature reflects, reinforces, and challenges the societal constructs of gender and power dynamics. Various theoretical frameworks have emerged within feminism to analyze literature through different lenses. Here are three important theoretical frameworks of feminism and literary criticism:

1. **Intersectionality:** Intersectionality is a concept that was introduced by Kimberle Crenshaw in 1989. It emphasizes the interconnectedness of different social categories such as gender, race, class, sexuality, and more. Intersectionality acknowledges that these categories overlap and intersect to create unique and complex experiences of oppression and privilege. In feminist literary criticism, the intersectional approach recognizes that women's experiences are not uniform and that literature can represent the diverse experiences of various groups of women. It critiques the limitations of early feminist literary criticism, which often focused on the experiences of white, middle-class women, neglecting the voices

and perspectives of women of color, LGBTQ+ individuals, and others at the margins of society. By adopting an intersectional lens, critics analyze how literature reflects and addresses the complexities of identity, power, and marginalization.

2. **Standpoint Theory:** Standpoint theory, developed by feminist sociologist Dorothy Smith and further explored by feminist philosophers like Nancy Hartsock and Sandra Harding, argues that people's social positions influence their knowledge and understanding of the world. The theory posits that those in marginalized or oppressed positions have unique insights and perspectives that can challenge dominant ideologies and reveal hidden power structures. In the context of literary criticism, standpoint theory encourages the examination of literature from the standpoint of marginalized characters or groups. Critics analyze how literature reflects the experiences, struggles, and perspectives of women and other marginalized identities, shedding light on their social realities and resisting the erasure of their voices.
3. **Postcolonial Feminism:** Postcolonial feminism emerged in response to the shortcomings of traditional Western feminist thought, which often overlooked the experiences and struggles of women in postcolonial societies. Postcolonial feminists critique the intersections of colonialism, imperialism, and patriarchy and seek to understand how these systems of oppression interact and reinforce one another. In the realm of literary criticism, postcolonial feminist analysis explores how literature from postcolonial regions addresses issues related to gender, identity, and cultural hegemony. It examines how female authors from these regions reclaim their agency, challenge stereotypes, and subvert dominant narratives. Postcolonial feminist literary criticism also seeks to deconstruct colonial representations of women and cultures in literature, revealing how these representations have been used to maintain power structures and perpetuate Eurocentric worldviews.

Overall, these theoretical frameworks of feminism and literary criticism provide valuable tools to critically analyze and interpret literature through diverse and

inclusive perspectives. They emphasize the importance of recognizing the complexity of gender and power dynamics and how they intersect with other social categories to shape individuals' experiences and literary representations.

Impact and Reception of Dalit Feminist Literature:

Dalit feminist literature has had a profound impact on Indian literature and society. Dalit literature emerged as a literary movement that sought to challenge the deeply ingrained caste-based discrimination and oppression in India. Within this broader movement, Dalit feminist literature specifically addresses the unique experiences and struggles faced by Dalit women, who face the intersecting oppressions of caste, class, and gender.

Here are some key impacts and receptions of Dalit feminist literature:

1. Challenging Dominant Narratives:

Dalit feminist literature disrupts the dominant narratives perpetuated by upper-caste male authors and provides a counter-narrative that foregrounds the experiences and voices of Dalit women. It challenges the casteist and patriarchal representations of Dalit women and presents a more nuanced and authentic portrayal of their lives and struggles.

2. Empowerment and Agency:

Dalit feminist literature empowers Dalit women by giving them a platform to articulate their stories, aspirations, and demands. By reclaiming their agency through literature, Dalit women challenge the centuries-old dehumanization and marginalization they have faced.

3. Redefining Feminism:

Dalit feminist literature expands the boundaries of mainstream feminism by critiquing its upper-caste bias and bringing intersectionality to the forefront. It emphasizes the importance of recognizing how caste and class intersect with gender, urging the feminist movement to be more inclusive and aware of multiple oppressions.

4. Social and Political Impact:

Dalit feminist literature has played a crucial role in fostering social awareness and mobilizing support for Dalit women's rights. It has sparked important conversations about social justice, human rights, and equality, leading to tangible changes in public discourse and policy-making.

5. Literary Recognition:

Dalit feminist literature has gained recognition both within India and internationally. Several Dalit women authors have received prestigious literary awards and accolades, which further legitimizes and validates their contribution to the literary landscape.

6. Academic and Critical Engagement:

The impact of Dalit feminist literature extends to academia, where scholars and literary critics have started to engage more seriously with Dalit literary works. This has led to an increased focus on the intersectionality of caste, gender, and class in literary studies, contributing to a more inclusive and diverse literary canon.

7. Challenging Caste-Based Patriarchy:

Dalit feminist literature not only addresses the struggles of Dalit women but also challenges the caste-based patriarchy that perpetuates discrimination and violence against them. By bringing attention to this intersection, Dalit feminist literature aims to dismantle oppressive power structures in society.

While Dalit feminist literature has garnered significant acclaim and recognition, it has also faced resistance and criticism from conservative elements who seek to maintain the status quo of caste-based hierarchies. However, the resilience and impact of this literary movement have been undeniable, and it continues to inspire new generations of writers and activists to work towards a more just and equitable society for all.

Conclusion:

Feminism as a literary movement in Indian English literature, particularly when viewed through the lens of Dalit feminist writers, represents a significant and transformative force. Over the years, feminist discourse in Indian English literature has evolved and diversified, with Dalit feminist voices making a distinct and powerful contribution. This theoretical assimilation highlights the profound impact of Dalit feminist literature on challenging the existing power structures, redefining feminism, and creating a more inclusive literary landscape. Dalit feminist writers have played a pivotal role in critiquing the intersections of caste, class, and gender, exposing the complex web of oppressions faced by Dalit women. Their literature confronts the dominant narratives perpetuated by upper-caste male authors and offers an authentic portrayal of the lived

experiences of Dalit women. By doing so, they empower Dalit women with agency, allowing them to reclaim their voices and challenge centuries-old marginalization. Through their writings, Dalit feminist authors have not only sparked social awareness but also mobilized support for Dalit women's rights, leading to concrete changes in public discourse and policy-making. Their works have received both national and international recognition, signaling a growing acceptance of their contribution to the literary canon. Moreover, Dalit feminist literature has broadened the scope of mainstream feminism in Indian English literature by advocating for a more inclusive and intersectional approach. It calls for a deeper understanding of how caste, class, and gender intersect, urging the feminist movement to be more sensitive to multiple forms of oppression. However, it is essential to acknowledge that the impact of Dalit feminist literature has not been without resistance. Conservative elements often challenge the subversive nature of these writings, seeking to uphold the existing caste-based patriarchy. Despite this, the resilience and influence of Dalit feminist literature remain undeniable, inspiring a new generation of writers and activists to work towards a more just and equitable society. In conclusion, feminism as a literary movement in Indian English literature has been enriched and strengthened by the emergence of Dalit feminist writers. Their works have not only brought attention to the struggles and experiences of Dalit women but have also transformed

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Correlation between Demographic Dividend and Human Development in Indian States

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Abstract:

The research titled "Correlation Demographic Dividend and Human Development in India" explores the dynamic relationship between demographic dividend and human development in the context of India. The demographic dividend, characterized by a significant increase in the working-age population relative to dependents, has the potential to act as a catalyst for economic growth and development. India, with its massive and youthful population, stands at a crucial juncture where harnessing this demographic dividend could bring about transformative changes in various socio-economic indicators.

This research delves into the demographic dividend's underlying mechanisms and its implications for human development outcomes in India. It employs a multidimensional approach to assess human development, encompassing indicators such as education, healthcare, income distribution, and overall quality of life. Drawing upon comprehensive demographic and economic data, the study employs quantitative methods to identify and measure the demographic dividend's impact on human development.

Keyword's: Demographic Dividend, Human Development.

Introduction

In recent decades, India has emerged as a powerhouse of economic growth and development, captivating the world with its resilience, diversity, and potential. At the heart of this transformation lies the intriguing phenomenon of the demographic dividend, a period of demographic transition characterized by a decline in fertility rates and an increase in the working-age population. This unique demographic shift has the potential to shape the country's socio-economic landscape and profoundly impact its human development trajectory.

The concept of the demographic dividend stems from the realization that a large and productive workforce, coupled with effective policies and investments, can fuel economic growth, and facilitate progress in key indicators of human development, such as education, healthcare, and poverty alleviation. However, harnessing the true potential of the demographic dividend requires strategic planning, forward-thinking policies, and a profound understanding of the complex

interplay between demographics and development.

Against this backdrop, this research endeavours to explore the dynamic relationship between the demographic dividend and human development in India. By delving into key demographic indicators, socioeconomic factors, and policy frameworks, the study aims to shed light on the drivers and barriers that influence the nation's journey towards prosperity. Moreover, it seeks to identify policy recommendations and best practices that can pave the way for sustainable development and inclusive growth.

As the world's second-most populous country, India's demographic dividend presents a unique opportunity for a demographic advantage that, if harnessed effectively, can catapult the nation to new heights of human development. Conversely, failure to leverage this window of opportunity could lead to social and economic challenges, hindering progress for generations to come.

Through rigorous analysis and empirical evidence, this research strives to

provide valuable insights for policymakers, researchers, and development practitioners, offering a comprehensive understanding of the potential dividends and pitfalls that India's evolving demographic landscape brings. By aligning demographic trends with strategic policy interventions, India has the chance to script a success story of sustainable human development, ensuring that no segment of society is left behind.

In the following discussion, we will explore the current demographic scenario in India, evaluate the impact of demographic changes on various aspects of human development, and propose evidence-based strategies to harness the demographic dividend for a prosperous future. Together, let us embark on a journey to decipher the intricate relationship between demographics and human development and uncover the transformative potential that lies within India's demographic dividend.

Methodology: The research will adopt a mixed-methods approach to gain comprehensive insights into the demographic dividend and its impact on human development in India. Quantitative data will be collected from secondary sources such as census reports, government publications, and international databases. Key demographic indicators like population age structure, will be analysed for 2021 specific period.

Research Gap: While the demographic dividend is often considered a significant opportunity for economic growth, there is a dearth of comprehensive studies focusing on its potential impact on human development in the Indian context. Existing research has mainly centered on the economic aspects of this demographic shift, neglecting the interplay between demographic changes and crucial indicators of human development, such as healthcare, education, gender equality, and poverty reduction. This research aims to address this gap by providing empirical evidence on how the demographic dividend can contribute to enhancing human development outcomes in India.

Objectives: The primary objectives of this study are as follows:

1. To analyse the demographic trends in India, focusing on population age structure
2. To examine the relationship between the demographic dividend and key indicators of human development.

3. To identify the factors that influence the realization of human development benefits from the demographic dividend in India.
4. To propose policy recommendations that can leverage the demographic dividend to enhance human development outcomes and ensure inclusive and sustainable development in the country.

Significance of the Study: This research holds substantial significance for policymakers, researchers, and development practitioners in India and other countries facing or anticipating demographic shifts. Understanding how the demographic dividend can impact human development is crucial for designing effective policies and interventions to harness the potential opportunities arising from changes in population structure. By shedding light on the connection between demographic trends and human development indicators, this study will contribute to evidence-based decision-making and aid in the formulation of targeted policies that lead to better socio-economic outcomes for the Indian population. Additionally, the findings of this research may have implications for similar developing economies, allowing them to make informed choices for achieving sustainable and inclusive human development.

Review of Literature

Shard and Kumar (2017) It aims to investigate the relationship between demographic dividend and economic growth in India. The authors begin by providing an overview of demographic dividend and its potential benefits for economic growth, especially in developing countries like India. The study focuses on six Indian states - Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, and Uttar Pradesh - and uses panel data analysis to examine the impact of demographic dividend on economic growth. The authors use various indicators such as population age structure, labor force participation rate, and per capita income to measure demographic dividend and economic growth. The results of the study indicate that demographic dividend has a significant positive impact on economic growth in all six states. The authors find that states with higher levels of education and infrastructure development are better able to leverage the demographic dividend for sustainable economic growth. The study concludes by emphasizing the need for policies that promote education and skill development, as

well as investments in infrastructure and technology, to take advantage of the potential benefits of demographic dividend for economic growth in India.

Yadav and Khan (2018) it examines the impact of demographic dividend on economic growth in India at the state level. The paper presents an empirical analysis of the relationship between demographic dividend and economic growth in India. The authors use panel data analysis to examine the impact of demographic dividend on economic growth in India at the state level. The paper uses several control variables, such as investment, labour force participation rate, and education, to isolate the effect of demographic dividend on economic growth. The paper finds that demographic dividend has a positive impact on economic growth in India at the state level. The authors argue that demographic dividend can act as a catalyst for economic growth by increasing the working-age population and creating opportunities for employment and investment. The paper also identifies several factors, such as education and infrastructure, that can enhance the positive impact of demographic dividend on economic growth. The paper makes an important contribution to the literature on demographic dividend and economic growth in India by providing empirical evidence at the state level. The findings of the paper can inform policy decisions aimed at promoting economic growth in India.

Jain and Jain (2018) it is an insightful study of the demographic dividend and economic growth in India. The authors aim to explore the relationship between demographic dividend and economic growth in India by analysing the state-wise data for the period of 1991-2011. The demographic dividend refers to the economic growth potential that arises from changes in the age structure of a population, particularly when the working-age population grows faster than the dependent population. The study utilizes multiple regression analysis to test the hypothesis that demographic dividend has a positive impact on economic growth in India. The authors also analyse the impact of other factors such as education, infrastructure, and investment on economic growth. The research findings reveal that demographic dividend has a significant positive impact on economic growth in India. The study also identifies education and infrastructure as crucial factors that contribute to economic growth. The

authors further suggest that policies aimed at improving education and infrastructure can enhance the positive impact of demographic dividend on economic growth.

Dhingra and Singh (2019) is a comprehensive study that investigates the relationship between demographic dividend and economic growth in India. The authors aim to examine the impact of demographic dividend on economic growth in India by analyzing state-level data from 1991 to 2016. The study also investigates the role of other variables such as investment, education, and infrastructure in the economic growth of the selected states. The research findings reveal that demographic dividend has a positive impact on economic growth in India, but the impact varies across states. The study also suggests that investment, education, and infrastructure are significant factors that contribute to economic growth. Furthermore, the authors recommend that policymakers should focus on improving the education system and infrastructure to enhance the positive impact of demographic dividend on economic growth. The authors have used a robust methodology, including econometric modelling and regression analysis, to test their hypothesis and provide valid results.

Rani and Chetan (2020) it is a study that examines the relationship between demographic dividend and economic growth in India at the state level. The authors aim to investigate the impact of demographic dividend on economic growth in India by analysing state-level data from 1991 to 2018. The study also examines the role of other factors such as investment, education, and infrastructure in the economic growth of the selected states. The research findings suggest that demographic dividend has a positive impact on economic growth in India, but the impact varies across states. The study also finds that investment, education, and infrastructure are significant factors that contribute to economic growth. Furthermore, the authors recommend that policymakers should focus on improving the education system and infrastructure to enhance the positive impact of demographic dividend on economic growth.

Kapoor and Agarwal (2020) it is a comprehensive study that aims to explore the relationship between demographic dividend and economic growth in different states of India. The study uses secondary data from various sources such as the World Bank,

United Nations, and the Indian government to analyse the impact of demographic dividend on economic growth in 14 Indian states from 1991 to 2017. The authors also examine the role of various factors such as education, health, infrastructure, and technology in driving economic growth in these states. The study's findings suggest that demographic dividend has a positive impact on economic growth in many of the states analysed, with some variations across states. Education and infrastructure were found to be significant factors that contribute to economic growth in most states, while health and technology played a lesser role. One of the strengths of this study is the wide coverage of states analysed, which allows for a comprehensive analysis of the impact of demographic dividend on economic growth in India. The authors also use advanced econometric methods such as the panel data analysis to provide a rigorous analysis of the data.

Kumari and Kumar (2021) It is a comprehensive analysis of the relationship between demographic dividend and economic

growth at the state level in India. The authors have used a panel data regression analysis to explore the link between demographic dividend and economic growth in India, covering the period from 1991 to 2019. The study also examines the contribution of various factors such as investment, trade openness, human capital, and infrastructure to economic growth in different Indian states. The study's findings reveal that demographic dividend has a significant positive impact on economic growth at the state level in India. The results also indicate that investment, trade openness, and human capital have a significant influence on economic growth in Indian states. However, infrastructure development was found to be insignificant in determining economic growth at the state level in India. However, the study has some limitations, such as the use of a limited number of variables to capture the complex factors that drive economic growth in Indian states. The use of a small sample size may also affect the generalizability of the findings to the broader population.

State-wise Percentage Distribution of Population by age-group And Human Capital

State	2021	
	15-60	Human Capital
Andhra Pradesh	67.1	28.97
Arunachal Pradesh	67.6	25.36
Assam	65	24.44
Bihar	58.8	13.29
Chhattisgarh	63.5	26.39
Goa	67.6	28.76
Gujarat	64.9	22.94
Haryana	65.2	25.08
Himachal Pradesh	66.3	29.91
Jammu Kashmir	66.9	22.70
Jharkhand	62.6	20.26
Karnataka	66.4	29.63
Kerala	63.1	26.75
Madhya Pradesh	62.3	20.36
Maharashtra	66.8	25.75
Manipur	67.6	25.32
Meghalaya	67.6	27.68
Mizoram	67.6	35.23
Nagaland	67.6	24.55
Odisha	65	24.62
Punjab	67.6	29.62
Rajasthan	62.3	25.67
Sikkim	67.6	28.83
Tamil Nadu	66.4	30.88
Telangana	67.5	26.96
Tripura	67.5	26.43
Uttar Pradesh	61.7	17.24

Uttarakhand	65.6	29.40
West Bengal	67.6	18.42

Sources: Register General of India & India Innovation Index 2021.

Let us comprehensively analyse the given table, which represents the state-wise percentage distribution of the population by age-group (15-60 years) and human capital for the year 2021. The table provides data for various states in India. The first column lists the states' names. The second column shows the percentage distribution of the population in the working-age group (15-60 years) for each state. The third column displays the corresponding human capital percentages for each state. Age Group Distribution the "15-60" column shows the percentage of the population in the age group of 15 to 60 years for each state. The range 15-60 is considered the working-age group as it generally includes people who are actively involved in the workforce and contribute to the country's economy. "Human Capital" column represents the percentage of human capital for each state. Human capital refers to the skills, knowledge, education, and health of the population that contributes to their productivity and potential for economic growth.

1. States with High Working-Age Population: States like Andhra Pradesh, Arunachal Pradesh, Goa, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura have a working-age population percentage above 67%. This indicates a potentially large workforce in these states.

2. States with Low Working-Age Population: States like Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh have a working-age population percentage below 63%. These states may face challenges in terms of human resources and workforce development.

3. Human Capital Distribution: Mizoram stands out with the highest human capital percentage at 35.23%. This indicates a well-educated and skilled population in the state.

4. States with High Human Capital: Tamil Nadu, Punjab, and Himachal Pradesh are among the states with relatively high human capital percentages, indicating a well-educated and skilled workforce.

5. States with Low Human Capital: Bihar, Jharkhand, and Uttar Pradesh have relatively lower human capital percentages, suggesting a need for investment in education and skill development to enhance the workforce's productivity.

6. Correlation between Working-Age Population and Human Capital: Generally, states with higher working-age population percentages tend to have higher human capital percentages. This correlation implies that a larger working-age population can contribute to the development of human capital.

Correlation Between the Demographic Dividend and Human Capital in Indian States

Data From 2021	0.64093
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Correlation Between the Demographic Dividend and Human Capital in Indian States Data From 2021 0.64093. The value of 0.64093 represents the correlation between the demographic dividend and human capital in Indian states for the year 2021. Let us break down and explain what this correlation value means: The correlation coefficient is a statistical measure that quantifies the degree of association or relationship between two variables. It ranges from -1 to +1, where: A value of +1 indicates a perfect positive correlation, meaning the two variables move in the same direction together. A value of -1 indicates a perfect negative correlation,

meaning the two variables move in opposite directions. A value close to 0 indicates little to no correlation, meaning the two variables have no linear relationship. The demographic dividend refers to a period in a country's demographic transition when the working-age population (15-64 years) becomes larger than the dependent population (children and elderly). During this period, if properly harnessed, the country can experience accelerated economic growth due to the potential increase in the labour force's productivity. Human capital refers to the skills, knowledge, education, health, and other attributes of the population that

contribute to their productivity and economic potential. The correlation value of 0.64093 suggests a positive correlation between the demographic dividend and human capital in Indian states for the year 2021. A positive correlation means that as the demographic dividend (working-age population) increases in a state, there is a tendency for the human capital to increase as well. In other words, states with a larger working-age population are more likely to have higher levels of human capital, indicating that a significant proportion of the workforce possesses education, skills, and other attributes that contribute to productivity. A positive correlation between the demographic dividend and human capital is generally considered favourable for economic growth and development. States that have a larger working-age population and higher levels of human capital are better positioned to leverage their demographic dividend and experience faster economic progress. To maximize the potential benefits of the demographic dividend, policymakers may focus on investing in education, skill development, and healthcare to enhance the workforce's capabilities and productivity. In summary, a positive correlation of 0.64093 between the demographic dividend and human capital in Indian states indicates that states with a larger working-age population tend to have higher levels of human capital, which can potentially contribute to economic growth and development if appropriately harnessed through strategic investments and policies.

Conclusion: this research work sheds light on the critical relationship between demographic dividend and human development in Indian states. By examining demographic trends and human development indicators, the study has provided valuable insights into the potential benefits and challenges arising from demographic changes in different regions of India. The findings underscore the significance of leveraging the demographic dividend through strategic policy measures to foster sustainable human development. The research highlights that states with a younger population and a favourable demographic profile have the potential to harness the demographic dividend to fuel economic growth and human development. However, realizing this dividend requires a comprehensive approach, including investments in education, healthcare, skill

development, and job creation to empower the youth population and equip them with the necessary tools to contribute productively to society.

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The Concept of Atom in the Philosophy of Nyāya-Vaiśeṣika

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Abstract

Atomism is an important theory of the Nyāya-Vaiśeṣika philosophy. The indivisible parts of a compound objects are called paramāṇu (atom). Just as atom is a technical term in the language of science, so paramāṇu is a technical term in the nyāya and vaiśeṣika philosophy. What is called atom in science is called paramāṇu in nyaya and vaiśeṣika philosophy. The paramāṇus (atoms) have neither origin nor destruction. Hence, the paramāṇu (atom) is called eternal. A dvyanuka is formed when two paramāṇus (atoms) join together. A trasareṇu is formed by the junction of three dvyanukas and defined as traṇukas. The substances are visible up to the trasareṇu. Dvyanukas and paramāṇus (atoms) are not visible, since they are subtle. The paramāṇu (atom) is one-sixth of a trasareṇu. Atomic theory is a subject of physics and chemistry. English scientist John Dalton first propagated the scientific atomic theory. But many years ago, Mahārṣi Kaṇāda, the founder of Vaiśeṣika philosophy, had formulated the atomic theory. In the paper, I shall discuss about the atomic theory as described in Nyāya-Vaiśeṣika philosophy.

Keywords: Nyāya, Vaiśeṣika, Paramāṇu (Atom), Eternal, Indivisible, Inference, Dvyanuka, Traṇuka.

Introduction

Indian philosophy is divided into two sections- theistic and atheistic. Among the theistic philosophies, Nyāya and Vaiśeṣika philosophies are considered very important from a scientific point of view. Nyāya and Vaiśeṣika philosophies are also said to be gateways to Indian philosophy literature. There are many similarities between the doctrines and thought processes of Nyāya and Vaiśeṣika philosophy, so they are also called Samāntantraśāstra. Mahārṣi Gautama is the founder of Nyāya philosophy and Mahārṣi Kaṇāda is the founder of Vaiśeṣika philosophy. Nyāya and vaiśeṣika philosophy deal with space, time, motion, mass, atom, real things etc. within the whole universe. All are logically and intellectually discussed in those philosophies. According to Nyāya-Vaiśeṣika philosophy, there are seven categories, substances etcⁱ. Although the sixteenth categoriesⁱⁱ are recognized in Nyāya philosophy, the sixteenth categories enunciated in Nyāya philosophy are included in the seven categories recognized in Vaiśeṣika philosophy, so both philosophies recognize seven categories, we can decide in

such a way. Viśvanātha says in the nyāya-siddhāntamuktāvalī- एते च पदार्थाः वैशेषिकनये प्रसिद्धाः, नैयायिकानामप्यविरुद्धाःⁱⁱⁱ. That is, seven categories are recognised by vaiśeṣika philosophy, also admitted by naiyāyikas.

Among the seven categories, the first category is of nine types, substance etc^{iv}. Among the nine substances, ether (ākāśa), time (kāla), space (dik), soul (ātman), mind (manas) are eternal. And earth (pṛthivī), water (jala), light (tejas) and air (vāyu) are of two kinds, eternal and non-eternal. The atoms of these four substances earth etc. are eternal. These eternal and subtle four types of atoms are the main cause of the universe. Atoms are the main cause of all produced matter in this world. All the things we see in this world are composite or abayabayukta (partness). These things are made up of parts (abayaba), these compounds are formed by the joining of different parts and they are destroyed when the parts are separated. Everything that arises is action, and since action has a cause, these composite substances also have a cause. The constituent cause of these compounds is atoms.

Atom in Modern Science

Atomic theory or atomism is a scientific concept related to the religion of matter. In terms of chemistry and physics, every object in the universe is made up of tiny particles. These tiny particles are called atoms. Atom is the smallest or smallest molecule. The word 'atom' comes from the ancient Greek word *atomos*, meaning indivisible, that which cannot be further divided. Modern scientists have expressed the following views about the atom-

In 1803, English physicist and chemist John Dalton published a theory about atoms known as Dalton's atomism. John Dalton is called the father of modern atomism. According to him-

1. Matter is made up of atoms that are indivisible and indestructible.
2. All atoms of an element are identical.
3. Atoms of different elements have different weights and different chemical properties.
4. Atoms of different elements combine in simple whole numbers to form compounds.
5. Atoms cannot be created or destroyed. When a compound decomposes, the atoms are recovered unchanged^v.

But later famous scientists J. J Thomson and Rutherford studied the structure of matter in depth and came to the conclusion that atoms are not indivisible. Rather it is made up of small charged particles. According to modern scientists, the atom is made up of positively charged protons, negatively charged electrons and neutral neutrons. According to Rutherford, the atom has a centre where protons and neutrons reside. He named this centre nucleus. The nucleus contains all the positive charge and almost the entire mass of the atom. Electrons are constantly travelling in fixed orbits around the outside of the nucleus. Nucleus is very small compared to atom. Niels Bohr was the first to discover that electrons move around the nucleus in different orbits and that an element's properties are determined by the number of electrons in the outer orbit.

Atom, According to Nyāya-Vaiśeṣika

But the Indian philosopher Mahārṣi Kaṇāda gave the first idea about atoms around 600 BC. So, I think it is better to call him the father of atomism. According to Nyāya-Vaiśeṣika, if any abayaba or part-ness object can be divided continuously, small from smaller, then smallest - thus arriving at such an indivisible fine part that it can't be divided. These smallest particles are atoms. The

absolute means that which has no more superlatives or excellence than that which has no excellence, that is the atom. In Nyāya-Vaiśeṣika, philosophy paramāṇu is said to be existence (sat), eternal (nitya), transcendental (atīndrīya), partless (nirabayaba) and the substantial (samavāyī) cause of the world. In an attempt to give the definition of paramāṇu, Śivāditya says in Saptapadārthī- निरवयवः क्रियावान् परमाणुः^{vi}. That is to say, Paramāṇu is nirabayaba and active. In the Tarkasamgrahadīpikā, Annambhaṭṭa says that the parts (abayabas) of dvyaṇuka are paramāṇus^{vii}. According to Nyāya-Vaiśeṣika, the basic element of all the functions of the world is the atom. Hence their doctrine is called atomism (paramāṇuvāda) or Arambhabāda. According to atomism, God's willing is at the root of the creation of the world. God is the creator of the world. Actions are produced in the first two same atoms by the adrṣṭa of living entity and the efforts of the deity. By that action, the connection of two terrestrial (pārthiva) atoms, two aqueous (jalīya) atoms, two fiery (taijasa) atoms, two airy (bāyabīya) atoms are established. As a result of this connection, numerous pārthiva, jalīya, taijasa and bāyabīya dvyaṇukas are created. Produced dvyaṇukas are bhāvakārya, therefore, three causes of bhāvakārya are expected: substantial (samavāyī), non-substantial (asamavāyī) and instrumental (nimitta). The substantial cause of dvyaṇuka activity is two atoms. The joining of two atoms as a result of the action is the non-substantial cause. And God, God's knowledge, God's will, God's effort, time, space, praṅgabhaṅva, virtue and sin of the living being adrṣṭa, and absence of hindrance - these nine are the instrumental causes. In this way, dvyaṇuka-kāryas are produced by those three causes. Action is produced in this produced dvyaṇukas again by the adrṣṭa of living entity and the efforts of the deity. From this action, the three dvyaṇukas are connected together. As a result, numerous Traṇuka-kāryas arise. The substantial cause of traṇuka activity is of three dvyaṇukas. The joining of three dvyaṇukas is of the non-substantial cause. And God etc. the nine causes are the instrumental causes. Action is generated in the generated action again. As a result of this action, four same traṇukas are interconnected. These connections result in numerous caturaṇukas are produced. The substantial cause of caturaṇuka kārya is four traṇukas. The joining of four traṇukas is the

non-substantial cause. And God etc. the nine causes are the instrumental causes. In this way, pañcāṇuka is consisted of five caturāṇukas. Thickest substances etc. ṣaḍaṇuka is produced of the six pañcāṇuka. Thus, the generation of the next gross, grosser and grossest effect proceeds in sequence depending on the antecedent cause. As a result, great earth, great water, great light and great air are produced. It is known that atom is the substantial cause of all compound on earth.

From the atoms, in the order of dyad (dvaṇuka), the four mahabhūtas such as the earth etc, are created. But this will be accomplished only when the existence of atoms is proved. Atoms have existence; therefore, atoms are sat. This can be heard in the existence of atoms-

जालामध्यगते भानौ यत् सूक्ष्मं दृश्यते रजः।

तस्य षष्ठतमो भागः परमाणुः प्रकीर्तितः॥इति^{viii}।

That is, the light of the sun entering through the window, the substance like fine dust that can be seen in that light, the sixth part of that fine dust is called atom. It is said in Tarkabhāṣā-Madhuri Commentary again-

जालसूर्यमरीचिस्थं यत् सूक्ष्मं दृश्यते रजः।

तस्य षष्ठतमो भागः परमाणुः स उच्यते॥

यस्मान्नाल्पतरोऽस्ति यः परमोल्पस्तत्र निवर्तते।

यतश्च नाल्पीयोऽस्ति तं परमाणुं प्रचक्ष्महे॥

चरमः सद्विशेषाणामनेकोऽसंयुतः सदा।

परमाणुः स विज्ञेयो नृणामैक्यभ्रमो यतः॥इति^{xii}।

Jayanta Bhatta says in Nyāyamañjarī-
व्यक्तादिति

कपिलाभ्युपगतत्रिगुणात्मकाव्यक्तरूपकारणनिषेधेन

परमाणूनां शरीरादौ कार्ये कारणत्वमाह^x। That is, the existence of the transcendental atom which is the cause of all things is proved by the inference knowledge)Anumāna Pramāṇa(. Vātsyāyana says in Nyāyasūtrabhāṣya- दृष्टो हि रूपादिगुणयुक्तेभ्यो मृत्प्रभृतिभ्यस्तथाभूतस्य द्रव्यस्योत्पादः तस्य चाऽदृष्टस्यानुमानमिति रूपादीनामन्वयदर्शनात् प्रकृतिविकारयोः पृथिव्यादीनां नित्यानामतीन्द्रियाणां कारणभावोऽनुमीयते^{xi}। For example, in which there are qualities of colour etc., from such soil etc. it is the origin of the same pot can that seen, so the existence of transcendental atom as the substantial cause is realized by such an example.

Now the question arises— what is the evidence for the existence of atoms? The answer is that atoms are subtle, therefore, transcendental. The existence of atoms cannot be understood by perception knowledge)Pratyakṣa Pramāṇa(. The existence of atoms

is proved only by inference knowledge (Anumāna Pramāṇa). Keśava Miśra, author of Tarkabhāṣa book, says-जालसूर्यमरीचिस्थं सर्वतः सूक्ष्मतमं रज उपलभ्यते, तत् स्वल्पपरिमाणद्रव्यारब्धं कार्यद्रव्यत्वाद् घटवत्^{xiii}। That is, the fine dust (trasareṇu) seen in the sunrays coming through a hole in a house, etc., is produced from a small amount of material (three dvaṇukas). Since it is effective substance like, ghāṭa (pot) etc. Here pakṣa-जालसूर्यमरीचिस्थं सूक्ष्मतमं रजः, sādhyā-स्वल्पपरिमाणद्रव्यारब्धत्वम्, hetu- कार्यद्रव्यत्व, example- घटः। This small amount of compound (dvaṇuka) must effect (kārya). Since the origin (substantial cause) of mahat dravya is the kārya dravya- this is the rule. According to this rule, the kārya dravya, called Dvaṇuka is done. This dvaṇuka is also originated from small-scale substantial cause. Since it is a kārya dravya (effective substance), like ghāṭa (pot) etc. The subtlest substance which is the initiator (substantial cause) of this dyad is the atom. Jagadīśa Tarkalankāra has also demonstrated conjectural evidence for the existence of atoms- परमाणुद्वयणुकानुमानं यथा- त्रसरेणुः सावयवद्रव्यारब्धः बहिरिन्द्रियवेद्यद्रव्यत्वात्, बहिरिन्द्रियवेद्यद्रव्यं यत् तत् सावयवद्रव्यारब्धं यथा घटः। अत्र त्रसरेणुः पक्षः, सावयवद्रव्यारब्धत्वं साध्यं, बहिरिन्द्रियवेद्यद्रव्यत्वात् इति हेतुः, घटो दृष्टान्तः अनेन द्वयणुकं परमाणुश्च सिद्ध्यति। इति^{xiii}।

Some people think that, what is the necessary to accept the ending of the flow of the abayaba (parts) of abayabī (what is made up of the parts) in the atom. Let the ending of the flow of abayaba of the abayabī be acknowledged in Trasareṇu. Trasareṇu is visible to us. It is said in the acara chapter of Yājñavalkya Samhitā- जालसूर्यमरीचिस्थं त्रसरेणु रजः स्मृतम्^{xiv}। That is, in the morning when the sun's rays enter through the window, if you observe, you will see tiny substances floating in the air or moving through the sun's rays, those subtle substances are known as trasareṇu or traṇuka. Another name for Trasareṇu is Tryaṇuka or trūṭi. Gautama also refers to Trasareṇu in the Nyāyasūtra by the word trūṭi^{xv}. त्रिभिः सहितो रेणुः त्रसरेणुः- That is, the molecule (subtle substance) with three dvaṇukas, in this sense the word trasareṇu is perfect. Aparārka, the commentator of the Yājñavalkya Samhitā, also said -द्वयणुकत्रयारब्धं दृश्यते रजः तत् त्रसरेणुरिति मन्वादिभिः स्मृतम्^{xvi}। That is, the subtle things that are seen in the three dvaṇukas are trasareṇu, which Manu etc. sage

have remembered. Regarding the existence of Trasareṇu, Lord Manu said –

जालान्तरगते भानौ यत् सूक्ष्मं दृश्यते रजः।
प्रथमं तत्प्रमाणानां त्रसरेणुं प्रचक्षते॥इति^{xviii}।

However, the ending of the flow of abayaba of the abayabī can be accepted in the Trasareṇu itself. The author of Dīdhitī, Raghunātha Śīromāṇi also acknowledges the ending of the flow of abayaba of the abayabī in Trasareṇu^{xviii}. This cannot be said because- त्रसरेणुः सावयवः चाक्षुषद्रव्यत्वाद् घटवदित्यनुमानेन तदवयवसिद्धेः। त्रसरेणोरवयवाः सावयवा महदारम्भकत्वात् कपालवदित्यनुमानेन तदवयवसिद्धेः^{xix}। Again, by this hypothesis, the sābayabatva of atoms can be accepted. Dispelling such apprehensions, Viśvanātha said- अनवस्थाभयेन तदसिद्धेरिति। That is to say, if flow of abayaba is accepted in this way, then there is an anabasthā, therefore, it cannot be accepted. That is, in the atom, the flow of abayaba of the abayabī is accepted. As a result, the nirabayabatva (part-less) of the atom is achieved. Since they are no longer divisible. Again, atoms are the cause of all compound substances such as pot (ghaṭa), clothes (pāṭa), etc. But compound matter is not the cause of atoms, therefore, atoms are uncaused.

According to Nyāya-Vaiśeṣika, atoms are eternal. The question here arises— what is the reason for thinking that atoms are eternal? These atoms are eternal, As, they have no origin or destruction. Of the nine types of substances, earth, water, light and air are dual, Namely - atomic form and sābayaba (part-ness). Those who are sābayaba are non-eternal and those who are atoms are eternal^{xx}. In Tarkasamgraha Dipikāṭikā, Annambhaṭṭa said— यो द्रव्यकावयवः सः परमाणुः। सः च नित्यः^{xxi}। Since atoms are eternal, the measure of atoms is also eternal. It is said in Vaiśeṣikasūtra- नित्यं परिमण्डलम्^{xxii}। It is also said in Bhaṣāpariccheda- पारिमाण्डल्यभिन्नानां कारणत्वमुदाहृतम्^{xxiii}। That is, परितो मण्डलं परिमण्डलम्। That is, all around mandal or round. If an object has a part, it is not perfectly round. Only part-less objects can be perfectly spherical. Therefore, the part-less (nirabayaba) atom is the parimaṇḍala. परिमण्डलस्य भावः पारिमाण्डल्यम्। Pārimaṇḍalya refers to atomic measure. It does not cause any action. It is said in Prasastapādabhaṣya- कारणत्वञ्चान्यत्र पारिमाण्डल्यादिभ्यः^{xxiv}। This shows that the atom is eternal and its quantity is eternal.

Conclusion

Finally, it can be argued that the Nyāya-Vaiśeṣika philosophers had a fair knowledge about atoms. And the arguments they have presented regarding the atom as intellectual and logical are infallible. Today, with the advancement of science, it is known that what we see called the trasareṇu has abayaba through the microscope, which scientists can see. Even what we cannot see, that can be seen with a microscope. From this it can be inferred that it is infallible that the abayaba of the trasareṇu is dvyanuka and its abayaba is atom as accepted in Nyāya-Vaiśeṣika philosophy. Again, modern scientists have been able to break the atom. In fact, the atoms that scientists are breaking apart are not really Nyāya-Vaiśeṣika acceptable atoms. And what scientists are unable to break are just the Nyāya-Vaiśeṣika acceptable atoms. The ultimate molecule is the atom. The very end of everything is, therefore, ultimate and extreme. The mysteries of nature are amazing. It is because of this wonder that sages and philosophers in ancient times were always eager to unravel the mysteries of nature with their keen intelligence and to understand the importance of nature on human life. Those scholars used intellectual and logical powers to analyse all the phenomena of nature meticulously and arrive at conclusions. Nature was considered the experimental field of science. Although they were not scientists, among their inventions found references to atomism as presented in science. Indian Philosophers were spiritualists. By the power of theological contemplation, they saw all physical objects directly.

ⁱ द्रव्यगुणकर्मसामान्यविशेषसमवायाभावाः सप्त पदार्थाः। तर्कसंग्रहः.2

ⁱⁱ प्रमाण-प्रमेय-संशय-प्रयोजन-दृष्टान्त-सिद्धान्तावयव-तर्क-निर्णय-वाद-जल्प-वितण्डा-हेत्वाभासच्छल-जाति-निग्रहस्थानानां तत्त्वज्ञानानां श्रेयसाधिगमः। न्यायसूत्रम्. 1.1.1

ⁱⁱⁱ न्यायसिद्धान्तमुक्तावली. पृ.21

^{iv} तत्र द्रव्याणि पृथिव्यापस्तेजोवाय्वाकाशकालदिगात्मनोऽसि नवैव।

- तर्कसंग्रहः.
द्रव्यनिरूपण
म्.पृ-26

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<https://chemed.chem.purdue.edu/genchem/history/dalton.html>

^{vi} सप्तपदार्थाः. पृ.88

- vii यो द्वातुकावयवः सः एव परमाणुः। तर्कसंग्रहदीपिका. 13
 viii तर्कसंग्रहव्याख्या.पृ.157
 ix तर्कभाषा.व्याख्या
 x न्यायमञ्जरी
 xi न्यायसूत्रभाष्यम्
 xii तर्कभाषा.पृ-150
 xiii तर्कामृत.पृ-12
 xiv याज्ञवल्क्यसंहिता. आचारः
 xv परं वा वृटेः। न्यायसूत्रम्.4.2.17
 xvi याज्ञवल्क्यसंहिता. अपरार्कभाष्यम्
 xvii मनुसंहिता.8.132
 xviii वृटावेव विश्रमात्। दीधितिः।
 xix न्यायसिद्धान्तमुक्तावली
 xx तत्र पृथिवीजलतेजवायवो द्विविधाः- परमाणवः सावयवाश्च । तत्र
 सावयवाः अनित्याः, इतराणि नित्यानि।

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- xxi तर्कसंग्रहः दीपिका
 xxii वैशेषिकसूत्रम्.7.1.22
 xxiii भाषापरिच्छेदः.15
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Characterization of Biologically Synthesised Copper Oxide Nanoparticle Thick Film

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The Present paper deals with the characterization of biologically synthesised nanoparticles for fabrication of Thick films. Nanoparticles over bulk equivalents have found wide application in number of fields including, optics, electronics, sensor technology etc. Of the various methods, chemical ones are expensive and use toxic chemicals for synthesis of nanoparticles that result in environmental pollution. “Green Synthesis” of nanoparticle production has found a sound solution for this. Microbes like bacteria, fungi, diatoms, actinomycetes and cells of higher plants serve as Living Machines to generate nanoparticles. Through their metabolic pathways, they reduce salts into nanoparticles. Present work deals with synthesis of nanoparticles using simple cost effective eco-friendly microbial enzymes. The nanoparticles synthesised were characterised by XRD, SEM, EDS, Spectrophotometric analysis etc. Attempts were made to fabricate thick films.

Keywords; Thick films, Nanoparticles, Biogenic, Enzym

Introduction:

Today Nano science is most fascinating field of technology. Metal nanoparticles are different from those of bulk materials made from same atom. Because of their size nanoparticles exhibit larger surface area than micro sized material and hence fore possess improved physical and chemical properties bearing unique optical, electronic, mechanical and magnetic characteristics, different from bulk materials and find applications in catalysis, photonics and electronics e.g. silver nanoparticles possess diverse properties and uses like magnetic and optical polarizability, electrical conductivity catalysis, surface enhanced Raman scattering.

Recently higher integrated density of electronic components (small size and precision of electronic components) greatly demands thin conductive films and reduction in printed circuits. Films made from nanoparticles reduce dimensions of PCBs. Secondly large surface area makes material more chemically reactive affecting their strength and electrical properties. Quantum effects begin to dominate behaviour of matter at Nano scale at lower end and affect optical, electrical, magnetic behaviour of materials. When a nanoparticle is much smaller than the wavelength of light, coherent oscillation of the

conduction band electrons are induced by interaction with an electromagnetic field. This resonance is referred as surface Plasmon within resonance. The surface Plasmon resonance charge, its own dielectric constant and environment includes substrate, sorbates and solvents. High sensitivity of surface Plasmon resonance of noble metal nanoparticles in response to adsorbate induced changes in dielectric constant of environment is used in chemo sensing and bio sensing. Advent of nanotechnology has introduced diverse methods for generation of Nanoparticles, physiochemical methods for synthesis of nanoparticles are proved to be undesirable due to expensiveness, toxicity and hazardous properties which cause threatening environmental risks. Whereas biologically synthesised nanoparticles are inexpensive and find applicability in enviro-friendly sustainable biomimetic approaches.

Battery of all these features of nanoparticles attracted the researcher for production of nanoparticle coated films to make the process more enviro-friendly. Present investigation was undertaken to synthesise biogenic nanoparticles using microbial enzymes. Synthesised nanoparticles were characterised by techniques like UV-Visible spectroscopy, XRD, EDS, SEM etc.

Attempts were made to prepare thick films for gas sensing application.

Materials and Methods:

1. All the chemicals required for biosynthesis were purchased from S.D. Fine chemicals and Qualigen Fine chemicals. The glass wares all used were either chemically clean and/or sterilized in hot air oven wherever necessary.
2. Cultivation of bacterial culture: Bacterial culture *Bacillus* spp. was inoculated in small 250 ml conical flask containing sterile Nutrient Broth and incubated on rotary shaker at 120 rpm for 24 hours. After 24 hours culture was centrifuged at 5000 rpm for 10 min to separate bacteria.
3. Biofabrication of copper oxide nanoparticle: the supernatant obtained was added in equal volume with 1mM copper acetate Solution. The pH of mixture was maintained to neutrality. Detection of copper oxide nanoparticles was carried out in reaction mixture by observing color change, optical density at various time intervals using UV –VIS Spectrophotometer. The solution was stored in dark for 24-48 hours at room temperature so as to settle nanoparticles. The reaction mixture was centrifuged at 10000 rpm for 10 min. The supernatant was discarded and suspension was concentrated by repeated centrifugation. It was freeze dried and used for further analysis. Suitable controls were maintained throughout the experiment.
4. Characterization method: UV-VIS Spectrophotometer, XRD, SEM, EDS analysis.
5. Thick Films of biogenic copper oxide nanoparticles were prepared by Screen Printing technique.

Characterization of Nanoparticles

UV –VIS Spectrophotometer analysis: Biosynthesis of CuO nanoparticle was

detected by UV- VIS Spectrum at different time intervals using distilled water as a blank.

XRD analysis: The CuO nanoparticles obtained were purified by repeated washing and centrifugation at 10000 rpm for 10 min and subsequent freeze drying. These nanoparticles were characterised by XRD. Fig.1 Shows XRD pattern of CuO nanoparticles. The nature of these nanoparticles can be deduced from XRD pattern obtained. The peaks of X-ray diffraction are broad at their bottom indicating that they are of Nano size. Thus the confirmation of Biosynthesis of nanoparticle was proved by XRD analysis of freeze dried CuO nanoparticles generated in this work.

SEM analysis: SEM analysis was carried out for morphological characterization of nanoparticles synthesised. The freeze dried powder was put in to the sample well and dried in mercury lamp. To analyse an electron beam was focussed into a fine probe that was subsequently scanned over small sample area. The interacting beam with sample generated various signals.

EDS analysis: Energy Dispersive Spectroscopic analysis indicates the presence of Copper element. For EDS analysis sample subjected to SEM analysis was used. The SEM instrument was equipped with thermos EDS attachment.

Results and Discussion

Culture supernatant of *Bacillus* species was used for biogenesis of CuO nanoparticles. Biosynthesis was indicated by browning of reaction mixture that could be visually inspected. Visual inspection of nanoparticle synthesis was confirmed by UV-VIS spectrum analysis. The XRD spectrum pattern of freeze dried CuO particles was found to show broadening of different peaks at the base confirming the Nano size of particles.

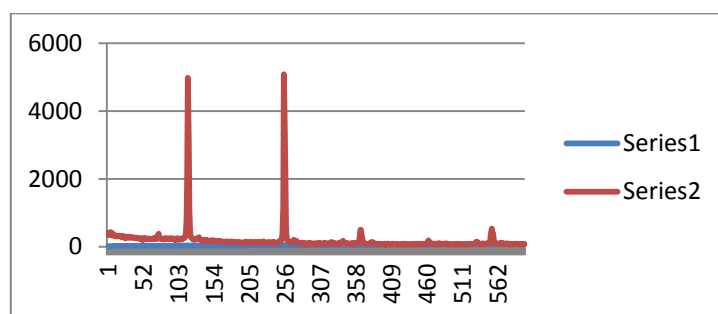


Fig.1 XRD pattern of CuO Nanoparticles synthesised by *Bacillus* spp.

EDS analysis supported the elemental confirmation of particles showing peak in copper region

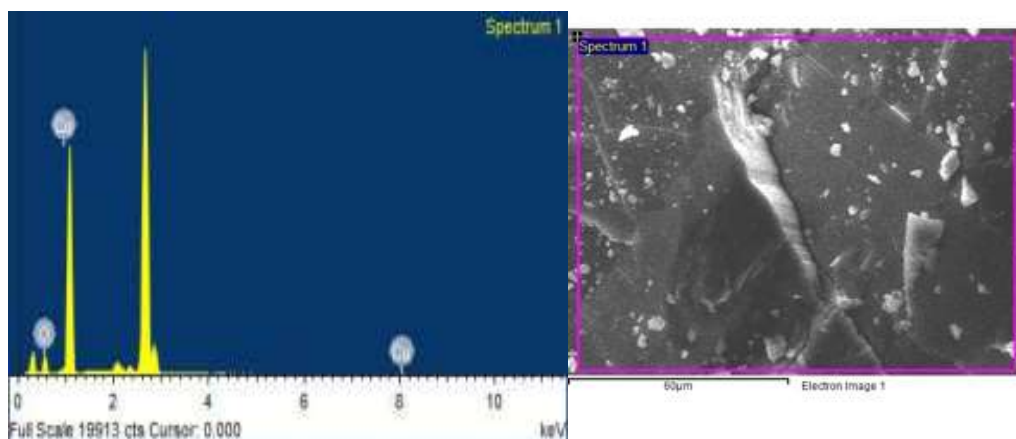


Fig.2 EDS analysis shows peak in copper region confirming presence of elemental copper.

SEM: The Scanning Electron microscopy was conducted to study morphological features of CuO nanoparticles. The images are shown in figure 3a and 3b respectively. Images indicate that the morphology of iron nanoparticle is roughly spherical. Also the nanoparticles are covered by biomolecules which indicated in

the image that large organic biomolecules are seen attached to small copper nanoparticles (Figure3)

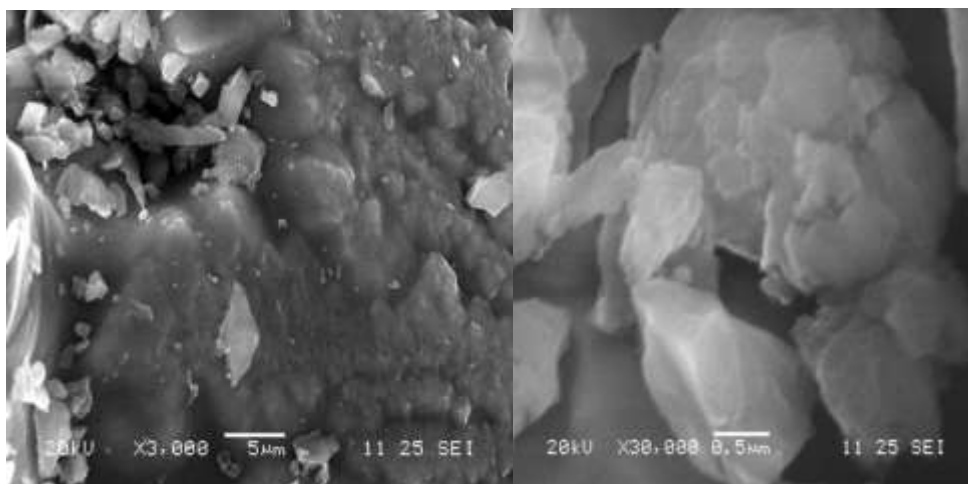


Fig.3 SEM images of sample showing morphology of copper nanoparticles.

Conclusion

Present study has developed simple, green and eco-friendly biogenic fabrication of copper oxide nanoparticle by *Bacillus* spp. Extracellular synthesis of nanoparticles by *Bacillus* spp. was confirmed in terms of colour change by visual observation. The nanoparticles synthesised were characterised by UV-VIS spectrophotometer. The XRD pattern revealed that particles were of Nano size. EDS analysis confirmed elemental nature of nanoparticle especially in copper region. SEM micrograph showed

morphology of nanoparticle. Successful attempts were made to fabricate thick films using biogenic copper oxide nanoparticles by screen printing technique. The present method of synthesis of copper oxide nanoparticle is free from toxic chemicals and hence enviro-friendly. It is simple economically feasible and will find wide potential for future application in various fields.

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Socio-economic impact of drought in eastern part of satara district of Maharashtra

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Introduction:

“Drought is a natural disaster which indicates the below average precipitation in given region or drought is a temporary aberration, seasonal aridity which is a permanent feature of climate. Condition of drought is appearing primarily because of the scarcity of rainfall and high temperature in an area. Drought stems from a deficiency or erratic distribution in rainfall but the spread and intensity of the calamity is contingent on several factors, including the status of surface and ground water resources, agro-climatic features, cropping choices and patterns, socio-economic vulnerabilities of the local population” (Manual for Drought Management Dec., 2016). Drought can simply be defined as extended periods of precipitation shortage, normally for a season or more resulting in water deficiency for some human activities or environmental sustainability. Human activities such as farming, irrigation, or domestic uses of water are normally highly impacted during droughts (Earth Eclipse Report, 2017). Drought produces wide-ranging impacts that span across many sectors of economy. Drought results from long continued dry weather and/or insufficiency of rain, which causes exhaustion of soil moisture, depletion of underground water supply and reduction of stream flow.

India, which faced drought conditions at least once every three years over the last few decades, is amongst the most vulnerable and drought prone countries in the world (Mishra 2010). Since the mid-1990s, India has been experiencing prolonged and widespread droughts in consecutive years, with increased frequency in recent times (Mishra 2010, The World Bank; 2003). It is now well accepted that droughts will pose an increased threat to climate sensitive economic sectors in India, especially agriculture (Mishra 2010). About two-thirds of India's population depends on agriculture and allied activities, hence drought events are likely to threaten the overall economy of the country. The agriculture in India is primarily dependent on Southwest monsoon rainfall (i.e., on average 80% of annual rainfall occurs between June and September) (Niranjan Kumar K, et. al. 2013). Due to the temporal and spatial uncertainties of monsoon rainfall, Indian agriculture is at risk. According to National Rainfed Area Authority of India, about 60% of the total cultivated area in India still relies on natural rainfall (rainfed agriculture) and hence changes to rainfall

patterns are a significant threat to India's agrarian economy. The direct impact of drought on Indian agriculture is reduce in crop (food grains, cereals, oilseeds etc.), vegetable and fruit production. This creates drastic reductions in farmers' income. The situation becomes worse if the drought prolongs and the groundwater availability for irrigation (as a buffer to sparse and variable rainfall) also declines. Furthermore, drought impacts on livestock results in livestock mortality, poor-productivity, health and fertility (Rathore MS. 2005) In addition, drought increases food insecurity, shortage of drinking water, mental and physical health problems, migration for work, and debt etc. These impacts can vary significantly from one region to another region. Human drivers, such as increasing water demand and poor water management can further exacerbate the drought impacts. Because of the interplay between a natural drought event and various human factors drought perception varies amongst the people from region to region. The present study has been carried out to assess socio-economic impact of drought using field

survey for the eastern Satara district of Maharashtra

Study Area

The present study is focused on drought prone conditions of eastern Satara district. This study area is located in the southwestern part of Maharashtra. It extends between 170 5' to

180 11' North latitude and 730 33' to 740 54' East longitude. It area is drained by Bhima and Krishna River. The total area of the proposed study is 10484 km² & it comprises Man, Khataav and Phaltan tehsil of Satara district. Figure 1 shows a location map of the study area.

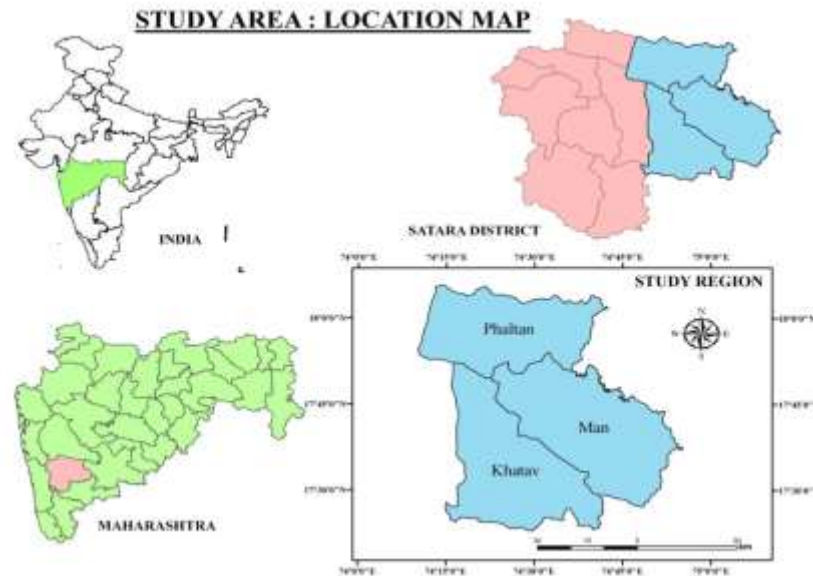


Fig. 1: Location map of study area

Research Methodology:

In order to fulfill the objectives of the study and to capture the scenario of recent drought, a structured questionnaire survey was conducted in the Khataav, Man and Phaltan tehsil during May 2014 (Appendix A). An individual farming household is considered as a primary sampling unit. For the sample survey, villages has selected by adopting the stratified random sampling technique. For that sake, villages are categorized on the basis rainfall and ground water conditions and ten percent of samples have been collected from each category.

Total 340 households were included in the survey, from 32 villages. Each respondent household head or representative was interviewed face to face with the help of a pre-tested questionnaire, which had both close-ended and open-ended questions. The response rate was almost 100% during the face-to-face interview due to the respondents' interest to know and discuss more about drought in the area, and their availability at home in off season for agriculture in the month of May.

Result and Discussion

Land Use in Study Area

The layout or arrangement of the uses of the land is known as “land use pattern”.

The land may be used for agriculture, forest, pasture etc. Land use is determined by many factors like relief features, climate, soil, and technical and socio-economic factors. The land use pattern refers to the way the land is utilized or simply means the utilization of land in particular time and particular space. According to socio-economic abstract of Satara district near about 60 per cent land area was comes under the agricultural sector. In study area near about 71.18 per cent area has under agriculture, Phaltan tehsil having maximum area covered by agriculture which was 73.82 per cent. Average 10.59 per cent land of the study area was comes under the horticulture, Phaltan tehsil having highest area occupied by horticulture about 15.78 per cent followed that Khataav tehsil which was almost 9.76 per cent area, and Man tehsil was only 6.23 per cent land area covered by horticulture. In Phaltan tehsil production of pomegranate and strawberry crops are maximum in northern part of the tehsil therefore area under horticulture in this tehsil was high. Next category is waste land the meaning of waste land is the land which incapable to producing material or services of value. As per the field survey average 18.22 per cent land area of the study area comes under waste land category, in that Khataav tehsil was highest area under

this category about 22.86 per cent after that Man tehsil 21.41 per cent and Phaltan tehsil 10.40 per cent land area was under this waste land. Severe drought condition moves land

towards the waste land. Northern part of the Phaltan tehsil strawberry crop are the main crop in horticulture category therefore 15.78 per cent land area under the horticulture.

Table: 1 land use of study area

Tehsil	Agriculture	Horticulture	Waste land
Man	72.36	6.23	21.41
Khatav	67.38	9.76	22.86
Phaltan	73.82	15.78	10.40
Average	71.18	10.59	18.22

Source: Field Survey, May 2014

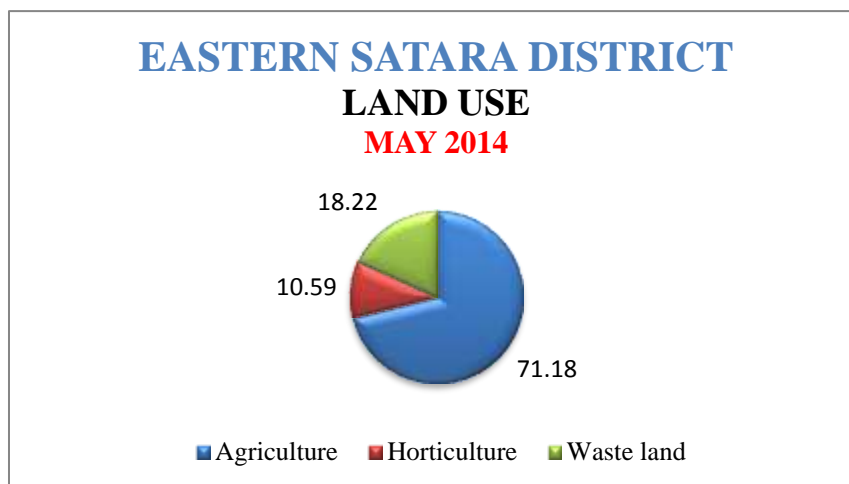


Fig.2 land use of study area

Irrigational Facilities

Agricultural development of Satara district largely depends on monsoon rainfall i.e. south west monsoon during three months season between Augusts to October in a year. Especially in eastern part of Satara district Man, Khatav and Phaltan, tehsils come in this region; rainfall is characterized by very scanty therefore scarcity of water for agriculture. In Satara district, rainfall pattern follows a north-westerly direction and are very erratic often leading to scarcity condition especially in eastern part of the Satara district. Phaltan is the fourth largest tehsil in Satara district it is occupied 1,19,0.92 hectares area. As per the field survey of the study area, Phaltan tehsil was having a maximum area under the irrigation; it was 44.38 per cent, after that Man tehsil 41.67 per cent, and last Khatav tehsil which was only 38.33 per cent area under the irrigation. Average irrigated land of eastern Satara district was 41.46 per cent. In the Phaltan tehsil, Kalaj, Rajale and Mandavkhadak villages are surrounding to the Nira canal bank right, therefore, in these villages

maximum area was under irrigation, remaining villages are dry in condition because of the scarcity of water, so maximum area comes under the drought prone region. Irrigation facilities are good in Devapur, Palasavale, and Shirtav villages due to Rajevadi lake, these villages are near to Rajevadi lake. And remaining villages of Man tehsil like Mohi, Divad, Pulkoti, Pangari etc. are suffering to water problem due to the less rainfall and scarcity of water. In the tehsil of Khatav, Gopuj, Kaledhon and Taraswadi villages are very poor in water condition, therefore this tehsil having only 38.33 per cent area under the irrigation.

As per the socio-economic abstract of Satara district 2016, in Phaltan tehsil better irrigation facilities as compared to Man and Khatav tehsil. In Phaltan tehsil near about 37.44 percent of the land is under the irrigation, after that Man tehsil having 36.38 per cent and Khatav tehsil 32.40 percent area is under the irrigation. According to primary data gives nearly about the same information regarding irrigational facilities of Phaltan, Man and Khatav tehsil of Satara district.

Table: 2 Irrigational facilities of study area

Sr. No.	Tehsil	Irrigated Land %	Un-irrigated Land %
1.	Man	41.67	58.33
2.	Khatav	38.33	61.67
3.	Phaltan	44.38	55.62
	Average	41.46	58.54

Source: Field Survey, May 2014

Source of Irrigation

Irrigation is the application of controlled amounts of water to plants at needed intervals. Irrigation helps to grow agricultural crops, maintain landscapes, and revegetate disturbed soils in dry areas and during periods of less than average rainfall. Irrigation also has other uses in crop production; including frost protection. About 58% of the agricultural production in India is dependent on natural rainfall. Rain in India is very erratic (uneven or irregular) as well as improperly periodic. In the study area near about 70 per cent of the agricultural production was depending on rainfall. Dug well, bore well, river and lake or ponds are the main source of irrigation in the study area. Near about 81.45 per cent households is use dug well for irrigation purpose.

A large number of farmers in Phaltan tehsil are using own dug well for irrigation purpose. Near about 92.15 per cent household of Phaltan tehsil are using the dug well for irrigation purpose, Man tehsil are use the 79.50 per cent, and Khatav tehsil are use the 72.72 per cent. Borewell is another option of in study area irrigation, maximum bore well users are observed in Khatav tehsil. Borewell is widely used in large quantities because of the low level of groundwater in Khatav tehsil. Near about 18.68 per cent

farmers are using bore well for irrigation purpose in Khatav tehsil, Man tehsil 15.54 per cent are using, whereas Phaltan tehsil 7.18 per cent farmers are using bore well for irrigation purpose. In Man tehsil, Man river side villages have used the river for irrigation purpose. The negligible area is having under the Lake or pond; four lakes are situated in the study area, Man tehsil having two lakes which are Ranand and Mhasavad, and Khatav tehsil having two lakes which are Ner and Yeralavadi.

On an average 81.45 per cent farmers of the study area is use dug well for irrigation purpose, near about 13.80 per cent farmers use bore well, almost 0.31 per cent people of the eastern part of Satara district use river for irrigation purpose and remaining 4.28 per cent households use the lake for irrigation. In normal year dug wells are used for irrigation whereas, in the drought, year maximum dug wells are dry, so crop production during the normal year is high but in a drought year it goes down. The water table of Phaltan tehsil was good because of the positive impact of Nira River and canal but, Khatav and Man tehsil are water table was very low due to less rainfall, rugged and rigid surface, undulating topography, seasonal rivers etc its result irrigation problem are facing.

Table: 3 Source of irrigation of study area

Tehsil	Dug well	Bore well	River	Lake/pond
Man	79.50	15.54	0.92	3.86
Khatav	72.72	18.68	0.00	8.33
Phaltan	92.15	7.18	0.00	0.65
Average	81.45	13.80	0.31	4.28

Source: Field Survey, May 2014

Irrigation Practices

The large area of the eastern part of the Satara district comes under the drought prone conditions. Maximum numbers of farmers are using surface irrigation or traditional irrigation method in the study area. Farmers in the study area are

economically backward and illiterate; they cannot afford new technology in the agriculture field. According to field survey near about 88.07 per cent respondents are using traditional method for irrigation purpose; in that Man tehsil was leading in this method almost 89.91 per cent farmers

used traditional irrigation system after that, Khatav tehsil are used 87.76 per cent, and Phaltan tehsil having 86.55 per cent farmers was used surface irrigational system in their farm. Most of the farmers in this area are used to drip irrigation for only horticulture or fruit farming. Average 8.72 per cent farmers are used drip irrigation in that Phaltan tehsil was having 10.81 per cent followed that Khatav tehsil 8.19 per cent and Man tehsil

7.18 per cent farmers used drip irrigation in their farm. Sprinkler irrigation is a rare phenomenon in the rural or especially drought-prone region because of the economic status of farmers was low so far sprinkler irrigation not used in a huge amount in their farm therefore only average 0.98 per cent farmer uses this method. Mixed irrigation system users are only 2.22 per cent was observed in the study area.

Table: 4 Irrigation practice use

Tehsil	Surface	Drip	Sprinkler	Mixed
Man	89.91	7.18	0.91	2.00
Khatav	87.76	8.19	1.00	3.05
Phaltan	86.55	10.81	1.04	1.60
Average	88.07	8.72	0.98	2.22

Source: Field Survey, May 2014

Agriculture Income in Normal and Drought Year

Indian is an agriculture-based country, where near about more than 50% of the population is depending on agriculture. This structures an important source of income. The commitment of agribusiness in the national income in India is all the more, subsequently, it is said that agriculture in India is a backbone for the Indian economy. The collective share of agriculture and allied sectors, including agribusiness, domesticated livestock, and ranger service and fishery sub segments as far as rate of GDP is 13.9 percent during 2013- 14 at 2004-05 prices.

As per Section 2 (1A) of the Income Tax Act, 1961, unless the context otherwise requires, the term “agricultural income” means: any rent or revenue derived from land which is situated in India and is used for agricultural purposes or in India, agricultural income refers to income earned or revenue derived from sources that include farming land, buildings on or identified with an agricultural land and commercial produce from a horticultural land.

In the study area, average agriculture income in a normal year was 23,949 rupees, in that Phaltan tehsil having the highest average income observed 29,385 rupees, this income is more than Khatav and Man tehsil income. Phaltan tehsil was highly developed in agriculture sector as compare to Man and Khatav tehsil because of Nira canal bank right, its positive impact on their agriculture, therefore Phaltan tehsil maximum land area was under the irrigation and some part of the tehsil having good irrigational facilities,

therefore, this tehsil was lading in average income category. After that Khatav tehsil having second in average income, which was 22,286 rupees, and Man tehsil 20,176 rupees average agriculture incomes was observed in a normal year. Man tehsil was highly suffering in drought condition as compares to other tehsils because of deficit rainfall, high temperature, inadequate irrigation facilities, undulating surface, and less forest cover. Average agriculture income in the drought year of the study area was 10,176 rupees observed.

The wide gap in agriculture income of drought year and agriculture income of normal year has huge; more than 50 per cent average income was reduced in a drought year as compare to normal year because of the scarcity of water. Whenever the drought condition was occurred then agricultural production was reduced therefore the impact of the drought was easily identified in those area where the agriculture based economy. In the drought year average income of Phaltan tehsil was 13,143 rupees after that Khatav tehsil was 9,157 rupees and, Man tehsil was 8,229 rupees observed respectively. The maximum impact of the drought is seen on the weaker sections of society. These include landless labourers, small marginal farmers, and artisans like weavers. Such people live in hand to mouth economy and do not have enough stock to sustain in the event of a drought, therefore income of the this community was very less results average income of the particular village was also minimized.

Table: 5 Agriculture income in normal and drought year

Tehsil	Avg. Income in Normal year	Avg. income in Drought year
Man	20176	8229
Khatav	22286	9157
Phaltan	29385	13143
Average	23949	10176

Source: Field Survey, May 2014

Household Reported Irregularity in Agriculture Income

Every four or five-year study area is suffering from severe drought condition. According to the field survey, about 78.70 per cent households give the response to irregularity was observed of agriculture income in the study area. The Man tehsil villages give a high positive response about 83.51 per cent household says yes there was a maximum irregularity in agriculture income was the presence. After that Khatav tehsil household given almost 79.12 per cent, and Phaltan tehsil was 73.49 per cent household

reported irregularity in agriculture income. Near about 21.30 per cent farmers says that drought is not responsible for irregularity in agriculture income in the study area. The Phaltan tehsil having 26.51 per cent respondents gives the response to not irregularity was observed in agriculture income, Khatav tehsil almost 20.88 per cent, and Man tehsil having 16.49 per cent farmers gives the negative response. Near about 80 per cent household says the irregularity in agriculture income was taken place in the study area.

Table: 6 Household reported irregularity in agriculture income

Tehsil	Yes	No
Man	83.51	16.49
Khatav	79.12	20.88
Phaltan	73.49	26.51
Average	78.70	21.30

Source: Field Survey, May 2014

Source of Fodder for Livestock

India faces a green fodder shortage of 63.5 per cent, says the vision document of the country's premier research institute Indian Grassland and Fodder Research Institute (IGFRI). The shortage of dry fodder is 23.5 per cent, estimates the national institute that is under the administrative control of the Indian Council of Agricultural Research. If the current situation continues then India's green fodder shortage will reach 66 per cent and dry fodder will reach 25 per cent by 2030. Traditionally during drought, livestock assumes the role of a shield for farmers, mostly small and marginal. But with the acute fodder shortage, sustaining cattle has become extremely difficult in drought-affected

areas. If the situation continues, it will completely derail the rural economy.

Eastern Satara district faces green fodder and dry fodder shortage. In the normal year, the main source of animal fodder is the farmer's farm near about 66.66 per cent farmer says in a normal year, the main source of fodder is the agricultural farm. In a drought year, the main source fodder is cattle camps, government fodder pot and brought from others. Near about 68.22 per cent farmers say that during the drought year animal feed has to purchase from the other agricultural farm. In a drought year, the main source of fodder is the cattle camps. Some farmers buy from fodder, government fodder pot.

Table: 7 Source of fodder

Source	From own farm (%)	Bought from others (%)	Govt. fodder pot (%)	Cattle camps (%)
Normal Year	66.66	31.78	34.67	00
Drought Year	33.34	68.22	65.33	100

Source: Field Survey, May 2014

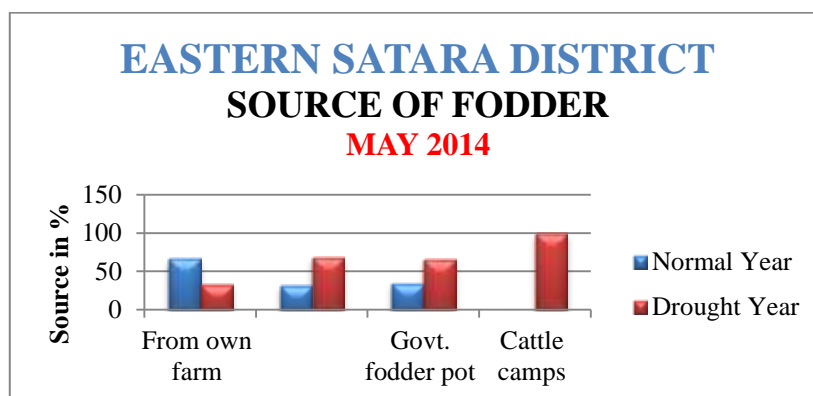


Fig.2 Source of fodder

Income of Livestock

Livestock plays a significant role in Indian economy. Almost 20.5 million people depend upon domestic animals for their livelihood. Cattle contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has enormous livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP. Livestock is a source of supplementary income for many families in India especially the resource poor who maintain few heads of animals. Cows and buffaloes if in milk will give regular income to the livestock farmers through sale of milk. Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick patient, children education, repair of houses etc. The animals also serve as moving banks and assets which provide economic security to the owners.

(<http://vikaspedia.in/agriculture/livestock/role-of-livestock-in-indian-economy>).

The domestic animals provide foods and non-food items to the people especially in rural region. Livestock is supplementary occupation to agriculture sector in the study area. Average income of livestock in normal year was 9,371 rupees, in that Phaltan tehsil was highest livestock income which was 10,230 rupees, Khatav tehsil having 9,235 rupees income from domestic animal, and Man tehsil was having 8,649 rupees livestock income in normal year was observed. When the drought condition was occurred then not only agriculture income was reduced but also livestock income was reduced in study area due to the scarcity of water. Average 4,009 rupees income of livestock in drought year was observed compares to normal year the difference was 5,362 rupees it is more than 50 per cent income of drought year. Phaltan tehsil was 4,971 rupees income of livestock in drought year after that Khatav tehsil 3,783 and Man tehsil was having 3,274 rupees respectively observed in study region.

Table: 8 Incomes from livestock

Tehsil	Avg. Income in Normal year	Avg. income in Drought year
Man	8649	3274
Khatav	9235	3783
Phaltan	10230	4971
Average	9371	4009

Source: Field Survey May, 2014

Livestock Problems

Livestock sector includes animal husbandry, and the dairy sector is considerable major sectors. It plays a significant role in the national economy and in the socio-economic development of the country. It also plays a vital role in the rural economy as supplementing family incomes and generating gainful employment in the

rural sector, particularly among the landless labourers, small and marginal farmers and women's. Livestock is an important source of income for the rural poor also. This sector contributed an important share in the export of Indian international trade. Recently the livestock subsector playing a very significant role in poverty alleviation in the rural area. The livestock sector contributed over 4.11 per

cent to the total GDP during 2012-13. (National Accounts Statistics-2014; Central Statistical Organization; GoI)

Livestock ranching is the supplementary occupation of the agricultural sector in the study area. Livestock plays an important role in the livelihood of farmers. In the normal year, livestock production was good, but in the drought year livestock production was reduced because of effect on feeding system, inadequate drinking water, animal health is in danger, spread epidemic, and heatstroke etc. According to scheduled questionnaires, near about 36.89 per cent household says the production of livestock was less, but in drought year almost 63.11 per cent farmers give the response that due to drought, production of livestock has decreased. Eastern

part of Satara district falls under the rain shadow zone. In study area are scanty rainfall observed, so in the normal year also facing water and pasture problems. Near about 29.06 per cent household says, the water and pasture shortage are found in normal year, but in drought year almost 70.94 per cent farmers said that intensity of water and pasture shortages are high due to drought. Due to the decrease of pasture and fodder for cattle in the drought year, their immune power was decreased, so animals suffer from many diseases. In a drought year, near about 70.77 per cent farmer says livestock diseases are increased because of drought. Near about 85.46 per cent farmer says the cattle market is declining during the drought year.

Table: 9 Problems related to livestock in study area

Problems	Less Production (%)	Water and Pasture Shortages (%)	Livestock Diseases (%)	Lack of Market (%)
Normal Year	36.89	29.06	29.23	14.54
Drought Year	63.11	70.94	70.77	85.46

Source: Field Survey May, 2014

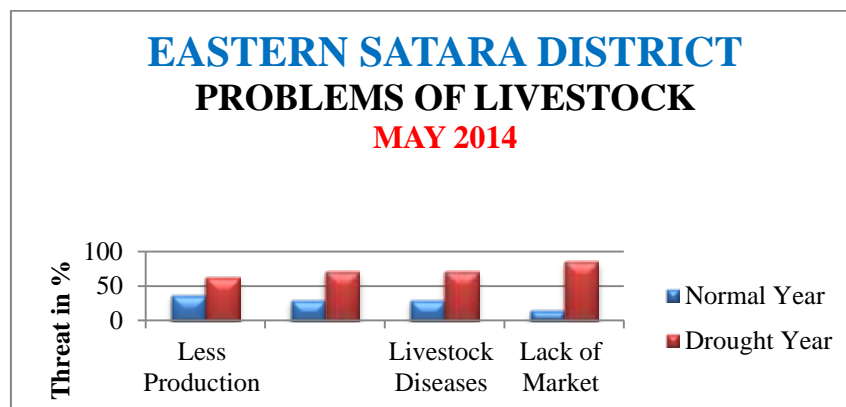


Fig.3 Problems related to livestock in study area

Farmers' Perception of Various Socio-Economic Impacts in Study Area

An understanding of the socio-economic impacts of drought is important in designing technological and policy interventions for effective drought mitigation and relief (Pandey S, et. al. 2009). Droughts have significant economic impacts as it affects the main economic activities of residents in the area (in this case rainfed or limited irrigation agriculture) (Massarutto A, et. al. 2013). In case of rainfed agriculture, drought always results in crop failure, decreases the yield of food grains (cereal and pulses), horticultural crops, and livestock production, which weakens the income of agrarian

households. It results in unemployment of unskilled labors and loss of their time in water collection activities. All of these impacts ultimately weaken the financial condition of farmers.

Various Likert type responses related to socio-economic impacts of drought perceived by farmers are shown in table no. 4.10. For the Likert type questions related to economic impacts of drought, 67.82 per cent of respondents have answered that drought caused high to a very high reduction in employment opportunity and income. A typical rural household in India spends about 15% of its annual income on celebrating festivals (Rao V. 1999). But, drought mostly

affected the income of low-income farmers forcing them to reduce their expenses on festivals, which has a negative impact on social life and mental health. Nearly 47.13 per cent of respondents reported high to a very high reduction in their expenses on festival celebrations. About 60% of respondents reported high to very high food scarcity during the drought years as compared to the normal years and 52% of respondents said that drought has threatened their household food security to a greater extent. Approximately 54.17 per cent of respondents agreed that they have less to very less food grain choices for their daily consumption.

These economic impacts resulted into social, health and psychological impacts on farming livelihoods. It involved impacts such as inequities in the distribution of water or conflicts between water users, reduced school attendance, population migration, poor health, and hopelessness or a sense of loss due to drought. Fig. 6 shows that about 43 per cent, 37 per cent, 55 per cent, 43, per cent and 31 per cent of respondents rated these impacts to high to a very high extent respectively. In spite of the growing number of farmers' suicides in Maharashtra State of

India, farmers believe that drought was not a driving factor for farmers' suicide. It seemed a combined effect of inadequate government policies, along with ecological and social issues.

There was a significant difference observed in spending on festivals based on income groups with poorer farmers affected the most. Also, farmers from low-income groups reported that their expenses on wedding ceremonies were reduced or ceremonies were postponed due to drought. A significant difference was observed in the perception of conflicts for water in the society due to drought based on farmers' education level. Less educated farmers said that drought-driven water scarcity caused conflicts in society. Farmers from frequent and severe drought affected areas believed that drought was one of the major causes of suicidal tendencies of farmers due to less income and indebtedness with growing interest. Due to reduced income and social status farmers become mentally depressed, which ultimately ends in suicide. Similar cases were reported in drought-affected rural Australia (Hanigan IC, et.al. 2102)

Table: 10 Farmers' perception of various socio-economic impacts in study area

Source: Field Survey, May 2014

Components	High (%)	Medium (%)	Low (%)
i. Drought threatened household food security	68.22	21.13	10.65
ii. Drought has caused food scarcity	60.33	18.17	21.50
iii. Drought caused no choice in food preferences	54.17	21.47	24.36
iv. Drought caused malnutrition	39.21	29.48	31.31
v. Drought affected on health	43.19	31.14	25.67
vi. Drought caused unemployment	67.82	21.90	10.28
vii. Drought caused reduction in household income	72.28	18.20	9.52
viii. Drought caused reduction in spending on festivals	47.13	31.44	21.43
ix. Drought caused population migration	54.61	23.24	22.15
x. Drought affected schooling children	37.11	21.17	41.72
xi. Drought caused hopefulness and sense of loss	31.77	40.18	28.05
xii. Drought caused conflict for water in society	42.66	23.18	34.16
xiii. Drought caused farmers suicide	21.18	17.12	61.70

Conclusion

Drought is a recurrent phenomenon in Maharashtra State. Recently Maharashtra State has experienced a drought of moderate

severity which commenced in 2011 and continued, expanded and further deteriorated into 2012. This drought, along with the other droughts that have occurred previously,

threatened the agrarian economy of the Maharashtra State and caused considerable social and economic impacts on farming communities. Farmers were aware of the drought and also well perceived the various socio-economic and environmental impacts of drought in the study area. Failure of agriculture subsequently resulted in lack of employment for unskilled laborers, which further exacerbated their livelihood situation and ultimately weakened the financial situation of farmers. Poor farmers affected by drought could not afford to participate in the celebration of festivals and showed a common tendency of postponement of wedding ceremonies due to drought. Less educated farmers reported that drought driven water scarcity has caused conflicts in society. It is also found that farmers from frequent and severe drought affected areas considered drought as the main cause of suicidal tendencies due to lower incomes and high indebtedness. Environmental impacts of drought were perceived to be high to very high. To mitigate the drought impacts farmers used various drought preparedness and adaptation measures. With anticipated drought, farmers stored crop harvest (grains), stored crop residues for livestock, saved money, migrated for employment, sold livestock for income generation (and also because they were unable to provide food and water for the livestock), and sought alternative source of income through employment under NREGA, labor for local construction work, sand mining etc. Although farmers were familiar with autonomous adaptation options in agriculture, less preference was given to their adoption. It is found that low education, small land holdings size and low incomes were major constraints in adoption of these adaptation strategies discussed earlier. Special attention should be given to these constraints while designing and formulating policies for increasing community resilience to future drought events. Also, the extent of irrigation was found to not affect the farmers' perception of drought impacts and adoption of adaptation strategies, mainly due to a prolonged drought with moderate to severe intensity over the whole catchment. Emphasis should be given to water harvesting techniques to increase the extent of irrigation coverage. Besides household level adaptation measures, administrative strategies played a very crucial role in adapting to drought. As a

response to serious drought events in the state, the government has undertaken various relief measures. It was observed that the mitigation measures provided relief to affected households to some extent, but the level of satisfaction was still low amongst beneficiaries due to ineffective planning and management.

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Defining “Maritime Security”

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Abstract:

The concept of maritime security is multi-faceted and constantly evolving to meet changing threats and challenges. While there is no universally accepted definition, it generally includes the protection of a state's maritime interests, the prevention of threats to maritime safety, and the protection of the marine environment. Common threats to maritime security include piracy, terrorism, illegal fishing, and human trafficking. However, addressing these threats is complex and difficult due to the vastness of the maritime domain, diverse stakeholders, lack of international consensus, and limited resources. Despite these challenges, maritime security is crucial to the global economy and the well-being of billions of people. It is essential that countries work together to enhance maritime security and protect the interests of all.

Keywords: Maritime security, Maritime safety, Maritime threats, Maritime challenges, Maritime non-traditional threats, UNCLOS

Introduction

Imagine the consequences if a cargo ship were to explode and block harbors for weeks without the use of a dirty bomb, in a major port. The economic impact would be staggering with estimates suggesting that a shutdown of Singapore's harbor could cost over \$200 billion annually. Additionally an attack on a loaded petrol tanker in any of the harbors would not only devastate global trade but also provide terrorists with an event comparable to 9/11, which is one of their objectives. [1] To prevent all these threats it becomes crucial to prioritize security. Maritime security plays a role in safeguarding vessels, ports and coastal areas from risks such as piracy, terrorism, smuggling, illegal fishing and other criminal activities. In India there are laws and regulations governing security. The Indian Maritime Security Act of 2002 establishes a framework to protect India's territories from terrorism smuggling operations and other unlawful activities. [2] This Act grants authority to the Indian Coast Guard and other relevant agencies for ensuring security. Furthermore the Indian Ports Act dating back to 1908 empowers the central government to enact laws pertaining to security measures including controlling operations related to smuggling prevention

well as order preservation and property protection. [3]

1. Conceptual Framework of Maritime Security

The conceptual framework of security has evolved over time due to events along, with legal precedents and international agreements. Its primary objective is not protecting vessels. Also safeguarding ports and coastal areas while addressing concerns related to national security interests, economic stability and environmental preservation. The importance of security has been heightened by incidents of piracy and naval battles. Nations have come to acknowledge the necessity of safeguarding waterways and commercial routes.

1. UNCLOS; The United Nations Convention, on the Law of the Sea (UNCLOS) [4] which was approved in 1982 governs all matters related to the oceans including security. It delineates zones such as waters, exclusive economic zones and high seas outlining both states rights and responsibilities in ocean usage and protection. UNCLOS facilitates cooperation in safeguarding security and combating illicit activities.
2. International Ship and Port Facility Security (ISPS) Code; Adopted by the

International Maritime Organization (IMO) in 2002 this code establishes fundamental security standards for ships and ports to counter threats like terrorism, smuggling and unauthorized access. It requires security planning, drills and assessments to coordinate responses to potential security risks. [5]

3. IMO Conventions; The IMO has established a number of conventions specifically addressing security concerns. One example is the Suppression of Acts Against the Safety of Maritime Navigation (SUA Convention) which aims at preventing and punishing acts of terrorism or other unlawful activities against ships. Additionally SOLAS (International Convention for the Safety of Life, at Sea) includes provisions pertaining to security. [6][7]
4. Regional Collaborations; Various regional agreements and initiatives have been implemented with the aim of enhancing security. Countries, in East Africa and the Western Indian Ocean region have come together to sign the Djibouti Code of Conduct which aims to combat piracy and armed robbery at sea. In Asia various nations cooperate through the "Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP)" to address security concerns. [8]

Maritime security holds importance for security as it plays a crucial role in maintaining a secure marine environment. It also has implications as global businesses rely heavily on marine traffic that must be protected from piracy, smuggling and other illegal activities. Furthermore environmental preservation is closely linked to security due to risks such as oil spills, illicit fishing and other threats that can harm the ecosystem. In response to incidents like the 2008 Mumbai attacks, where navigation areas were restricted by the Indian Navy and Coast Guard to prevent attacks and ensure security in affected regions efforts have been made by India and other countries to address piracy issues off Somalias coast. Naval escorts and increased patrols have proven effective in enhancing security and reducing incidents of piracy. [9]

Another notable example showcasing Indias commitment to security is the MV Alondra Rainbow case in 2003. The Indian Coast Guard successfully apprehended this

vessel near Gujarat on suspicion of transporting drugs. This operation demonstrated Indias security systems capability, in combating drug trafficking. [10]

The incident involving the MV Koyo Maru in 2002 showcased the effectiveness of Indias security and their ability to combat piracy. When armed pirates hijacked the Japanese owned vessel off the coast of Somalia the Indian Navy swiftly responded by sending INS Tabar to rescue the crew and eliminate the threat. This demonstrated Indias prowess in efforts to tackle piracy. Another crucial aspect of security is the enforcement of the International Ship and Port Facility Security Code (ISPS Code). Under this code member countries of the International Maritime Organization (IMO) are required to enhance security measures at ports and, for ships operating within their jurisdictions. The implementation of ISPS Code has proven effective in preventing security threats and criminal activities at ports. [11]

In 2014 a maritime security issue arose from a fishing dispute between Tamil Nadu and Kerala fishermen. The conflict occurred when fishermen from one state entered another states fishing waters resulting in violence. This incident highlighted the importance of maintaining security along state borders through surveillance and strict enforcement measures. [12]

2. International Legal Instruments and Conventions on Maritime Security

Furthermore international legal instruments and conventions play a role in security law. These agreements serve as guidelines for ensuring safety and security. Notably

I. UNCLOS [13] (United Nations Convention on Law of Sea) which was signed by than 160 nations in 1982 serves as an international law governing ocean affairs. UNCLOS establishes zones, outlines nations rights and obligations concerning marine resource utilization and protection well as provides mechanisms, for dispute resolution.

International cooperation, for enhancing security commences with the United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS is an agreement that governs the utilization and protection of oceans. It replaced agreements and customary laws in 1982 and 1994.

The primary objectives of UNCLOS are to establish standards for ocean

governance nations rights and responsibilities in maritime zones, foster collaboration between states and ensure conservation and protection of marine ecosystems. Key provisions within include;

1. Definition of Maritime Zones; UNCLOS categorizes zones as seas, contiguous zones, exclusive economic zones (EEZs) and continental shelves. These designations determine the extent of states sovereignty, jurisdiction and resource rights over surrounding waters.
2. Freedom of Navigation and Overflight in High Seas; UNCLOS guarantees all governments the right to navigate through waters freely. It regulates passage through seas while safeguarding navigational [14] rights.
3. Exclusive Economic Zones (EEZs); According to UNCLOS an EEZ extends up to 200 miles from a states baselines. Within this zone coastal states possess rights for exploration and exploitation of resources—both living organisms and non living resources—as well as conducting scientific research activities and ensuring environmental protection. [15]
4. Continental Shelf; UNCLOS establishes boundaries for determining the limits of a coastal states continental shelf beyond its EEZ.

These provisions form the foundation for cooperation in ensuring security by promoting responsible ocean stewardship, among nations. Coastal states possess rights, over the seabed and subsoil resources of their shelf. [16]

II. The International Ship and Port Facility Security (ISPS) Code, [17] adopted in 2002 by the International Maritime Organization (IMO) aims to address security risks and combat terrorism. It sets standards that ships and ports worldwide must adhere to encompassing measures like security planning, training and audits. The ISPS Code was established to safeguard ships and port facilities against acts of terrorism sabotage or other criminal activities.

The development of the ISPS Code was driven by concerns surrounding security after events like 9/11. Its primary objective is to promote uniformity and collaboration in security while ensuring stakeholder cooperation.

Key elements of the ISPS Code include;

1. Security Assessments; Ships and port facilities are required under the ISPS

Code to conduct evaluations of security risks and vulnerabilities. These assessments contribute to the formulation of tailored security measures for each ship or port. [18]

2. Security Plans; Shipowners and operators of port facilities must develop and implement security plans based on threat assessments. These plans encompass strategies for incident prevention, deterrence, response, as addressing aspects such, as access control, cargo handling procedures, employee identification protocols and communication systems. [19]
3. Security training and drills play a role in the implementation of the ISPS Code. The code emphasizes the need to train staff, in security practices ensuring that they are well equipped to identify and respond to threats. Additionally it is recommended to conduct drills and exercises to assess the readiness and effectiveness of security measures. [20]
4. The ISPS Code also places responsibility on governments to establish laws, regulations and oversight mechanisms for security. Governments are tasked with designating authorities to inspect and audit ships as port facilities ensuring compliance with the codes requirements. It is important to note that the ISPS Code applies not to ships but also extends its coverage to port facilities. As such both ships and port infrastructure must adhere to this code with member nations of the International Maritime Organization (IMO) being responsible for enforcing it. [21]

III. Another significant international treaty related to security is the Safety of Life at Sea (SOLAS) [22] convention adopted by IMO in 1974. SOLAS primarily focuses on safeguarding lives at sea with attention given in chapters XI I & XI II regarding security. These regulations mandate that ships have security plans in place conduct drills and promptly report any incidents that may compromise safety or security. SOLAS serves as an convention setting minimum safety requirements, for ships operating in international waters. It aims not at protecting passengers but also preventing accidents through stringent safety criteria and incorporating advancements in technology over time. SOLAS aims to provide a framework to ensure the safety of ships and

the well being of passengers and crew members. It encompasses provisions;

1. Standards, for Structure and Equipment; SOLAS outlines requirements for ship structure, stability, fire safety and lifesaving equipment. These standards ensure that vessels are designed and maintained to withstand conditions and emergencies. [23]
2. Safety Management; SOLAS mandates that ships have robust safety management systems in place to identify and mitigate risks. It emphasizes the implementation of safety plans, procedures, training programs and drills to enhance onboard safety. [24]
3. Navigation and Communication; SOLAS regulates equipment, charts, voyage planning procedures and communication systems to minimize collisions at sea and improve communication between ships and shore authorities. [25]
4. Emergency Response; SOLAS mandates that ships are equipped with fire fighting capabilities, evacuation procedures, search and rescue measures well as sufficient lifeboats, rafts and other lifesaving equipment. [26]

IV. Regional Agreements; In regions regional agreements play a crucial role in addressing maritime security challenges. An example is the

1. Djibouti Code of Conduct [27] an accord covering ship piracy and armed robbery in the Western Indian Ocean and Gulf of Aden areas. This agreement promotes security through cooperation, among nations by exchanging information and building capacity.
2. "The Regional Cooperation Agreement, on Combating Piracy and Armed Robbery against Ships in Asia, known as ReCAAP plays a role in enhancing security across Asia. It facilitates collaboration among member nations to effectively combat the menace of ship piracy and armed robbery. [28]
3. RMSI: Moving towards the Western Indian Ocean region we have initiatives and frameworks aimed at addressing piracy and ensuring stability. The Combined Maritime Forces (CMF) Maritime Security Patrol Areas (MSPA) Shared Awareness and Deconfliction (SHADE) as the Somalia Contact Group on Piracy are some examples of these

Regional Maritime Security Initiatives (RMSI). [29]

4. In 2013 the Gulf of Guinea Code of Conduct was established with the objective of suppressing piracy, armed robbery and illicit marine operations within the region. This code seeks to strengthen cooperation among West and Central African countries to effectively combat piracy and armed robbery through enhanced security. [30]
5. Moving further into the Asia Pacific region we come across the ASEAN Regional Forum (ARF). This multilateral security discourse platform has actively addressed security concerns through communication, cooperation and confidence building among participating nations.
6. Lastly we have organizations known as RFMOs that're responsible for managing fisheries resources while combating illicit activities such, as unreported or unregulated fishing. The Indian Ocean Tuna Commission (IOTC) and Northwest Atlantic Fisheries Organization (NAFO) are examples that promote fishing practices alongside ensuring marine security in their respective regions." [31]
7. During Operation Ocean Shield the North Atlantic Treaty Organization (NATO) had the objective of countering piracy and ensuring security, along the coast of Somalia. Through patrols coordination efforts and intelligence sharing they successfully deterred pirate attacks. Safeguarded vulnerable vessels. [32]

3. Threats and Challenges to Maritime Security

Various factors pose risks to safety, including piracy, armed robbery, marine terrorism, illicit fishing, human trafficking, drug smuggling and environmental concerns. Addressing these issues requires an examination of both national laws that aim to combat these dangers. It is important to note that major ports in South and East Asia such as Kobe, Tokyo Yokohama Pusan Shanghai Kaohsiung Hong Kong Singapore may be targeted by terrorists due to their significance. Additionally mega ports like Los Angeles in the United States or Rotterdam in Europe can also be targets for activities. [33]

The "UN Convention on the Law of the Sea" (UNCLOS) serves as a framework for addressing maritime issues. UNCLOS establishes. Responsibilities concerning ocean usage and management among states. In

order to ensure security effectively; laws pertaining to piracy suppression, prevention of illicit activities at sea well as preservation of marine environment are crucial. Numerous international treaties and agreements have been established with a focus on enhancing security; for instance SOLAS which regulates safety including measures, against terrorism. The issue of terrorism and maritime crimes is addressed by two conventions; the "International Convention, for the Suppression of Acts of Nuclear Terrorism" and the "International Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation." Each country has its set of laws regarding security, which encompass various offenses such as piracy, armed robbery, smuggling, trafficking and environmental protection. In India for instance they have enacted the "Suppression of Acts against Safety of Marine Navigation and Fixed Platforms on Continental Shelf Act, 2002" to combat acts of terrorism in marine navigation. The jurisdiction for addressing security concerns and issues depends on laws and circumstances. It is the responsibility of authorities in ratified states to enforce laws and treaties related to maritime crimes. Prosecution for these crimes can be carried out by states, flag states (where a vessel is registered) or states where an offense has taken place. Notably there have been developments in combating piracy in the Indian Ocean due to collaboration among Singapore, Malaysia and Indonesia in recent years. Thanks to their increased efforts and cooperation, with states piracy incidents have significantly decreased. The coordinated efforts of Indonesia, Malaysia, Singapore and Thailand, in conducting air and sea surveillance operations known as "Eye in the Sky" and Malacca Strait Patrols involve information sharing. They have also sought assistance from India, the US and Japan. [34] There are challenges in maritime security that include;

1. Piracy; In order to address piracy as a threat to security Indian legislation introduced the "Suppression of Acts against the Safety of Maritime Navigation (SUA) Act 2002". Section 3(2)(d) [35] of this act defines piracy and prescribes punishments for it. The Supreme Court case of Republic Of Italy Thr. Ambassador... Vs Union Of India & Ors established that Section 3(2)(d) makes

piracy a cognizable and non bailable offense. [36]

2. Armed Robbery; Maritime security is also threatened by robbery at sea. Different jurisdictions often categorize robbery under piracy or general criminal statutes. In India armed robbery at sea is covered by the SUA Act, 2002 as the Indian Penal Code. [37]
3. Maritime Terrorism; Addressing terrorism is a focus area for international efforts. The SUA Convention and its 2005 Protocol specifically deal with terrorism offenses. In the case United States v Hasan (2014) [38] the Eastern District of Virginia successfully convicted a pirate, under the SUA Act for acts of piracy and related offenses.

If a super tanker were to sink in the Strait of Malacca it would disrupt commerce. Force ships to take a route through the Indonesian Sunda and Flores passage. This diversion would add a 1,000 kilometers and two more days at sea resulting in an expense increase of \$8 billion. [39]

4. One major concern, for security is fishing, which involves activities that go against regulations and are not reported. To combat this issue the 1995 UN Fish Stocks Agreement plays a role. While there are currently no specific case laws on fishing individual countries have their laws and regulations in place.

Human trafficking is another challenge when it comes to security. The 2000 UN Convention against Transnational Organized Crime along with its Protocol to Prevent, Suppress and Punish Trafficking in Persons (Women and Children) addresses this problem. In India, the Prevention of Immoral Trafficking Act (PITA) from 1986 [41] specifically focuses on combating trafficking.

Drug smuggling is also a concern that needs attention for security. The 1988 UN Convention against Illicit Traffic in Drugs and Psychotropic Substances plays a role in combating drug smuggling globally. In India the NDPS Act from 1985 covers drug smuggling offenses. The Supreme Court of India has ruled that the strict liability principle applies to NDPS Act offenses in the case of State of Gujarat, v. Mohanlal Jitmalji Porwal. [42]

To effectively address security threats and issues it is essential to evaluate both national legal frameworks. The challenges related to safety and security are effectively

addressed through a combination of regulations international rules such, as UNCLOS and specific treaties. When it comes to enforcing these regulations the jurisdiction is determined based on the issue at hand involving the states with coastlines, flags and those responsible for any offenses.

4. Regarding security states have responsibilities and responses.

These include taking measures and responding to threats in their waters exclusive economic zones (EEZs) and international waters. These duties are imposed by conventions, national legislation and customary international law. [43]

States have an obligation to combat security threats such as piracy, armed robbery, terrorism illicit fishing activities, human trafficking and drug smuggling. Their responsibility for maintaining law and order along coastlines as ensuring maritime safety and security is outlined in international law.

Collaboration among states is crucial in addressing marine security threats. This collaboration can involve exchanging intelligence information conducting patrols at sea extradition procedures when necessary and providing aid. Both UNCLOS and regional agreements emphasize the importance of state cooperation to enhance security. [44]

States have the authority to prosecute offenses committed within their waters or against their vessels. This includes acts of piracy committed by their nationals on the seas or in territorial waters. International collaboration in detecting and prosecuting organized crime related to security is facilitated by instruments like the UN Convention, against Transnational Organized Crime and its Protocols. [45] In some cases states may establish courts or tribunals dedicated to handling matters of security. [46] The International Tribunal, for the Law of the Sea (ITLOS) deals with disputes concerning the interpretation and application of UNCLOS.

When it comes to their waters, exclusive economic zones (EEZs) and high seas states have responsibilities in terms of maritime security. These responsibilities include prevention, cooperation with states sharing information and carrying out prosecutions. Maritime security issues are handled by international conventions to ensure safety and security at sea. Any state

has the right to establish a tribunal for the trial of cases related to activities.

Conclusion

Maritime security plays a role in safeguarding ships, ports and coastlines against piracy, terrorism, smuggling, illegal fishing and other unlawful activities. In India specifically laws such as the Indian Maritime Security Act, Indian Ports Act and Suppression of Acts Against the Safety of Maritime Navigation and Fixed Platforms on the Continental Shelf Act are in place to maintain security. These laws empower authorities to defend territories and preserve safety.

There are legal instruments and treaties that impact marine security. UNCLOS governs ocean usage as protection measures with a focus on maritime security. The International Maritime Organization (IMO)s ISPS Code provides requirements for ship and port security to prevent terrorism and smuggling. The SOLAS convention addresses marine safety concerns including aspects related to security.

Furthermore regional agreements like the Djibouti Code of Conduct along with initiatives such as ReCAAP contribute towards enhancing security, within regions. Maritime security poses a range of challenges, including piracy, armed robbery, maritime terrorism, illegal fishing, human trafficking and drug smuggling. These issues are tackled through a combination of national laws. The jurisdiction, for prosecuting these crimes depends on factors such as the location of the offense the flag state of the vessel involved and the power of the state.

To ensure safety states have a responsibility to prevent and respond to threats within their waters, exclusive economic zones and high seas. This requires cooperation between nations in terms of intelligence sharing and joint operations. International conventions play a role in securing vessels, ports, areas while safeguarding national security interests and economic well being. Additionally protecting the environment is also a part of maritime security efforts.

In order to effectively address these challenges it is essential that countries have laws in place along, with active international collaboration and regional initiatives.

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