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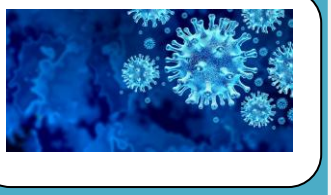

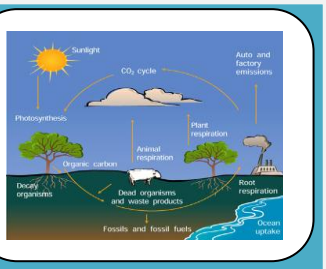

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On

Impact of Environment on Agriculture, Health, Water Resources, Social Life & Industrial Development

Published by- Dr. M. N. Kolpuke, Principal, Maharashtra Mahavidyalaya, Nilanga

CONTENTS

Watershed Management And Development

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Introduction :

Water is the essential element that makes life on Earth possible without water there would be no life. We usually take water for granted. It flows from our taps when they are turned on, most of us are able to bath when we want to, swim when we choose and water our gardens like good health we injure water when we have it. Although 71% of the earth's surface is covered by water, only a tiny fraction of this water is available to us as freshwater. About 97% of the total water available on earth is found in the oceans and is too salty for drinking and irrigation. The remaining 3% is fresh water of this 2.995% is locked in ice caps or glaciers. Thus only 0.003 of the earth's total volume of water is easily available to us as soil moisture, ground water, water vapour and the water in lakes streams, rivers and wetlands. River Originate In Streams That Flow Down Mountains & Hill-Slopes. A Group Of Small Strams Flow Down Hill-Sides To Meet Larger Streams In The Vally, Which From The Tributaries Of Major Rivers. The Management Of A Single Unit Of Land With Its Water Drainage System Is Called Watershed Management. It Is A Technique That Has Several Components. This Includes Soil &Water Management & Developing Negative Cover. The Nature Dranage Pattern Of A Watershed Unit If Managed Properly Can Bring About Local Prosperity By Providing A Year-Round Supply Of Water, There By Improving The Quality Of The Area. As It Provides Water Throughout The Year, This Improves Health In The Community As Clean Water Becomes Available Watershed Management Enhances The Growth Of Agriculture Crops & Even Makes It Possible To Grow More Than One Crop In A Year In Dry Areas.

Watershed Management Begins By Taking Control Of A Degraded Site Through Local Participation. People Must Appreciate The Need To Improve The Availabnility Of Water Both In Quantity & Quality For Their Own Area. Once Thos Is Adequately Demonstrated The Community Being To Understand The Project & People Begin To Work Together To Promote Good Watershed Management. The First Technical Step Is To Take Approprite Soil Conservation Measures. This Is Done By Constructing A Series Of Long Trenches & Mounds Along The Contours Of The Hill Tohold The Rainwater & Allow It To Percolate Into The Ground. This Ensures That Undrground Stores Of Water Are Fully Recharged. This Is Enhanced By Growing Grasses And Shrub And Planting Trees (Mainly Local Species) Which Hold The Soil And Prevents It From Being Washed Away In The Animals Is Regulated Or Replacrd By Stall Feeding. The Next Measure Is To Make Nala Plugs Is The Streams, So That The Water Is Held In The Stream And Does Not Rush Down The Hill Side. In Selected Sites, Several Small Check –Dams Constitute Sound Watershed Management. It Improves The Water & Keeps The Streams And Nala Flowing Throughout The Year.

Watershed Management Principles :

This Is Land Management Program That Looks At A Region From The Perspective Of All Its Waterrelated Issues. It Can Be Used To Manage A River From Its Source To Its Termination. Watershed Management Could Also Consider The Management Of A Single Valley As A Unit, Based On Its Small Streams. Saving Water From Its Local Sourceby Allowing It To Percolate Into The Ground By Nala Plugs & Check Dams Instead Of Allowing It To Run Off Rapidly Along The Surface During The Monsoon, Is A Major Aspect Of Good Watershed Management. This Allows Underground Aquifers To Fill So That Ground Water Is Recharged. Deforestation A Major Cause Of Poor Water Supply. Afforesting Such Degraded Areas Is Another Impoetant Aspect Of Watershed Management. The Concept Of Watershed Development Has Evolved Chronologically From The Concept Of Soil Conservation And Experience Gained In Its Implementation .At The Intial Stage,The Soil Conservation Technique Had A Limited Objective Of Construction Of Bunds, Restricting Soil Erosion, Checking Nalla Flowe For Achieving Infiltration Of Water Etc. On The Basis Of Study Carried Out By Organization Which Keep Is View This Concept Carry Out Scientific Study Thereof Achieve Practical Success Therein And Attain And Success It Has However Came To Notice That Scope Of This Is Required To Be Enlarged Further. This Evolved Concept Has Been Accepted by Indian & The Maharashtra State According Has Embarked On Framing Programmes Of Watershed Development. The Concept Od Watershed Development Encompasses The Concept Of Geagraphical Co- Ordination Of The Area. Also The Human Community In A Watershed And Its Collective Capability Is The Real Supportive Factor Of The Concept.

Developmentr Programme :-

The Concept Of Watershed Development Is Not Entirely New . In Maharashtra, Mahatma Jyotiba Phule Phule Has Put Forth This Concept For The First Time In 1887. Following The Recommendation Of The Royal Agricultural Commission Appointed By The Government Indian In 1928, Rainfed Research

Centre Had Been Established In The Old Bombay State (Solapur, Mohol). Based On Recommendation Of Their Research, The Programe Of Soil And Water Conservation Began In Old Bombay State During 1937. Thereafter, The Land Reform Act Was Intro Thereafter, The Land Reform Act Was Introduced In 1942. This Empowered The Government To Carry Out Work On Private Lands During Drought Condition This Resulted Into Completion Of Bunding Work On 97 Lakh Hectot Of Land. The Empowered The Resulted Into Completion Of Bunding Work On 97 Lakh Hector Of Land . The Bombay Programme Received An Impetus And Was Also Given Priority For Generating Employment In The Year 1977. Such Works Were Undertaken Under The Employment As A Guarantee Scheme & Soil & Water Conservation Works Were Once Again Acclerated As A Means Of Generating Employment. The Work Included Soil Bund, Nalla Bunds, Continuous Contour Trenchig, Percolation Tank Etc.

Peculiarities & Classification Of Watershed In Maharashtra

Watersheds In Maharashtra Have Their Own Characteristic & Peculiarities Because Of Complex Natural Disposition Such As Geomorphology (1/3 Hilly, 1/3 Drought Prone, & 1/3 Heavy Rainfall Area). Geology (93.72.% Of Hard Rock Zz) And Abundant Rainfall Region (Konkan). Taking Into Account This Situation, It Is Necessary To Accomplish Planning Of Each Watershed For Development According To Their Peculiarities . The Groundwater Surveys And Development Agency Has Delineated The Entire River Basins And Sub- Basins Of The State Into 1505 Watersheds. Since Most Of The Area In Maharashtra Is Covered With Hard Rock, Formation, The Geomorphology Plays An Important Role In Watershed Development. These Watersheds Have Been Classified Into Three Zones.

1. Runoff Zone (A Zone) : (Tightly Dissified And Hilly Plateau)-28%
2. Recharge Zone (B Zone): (Moderately Dissected Plateau) -44%
3. Storage Zone (C Zone) : (Undissected & Vally Fill Area) 28 %

The plan of development programme for each class of watersheds need to be framed separately in accordance with their peculiar characteristics.

Centrally Sponsored Schemes :

National Watershed Development Programme (NWDP) :

The scheme is being implemented since 1990-91 in one watershed of each taluka and thus in selected 266 watershed covering 1600 villages covering 9.17 lakh ha. Upto March 1995 in 1.68 lakh ha cultivable area vegetative contour bunds have been constructed and also training in modern agricultural techniques has been imparted to 1.40 lakh farmers

Drought Prone Area Programme (DAPAP)

This programme is being implemented since 1995-96 in a revised form in 22 districts covering 148 blocks in the state Organisation 235 in number have come forward for undertaking different works of watershed development in 1584 villages allotted to them. The works through Government organizations are being executed in 1338 villages.

River Basin Project Scheme :

In order to protect the irrigation project from silting due to soil erosion, the central Government has included this project is the Third five Year Plan. In Maharashtra, it is being implemented on following projects.

Sr. No.	Project Name	District Included
1)	Damanganga	Nashik, Thane
2)	Ukai	Dhule, Jalgon, Nashik
3)	Narmada (Sardar Sarovar)	Dhule
4)	Nagarjursagar	Solapur, Osmanabad
5)	Pochampad	Nanded

Under this sheme, the ongoing works are executed in 64 watersheds inclusive of 479 villages.

Western Ghat Development Programme :

For the development of hilly terrain, this scheme is being implemented in Maharashtra since 1974-75. This developmental programme is being executed in 62 talukas of 11 districts covering 2236 villages.

Conventional measures In watershed

The main objective of the watershed development is to fruitfully utilize the natural resources like water, land etc. thereby achieving maximum agricultural production minimum of expenditure ensuring sustainability in the production. In order to achieve this, different measures are required to be adopted in watershed for soin and water conservation (for increasing water availability of Bothe surface & groundwater). For this while planning from ridge to valley the watershed is divided into runoff zone, recharge zone & storage zone, initially the necessary works are completed in the runoff, thereafter in

recharge zone and then in the storage zone. Such works are mainly classified as vegetative & engineering. The works related to soil & water conservation can be divided on the basis of objectives as follow :-

Mainly for soin conservation

1. Forestry & forest conservation works.
2. Continuous contour trenchining.
3. Contour trenches (recharges trenches)
4. Contour masonry bunds
5. Chalice bands
6. Vegetative bunds (soil)
7. Contour vegetative hedges.
8. Majagi
9. Tillage practices

Mainly for water conservaton

1. Uncoursed rubble bunds.
2. Gabion structure
3. Nala pluge
4. Village ponds
5. Farm ponds
6. Vanarai bandhara
7. Nala bunds (soil/cement)
8. Check dams
9. Percolation tanks
10. Underground bandharas
11. Kolhapur type weirs.

Though The Measure Of Soil & Water Conservation Are Shown Separately Basically They Are Interlinked And Hence Planning For Them Has To Be Accomplished Together. Broadly The Soil Conservation Measures Are Mainly Related To Vegetative & Agriculture Means & The Water Conservation Mearsure To Engineering Means.

Need To Save Water Alongwith Conservation

Saving Water Is Not Yet Given The Same Importance As Water Conservation. The Economical Use Of Water Will Lead To Increasing Food Production. The Quantity Of Water Lost Througgh Evaporation Form Surface Storage As Well As Irrigated Fields Is Tremendous. The Shallower The Reservoir The Morew Are The Water –Shed Development Programme. Lot Of Research Has Been Conducted To Prevent Evaporation From Irrigated Fields By Covering The Land With Appropriate Material. The Wheat Husk Rice Chaff, Jowar Husk, Polythene, Plastic & Certain Chemicals Can Be Fruitfully Utilized For The Purpose. With These Measures 10 To 50% Water Can Be Saved As Is Observed Form Experiments Carried Out. All The Materials Mention Above Are Easily Available On The Farm But Even Then These Are Not Used Experience Has Shown That These Measures Are Underutilized And Their Use Needs To Be Enhanced. The Capacity Of Soils To Hold Moisture Made Available Through Irrigation & Rainfall Must Be Increased Which Is Helpful For Crops. This Need To Be Thougth Of At Level While Planning For Watershed Management. The Use Of Compost Fertilizer Helps In Filling The Large Voids Within The Soil Which Reduces The Void Space & Water Can Be Stored In Smaller Voids. Hence The Increase In Organic Contents In Lighter Soil Increase Its Moisture Holding Capacity. Aas Watershed Development Is An Integrated Approach, It Is Not Only Necessary To Include All Such Remedies In It To Increase & Conserve Soil Moisture But It Is Also Necessary To Properly Evaluated The Scheme With This View.

Conclusion :

In conclusion, it should be noted that the greatest water pollution, agriculture pollution problem at present is probably soil erosion by water and wind, especially since many other agriculture pollutants (such as pesticides and phosphetes) are transported by sediment. India receives most of her rain fall (the mosoon) during the month of June to September due to the seasonal winds and the temperature differences between the land and the sea.

Water standards for Different Uses.

Quality of water for drinking

Supplies have to be drawn from the best available source, when the sources cannot be protected against pollution the water has to be treated to ensure its safety, possible hazards must be known by sanitary surveys and eliminated.

Bacteriological Quality
Physical characteristics
Chemical characteristics :-
Drinking water should not be having impurities in hazardous concentrations.
Quality of water for Industrial use.
Quality of water for recreational boating.
Quality of water for bathing.

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Hindu Epics and Environmental Concern

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Abstract:

Hinduism not only a religion, but also it has had played a major role in protecting our environment since ages. The Hindu epics has clearly mentioned about various ways of protecting nature through rites and rituals performed by Hindus. Hindus do not regard rivers and seas just as vast sheets of water but as embodying the primeval element of nature. Hindus knew about the presence of life in plants, centuries before it was scientifically proved by Famous Scientist Dr. Jagadish Chandra Bose. The Mahabharata describes how trees feel pleasure and pain and grow like human beings. God resides in all the atoms of this world and controls everything in this world. One must renounce all that is unfair and take all that is sacred. We must eschew from grabbing the wealth of other creature existing. The writings of Hindu epics are more relevant in contemporary society for saving our environment from any degradation.

Introduction:

Man is no other than environment with a little difference that he is only being who enquires into the self. He himself is the composition of five elements e.g. earth, water, fire, ertha and air. If all five components are perfectly balanced then the body remains salubrious. Any imbalance causes alfunctioning in human body. Despite it, man is effected by other elements such as type of his food, water, environment and his cerebration. All could he do for well-functioning of his body as per required is living a homely life in harmony with environment inside and outside following the minimum harm policy to environment. Involvement of inner self is essential. It is easy to travel in one's inner self and begin pushing a little and effective step at own level without blaming others. Because all we do is the manifestation of the brain working inside. How it is possible most probably through living a plain life, devoid of any demonic atrocious desire to overcome the nature of excess backfires man himself. Hindu Epics not only guides a person about his duties at various levels, actions, fruit of actions and a holistic outlook towards the world; but interestingly also talks about sustainability in a very comprehensive manner.

Relation between Environment and Hindu Epics:

In Hinduism, the number of books considered as sacred is legion., The Ramayana containing the life and deeds of Sri Rama, and the Mahabharata which deals with the story of the Pandava- Kaurava princes as also of Sri Krishna have inspired the Hindus for millennia to face the problems of life. The Bhagavadgita more commonly known as the 'Gita', which is a part of the Mahabharata is an extremely popular scripture. Its central message is that one should discharge one's duty however hard an unpleasant it be bravely and with selfless dedication. Every one of us has to perform his or her duty designated as 'Svadharma' to please God, to serve the world and to repay one's debt to the society. The reinterpretation of the epics leads to a rational enquiry with a post navigational effect society and societal references describing eating habits, status of children born out of wedlock all describe eco-philosophy. **The Ramayana:**

It is the history of the family of the solar race descended from Ikshvaku where Sri Ramachandra was born, the Avatar of Lord Vishnu and his three brothers. The ideal characters like Rama, Sita, Lakshmana, Bharata and Sri Hanuman. The lives of Rama, Bharata and Lakshmana provide a model of fraternal affection and mutual service. Sri Hanuman stands as an ideal unique Karma Yogin. The life of Sita is regarded as the most perfect example of womanly fidelity, chastity and sweetness. Ramayana – the saga that depicts the unshakable sense of duty and accountability of a son, a brother, a wife, a husband and a king – talks at length about prosperity without damaging the environment. Ayodha, the kingdom of Lord Ram didn't have a gaudy and flashy display of wealth. The modest citizens believed in an ethical framework, leading to equality, satisfaction and prosperity, while ensuring sustainability. The practices followed, did not destroy the flora and fauna of the region. They used their intellect, but was backed by intuition. Kishkinda, the kingdom of the forest dwelling community known as Vanars, was the epitome of living in harmony with nature, which was reflected in their dwelling and food habits. Biodiversity in the kingdom was rich and well preserved. Madhuvan forest protected by generations of Kishkindha rulers. A framework of equitable laws of nature was followed in Kishkindha. The inhabitants behaved instinctively and their actions were honest. In contrast, Lord Ram is described as the protector of all beings and during

his reign, agriculture flourished, due to a conducive atmosphere and rainfall, leading to prosperity in different walks of life. It is mentioned that when Lord Rama got a chance to choose a boon, he opted for the wellbeing of all living beings, free flowing rivers and flourishing nature all around. The royal flag of Ayodhya had a picture of a tree along with the forest dwelling communities mentions various Gurukuls and Ashrams scattered across the country, dedicated to holistic education. The Ashrams were full of biodiversity. Rishis invariably enquired with visitors about not just their wellbeing; but that of the flora and fauna in their respective regions. Ram, Sita and Lakshman, when in the forest during their exile, lived in the most eco-friendly way. They observed the sustainable ways of the Ashrams. On one occasion, while going to the Ashram of Agasti Rishi in southern India, Lord Ram points out to Lakshman, the peaceful attitude of animals in the surrounding forest, which he links to the positive vibrations emanating from the Ashram. References about wild animals leaving peacefully in the vicinity of Ashrams of Rishis such as Atri. Rishi Mandkarni is said to have created the artificial Panchapsar Lake, which held water throughout the year, satisfying the thirst of animals and humans. Rishi Matang – the Guru of Shabari – had nurtured a forest for the purposes of meditation and education. This epic has vivid descriptions of the diverse seasons of India and its rich natural wealth at nearly 500 places, including mention of about 125 tree species, 30 mammal species, 15 bird species and various marine creatures; and forests such as Chaitrarathvan, Nandanvan and Matangvan.

The Mahabharata:

The Mahabharata is the history of the great war 'Battle of Kurukshetra' between Pandava and the Kauravas who were cousins and descendants of the lunar race. The Pandavas obtained victory through the grace of Lord Krishna. After the completion of the war, the part known as the **'Shanti Parva'** which talks at length about governance, administration and the duties of the king, also enumerates the need for conservation of resources. It asserts that it is the king's responsibility to ensure wellbeing of all and that no group of living things is harmed. The story of the fowler and the pigeons exhorts readers to protect wildlife and refrain from hunting. While expressing his wish to renounce the material world and retire into the forest, Yudhishthir says that he longs to listen to the cheerful sounds of birds and animals of the forest, which are charming to the heart and the ear. He describes the joy derived from the fragrance of myriad flower-bearing trees and creepers that grow in the forest. He further reassures that he shall not do the slightest injury to any creature in the forest. In Shanti Parva, Maharishi Ved Vyasa, while describing the importance of the right time or season, gives examples from the world of nature, based on his empirical observations, which also go on to show that the environment at that time was pristine and unharmed. He explains that cosmic and climatic factors such as phases of the moon, strong winds, moisture laden clouds, long dark nights and raging rivers full of water, are all time dependent. He further talks about lakes adorned with lotuses of different kinds, forest trees decked with flowers, and the seasonal excitement of birds and animals. At another place, he describes the act of cutting a tree in the forest as a sin. Bhisma, while sharing his knowledge about the world, gives an example of an ascetic living in a large forest and solely subsisting on fruit and roots, while practicing Yoga and having his senses under control. This ascetic harboured love towards all creatures in the forest. Creatures, big and small, including lions, tigers, elephants, leopards, rhinoceroses and bears, used to approach him without causing any harm.

Bhagavad Gita:

This Epic is set on a battlefield with the sons of the congenitally blind king Dhṛitarāṣṭra leading his army into battle against the sons of his deceased younger brother, Pāṇḍu, who inherited the throne due to his older brother's blindness. Looking across the battlefield, the mightiest warrior of his time, Prince Arjuna, one of the five Pāṇḍava brothers, sees his teachers and uncles, as well as his hostile cousins and their followers. After trying to defend his position with a medley of socio-moral arguments, Arjuna collapses in anxiety and thus ends the *Gītā*'s first chapter. In the second chapter, Arjuna following this confession, surrenders to his dear cousin, charioteer and friend Kṛiṣhṇa as his disciple and asks HIM to enlighten him and resolve his inner conflict and dissipate his grief. Bhagawad Gita advices people to maintain a balance in thoughts and actions, including materialistic consumption and conservation. Thus, Gita starts from the materialistic level going all the way to the spiritual level, encouraging purity of the mind. It advises human beings to avoid excess consumerism, which leads to tamasic behavior, does not give lasting fulfilment and also damages individual health, society and environment. Gita advices humans to draw resources from nature in such a manner that they are not totally exhausted. Thus, using renewable resources in a judicious way, such that they can be replenished, is recommended, rather than using non-renewables. This is the concept of "*Dohan*" of resources, instead of "*Shoshan*".

Conclusion:

Mankind will have to return to nature's bosoms and partake of it' s bounties in the manner of a child who lovingly and gracefully gets the best of its mother. Development is not just a matter of the fulfillment of economic goals but the total growth of all aspects of human life in their organic unity. Ecology and development can blend if man realizes that he is a part of nature's mechanism and that his destiny lies not in degrading its resources but in making a judicious use of them. In the light of global warming or global cooling trends, rise in ocean level, heavy growth of algae in rivers and lakes, changing seasons, thinning of ozone layer and other threats to life- supporting systems one may ask whether what man has achieved in the name of development is worthwhile. Trees being nature's major processors of solar energy which is vital for our existence, yielding fruits, flowers, wood or medicine, have been worshipped by the Hindus as a matter of gratitude. Besides being useful to human beings they serve as abode of birds, reptiles and other creatures.

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Foreign Direct Investment (FDI) Into India During Covid19 Pandemic

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Abstract

FDI inflow is important for the developing countries for economic and technological development, enhancing productivity, improving export competitiveness, and maintaining the Balance of Payment position, and creating job opportunities for the local population. Notwithstanding the impact of Covid19 pandemic, this study has found that FDI inflows have increased during the last 12 months, primarily due to its large domestic market, reform measures undertaken by the government in the recent year and abundant global liquidity conditions, resulting in lower interest rates.

Keywords: *FDI, GDP growth rate, Pandemic, Sovereign rating*

Introduction

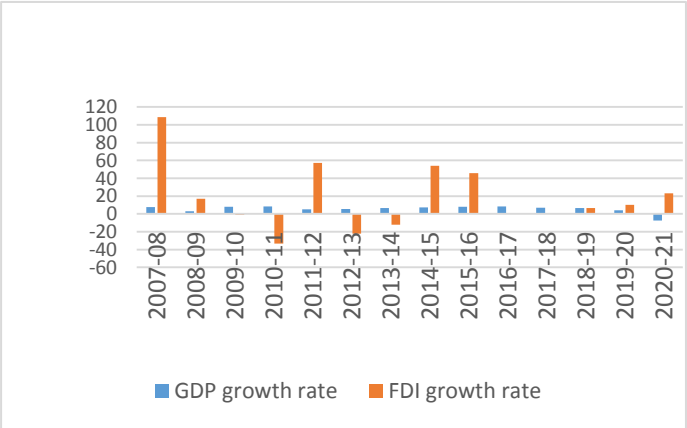
FDI inflow is important for the developing countries for economic and technological development, enhancing productivity, improving export competitiveness, and maintaining the Balance of Payment position, and creating job opportunities for the local population. Investment from overseas can be of two types: foreign portfolio (financial) or foreign direct (real). Foreign Direct Investment (FDI) is a type of foreign investment, which increases the productive capacity of the country, whilst the portfolio investment comes primarily via the primary/secondary investments via the equity/debt markets of the country. India, being a developing country, has shortage of domestic capital, weaker technological prowess and productivity, and accordingly, requires external funding/skill-sets for investments into different sectors of the economy. Till 1991, Indian economy was very conservative and considered as a 'closed economy'. Due to the forex crisis experienced by the country, India undertook a series of reforms measures during 1991-92, including allowing FDI into the economy and foreign ownership of the productive capacity of the economy. Since then, due to continuing reforms measures, being the second most populous country and the fifth largest economy in the world (having GDP of USD 3.0 trillion), India has attracted many foreign investors. Currently, most of the FDI comes to India from Singapore, US, Mauritius, Netherland, UK, France, Germany, Spain, South Korea, Luxembourg, Belgium, Taiwan, and Switzerland. This paper intends to analyse the trend of FDI flow in India during the pandemic years.

Review of literature

A research done by Chandrachud, Gajalaxmi (2013) finds that, after liberalisation in India, various reform measures have helped to increase the inflow of FDI, though it has varying levels of impact across different sectors. In certain sectors, it has assisted in the development, whilst other areas require more reforms to get better results. FDI has also not been able to assist in creating enough jobs across sectors, and can be termed as jobless growth. Aggarwal. K (2020), on the impact of Covid-19 on FDI in India, finds that FDI inflows have increased into India, notwithstanding the adverse impact of the Covid19 pandemic, due to the favourable business environment and changes in the FDI policies of the government. China and US relationship and the 'Atmanirvar' scheme have helped to get more FDI into the country. The analysis by Kumar. V (2014), on Indian economy finds that the liberalisation policies and different reforms undertaken have resulted in increasing FDI flows into India during 2001-2013. He further finds that the growth rate of GDP is having a positive relationship with the flow of FDI and FII. A positive relationship is also found between FDI and FII. It bridges the gap between domestic savings and investment rates.

Scenario of FDI in India

World Investment Report (2020) shows that India is the 9th largest receiver of FDI in 2019, whilst the position was 12th in 2018. The adjoining chart shows that, in 2010-11, when the GDP growth rate was 8.5%, the FDI inflows decreased by 33.5%. From 2018-19, whilst the GDP growth rate is constantly decreasing, still FDI is exhibiting a positive trend. In FY2018-19, when the GDP growth rate was 6.5%, the FDI growth rate was also approximately 6.5%. In FY2019-20, when the growth rate reduced to 4%, FDI growth rate has shown an increase of 10% compared to the previous year.



Source: Computation by the author based on DIPP data

During FY2020-21, even though due to pandemic situation, the growth was severely affected and was -7.3%, FDI has shown a surprisingly high growth of 23.35% vis-à-vis the previous year. The FDI inflows have increased, even when the GDP growth rate was negative. The data clearly shows that the FDI primarily comes into the services sector and followed by the manufacturing sector. By analysing the sector-wise data, we can observe that FDI flows mostly to communication services, manufacturing, retail and wholesale, trade, financial services, electricity and other energy generation, distribution and transmission, construction, transport, restaurant and hotels, real estate activities, education and research and development, mining, trading etc. During FY2013-14, nearly 40% of FDI received was towards manufacturing sector and kept increasing till FY2016-17, post which the share of services sectors started increasing. In FY2017-18, the share of manufacturing was 18% whilst in FY2019-20, the share became 19.12% and it was only 12% in FY2020-21. A drastic change in the flow of FDI to different sectors has also been observed. The data shows that the share of FDI in transport and computer services has an increasing trend from FY2016-17 to FY2020-21. Particularly, in FY2019-20, the share in total FDI towards computer services was only 9%, whereas in FY2020-21, it was approximately 44%. This corroborates with the fact that most of the foreign countries like to invest in the service sector of India (Vyas, 2015). The economic impact of Covid19 pandemic lockdown had some impact on the ratings assigned by two important rating agencies. In FY2021, Moody's and Fitch have put India's sovereign rating at negative outlook, which means that there is a probability that the sovereign rating may be downgraded further to Ba1/BB+ in the coming two years (Mohanty, Saswati 2021). In spite of the downgrade in rating/outlook by Moody's/Fitch, it did not have any material impact on FDI inflows. This may be because India is a very big market, having a huge and growing consuming class and reform measures have made the country attractive for foreign investors. Among all the developing and developed countries India is one of the most preferred places for investment for many foreign countries. (Kumar, 2014) During the pandemic period (FY2020-21), computer software and hardware has received the maximum amount of FDI, followed by the construction and service sector. More particularly, construction, computer software and hardware, rubber goods, retail trading, drugs and pharmaceutical, electrical companies have received double the amount of FDI, during the pandemic period (FY2020-21) as compared to FY2019-20. During the pandemic period, Work-From-Home (WFH) became de-rigueur due to mobility restrictions. Accordingly, the requirement of computers, laptops, mobile phones, tabs have increased to a great extent. As India has a vast number of student population, the requirement of computer hardware/services has also increased multiple times due to online studies. Similar trend is also seen in the transport services. Due to movement restrictions and lock-down situation in the country, people were forced to use more and more home delivery options, which resulted in transport services remaining in huge demand. The FDI in transport services increased from 5% in FY2019-20 to 14% in FY2020-21.

Conclusion

As seen from the aforesaid analysis, in spite of having GDP de-growth and downgrade in sovereign rating/outlook in the recent years, FDI flows into India have gone to a higher level. This may be due to the unique circumstances unravelled by the pandemic, large domestic consuming class and reforms measures undertaken by the government to attract FDIs. A further study can be done to find out all the reasons behind the increase in the FDI in India during the pandemic.

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The Need of Agricultural Mechanization for Agricultural Development

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Abstract

To increase soil productivity, you need to adapt to today's technology. Agriculture will remain competitive in the years to come and will also have to carry out the task of feeding the growing population. Mechanization of agriculture was considered a secondary issue a decade ago. But in the last few years, labor shortages have become acute. And the issue of mechanization came up. It takes time to prioritize and take positive steps for the stability of agriculture. The use of modern agricultural implements and machinery has helped in increasing the productivity of the crop and has reduced the cost of planting and saving in agricultural resources.

Key Words - mechanization, sub-campaigns, farm implements, modern farming

Introduction

Due to excessive irrigation, excessive use of chemical fertilizers, single cropping practices, etc., the productivity per hectare of land in India is steadily declining. Therefore, despite the increase in production cost, agricultural production is declining. To increase soil productivity, you need to adapt to today's technology. Agriculture will remain competitive in the years to come and will also have to carry out the task of feeding the growing population. Therefore, at present you have to increase the rate of use of machinery in agriculture very much. The use of modern farming implements and machinery has helped in increasing the productivity of the crop, reducing the cost of cultivation and saving in agricultural resources. In the future, we will have to put a lot of emphasis on mechanization of agriculture to take the agricultural business forward and increase the social status of the farmers. The subject of mechanization of agriculture was considered secondary a decade ago. But in the last few years, labor shortages have become acute and mechanization has become a hot topic. In developed countries, mechanization is an important component of agriculture and without it, agriculture is impossible. We are far behind in terms of mechanization compared to other countries. In the United States, only 2.4 percent of the population farms and 15 percent is mechanized. In Brazil, 15 percent of the land is farmed and 75 percent is mechanized. But in India, 55 per cent people are still dependent on agriculture and mechanization is only 40 per cent. The same situation of mechanization is slowly coming to us. This fact has now come to the notice of all. That is why for the first time in the history of India, the Agricultural Mechanization Sub-Campaign is being implemented as a major part of the National Agricultural Extension Mission. Under this sub-campaign, new agricultural machinery and implements are being disseminated and grants are being given for the same. Agriculture is the primary social and economic sector of the country. It takes time to prioritize and take positive steps for agricultural stability. Mechanization is the only option to keep agriculture alive in the future and it needs to be addressed as a matter of priority.

Objectives

To study the need and importance of agricultural mechanization.
Review of agricultural mechanization scheme implemented by the government.

The need and importance of agricultural mechanization

Outdated traditional production mechanism

We still do not have enough options for rigorous sowing, paddy planting, intercropping, harvesting, primary processing, harvesting, post processing. Also, Basic Water Conservation Equipment, Wide Varamba-Sari Method, Contour Cultivation, Paddy Planting Machine, Paddy Sowing Machine, Cotton Picking Machine, Onion Sowing Machine, Soybean Integration Harvesting Machine, Vegetable Harvesting Machine, Sugarcane Infection Machine, Sugarcane Harvesting Machine, Fruit Farmers are still in search of better equipment for digging gravel for planting, harvesting of fruits, basic processing of fruits and vegetables, packaging, air-conditioned storage and transportation etc. Climate change has reduced crop productivity. And productivity has stabilized in some crops. Conservation of soil moisture according to changing climate, method of cultivation for rain water planning, rotation and sowing of fertilizers and seeds in appropriate quantity, intercropping. Today, there is a growing need for state-of-the-art agricultural machinery for spraying, harvesting, threshing, primary processing, storage, transportation and sales.

Labor scarcity

Although the population dependent on agriculture appears to be high, the number of laborers working in agriculture has declined over the last decade and there is a persistent shortage of labor in the

agricultural sector. There are many reasons for this. Due to rural employment guarantee scheme as well as urban migration in search of employment, manpower is not available for actual farming. Although 55 per cent of the population is dependent on agribusiness, increasing urbanization and industrialization are attracting a large working class to the city and industrial estates to earn more money by using a little skill in less time instead of doing farm labor. Apart from this, the highly educated youth in rural areas are finding it difficult to work in agriculture. He is ashamed of his father who works in agriculture. Therefore, agriculture has lost its prestige. The use of livestock and manpower in agriculture was 61 per cent in 1971-72, it is now 10 per cent. Therefore, there is a shortage of labor in the agricultural business. Also, mechanization is now the only option for agriculture due to rising wage rates. Therefore, it is becoming advantageous to do other work by machine using labor only where it is required in agribusiness. That is why agricultural mechanization has become necessary to overcome this labor shortage.

Savings in labor, time and cost

The use of reversible plow, cultivator, rotavator, threshing machine, sprayer, shresher combine, micro irrigation set etc. saves 20% of inputs as well as time and cost. In addition, good tillage due to the use of each machine, strict use of inputs, minimum loss due to timely harvesting, 50 per cent water saving due to micro-irrigation are some of the successful changes and benefits brought by mechanization. There is very little time available to cultivate the field between the two seasons. Mechanization makes it possible to cultivate the field in the shortest available time of two seasons. This makes it possible to grow crops on the same land more than once a year. Sowing and harvesting can be done on time. The pace of agricultural work increases. Work is not delayed due to lack of labor. The quality of work increases. Works are completed at a lower cost and in less time than labor or animals.

Efficient use of inputs

At present, various inputs like new varieties of seeds, chemical fertilizers, pesticides, micro-irrigation etc. are used in agriculture. Due to the use of various inputs, there is a huge investment in agriculture and the cost of cultivation is increasing. Therefore, the produce produced by the farmers is not affordable. So it is literally handcuffed. This requires efficient use of inputs. Agricultural mechanization has made it possible to make efficient use of inputs 5. Increase in energy consumption The rate of conventional energy resources used in Indian agriculture is increasing and it is not affordable to the farmers and the rate of energy or power consumption is very low. Therefore, the cost without increasing production is high. That is why in the present situation it is necessary to use a large number of suitable modern farming tools and equipments in Indian agriculture. The use of these devices will go a long way in increasing the rate of energy consumption in agriculture, increasing production and reducing farm costs. In order to increase the utilization rate of agricultural machinery and implements, you need to undertake a large scale dissemination of technology. At the same time, emphasis will have to be laid on the use of tools and implements in agriculture according to the crop wise and land system.

Increase in product quality

Agricultural products obtained with the help of traditional production techniques are of low quality. Great efforts were made at the government level to bring about a radical change in Indian agriculture. It emphasized institutional and technological reforms. The use of new seeds, chemical fertilizers and machinery has been instrumental in reforming Indian agriculture. One of them is that the agricultural products taken using the machinery seem to be of good high quality. That is why Indian agricultural products are being exported to various countries. Especially high quality fruits and vegetables get good prices in the market. Proper harvesting and threshing and subsequent handling of food grains reduces their wastage. As a result, agricultural income increases. And the economic condition of the farmers increases and there is overall development and empowerment.

Conservation of natural resources

Soil and water are important natural resources in agriculture. For soil and water management and conservation, there is a need for cultivation of agriculture through specific types of machinery. This has been found to increase productivity. It includes a wide-veramba and sari token device (BBF platter), a subsoiler that creates a 2-3 feet deep narrow notch and retains rainwater. Also included are power harrow for deep tillage, tawa plow and hoe, disc furrow opener for token machine, token tillage machine for low tillage, tillage machine for burying. In addition, 20 per cent of India's agriculture is in mountainous areas. It requires different devices. There are 15 major agro-climatic zones in India, each of which cultivates crops based on soil copy. It requires special equipment. Small implements are needed for small and marginal farming and women can operate with less effort. This requires mechanization of agriculture.

Commercialization of agriculture

Through mechanization of agriculture, it is expected to get higher yields at lower production cost by managing the crops in the field from post-harvest management. For this it is necessary to use the latest agricultural tools and implements in agriculture. In addition to this, if agricultural implements are added for post-harvest work and the value of the crop is enhanced by processing the crop, the profit from agriculture can be increased. In short, agriculture now needs to be viewed from a commercial perspective. For this, emphasis will have to be laid on mechanization of agriculture. Against the backdrop of declining land holdings, significantly reduced number of oxen, declining labor force and rising wage rates, shorter kharif sowing season and diversification of orchards in the state, the state government has decided to accelerate agricultural mechanization according to local conditions. In view of the diversity of agro-climatic conditions and soil type in the state, it has been selected to mechanize the machinery and implements required for the cultivation of major crops as well as orchards and intercrops depending on the local conditions. In all the prevailing schemes, the funds available for the mechanization component are approved by the Government to provide subsidy to the farmers which are permissible for the purchase of the following machinery or implements as per the criteria of the scheme.

Agricultural mechanization

Agricultural mechanization sub-campaign in the state from 2014-15 as part of "Advanced Agriculture - Prosperous Farmers" campaign; Is being implemented. Under this campaign, the central government aims to use 4.0 kW per hectare of energy in agriculture by the year 2025. Accordingly, the aim is to increase the current energy consumption in the agricultural sector in the state from 1.11 kW per hectare to 4.0 kW per hectare through agricultural mechanization. The horsepower per hectare required in agriculture has increased from 0.35 KW in 1970 to 1.84 KW. There is a positive equation of horsepower available per hectare and crop productivity. The states of Punjab, Haryana, Tamil Nadu, Andhra Pradesh and Uttar Pradesh have 1.6 to 3 kilowatts of horsepower per hectare and crop productivity is 2 to 4 tons per hectare. The same 17 states including Maharashtra have 0.5 to 1.5 kW per hectare and productivity is 1.0 to 1.4 ton per hectare. This means that horsepower needs to be increased per hectare. The target is to increase the average Indian horsepower per hectare to 4.0 kW by 2025. Agricultural mechanization campaign is implemented in all 34 districts of Maharashtra. The main objective of the unit is to finance the establishment of a state-of-the-art agricultural implements bank to provide agricultural mechanization services to the farmers at reasonable rates on lease basis from sowing to pre-harvesting as per the crop structure in the state.

Tractor or small tractor

Under the prevailing scheme, subsidy is given to the farmers for the purchase of tractors with horsepower engine capacity. Also, a maximum subsidy of Rs 1.25 lakh is given for the purchase of tractors up to the limit of 20 to 70 hp engine capacity. In all the prevailing schemes, 40 per cent of the total funds available or directly distributed for mechanization component is given to farmers as subsidy for purchase of tractors or small tractors.

Agricultural machinery and implements

About 60 per cent of the funds available for mechanization of existing schemes are used to subsidize the purchase of agricultural implements. This includes tractor driven or automatic further agricultural machinery and implements. These include power tiller, rotavator, cultivator, all types of planters, (fertilizer and B token machine) threshing machine, rice planting machine, (transplanter) power weeder, reaper, and reaper cum binder, rice threshing machine, mini rice mill, dal mill, And complementary machine sets (D - Stoner, Polishing, Grading Packing etc.). Includes cotton shredder, sugarcane threshing or shredder or mulcher, tractor driven sprayer, mist blower, subsoiler.

Summary

The use of agricultural mechanization is essential for the successful use of various inputs in modern farming methods, such as labor shortages, rising labor costs, improving product quality, etc. But India has a large number of smallholder farmers. It is not possible for them to invest heavily in purchasing agricultural machinery. With this in mind, the government provides financial assistance to farmers for the purchase of agricultural machinery on a grant basis under the Advanced Agriculture Prosperous Farmers Campaign.

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Bacteriological Analysis of Drinking Water from Deolali Gaon and Adjoining Areas, Nasik (MS), India.

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Abstract:

The present study was undertaken to check bacteriological quality of water samples from Nasik city (MS), India. Water samples were epidemiologically studied to assess their bacteriological characteristics and suitability for potable purposes. A total of 112 water samples were collected aseptically in sterilized container. A study was conducted to determine the portability of drinking water along with isolation and identification of possible contaminants. The bacteriological examination of water samples included the most probable number of presumptive coliforms. 99.9% of the water samples were positive with MPN count ranging from 0 to1800. The most common group of indicator organism used in water quality monitoring is coliforms. Analysis was performed using culture and biochemical methods. The organisms isolated were identified as E.coli (28%), Klebsiella (10%) and Pseudomonas (17%). To conclude, E.coli was major source of contamination and regular monitoring of water sources for drinking should be carried out.

Keywords*: MPN count, drinking water samples, Coliforms, Nasik city.*

Introduction:

Water is very important for all lining beings. It is essentially required for temperature regulation, removal of toxic waste materials from body, nutrient transportation, digestion and various metabolic activities. Since water plays vital role, it is necessary that the water which we consume should be potable and should be free from pathogenic organisms so as to avoid various water borne diseases. WHO has estimated that 4 billion cases of diarrhea results because of consumption of contaminated water. Majority of contaminants in water that causes gastrointestinal tract infection are “Coliform” group of bacteria.

The coliforms are Gram-negative, motile, or nonmotile, non-sporing, rod-shaped bacteria. They are aerobic or facultative anaerobic that ferment lactose with gas formation within 48 hours at 37 oC. Among the colifrom groupof bacteria, E.coli is considered as indicator of fecal pollution as they are commonly found in intestinal tract of all warm blooded animals and therefore are regularly discharged in feaces. Therefore any material which is faecally polluted will surely contain *E.coli* and other coliform. (Levine et al., 1918).

Various infections that results because of consumption of faecally contaminated water includes gastroenteritis, typhoid ,Cholera ,Bacillary dysentery etc. by performing bacteriological analysis of water various measures can be followed to ensure safe water drinking so as to avoid the consequences. Bacteriological analysis of water can be carried out by various methods. Most Probable Number (MPN) is one of the specific method used for detection of fecal contaminants. The ability of coliforms to ferment Lactose sugar with production of acid and gas is specifically used for their detection in MPN test.

Objectives:

1. The objectives of this study include:
2. To check the fecal contamination of various water sources such as Municipal tap water, hand pumps and water coolers from Deolali gaon and adjoining areas.
3. To isolate and identify the possible contaminants.

Material And Methods

Sampling:

A total number of 112 water samples were aseptically collected from different sources such as Municipal tap water, hand pump and Water coolers in sterilized bottles from Deolali gaon and adjacent areas. All samples were immediately transported to the laboratory and processed within few hours.

Table 1: Localities of samples collected in the study:

Sr.No.	Samples collected	Area/location
1.	13	Bhagur
2.	28	Deolali gaon
3.	21	Deolali Camp
4.	10	Bytco
5.	7	Nashik road
6.	11	Jail road

7.	10	Dhamangaon
8.	12	Vihitgaon

Bacteriological Analysis:

Presumptive test for coliforms:

Bacteriological analysis of water samples were carried out by standard Most probable number (MPN) method .For each water samples total 15 tubes were taken. 5 tubes contain double strength Mac Conkeys broth (Hi Media, Mumbai) containing Durham tube and were inoculated with 10 ml water sample. Ten tubes of single strength Mac Conkeys broth was inoculated with 1.0 ml and 0.1 ml respectively. After incubation at 37°C for 48 hours production of acid and the presence of gas in any of the Durham tubes was considered positive. Number of coliforms in positive tubes was recorded by referring to probability table (Macrady's Table).Further isolation and identification was done by culture and biochemical methods such as Indole test, Methyl red test, Voges – Proskauer test, Citrate utilization test and urease test.

Observations and Results:

Out of 112 water samples tested 53 were from tap water ,39 from hand pumps and 20 from water coolers .

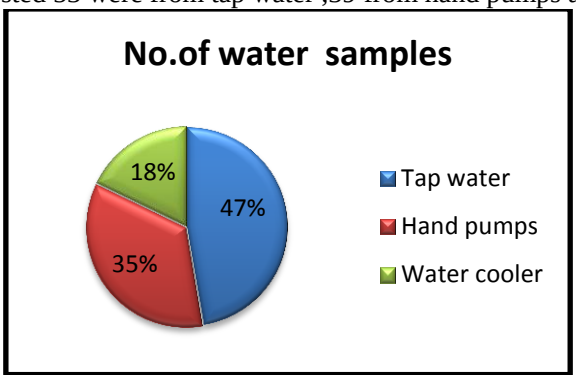

Fig 1: Drinking water sample percentage wise distribution.

All positive samples were subjected to isolation and biochemical identification by standard methods.

Isolation :

From positive sample a loopful of sample was streaked on Nutrient agar and Mac Conkeys agar plate and was incubated at 37°C for 24 hours.

Interpretation:

On Mac Conkeys agar, lactose fermenting and lactose non fermenting growth was observed (Fig 2a).While on nutrient agar, cremish colored and pigmented colonies (Bluish green) was observed (Fig 2c). Urease test was carried using Christensen Urea agar.Urease positive colonies showed color change in the media(Fig 2b). For further identification,colonies were purified and subcultured on nutrient agar slant. Gram staining and motiliy of isolates was done by using standard methods.(Table No.2)

Fig 2(a) Lactose + & - colonies on Mac Conkey's Agar

Fig 2(b) Urease + & - Colonies on Christensen Urea Agar

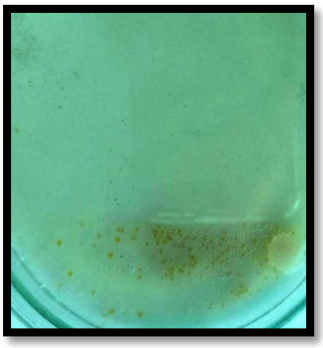

Fig 2(c) *Pseudomonas* pigmented colonies on Nutrient agar.

Biochemical Test: For species identification the biochemical (IMViC) test as per WHO guideline was performed.

Table: 2 - Biochemical characterization of isolates.

Organism	MR	VP	Indole	Urease	Citrate	Motility	Lactose fermentation test
Escherichia coli	+	–	+	–	–	+	+
Klebsiella	+	–	–	+	+	+	+
Pseudomonas sp.	–	–	–	–	+	+	–

VP: Voges-Proskauer**, MR:** Methyl Red.

Table: 3 – Outline of total positive samples (n = 112)

Source of Water	No .of samples	No. of positive samples	Organism		
			E.coli	*Pseudomonas sp.*	*Klebsiella sp.*
Tap water	53(47.32%)	40(35.7%)	20	11	12
Hand pump	39(34.82%)	15(13.3%)	9	6	-
Water Cooler	20(17.8%)	5(4.4%)	2	4	1
			31 (28%)	21 (17%)	13 (10%)

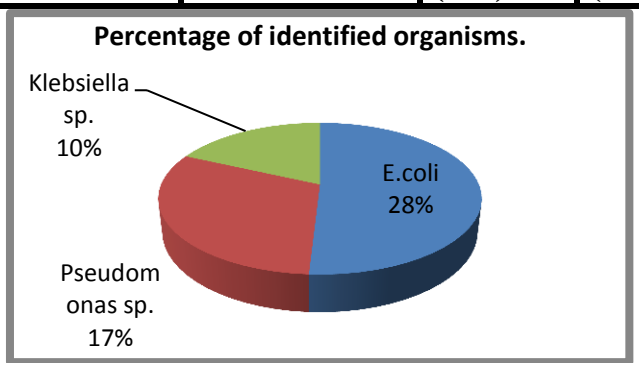

Fig3: Graphical representation of Percentage wise distribution of identified isolate from 112 water samples.

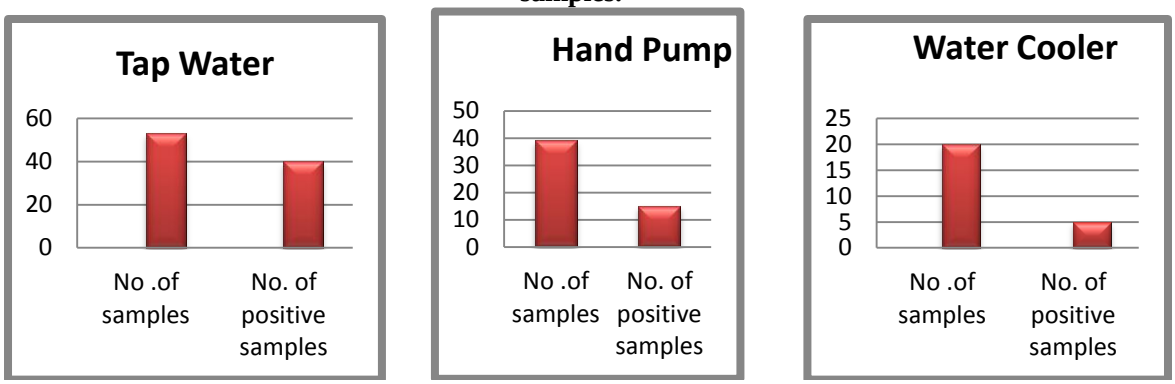

Fig 4: Graphical representation of MPN positive results in Tap water, Hand pump and Water Cooler

Discussion:

Bacteriological analysis of water samples indicated presence of fecal coliforms in water except sample no. 103. For water quality monitoring, coliforms are the most common group of indicator organisms specially *E.coli* (Fig 3). In the given study, bacteriological examination of water samples from different sources such as Tap water, Hand pump and Water coolers was carried out (Fig 1). Tap water samples showed high coliform count as compared to others .All the isolates were Gram negative rods and were motile. Except *Pseudomonas* sp, all isolates were lactose fermentor.*Klebsiella* alone was urease positive .After biochemical identification, isolates were revealed to be *E.coli, Pseudomonas sp. and Klebsiella sp.* The consumption of drinking water contaminated with these pathogenic microbes is a

significant risk to human health. Pseudomonas sp.is ubiquitous in nature. Its incorporation in piped potable water can colonize the surfaces of pipelines and my contribute for biofilm formation. Three step water purification process must be followed which include sedimentation, filtration followed by disinfection. . Discharge of sewage directly to Water sources such as rivers, wells and surface water should be monitored by local water authorities.

Conclusion:

1. By summarizing the results from the various studies we have concluded that,
2. The quality of drinking water has been decreased due to fecal contamination.
3. Water samples from municipal tap water were mostly contaminated.
4. Most Probable Number (MPN) method is effective and reliable and can be used for all types of water.

Recommendations:

We would like to recommend that proper maintenance and frequent inspection of underground sewer lines and drinking water lines should be done on regular basis, regular disinfections should be done near the area of drinking water and regular bacteriological analysis of all water sources for drinking should be done at regular intervals..

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Impact of Digitalization on Equity Investment growth with special focus on 2G, 3G ,4G

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Abstract:

In many domains, including capital markets, technology plays a critical role. After the launch of NSE India's digital platform, the study markets in India began to draw retail investors. The current study looked at the role of technology in the rise of investments in the context of equities markets. The study period was divided into three sections: 2G (1998–2007), 3G (2008–2011), and 4G (2012–2014). (2012 to till data i.e., 2020). The study found that whereas investments grew dramatically in the second generation, they decreased in the third generation. In the 4G period, real growth in equities markets was evident. The study used a statistical method to discover that technology is having a substantial impact on India's equities market growth.

Keywords: *Digitalization, Equity Investment, NSE, Technology*

Introduction:

In the mid-twentieth century, American engineers began inventing digital technology. Their methods were based on mathematical notions proposed by Gottfried Wilhelm Leibniz, a seventeenth-century German mathematician who developed a binary computer system. Digital technology is the second step in the process. Words and images are represented in binary code, which is made up of combinations of the digits 0 and 1, commonly known as bits. Huge volumes of data can be compressed using digital technology and stored on compact storage devices that can be readily protected and moved. Data transmission speeds are also increased as a result of digitization. People's communication, learning, and working habits have all changed as a result of digital technology.

Financial Technology:

Fintech (short for financial technology) is a type of technology and innovation that tries to compete with traditional financial methods in the delivery of financial services. It is a new industry that employs technology to improve financial activities. Mobile banking, investing services, and cryptocurrencies are all examples of innovations aimed at making financial services more accessible to the general population. Financial technology firms include both start-ups and established financial institutions, as well as technology firms attempting to replace or enhance the use of existing financial services.

High frequency trading Technologies:

For the financial industry, HFT Technologies is a leading provider of high frequency trading advice and technology. For algorithmic trading and market creation, HFT Technologies specialises in high-speed infrastructure and trading application development. Our founding partners have been assisting industry leaders with high-speed exchange connectivity, LAN/WAN design, proximity co-location, and algorithmic trading application design and engineering for the past fifteen years. If your company is considering high-frequency trading, we can help you get there swiftly and affordably. HFT Technologies has considerable familiarity with all of the world's main financial exchanges and protocols

Rational for the Study:

To find out how much Nifty equity investment grew during the 2G, 3G, and 4G eras. and to comprehend how technology may be further improved in equities markets, as well as to make stock market trading easier and more successful.

Objectives of the Study:

1. To investigate the trend of Nifty in comparison to Digital Transactions.
2. To investigate the effects of digital transactions on the nifty

Scope of the Study:

The purpose of this study is to look into digital transactions and their impact on Nifty's equity investment growth. In this study, the technological stages work considers investment growth in the 2G, 3G, and 4G eras. The study period covered the volume of Nifty equity trades from April 1, 1998, to March 31, 2020.

Research Methodology:

Sources of Data: Secondary data from SEBI and NSE.

Sample Selection:

1. 2G era Nifty equity trades
2. 3G timeframe Nifty equity trades
3. 4G timeframe Nifty equity trades

Statistical Tools and Techniques Used:

Stationary Test, Augmented Dickey–Fuller Test (ADF), Kwiatkowski–Phillips–Schmidt–Shin (KPSS) Tests, Ordinary least square (OLS), Vector Auto regression (VAR):

Hypothesis:

There is no link between digital transactions and profitable returns.

Digital transactions have no effect on nifty returns.

Limitations of the Study:

The entire volume (number of transactions) in a certain period was used as the study's data. Individual transactions, broking house transactions, transactions between various companies, and high frequency trading transactions are all impossible to categorize.

Review of literature:

Ajay Shukla, Shriram Nerlekar (2019), In the previous two decades, about 2 billion people have been connected to the internet, and the digital revolution has had a profound and lasting impact on the world, including the Indian stocks market. The capital of India market has come a long way since its formal beginnings in the nineteenth century, and it is now considered to be in a fairly mature stage, backed by an established structure. The internet has made financial products and services more accessible to a wider range of customers while also removing geographical restrictions. Previously, investors were solely seduced by their brokers; however, today, they are also participating in the purchase and sale of shares via the internet. E-trading has helped people save time, energy, and money by allowing them to access the market from anywhere at any time. The initial goal of this research paper is to look into the impact of net growth on stock market transactions. The study also covers the current situation of net commercialism in India, as well as the scope of the on-line commercialism market in India.

Suresh A. S. (2018), According to the analyst, one of the fastest expanding sectors in the Indian stock market is logistics. It was set up to examine the risk and return of selected BSE-listed logistic stocks. They demonstrated that corporate courier and cargo limited shares provided the best profits.

Preethi Mahesh Kulkarni (2018), According to the abstract, India is primed for rapid economic progress. To be fully developed in the economy, women, who account for over half of the population, must make their own decisions. They want to know how women feel about investing in the stock market.

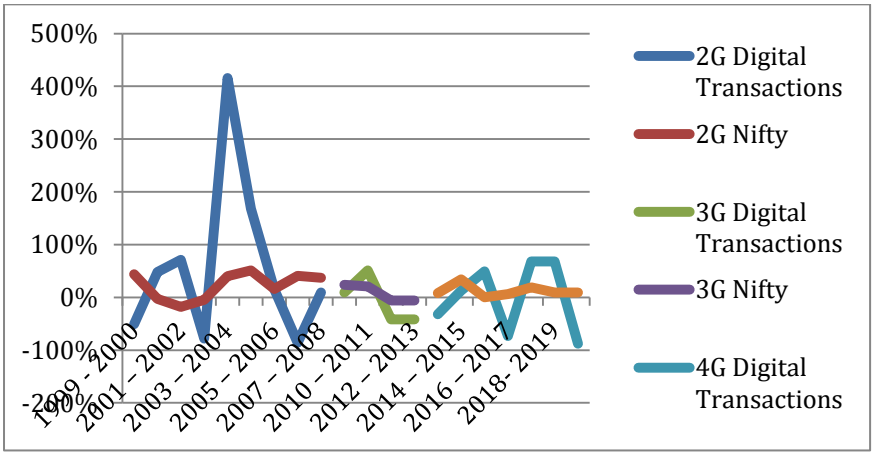
Moinak Maiti, Parthajit Kayal (2017), The impact of digitalization on India's two most vibrant and high-potential growth areas, the services sector and MSME segments, is discussed in this paper. Since 2000, the growth rate of India's services industry and MSME segment has increased significantly. The main reason for this was digitalization. Digitisation automates the product and process, resulting in a rise in both quality and productivity. Despite its tremendous potential for future expansion, India's MSMEs have suffered as a result of a lack of "access to capital." MSMEs' performance is improved through digitization, which also helps to reduce financial barriers by giving alternative financing choices. MSMEs' operating performance, profitability, and productivity have all improved as a result of increased access to alternative funding. India's outstanding performance in the services sector and the MSME sector contribute significantly to total trade growth. The influence of digitalization on the whole Indian economy and commerce is found to be significant in this article.

Data Analysis:

Objective 1: To investigate the trend of Nifty in comparison to Digital Transactions using line graph representation.

Year	2G Digital Transactions	2G Nifty	3G Digital Transactions	3G Nifty	4G Digital Transactions	4G Nifty
1999 – 2000	-51%	44%				
2000 – 2001	48%	-3%				
2001 – 2002	71%	-18%				
2002 – 2003	-78%	-5%				
2003 – 2004	416%	40%				
2004 – 2005	168%	51%				
2005 – 2006	15%	16%				
2006 – 2007	-86%	41%				
2007 – 2008	9%	37%				
2009 – 2010			9%	24%		
2010 – 2011			51%	21%		
2011 – 2012			-42%	-6%		
2012 – 2013			-42%	-6%		

2013 – 2014					-32%	8%
2014 – 2015					13%	34%
2015 – 2016					49%	0%
2016 – 2017					-73%	6%
2017 – 2018					68%	19%
2018- 2019					68%	9%
2019 – 2020					-88%	9%



The table and graph depict the increase of 2G, 3G, and 4G digital transactions, as well as the nifty's development. It was established that when digital transactions were more prevalent throughout the 2 G period, nifty growth slowed, and vice versa. As a result of the decrease in 3G digital transactions, the 3G nifty growth rate has also decreased. As a result, it can be stated that as 4G digital transactions increase, 4G nifty increases, and as 4G digital transactions decrease, 4G nifty decreases.

Objective 2:

To investigate the effects of digital transactions on the nifty using ordinary least square method.

Variable	Coefficient			Std. Error			t-Statistic			Prob.		
	2G	3G	4G	2G	3G	4G	2G	3G	4G	2G	3G	4G
C	31.76048	8.484816	73.95461	17.11205	45.5236	28.71657	1.85603	0.186383	2.575329	0.066	0.853	0.0119
DIGITAL	-0.000197	1.47E-06	3.49E-07	0.001069	6.50E-06	5.67E-06	-0.183998	0.226618	0.061562	0.8543	0.8217	0.9511

	2G	3G	4G
R-squared	0.000289	0.00114	0.000047
Adjusted R-squared	-0.008255	-0.021057	-0.012452
S.E. of regression	160.3159	312.0908	260.0253
Sum squared resid	3007038	4383031	5409054
Log likelihood -	-772.0256	-335.603	-571.3244
F-statistic	0.033855	0.051356	0.00379
Prob(F-statistic)	0.854333	0.821747	0.951065
Mean dependent var	30.14752	8.437853	73.93612

S.D. dependent var	159.6582	308.856	258.4214
Akaike info criterion	13.00883	14.36609	13.98352
Schwarz criterion	13.05554	14.44482	14.04222
Hannan-Quinn criter.	13.0278	14.39571	14.00709
Durbin-Watson stat	1.218362	1.482832	1.845524

The table depicts the influence of second-generation nifty data on digital transactions. The outcome shows that Nifty has little effect on digital transactions. The table depicts the influence of third-generation nifty data on digital transactions. The outcome shows that Nifty has little effect on digital transactions. The table depicts the influence of fourth-generation nifty data on digital transactions. The results show that Nifty has little effect on digital transactions.

Findings:

The analysis discovered that while digital transactions increased in subsequent years, the nifty was dropping during the 2G time. • According to the research, any increase in the growth rate of 4G digital transactions leads to an increase in nifty and vice versa, implying that nifty is directly proportionate to digital transactions. 47 • According to the report, nifty is directly proportional to digital transactions during the 3G time, as both have declined in 2011-12. • The study found that the nifty has a negative influence on digital transactions in the 2G phase, but a positive and significant impact on digital transactions in the 3G period.

Suggestions:

According to the findings, technology has a big role to play in encouraging investors to invest in the stock market. According to the survey, stock brokers should offer user-friendly programmes so that investors can make informed decisions. 2. According to the report, regulators should create strict criteria for online crimes committed by market intermediaries. 3. According to the report, if technology usage rises, investments will rise as well. As a result, the report proposes that regulators and other financial institutions involved with the investor community implement awareness programmes.

Conclusion:

The current study looked at the role of technology in the rise of investments in the context of equities markets. The data for the study was collected between 1998 and 2019. The study period was divided into three sections: 2G (1998–2007), 3G (2008–2011), and 4G (2012–2014). (2012 to till data i.e., 2020). The study found that whereas investments grew dramatically in the second generation, they decreased in the third generation. In the 4G period, real growth in equities markets was evident. The study used a statistical method to discover that technology is having a substantial impact on India's equities market growth. As a result, more research is required to compare the influence of technology advancement on various asset classes' investment growth

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Innovative and best practices in libraries: A special reference to digital preservation

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Abstract :

This paper highlights on various innovative and best practices to be followed by academic libraries. These practices magnetize and meet the user demand , optimize resource utilization and deliver high quality, efficient services to library users. This paper will be useful guide to other academic libraries to get a idea about various techniques used for preservation of digital library.

Keywords : *Library ,Digital library ,best practices and services ,preservation and digital preservation*

Introduction :

Library play important role in the growth and improvement of any country. Day by day impact of ICT on higher education and libraries increasing simultaneously. so it is necessary to adopt best practices and services by libraries to meet user needs effectively.

What is a "Library"?

In *The Librarian's Book of Lists* (Chicago: ALA, 2010), George Eberhart offers this definition: "A library is a collection of resources in a variety of formats that is (1) organized by information professionals or other experts who (2) provide convenient physical, digital, bibliographic, or intellectual access and (3) offer targeted services and programs (4) with the mission of educating, informing, or entertaining a variety of audiences (5) and the goal of stimulating individual learning and advancing society as a whole."

What is Digital Library ?

A digital library is an **online database** of digital objects that can include text, still images, audio, video, digital documents, or other digital media formats that are accessible through the internet. Digital libraries provide means for organizing, searching, retrieving and storing the content in the collection. The digital content may be stored locally or globally or accessed remotely via computer networks

Aims and objectives :

The study identify the different areas in library where the best practices can be applied and implemented for better contribution and continuous development of education system with following objectives.

1. To provide information about best library services and practices.
2. To promote use of ICT and web technology
3. To know about digital preservation
4. To know digital techniques of preservation

Innovative and best practices in libraries:

Best practices are an activities that leads to a superior performance , can reduce cost and improve quality. These practices will help to inculcate good environment among the user community.According to National Board of Accreditation and Assessment (NAAC)5. "Best practice may be innovative and be a philosophy, policy, strategy, program, process or practice that solve a problem or create new opportunities and positively impact on organizations. Institutional excellence is the aggregate of the best practices followed in
different areas of institutional activities."

Sr No.	Traditional practices and services	ICT based practices and services
1	Book exibition	Library automation software
2	Best user award	Library website
3	Career information service	Institutional repository
4	Quiz/competition	OPAC
5	Displaying new arrivals	WebOPAC
6	book talk	Internet services
7	Meet the author	Remote access and Digital search
8	library rules	Web technology based services
9	Library policies	Instagram
10	Reprography	Blogs
11	user survey	Whatsapp group
12	News clipping	e-mail
13	Indexing service	training to use e-resources
14	Inter Library Loan	Bibliographic service
15	Publication	e- publication

16	Question paper collection	Question papers archieved on ary website
17	Library committee	Plagiarism check service
18	Library visit	Virtual tour to library
19	Information literacy program	digital literacy
20	Suggestion box	Electronic document delivery service
21	Involvement of alumni's and donors	Feedback about library
22	Thought of the day	Marketing of library information products
23	Thesis and dissertations	e-Thesis and dissertations
24	Preservation	Digital preservation
25	Binding	Barcoding
26	Notice board	Scanning
27	Library rules	QR Coding
27	Library Committee	Subject gateway
29	Library membership & MoU	Online membership
30	Book fair	URL connectivity to resources
31	Library security personnel	Security- CCTV,RFID
32	Identity Card issue	Smart Card issue
33	Reference service	Current awareness service
34	Readers club	Selective dissemination of information
35	Various days celebration	Publicity of celebration via internet
36	Budget / Funding	Reports creation/ generation

Preservation :

Preservation is activities associated with maintenance of library and archival materials for use either in their original physical form or in some other useable way.

Digital Preservation :

In library digital preservation is important for present and future generation.. American Library Association defines digital preservation as combination of "policies, strategies and actions that ensure access to digital content over time." According to the *Harrod's Librarian Glossary*, digital preservation is the method of keeping digital material alive so that they remain usable as technological advances render original hardware and software specification obsolete.

The need for digital preservation :

Need arises because of the relatively short life span of digital media. Widely used hard drives can become unusable in a few years due to a various reasons such as damaged spindle motors, and flash memory can start to lose data around a year after its last use, depending on its storage temperature and how much data has been written to it during its lifetime.

Digital preservation techniques :

1. Digitization
2. 5D optical data storage has the potential to store digital data for thousands of years.
3. Archival disc based media is available, but it is only designed to last for 50 years and it is a proprietary format, sold by just two Japanese companies, Sony and Panasonic.
4. M-DISC is a DVD-based format that claims to retain data for 1,000 years,
5. Data stored on LTO tapes require periodic migration, as older tapes cannot be read by newer LTO tape drives.
6. RAID arrays could be used to protect against failure of single hard drives
7. Data migration from one media to other

Recommendations :

1. Libraries should identify the needs and preferences of user community.
2. The digital library services must satisfied user needs.
3. Librarian must involved in teaching –learning process and purchase online resources.
4. Librarians should play important role in digital preservation.

Conclusion

The best practices improves quality of library services. These practices adopted in academic institutes should bridge the gap between library collection & user community for maximum utilization of the resources. Library adopted various best practices in its administration, management, collection & services, extent of the use of services and use of technology. Digital preservation is essential for providing up-to-

date information to user community. The above best practices by every academic library creates its own image in the mind of fraternity of the institution & society.

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Digital Library Services and Practices: an online survey,S
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An Assessment of Changing Cropping Pattern in Haryana's Agriculture

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Abstract:

This paper examines the structural changes in Haryana's agriculture and its distributional pattern based on the secondary sources of data. The results exhibited that agriculture in the state has undergone significant changes. However, the benefits of such changes have not been shared evenly across the crops. This resulted in an impressive growth in the production of the superior food grain crops, paddy and wheat while the other crops and non-food grain crops except cotton and oil seed crops have not received due attention in the growth process. This invites special attention of the researchers and policy makers towards the crops along with equitable exploitation of irrigational resources for sustainable growth in agriculture.

Introduction

Haryana, which was one of the food-deficit states till its creation in November 1966, has made remarkable progress in food grain production during the green revolution. Much of this growth was attributed to the adoption of state sponsored new seed-fertilizer based technology in mid-sixties. This has resulted in spectacular structural transformation in the State's agriculture, leading to increased rural income and employment. The expansion in irrigation coupled with increased infrastructural facilities has been instrumental for large shifts in the cropping pattern, production and productivity of crops in the State. However, agriculture in Haryana is characterised by wide differences in its output and productivity performance across the crops. The inter-crop imbalances are undesirable not only from the point of equitable development of all the regions, but also because of the high cost of cultivation. This calls for in-depth study on structural transformation in agriculture and its distributional pattern across the crops. The present study is, therefore, an attempt in this direction. The basic objective of the study is to provide an integrated picture of the changes that are taking place in Haryana's agriculture since 1970-71 and the distributional pattern of the growth over time. This would help policy makers to reschedule their development strategies in achieving sustainable and equitable growth in the state's agriculture.

Objective

To study the cropping pattern in Haryana's agriculture.

Methodology

The study is primarily based on secondary data. In order to study the trends in area, production and productivity of crops, the data is compiled from various issues of Statistical Abstract of Haryana. For combining the production indices of various crops, the share of individual crop value in total crop output was used as the weight to arrive at the production indices of a group of crops. Compound growth rates of area, production and yield of major crops were calculated by fitting exponential function for overall period of 1970-71 to 2017-18.

Analysis

The introduction of Green Revolution technology in 1966-67, has given way to significant changes in cropping pattern in Haryana. However, due to the severe problem of national food security the cropping pattern in Haryana largely remained food grains oriented (Table 1). Although, the commercialisation has resulted in some decline in area under food grains but still the area under food grains was 69.21 per cent in 2017-18. Area under total cereals has increased from 54.64 per cent to 68.35 per cent during this period, although there have been wide fluctuations in the share of other food crops and pulses during this period. Among the food grains crops, bulk of area was accounted by paddy and wheat. While other food crops such as maize, jowar, bajra, barley and total pulses have experienced a fall in area under cultivation. Hence, the increase in area under these two crops has largely been at the cost of other food crops and pulses.

Table 1: Area under Food Grain Crops in Haryana (%)

	1970-71	1980-81	1990-91	2000-01	2010-11	2017-18
Paddy	5.43	8.86	11.17	17.24	19.11	21.71
Wheat	22.78	27.10	31.25	38.51	38.50	38.64
Maize	2.31	1.3	0.59	0.25	0.15	0.10
Jowar	4.18	2.51	2.17	1.79	1.90	0.72
Bajra	17.74	15.93	10.28	9.25	27.55	6.86
Barley	2.19	2.28	0.85	0.72	0.57	0.31

Other cereals	0.4	1.8	2.7	0.2	0.5	0.1
Total cereals	54.64	57.99	56.38	68.46	69.55	68.35
Total pulses	23.38	14.55	12.53	2.57	2.70	0.86
Total foodgrains	78.03	72.55	68.92	71.03	72.25	69.21

Source: Department of Economic and Statistical Analysis, Haryana

The findings presented in Table 1 indicate a clear shift in the cropping pattern in favour of rice and wheat over the years. The important factors which have led to increasing trend towards monoculture are availability of HYV's seeds of rice and wheat, increase in area under irrigation facilities, assured market for these crops through minimum support price, subsidised inputs, mechanisation of production process etc. Among non-food grain crops, cotton and oilseeds emerged relatively more important in comparison to other crops (Table 2). The proportion of area under cotton and oilseeds has increased from 3.9 per cent and 2.88 in 1970-71 to 10.03 per cent and 8.54 per cent in 2017-18. During this period, area under sugarcane has come down from 3.14 per cent to 1.75 per cent. The reason behind the decline in area under sugarcane and increase in area under cotton and oilseeds is commercialisation of agriculture towards market-oriented crops, as cotton and oilseeds are considered as cash crops. The lack of availability of sugarcane mills and higher transportation cost of sugarcane are some of the important reasons behind the fall in area under cultivation. Moreover, in comparison to other cash crops, sugarcane is an annual crop. So, for returns, farmers have to wait for a year relative to six months in case of other crops.

Table 2: Area under Non-Food Grain Crops in Haryana (%)

		1970-71	1980-81	1990-91	2000-01	2010-11	2017-18
Cotton	American	1.79	3.87	7.12	6.44	7.23	10.03
	Desi	2.11	1.92	1.17	2.64	0.35	0.17
	Total	3.9	5.79	8.29	9.08	7.58	10.20
Sugarcane		3.14	2.07	2.5	2.34	1.30	1.75
Total oilseeds		2.88	5.7	8.25	6.77	8.00	8.54
Total fruits & Vegetables		0.65	0.86	1.05	0.97	1.12	1.21

Source: Department of Economic and Statistical Analysis, Haryana

Table 3 presents the production of food grain crops in Haryana during the period from 1970-71 to 2017-18. It highlights that, the food grain crops paddy and wheat shows increasing trend in total production of food grains. Both these crops accounted 26.98 per cent and 67.79 per cent of total food grains production respectively in 2017-18, which was 9.64 per cent and 49.1 percent in 1970-71. Paddy and wheat production in total food grains production was at the cost of other food crops such as maize, jowar, bajra, barley and pulses which have recorded negative growth in total food grains production. The production of these crops in total food grains production has fallen over time. The total share of these crops in food grains production was 41.26 per cent in 1970-71 and come down to 5.23 per cent in 2017-18. This drastic decline in other food crops in production of food grains on the one hand and exceptional increase in production of paddy and wheat on the other hand has transformed the traditional diversified production structure into monoculture (Singh and Singh, 2020). It has not only have a serious implication for the health of soil and ecological balance but also for the consumption pattern in rural Haryana. The rise of monoculture and commercialisation of agrarian production system has brought the farming households to the market to meet the domestic consumption requirement which they were capable to fulfil of their own in the past.

Table 3: Production of Food Grains in Haryana (%)

	1970-71	1980-81	1990-91	2000-01	2010-11	2017-18
Paddy	9.64	20.86	19.19	20.27	20.92	26.98
Wheat	49.1	57.8	67.33	72.73	69.89	67.79
Maize	2.72	1.34	0.51	0.25	0.11	0.11
Jowar	1.19	0.79	0.68	0.17	0.23	0.13
Bajra	17.31	7.85	5.50	4.93	7.14	3.98

Barley	2.60	3.00	1.12	0.89	0.78	0.38
Total Cereals	82.56	91.67	94.33	99.25	99.07	99.37
Total pulses	17.44	8.33	5.67	0.75	0.93	0.63
Total Foodgrains	100	100	100	100	100	100

Source: Department of Economic and Statistical Analysis, Haryana

It is well established fact that after the introduction of new methods of cultivation, the production and productivity of major crops have increased sharply. Among the principal crops, productivity of paddy and wheat has increased at a much faster rate.

Table 4: Average Yield per Hectare of Important Crops in Haryana (Yield in kgs.)

	1970-71	1980-81	1990-91	2000-01	2010-11	2017-18
Rice	1697	2606	2775	2557	2788	3422
Wheat	2074	2360	3479	4106	4624	4847

Source: Department of Economic and Statistical Analysis, Haryana

Table 4 presents per hectare productivity of important crops in Haryana from1970-71 to 2017-18. Average yield of paddy and wheat has increased from 1,697 kg/ha and 2,074 kg/ha in 1970-71 to 3,422 kg/ha and 4,847 kg/ ha respectively in 2017-18. During this period, the productivity of paddy has increased around two times and productivity of wheat has increased around two and half times. Among the other food crops productivity of barley has increased around three times.

The trends in growth of area, production and productivity of food grain crops are presented in Table 5. It is evident from the data that cereals, (particularly paddy and wheat) have recorded a very high growth in area, production and productivity. However, the other cereals and pulses have showed a declining trend in their area and production. Hence, high growth of total food grains production was due to high growth of paddy and wheat. Further, the growth in area and production of both paddy and wheat cereals was substantially higher than that of their respective yield.

The data also highlights that growth of area, production and productivity of maize, jowar, bajra, and barley has either remained negative or have recorded a marginal positive growth during 1970-71 and 2017-18.

Table 5: Trend Growth Rate of Area, Production and Yield of Food Grain Crops in Haryana (%)

		1970-80	1980-90	1990-2000	2000-10	2010-17	1970-2017
Paddy	A	6.03	3.17	4.77	1.66	1.55	3.54
	P	10.59	3.83	3.92	2.59	5.01	5.15
	Y	4.38	0.63	-0.81	0.86	2.97	1.50
Wheat	A	2.73	2.26	2.44	0.61	0.15	1.73
	P	4.06	6.31	4.15	1.81	0.82	3.58
	Y	1.30	3.95	1.67	1.19	0.67	1.82
Maize	A	-4.61	-6.92	-7.82	-4.61	-5.62	-5.95
	P	-4.62	-4.90	-3.58	-5.65	0	-4.0
	Y	-0.07	2.23	4.83	-1.75	7.75	2.19
Jowar	A	-4.06	-0.56	-1.66	-4.25	-5.54	-3.08
	P	-1.70	3.07	-9.86	5.14	-6.35	-1.82
	Y	2.48	3.45	-8.34	9.90	-0.43	1.34
Bajra	A	-0.10	-3.51	0.00	11.40	-17.93	-1.41
	P	-5.40	1.04	2.23	6.07	-6.82	-0.28
	Y	-5.31	4.73	2.24	5.20	-1.52	1.15
Barley	A	1.37	-8.62	-1.34	-1.66	-8.38	-3.51
	P	3.85	-5.12	0.98	0.97	-8.65	-1.23
	Y	2.35	3.72	2.51	2.73	-0.26	2.36
Total cereals	A	1.57	0.52	2.29	0.77	-0.01	1.09
	P	3.45	5.00	3.88	2.20	1.30	3.28
Total pulses	A	-3.70	-0.68	-14.38	1.12	-14.93	-6.22
	P	-4.91	0.75	-15.56	4.37	-4.14	-4.14

Total food grains	A	0.24	0.29	0.62	0.79	-0.51	0.33
	P	2.37	4.70	3.35	2.22	1.26	2.87

Source: Department of Economic and Statistical Analysis, Haryana

Table 6: Trend Growth Rate of Area, Production and, Yield of Non-Food Grain Crops in Haryana (%)

			1970-80	1980-90	1990-2000	2000-10	2010-17	1970-2017
Cotton	American	A	9.09	7.13	-0.67	1.77	4.90	4.35
		P	9.82	8.05	0.36	4.58	-0.81	4.65
		Y	0.75	0.84	1.02	2.76	-5.46	0.29
	Desi	A	-0.01	-4.07	8.86	-17.62	-9.99	-4.66
		P	-1.25	-3.59	10.32	-15.65	-9.19	-3.93
		Y	-1.23	0.51	1.38	2.46	0.92	0.79
	Total	A	5.03	4.49	1.24	-1.17	4.43	2.67
		P	5.59	6.03	1.81	2.36	-1.02	3.18
Sugarcane		A	-3.14	2.71	0.32	-5.12	4.48	0.65
		P	-4.20	5.42	0.46	-2.97	6.89	0.65
		Y	-1.02	2.63	0.80	2.20	2.50	1.34
Total oilseeds		A	8.11	4.61	-1.64	2.32	1.02	2.95
		P	6.61	13.02	-1.24	5.53	2.34	5.33
Total fruits & Vegetables		A	3.82	2.87	-0.49	2.11	1.26	1.94

Source: Department of Economic and Statistical Analysis, Haryana

Table 6 presents the trend growth rate of non-food crops in Haryana. These crops registered positive growth over the time. In case of cotton, American variety of cotton have recorded decent growth but it was at the cost of desi variety. Desi variety of cotton showed the declining trend in area and production. The growth rate of area, production and yield of sugarcane during 1970-2017 was negligible i.e. less than 1 per cent.

Conclusions

Agriculture in Haryana has witnessed spectacular transformation leading to significant structural change and impressive growth in its production. However, the benefits of such transformation have not been shared evenly across the crops. The shift in the cropping pattern were in favour of paddy and wheat. This resulted in an impressive growth in the production of these two superior cereals whereas the other cereals were by passed in the growth process. This calls for a new strategy of infrastructural development. To conclude, Haryana has attained a higher level of agricultural development as compared to the situation prevailing in the beginning of 1970's. However, the impact of advancement in agriculture has been crop specific. Keeping in view the findings of this study, it is suggested that the irrigation potential created so far must be exploited more intensively in the State, in general. Also, more attention should be given towards yield improvement in non-food grain crops so that the balance could be maintained in the food-grain basket of the State. This invites special attention of the policy makers and researchers concerned with the agricultural development of the State.

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Maintaining health during the Covid-19 pandemic

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Introduction:

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year. The COVID-19 pandemic and the resulting economic recession have negatively affected many people's mental health and created new barriers for people already suffering from mental illness and substance use disorders. During the pandemic, about 4 in 10 adults in the U.S. have reported symptoms of anxiety or depressive disorder, a share that has been largely consistent, up from one in ten adults who reported these symptoms from January to June 2019 (Figure 1). A KFF Health Tracking Poll from July 2020 also found that many adults are reporting specific negative impacts on their mental health and well-being, such as difficulty sleeping (36%) or eating (32%), increases in alcohol consumption or substance use (12%), and worsening chronic conditions (12%), due to worry and stress over the coronavirus. As the pandemic wears on, ongoing and necessary public health measures expose many people to experiencing situations linked to poor mental health outcomes, such as isolation and job loss. According to the study — which appeared in the journal Obesity Trusted Source — there were significant increases in sedentary leisure behaviours, declines in physical activity, and increases in anxiety and weight gain, especially in people with obesity. The abrupt closures of fitness clubs, restaurants, and places of employment alter eating and physical activity habits. The fear of developing COVID-19, in addition to stay-at-home orders, may provoke added feelings of loneliness and isolation, further exacerbating **stress** and anxiety**.** It has been seen that people performed less Physical Activity and engaged in more sedentary behaviour during the early-COVID-19 period as compared to before the pandemic. Although indoor and outdoor facilities closure and cancellations of team sports and organized activity classes were necessary steps to mitigate the spread of the virus and allow healthcare facilities to build capacity, they appear to have had a profound impact on people's physical activity and sedentary behaviour levels. In order to avoid permanent changes in behaviour extending beyond the duration of the COVID-19 closures, measures must be taken to promote home- and neighbourhood - based physical activity.

Physical Health during the pandemic

Staying at home for prolonged periods of time can pose a significant challenge for remaining physically active. Sedentary behaviour and low levels of physical activity can have negative effects on the health, well-being and quality of life of individuals. Self-quarantine can also cause additional stress and challenge the mental health of citizens. Physical activity and relaxation techniques can be valuable tools to help you remain calm and continue to protect your health during this time. WHO recommends 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity per week, or a combination of both. These recommendations can still be achieved even at home, with no special equipment and with limited space.

Take short active breaks during the day. Short bouts of physical activity add up to the weekly recommendations. Dancing, playing with children, and performing domestic chores such as cleaning and gardening are other means to stay active at home.

Follow an online exercise class. Take advantage of the wealth of online exercise classes. Many of these are free and can be found on YouTube. If you have no experience performing these exercises, be cautious and aware of your own limitations.

Walk. Even in small spaces, walking around or walking on the spot, can help you remain active. If you have a call, stand or walk around your home while you speak, instead of sitting down. If you decide to go outside to walk or exercise, be sure to maintain at least a 1-meter distance from other people.

Stand up. Reduce your sedentary time by standing up whenever possible. Ideally, aim to interrupt sitting and reclining time every 30 minutes. Consider setting up a standing desk by using a high table or stacking a pile of books or other materials, to continue working while standing. During sedentary leisure time prioritize cognitively stimulating activities, such as reading, board games, and puzzles.

Relax. Meditation and deep breaths can help you remain calm.

The Importance of Physical Activity during the COVID-19 Pandemic

1. Physical activity enhances immune function and reduces inflammation therefore it could reduce the severity of infections.
2. Physical activity improves common chronic conditions that increase the risk for severe COVID-19 (i.e. Cardiovascular Disease, Diabetes).
3. Physical activity is a great stress management tool by reducing symptoms of anxiety and depression.
4. Physical activity helps bring cortisol levels in balance. Stress and distress (such as during a pandemic) creates an imbalance in cortisol levels and this negatively influences immune function and inflammation.

Mental Health during the pandemic

Fear, worry, and stress are normal responses to perceived or real threats, and at times when we are faced with uncertainty or the unknown. So it is normal and understandable that people are experiencing fear in the context of the COVID-19 pandemic.

Added to the fear of contracting the virus in a pandemic such as COVID-19 are the significant changes to our daily lives as our movements are restricted in support of efforts to contain and slow down the spread of the virus. Faced with new realities of working from home, temporary unemployment, home-schooling of children, and lack of physical contact with other family members, friends and colleagues, it is important that we look after our mental, as well as our physical, health. The COVID-19 pandemic is associated with highly significant levels of psychological distress that, in many cases, would meet the threshold for clinical relevance. Mitigating the hazardous effects of COVID-19 on mental health is an international public health priority.

Feel free to feel your feelings

You and your colleagues are likely to feel immense pressure given the potential surge in care demands, risk of infection and equipment shortages, among other stressors. Experiencing stress and the feelings associated with it are by no means a sign of weakness or a reflection on your ability to do your job.

Intentionally employ coping strategies

Put into practice strategies that have worked for you in the past during times of stress. These can include getting enough rest and finding respite time during work or between shifts, eating meals (ideally, healthy food, on a schedule), engaging in physical activity and staying in contact (with appropriate social distancing) with family and friends.

Perform regular check-ins with yourself

Monitor yourself for symptoms of depression/stress disorder such as prolonged sadness, difficulty sleeping, intrusive memories and/or feelings of hopelessness. Talk to a trusted colleague or supervisor. Be open to seeking professional help if symptoms persist or worsen over time.

Take breaks from the news and social media

Make a regular habit of stepping away from your computer and smart phone from time to time. When returning online, focus on information from reputable sources, not just sources in your social media feed. You don't have to take in everything produced by a 24/7 news cycle.

Be fortified by remembering the importance and meaning of your work

Remind yourself that despite the current challenges and frustrations, yours is a noble calling – taking care of those in need in a time of great uncertainty. Make sure to take time to recognize the efforts and sacrifices made by your colleagues. Together, we are all stronger.

Some groups may be more vulnerable than others to the psychosocial effects of pandemics. In particular, people who contract the disease, those at heightened risk for it (including the elderly, people with compromised immune function, and those living or receiving care in congregate settings), and people with pre-existing medical, psychiatric, or substance use problems are at increased risk for adverse psychosocial outcomes. Health care providers are also particularly vulnerable to emotional distress in the current pandemic, given their risk of exposure to the virus, concern about infecting and caring for their loved ones, shortages of personal protective equipment (PPE), longer work hours, and involvement in emotionally and ethically fraught resource-allocation decisions. Prevention efforts such as screening for mental health problems, psychoeducation, and psychosocial support should focus on these and other groups at risk for adverse psychosocial outcomes.

Social Health during the pandemic

Positive social health can help you strengthen support systems and stay physically and mentally healthier. Self-care is an important way to maintain strong relationships. Eating a balanced diet, getting plenty of rest

and exercising are a good start. Learning how to handle stress is vital, too. When you're feeling mentally and physically strong, it's easier to share the best of yourself with others.

Connect with your kids

Whether you have youngsters at home more often because of the pandemic or young adults who are working from home, being with your kids can have its ups and downs. But try to focus on the good. Being available for chats, consistently seeking connection and actively listening can help your kids' mental well-being and set an example of healthy socializing.

Reach out to keep friendships close

Regular contact is important for maintaining close friendships. Even if you're staying at home more, you can still set a goal to contact a couple of your friends every week. Make a call, text them, have an exchange using social media, share coffee over google meet or Zoom — there are a number of ways to connect with friends and keep them close at heart even when you're social distancing.

Regular contact is important for maintaining close friendships. Even if you're staying at home more, you can still set a goal to contact a couple of your friends every week.

Find common ground in a community group

Maybe you don't need a lot of close friendships. If you prefer to keep things low-key but still enjoy engaging with others, think about joining a group. Because of COVID-19, many community groups are forming virtually. For example, one young lady who enjoys playing the ukulele has joined a group for a Sunday evening uke jamfest on Facebook. Make it about sharing moments with others while doing something you enjoy.

Work on your friendships while working out

Grab your mask and meet a friend for a physically distant walk around the park. Or take your pet for a walk and take a moment to chat with a neighbor at a safe distance. Going out at about the same time each day often leads to seeing the same people regularly. Although you may only have a brief conversation, it can become a bright spot in your day that you look forward to and also improve your social wellness.

Keep your social commitments

Maybe you're not going out to eat or enjoying a movie night with friends like you used to. That's why something like a video call with a friend is just as important. Still, it takes time and effort to connect and it may seem easier to cancel the call. But cancelling too often will make your friend feel less valued. That can affect not only your friend but your feelings about yourself. Try to keep your commitments and make the connection.

Hone your communication skills

Communication is a major part of maintaining strong relationships and staying socially healthy. Feeling you have poor communication skills may make it hard for you to socialize and build a rapport with others. In many cases, it's a lack of confidence or practice that can be improved by reading books or taking online courses. Not everyone is born with great communication skills, but they can be learned.

Conclusion

The pandemic has brought all our lives at a standstill. All out daily work and activities have stopped and it has had a very big impact on our day to day life. All our physical activities and social interactions have stopped which has caused a lot of stress and anxiety leading to mental health issues. Hence, it is very essential for us to keep ourselves busy and active so that we do not lose our touch and we can keep ourselves physically and mentally healthy. Also, we need to continue our social interactions in some way or the other keeping in mind the safety so that we do not lose our friends and families. We need to take time from our daily schedule for physical activities by taking short breaks and indulging in exercise, we can also take up online classes which are readily available, even simple exercises like walking, standing and jogging can do wonders for physical wellbeing. Relaxing and meditation is also an important way of keeping oneself healthy. Maintaining mental health during the pandemic can be tough but it is absolutely essential. It is necessary to keep a check on yourself, use coping strategies, get away from media and social media for some time, understand your work and make time for yourself. It is important not to ignore any signs of anxiety, stress or depression and seek immediate medical help. It is also absolutely essential to keep our social interactions running. Give time to your own self, spend time with kids, communicate with friends through various modes of communication, grab a mask and meet up with a friend or workout together. In these tough times it is absolutely vital that we keep ourselves physically, mentally and socially healthy.

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Challenges Faced By the Students Community during Covid-19 Pandemic

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Abstract

The calamity of COVID-19 had affected the lives of all sections of society. People were directed to remain self-quarantine or isolate in their respective homes to prevent the spread of virus. It weakens health system, costs live, disrupts business, spreads poverty and poses greater risks to the global economy and security. It revolutionizes the whole educational system from pre-primary to university level. More than one and half billion students across the world are now deprived from the basic education. Covid-19 pandemic has perpetuated an intense and terrible impact on the student's community across the globe. The closure of schools, colleges, universities and lockdown have the dangerous impact on mental and physical health of the students. These problems are the main result of psychological problems including frustration, stress, and depression etc. The student's community has gone through countless challenges throughout the Corona pandemic. The main aim of this paper is to highlights the various issued faced by the student's community during the covd-19 pandemic.

Keywords*: Covid-19, Challenges, Students, Online Classes and School Closure*

Introduction

The whole world has been afflicted by a pandemic over the first half of 2020. It was identified as a new coronavirus (severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2), and later named as Coronavirus Disease-19 or COVID-19 (Qiu et al., 2020). While COVID-19 originated in the city of Wuhan in the Hubei province of China. It has spread rapidly across the world, resulting in a human tragedy and tremendous economic damage. By mid-June, there had been over 8 million cases of COVID-19 globally, with over 436,000 deaths (WHO, 2021)

The disaster of covid-19 has been spread worldwide. It has been considered as the global health hazard of the present era and the big challenges we had faced in this decade (Goyal, 2020). No one would have guessed that such a small virus will alter the life of every individual. It weakens health system, costs live, disrupts business, spreads poverty and poses greater risks to the global economy and security. The social, economic and employment disruption caused by the pandemic is very decanting almost each aspect of society has faced lots of problems and challenges in this pandemic. But education sector is the aspect which is worse effected by this pandemic. Its effect on education could be felt for years to come. At global level more than 1.2 billon children are out of classroom. As a result, education has changed dramatically with the distinctive rise of e learning, whereby teaching is undertaken remotely and on digital platforms.

Impact of Covid-19 on Students

The COVID-19 pandemic is continuing to perpetuate an intense and terrible impact on the student's community across the globe since December 2019. Actually, the calamity of Covid-19 had hampered almost each sector of development such as economic sector, hospitality, employment, and mental health of human beings, etc. but education sector is considered as the most effected prone arena of this dangerous disaster. All educational institutions whether it is government or private is hampered worst due to the long period of lockdown and closures of schools, colleges and universities. Teachers and students were not trained to face this calamity and manage the online education process due to the unawareness of latest educational technology. It had identified a very painful and severe impact on education system as all schools, colleges and universities closed their premises and countries shut their borders in response to lockdown measures to prevent the spreading of Covid-19. These measures have long-term effects on the lives of students whether these are mentally or physically disturbed (Cohen, Hoyt, & Dull, 2020). A noteworthy influence is on the education, social life and mental health of students (Gonzalez et al., 2020).

Educational institution has suspended and delayed their campus-based operations, such as teaching research and evaluation process etc. Beside the negative impact we have also gained the advanced skills to tackle the novel problems. It led to a significant impact on various countries' foster the eagerness of competitiveness and their ability to foster advanced skills and regional development in their respective areas. Teaching and learning process have been hampered by the COVID-19-related crisis in the most direct way. According to UNESCO report, 2020 more than 157 crore students across 191 countries around the world were reported to have been influenced by this chronic virus. The whole educational system has been collapsed during the lockdown pandemic period. More than 1.5 billion students across the world are now deprived of their basic education (Cao et al., 2020). Closure of schools, colleges and universities had

also made education uncertain at all levels of education. Thus, the closure of schools and lockdown spoiled the schedules of every student. Schools children already coping many hindrances in this pandemic specifically in the form of dramatic changes that from offline to online mode of transitions, COVID-19 has had unprecedented consequences on academic research. It has created fear and anxiety among the students. Due to this student even cancelled their routine health check-ups for reluctant to visit hospital amidst contagion worries. It is having profound impact not only on student's health but also on how they learn, work, interact and live.

Challenges Faced by Students

The closures of schools, colleges, and universities are expected to aggravate the learning crisis that existed before the pandemic. The most vulnerable students being the most adversely affected. This rapid evolution at such a large scale has influenced the students of all age groups. Especially the students from rural backgrounds have been observed larger negative impacts as compared to the urban due to the Covid-19 outbreak (Bao, 2020). Rural school children have historically been disadvantaged and marginalised in terms of educational quality and opportunities as compared to their urban counterparts, as stressed by two recent large-scale survey reports – the Annual State of Education Report 2020 (ASER) and the household social consumption on Education in India (2017–2018) survey. With prolonged closure of schools and colleges students feels isolated. Isolation of students from their peer groups and lack of instant eye to eye verbal and non- verbal communication with each other also effects the learning of students. This led to the result in loss of learning interest among the students. Therefore, they are mainly involved in farming and other household works in rural areas. Students were not able to purchase the books, notebooks and other study material (stationary) for their study. As we know that all education system including teaching learning process, assignment work and evaluation system was shifted to online modes, which were proved to a great challenge particularly for rural students, where little success has been recorded all over the world. Moreover, attending the online classes requires an efficient android phone, computers, leave from farming jobs, long hours of internet, and peaceful and separate space for each student in a family (Cook, 2009). But these all types of facilities were not able to avail to each student in the poor families. Most of the poor families were faced the problems and challenges to earn their basic needs like proper nutrition and shelter in prolonged Covid-19 pandemic. Rural school children and their parents were not able to facilitate the online learning materials (Android phones) etc. due to the lack of financial scarcity in pandemic. Thus, economic sacristy was found to be a major cause to keep many untouched students from education during the entire pandemic period of lockdown (McCarthy, 2020). Many students even after having their own android phones and network facilities were unable to continue their education as they were not accustomed or trained to use education applications and search engines (Saha, Barman, & Chouhan, 2020). Most of the teachers and students especially from the rural areas were not able to use the educational Apps like Google meet, Zoom App and WhatsApp etc. Only small number of students had been able to attended live online classes due to the above-mentioned restrictions. Moreover, the excessive use of technology weakens the eye sights of the students because most of the students were not habitual to sit in front of computer and android phones to listen and watching the virtual lectures of teachers. Students were not aware about how they should have to maintain data privacy and security. This may increase the rate of cyberbullying among students. There were many other dimensions that disrupts the online learning such as sudden weather changes in hilly area, interruption in electricity, and network failures etc. As a result, students were not able take online exams, quizzes and submit their assignments etc. Thus, interruption in learning due to these factors revolutionize the whole professional life of students. Moreover, the changes in daily routine schedules, including lack of outdoor activity, disturbance in sleeping patterns, making social distance, family stress and economic burden etc. disrupts the academic functioning of the students. Some amount of fear and anxiety is normal reaction to this abnormal situation. But if the anxiety is so intense, that it is disrupting student's ability to concentrate on other things. Excessive anxiety and stress distract the students from their daily routine wise study. Thus, students are more vulnerable to irritant, anxiety, and depression. All these have been influenced the mental well-being of the students in the long run in rural areas (Cohen et al., 2020). The consistent lockdown and learning loss create job insecurity among the many students. Some students did not handle the pressure of future uncertainty and make themselves as a suicidal prone. This might have been added the feelings of helplessness and shame of students (Gonzalez et al., 2020; McCarthy, 2020).

Conclusion

The educational system with in the country has been crippled due to this pandemic which causes chaos and confusion regarding the education of the students. It effected all types of education from pre-primary to university. The prolonged lockdown, curfew, isolation, making social distance and self-quarantine have

affected the overall physical, social, mental, moral aesthetic and spiritual wellbeing of the students. It had led to great impact on students' academic career and set their clock to back on the attainment of education goals. The new lockdown policies and guidelines would help to mitigate some of the negative effects and prepare educators and students for the future educational crisis. Teachers and trainers should have to conduct the awareness camps, seminars and conferences to spread the knowledge about new guidelines and policies to mitigate the calamity of covid-19.

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The Law Relating To Preservation and Control of Water Pollution

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Abstract:
The main problem is the water pollution, arising from the developed countries to major extent, and also the poor countries to minor extent. The development countries have established several thousands of industries and exported the finished goods to the remaining world and consume goods themselves. In the manufacturing process, the industrial sludge and wastes are released from these factories in lakhs of tonnes. Some of the industrial waste and sludge's are released into the nearby canals and rivers. The untreated pollutants reach into the seas and oceans. Further certain most dangerous substances, by-products of nuclear weapons, nuclear plants, Cyanide, arsenic products, etc., are released in abundant quantities into the seas. The developed countries have been loading such noxious substances in the ships, aeroplanes and dumping them in the open seas. This harmful and dangerous process started since the beginning of the twentieth Century and it is still continuing. Thus the marines from the territorial water zone to entire open seas are highly polluted. In the development countries, the population is very high. The human excretion and domestic wastes are thrown into the adjacent rivers, which flow into the seas. Thus the seas have become the open dust bins of the world. Up to the ending of the nineteenth Century, this problem was not so severe. Because the number of the people and number of the industries were lesser in quantity and quality. Due to modern technology, industrialisation and urbanisation heavy quantities of dangerous, noxious and hazardous substances are released into the seas in highest quantities. Day- by – day these are accumulated in the seas. The man thinks that the oceans can bear entire pollution and thus he negligently and indifferently throws heavy burden on the seas. The result is that the sea animals died/ are dying due to pollution. Some of the rare species had already extinguished. If it is not stopped and controlled, it will adversely affect upon the earth. Environment is God gift. Water, Air, Soil are the most important things for living beings. Since the starting of existence of living beings, physical and biological processes have been continuing in the environment. However these normal environmental processes are adversely affected by the contamination by human

Introduction:

The water saline and drinking consists 71% of the geographical area of the globe. However out of this huge quantity of water only 1% is drinkable and he is human consumable. The water is available on the land is very less, which is available by rains. Some of the water is available in underground. Due to indiscriminate use of water for industrial purposes, it is being contaminated by industrial wastage, sludge and pollution. The underground water too is shrinking day-by-day due to heavy usage, if it is not protected, we and our coming generations should suffer. The Stockholm Conference, 1972 paved the way to the nations of entire globe to seek legislative remedies to prevent and control of water pollution. India was one of the participating members of Stockholm Conference, 1972. Inspired by the Stockholm Declaration, the Indian Parliament enacted the Water (Prevention and Control of Pollution) Act, 1974. The Act of 1974 contains 64 Sections. These 64 Sections have been comprised in 8 Chapters. Chapter-I is "Preliminary", giving short title, application, commencement and definitions. Section 2(e) defines "Water Pollution", Sec.2 (g) defines "Sewage Effluent". Sec.2 (k) defines "Trade Effluent". Chapter-II narrates about "the Central and the Stage Boards for Prevention and Control of Water Pollution". Chapter-III explains about "the Joint Boards". Chapter-IV explains "the Power and Function of Board". Chapter-V narrates the details about "Prevention and Control of Pollution". Chapter-VI creates "Funds, Accounts and Audit". Chapter-VII imposes "Penalties and Procedure". Chapter-VIII deals with "Miscellaneous Provisions". The Water (Prevention and Control of Pollution) Act, 1974; the Air (Prevention and Control of Pollution) Act, 1981; the Environment (Protection) Act, 1986 and the Factories Act, 1948 (as amended by Amendment Act, 1986) explains the provisions substantive law and also procedural law. They impose certain restrictions and punishments upon the industrials, occupiers of the factories to be strictly followed and not to cause environmental pollution. The Water Act, 1974 empowers the Central Board, Joint Board, and State Board to other the industry causing pollution to close its operations. The Supreme Court, in its several cases, gave the directions to close the industries in populated areas and to relocate them far away from cities. It appreciated the orders of closure issued by the Boards from time to time. Chapter- VII of the Water Act, 1974 contains the provisions "Penalties and Provisions". This Chapter contains Sections from 41 to 50. Section 50 lays down that all members, officers and servants of a Board, when acting or purporting to act in pursuance of any of the provisions of this Act and rules made there under shall be deemed to be Publish

Servants within the meaning of Section 21 of the Indian Penal Code, 1860. Thus they get protection for their acts don in good faith. Section 59 gives protection to the Government or any officer of Government or any member or officer of a Board in respect of anything in which is in good faith done or intended to be done in pursuance of this act or the rules made thereunder.

Prevention and Penalties:

(a) Whoever destroys, pulls down, removes, injuries or defaces any pillar, post or stake fixed in the ground or any notice or other matter put up, inscribed or placed by or under the authority of the Board, or
(b) Whoever obstructs any person acting under the orders or directions of the Board from exercising his powers purpose of this Act, or
(c) Whoever damages any works or property belonging to the Board, or
(d) Whoever fails to furnish to any officer or other employee of the Board any information required by himforthepurpose of this Act, or
e)Whoever fails to intimate the occurrence of any accident or other unforeseen act or event under Section 31 to the Board and other authorities or agencies as required by that Section, or
(f) Whoever in giving any information which he is required to give under this Act, knowingly or wilfully makes a statement which is false in any maternal particular, or
(g) Whoever for the purpose of obtaining any consent under Section 25 or Section 26 knowingly makes a statement which is false in any material particular.

Control and Reduction of water Pollution:

(1) Where an offence under this Act has been committed by a company, every person who at time the offence was committed was in charge of, and was responsible to company, as well as company for the conduct business of the company, shall be deemed to be guilty of offence and shall be liable to be proceeded against and punished accordingly Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act is proves that offences was committed without knowledge or that he exercised all due diligence to prevent the commission of such offence.
(2) where offence under this Act has been committed by a company and it's proved that the offence has been committed with consent or connivance, or is attributable to any neglect on the part of any director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to proceeded against and punished. For the purposes of this section ,- "company" means any body corporate, and includes a firm or other association of individuals; and "director" in relation to a firm means a partner in the firm.
Cognizance of offence :- (1) No Court shall take cognizance of any offence under this Act except on a compliant made by :-
(a) a Board or any officer authorised in this behalf by it ; or
(b) any person who has given notice of not less than sixty days, in the manner prescribed, of the alleged offence and of intention to make a complaint, to the Board or officer authorised and no Court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of first class shall try any offence punishable under this Act
(2) Where a complaint has been made under Clause (b) of sub-section (1), the Board shall, on demand by such person, make available the relevant reports in its possession to that person. Provided that the Board can refuse to make any report available to such person if same is in its opinion against the public policy.
(3) Notwithstanding anything contained in Section 29 of the Code of Criminal Procedure, 1973 it shall be lawful for any Judicial Magistrate of first class or for any Metropolitan Magistrate to pass a sentence of imprisonment for a term exceeding two years or of fine exceeding two thousand rupees on any person convicted of an offence punishable under this Act.

Water Pollution :Judicial Pronouncements

M.C. Mehta vs. State of Orissa and others (AIR 1992 ORI 225)
(CuttackMunicipalityCase The petitioner, a practising advocate of the Supreme Court and Secretary of the Indian Council for Environ Legal Action, a registered voluntary organisation, went to see Cuttack and adjacent areas with an intention to enjoy the thousand years heritage culture. There he found that heavy pollution from the sewage drains seriously damaged the environment. Entire city was made noxious and hazardous. River Kothijori flowing from nearby Cuttack was also polluted. Mahanadi delta of Cuttack district was also heavily polluted. The petitioner filed Public Interest Litigation under Art. 226 before the High Court of Orissa. He produced evidences and argued that the Municipal Committee, Cuttack, SCB Medical College Hospital, Cuttack have been violating the Article 21 and neglecting the Water and Air

Acts. The Division Bench of the Orissa High Court admitted the contentions of the petitioner and orders the respondents to arrange sanitary conditions in the Cuttack town and district. It observed: "The stand of the State and its functionaries and the Municipal Authorities is evasive and considering the counter affidavit filed by them it is found that while the Board has revealed the corrected position, they have tried to suppress the truth. It is unfortunate, particularly when the reports of the Board refer to the above disclose a hazardous state of affair. The health of large number of people is at stake, therefore, plea of helplessness or financial difficulties or passing the buck to the other wings of the departments will be of no assistance. The authorities should wakeup before the matters slip out of their hands. M.C. Mehta vs. Union of India and others (1997) 2 SCC 411 (Calcutta Tanneries Matter) Seema, Krishna Mahajan and Khanwilkar submitted a writ petition before the Supreme Court in the year 1985. M.C. Mehta was the advocate for the petitioner. The petitioners averred that there were about 550 tanneries in Calcutta, which were discharging untreated noxious and poisonous effluents into Ganga River polluting in Calcutta city, Land River. The petitioner submitted the reports of NEERI, West Bengal Pollution Control Board etc. The State Government of West Bengal contended that it took efforts to relocate tanneries but they were not co-operating for relocation to new complex. Due to the noxious and poisonous effluents and wastages from the tanneries the ecology was badly affected and threatened to the public health. Environment was heavily polluted. It has become public nuisance. The Supreme Court gave the judgement to close all the tanneries the ecology was badly affected and threatened to the public health. Environment was heavily polluted. It has become public quiescence. The Supreme Court gave the judgement to close all the tanneries and to relocate them in a far distance place from Calcutta, and to construct a common effluent treatment plan if all the tanneries co-operate, and if they would not co-operate, every owner of tannery industry shall have to construct effluent treatment plan separately. The pollution Board should not give no objection certificate and consent letters to the industries which has not set up ETP. All these tanneries in Calcutta must be closed before 30-09-1997.

Conclusions:

The Preamble of the Act, 1974 explains the objects of the Act. It is to be remembered that this is the first Act enacted on the environment by the Indian Parliament inspired by the Stockholm Declaration. The objects of this Act more or less similar with the principles of Stockholm Declaration. An Act to provide for the prevention and control of water pollution and the maintaining or restoring or wholesomeness of water, for the Control of Water Pollution, for the conferring and assigning to Board power and function thereto and matters connected therewith. The industrialization is the main factor and source of the environmental pollution. It is more dangerous than the two sources above cited. The Industrial Revolution had been started in Britain in eighteenth century. Later it was spread in the remaining world, especially in other western countries. The traditional energy consumption, produced from charcoal in limited extent, was replaced by the industrial energy, for the industries and domestic purposes. Added to it, development in technology brought new ways to exploit the new sources of energy, such as coal, gases, oils, thermal energy, nuclear energy, etc. The new technology introduced new means of transportation, such as railways, motorcars, aero planes, rockets, etc; all these new means consume huge quantities of natural resources. Automobiles are major contributors for air pollution in the urban cities. Whereas it's expedient to provide for prevention and control of water pollution and the maintain or restore of wholesomeness of water, for establishment, with a view to carry out the purpose aforesaid, of Boards for the prevention and Control of Water Pollution, for conferring and assigning such Boards powers and functions relating thereto And Whereas Parliament has no power to makes laws for the State with respect to any of the matter aforesaid except as provided in Art. 249 and 250 of the Constitution. And whereas in pursuance of clause (i) of Art. 252 of the Constitution, resolutions has been passed by all the Houses of Legislatures of the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal to the effect that the matters aforesaid should be regulated in those States by Parliament by law". In conclusion, we must use COVID-19 as a learning moment. It has shown humanity that our ill-treatment of the planet has consequences. It has shown that the warnings of scientists can and do come true. It has shown that we must listen, plan and prevent.

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RP-HPLC Method and Validation for Assay of Venelafexine HCL in Bulk and Pharmaceutical Dosage Form

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ABSTRACT
A stability indicating High Performance Liquid Chromatography (HPLC) method was developed and validated for the determination of Venlafaxine HCL in bulk and Pharmaceutical formulation using reverse phase Inertsil-C18 ODS (250mm × 4.6mm), with mobile phase methanol: water (80:20v/v). The conditions optimized were: flow rate (1 mL/minute), wavelength (210 nm) and run time was 6 min. Retention time was found to be 2.534 min. The correlation coefficient of Venlafaxine HCL was found to be 1.0. The proposed method obeyed linearity in the range of 20-80µg/mL. The LOD and LOQ of Venlafaxine HCLwas 0.83 µg/mL and 1.74 µg/mL .The recovery studies 100.51% was indicative of the accuracy of proposed method. The precision was calculated as repeatability, inter and intraday variation (0.09-0.18 %RSD) for the drug and met all specifications as per ICH guidelines.

Keywords: Venlafaxine HCL, Related Substances Method Development, ICH guidelines, RP-HPLC

Introduction:

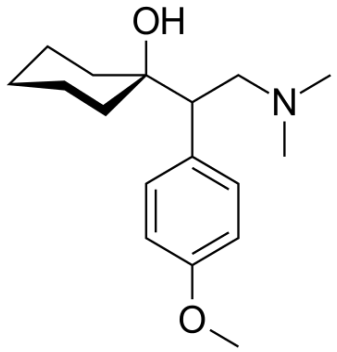
Venlafaxine (Effexor) is an antidepressant of the serotonin-nor epinephrine reuptake inhibitor (SNRI) class first introduced by Wyeth in 1993. It is prescribed for the treatment of clinical depression and anxiety disorders. Due to the pronounced side effects and suspicions that Venlafaxine may significantly increase the risk of suicide it is not recommended as a first line treatment of depression. However, it is often effective for depression not responding to SSRIs. Venlafaxine was the sixth most widely-used antidepressant based on the amount of retail prescriptions in the US.

The present study aims to develop a stability indicating HPLC method for Assay of Venelafexine HCL in Bulk and Pharmaceutical Dosage Form. Also to optimize and partially validate the proposed method in accordance with USP and ICH guidelines for the intended analytical application i.e., to apply the proposed method for analysis of the drug in its dosage form.

Materials and Methods:

Drug profile

Venelafexine HCL



IUPAC : (RS)-1-[2-dimethylamino-1-(4-methoxyphenyl)-ethyl]cyclohexanol

Molecular formula : C17H27NO2

Materials and Method:

Instruments:

HPLCsystem of Waters Model No. 2690/5 series Compact System Consisting of Inertsil- C18 ODS column (5µ), Electronic balance (SARTORIOUS) of sensitivity 1mg and Sonicator (FAST CLEAN) was used during the work.

Chemicals: Methanol, Water (HPLC Grade) and Venlafaxine HCL Working Standard was received as gift sample from Natco Pharma, Hyderabad.

Preparation of Solution:

Mobile Phase: Degassed Methanol and Water in the ratio of 80:20 V/V.

Preparation of stock solution:

Reference solution: The solution was prepared by dissolving 20.0 mg of accurately weighed Venlafaxine HCL in Mobile phase, in 100 mL volumetric flasks separately and sonicate for 20min. From the above solutions take 10 mL solution into a 50.0 mL volumetric flask and then make up with mobile phase and sonicate for 10min.

Preparation of working standard solution:

The stock solutions equivalent to 50 ppm of Venelafexine HCL is prepared, sonicated and filtered through 0.45µ membrane.

Sample preparation:

The sample solutions was prepared equivalent to 50 ppm of Venelafexine HCL dosage form, sonicated and filtered through 0.45µ membrane.

Assay of Venelafexine HCL:

Standard solution and sample solution of Venelafexine HCL was injected (20 µL) each in the HPLC system having Inertsil- C18 ODS column (250 x 4.6 mm, 5 µ) at a flow rate of 1 mL per minute at 210 nm on ambient temperature condition.

Method validation: Method validation was done according to ICH guideline.

System Suitability:

A Standard solution was prepared by using Vanelafexine HCL working standards as per test method and was injected Five times into the HPLC system. The system suitability parameters were evaluated from standard chromatograms by calculating the % RSD from five replicate injections for Vanelafexine HCL , retention times and peak areas.

Precision:

a. System precision: Standard solution prepared as per test method and injected five times.

b. Method precision: Prepared six sample preparations individually using single as per test method and injected each solution.

Accuracy (Recovery):

A study of Accuracy was conducted. Drug Assay was performed in triplicate as per test method with equivalent amount of Vanelafexine HCL into each volumetric flask for each spike level to get the concentration of Vanelafexine HCL equivalent to 50%, 100%, and 150% of the labeled amount as per the test method. The average % recoveries of Vanelafexine HCL were calculated.

Linearity of test method:

A Series of solutions are prepared using Vanelafexine HCL working standards at concentration levels from 20ppm to 80ppm of target concentration .Measure the peak area response of solution at Level 1 and Level 6 six times and Level 2 to Level 5 two times.

System to system variability:

System to system variability study was conducted on different HPLC systems, under similar conditions at different times. Six samples were prepared and each was analyzed as per test method. Comparison of both the results obtained on two different HPLC systems, shows that the assay test method are rugged for System to system variability.

Robustness:

Effect of variation of flow rate:

A study was conducted to determine the effect of variation in flow rate. Standard solution prepared as per the test method was injected into the HPLC system using flow rates, 1.0ml/min and 1.2ml/min. The system suitability parameters were evaluated and found to be within the limits for 1.0ml/min and 1.2ml/min flow. Vanelafexine HCL and was resolved from all other peaks and the retention times were comparable with those obtained for mobile phase having flow rates 1.0ml/min.

Limit of Detection and Quantitation (LODand LOQ):

From the linearity data calculate the limit of detection and quantitation, using the following formula.

LOD = 3.3 σ / S

σ = standard deviation of the response

S = slope of the calibration curve of the analyte.

LOQ = 10 σ / S

σ = standard deviation of the response

S = slope of the calibration curve of the analyte

Results:

Assay:

Table 1:Assay of Venelafexine HCL

S. No.	Name of the peak	Retention time (min)	Area	Assay (%)
1	Venelafexine HCL Standard	2.534	675298	99.90
2	Venelafexine HCL Sample	2.534	688636	99.18

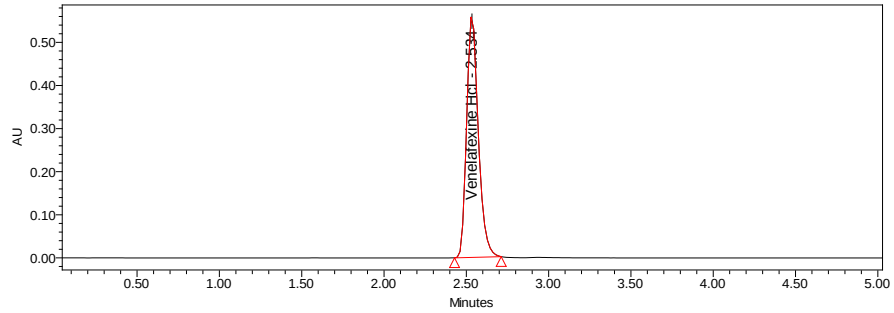


Fig 2: Chromatogram of Vanelafexine HCL standard

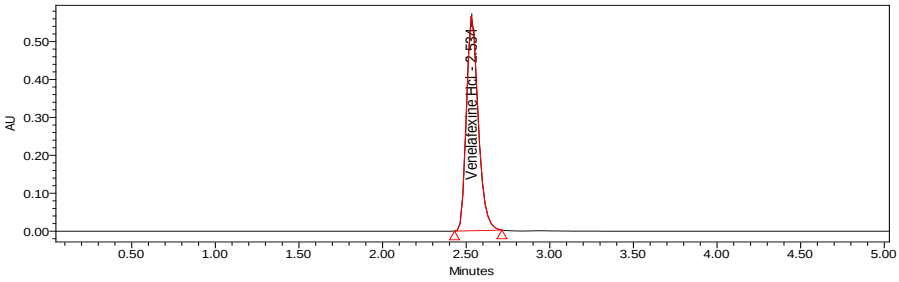


Fig 2: Chromatogram of Vanelafexine HCL sample

System Suitability:

Table 2: Data of system suitability for Venelafexine HCL

Injection	RT	Peak Area	USP Plate count	USP Tailing
1	2.533	674753	10953.609752	1.153539
2	2.533	674261	10951.014286	1.155271
3	2.534	675298	10003.278630	1.157740
4	2.535	679221	10986.906427	1.159499
5	2.534	688636	10946.878423	1.152820
Mean	2.53308	678433.8	10768.34	1.155774
SD	0.003962	6031.135	-------	-------
% RSD	0.115493	0.888979	-------	-------

Precision:

a. System precision

Table 3: Data of Repeatability (Method precision) for Venelafexine HCL

	Injection	Peak Areas of Venelafexine HCL	%Assay
Concentration 100ppm	1	674753	98.66
	2	674261	99.30
	3	675298	101.53
	4	679221	100.53
	5	688636	99.98
Statistical Analysis	**Mean**	678433.8	100.00
	SD	6031.135	1.107678
	% RSD	0.888979	1.10

b. Method precision:

Table 4: Data of Repeatability (System precision) for Venelafexine HCL

	Injection	Peak Areas of Venelafexine Hcl	%Assay
Concentration 100ppm	1	633495	98.55
	2	635992	98.88
	3	639828	99.40
	4	639098	99.30
	5	648289	100.53
	6	631322	98.28
Statistical Analysis	**Mean**	637312	99.278
	SD	5988.879	0.827236
	% RSD	0.0891	0.83

Accuracy (Recovery)

Table 5: Data of Accuracy for Vanelafexine HCL

Concentration % of spiked level	Amount added (ppm)	Amount found (ppm)	% Recovery	Statistical Analysis of % Recovery	
50% Injection 1	20	20.04	100.22	**MEAN**	100.06
50% Injection 2	20	19.97	99.85		
50% Injection 3	20	20.02	100.11	**%RSD**	0.18
100 %	40	40.01	100.02	**MEAN**	100.04

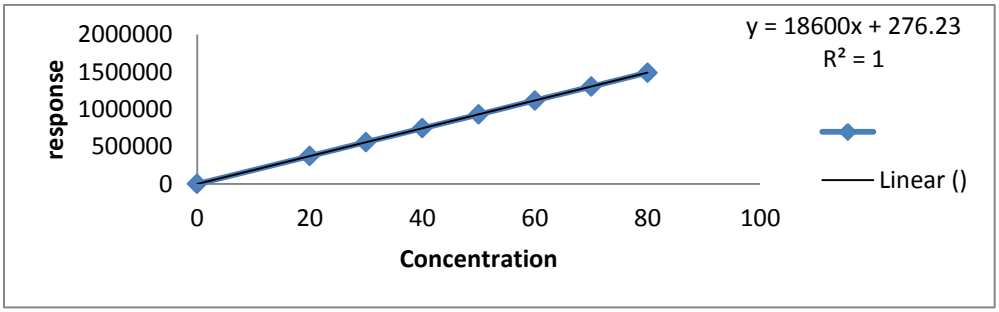
Injection 1					
100 % Injection 2	40	40.05	100.14		
100% Injection 3	40	39.98	99.96	**%RSD**	0.091
150% Injection 1	60	60.08	100.14	**MEAN**	100.02
150% Injection 2	60	59.97	99.96		
150% Injection 3	60	59.98	99.98	**%RSD**	0.09

Linearity:

Table 6: Data of Linearity of Vanelafexine HCL

Concentration (ppm)	Average Area	Statistical Analysis	
0	0	Slope	18600
20	632546	y-Intercept	276.2
30	658296	Correlation Coefficient	1
40	694400		
50	730308		
60	916282		
70	9402046		
80	9788277		

Fig: 3 Linearity Plot (Concentration Vs Response) of Vanelafexine HCL



Robustness:

Table 7: Data for Effect of variation in flow rate of Venelafexine HCL

Flow 0.8 ml	Std Area	Tailing factor	Flow 1.0 ml	Std Area	Tailing factor	Flow 1.2 ml	Std Area	Tailing factor
	620286	1.322089		634322	1.604878		602077	1.285372
	619282	1.331920		635792	1.584354		601854	1.319385
	621337	1.296438		634360	1.543805		602403	1.292055
	620456	1.315454		635696	1.568590		603421	1.304561
	620765	1.326551		633147	1.559986		602465	1.294621
Avg.	620425	1.31849	**Avg.**	634663.4	1.572323	**Avg.**	602444	1.299199
SD	754.0018	0.013728	**SD**	1100.917	0.023367	**SD**	599.8833	0.013223
%RSD	0.086	1.04	**%RSD**	0.184	1.48	**%RSD**	0.09	1.01

Limit of detection and Limit of quantitation (LOD and LOQ)

LOD = $3.3\ \sigma / S$ LOQ = $10\ \sigma / S$

$$= \frac{3.3\times 3244.904}{18600} = 0.57 \qquad = \frac{10\times 3244.904}{18600} = 1.74$$

Discussion:

The analytical method was developed by studying different parameters. First of all, maximum absorbance was found to be at 210nm and the peak purity was excellent. Injection volume was selected to be 20µl which gave a good peak area. The column used for study was Inertsil C 18 chosen good peak shape. Ambient temperature was found to be suitable for the nature of drug solution. The flow rate was fixed at 1.0ml/min because of good peak area and satisfactory retention time. Different ratios of mobile phase were studied, mobile phase with ratio of Methanol: Water (80:20) was fixed due to good symmetrical peak. So this mobile phase was used for the proposed study. Methanol was selected because of maximum extraction, sonication time was fixed to be 5min at which all the drug particles were completely soluble and showed good recovery. Run time was selected to be 6min because analyte gave peak around 2.534 and also to reduce the total run time.

The present reveals the system is suitable for performing the assay of Vanelfexine HCL in bulk and dosage form as it shows 99-102 % purity. The method is precise for routine analysis as it shows having %RSD 1.10 and 0.83 for Method and system precision. Recovery was found to be in between 98.0-101.50%. Detection limit was found to be 0.57 and 1.74 respectively. Linearity study was linear over the same range, correlation coefficient (R^2 =1) and curve fitting was found to be good. The analytical method was found linearity over the range of 20-80ppm of the target concentration. The analyte passed robustness and ruggedness tests. On both cases, relative standard deviation was well satisfactory. The above results indicate that this method is inexpensive, takes small time and can be used for routine analysis of Vanelfexine HCL in bulk and dosage form.

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Emerging Issues of Environmental Concern

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Abstract:

Environmental issues are harmful effects of human activity on the biophysical environment. Environmental protection is a practice of protecting the natural environment on the individual, organizational or governmental levels, for the benefit of both the environment and humans. Environmentalism, a social and environmental movement, addresses environmental issues through advocacy, education and activism. These disasters take a heavier human toll and come with a higher price tag. In the last decade, 2.4 billion people were affected by climate-related disasters, compared to 1.7 billion in the previous decade. The cost of responding to disasters has risen tenfold between 1992 and 2008. Environmental issues and emerging global challenges in the 21st Century. Humankind has witnessed urgent pressures from the climatic changes and environmental pollution challenges by emerging pollutants. There is overwhelming evidence in the last decades that anthropogenic activities drive global environmental change in what has been come to be called the Anthropogenic 'Era. The majority of scientists and environmental state agencies understand now that chemical pollution needs to be dramatically reduced because it is destroying the environment contaminate food and water, causing diseases in humans and wildlife. Protecting the environment is a long and daunting task, requiring continuous planning, governmental policies, and public and industrial participation.

***Keywords**: Environmental issues, climatic changes, pollution, wildlife, governmental policie & Industrial participation.*

Introduction:

The United Nations Environment Programme (UNEP) coordinates the organization's environmental activities and assists developing countries in implementing environmentally sound policies and practices. Every year UNEP publishes a Year Annual Book with global environmental problems Also, the UNEP's scientific experts in the last years published annual Frontier reports identifying ―emerging issues of environmental concern‖. The reports provide analytical descriptions of emerging environmental issues and innovative policy interventions, new solutions and adapting existing practices. Environmental issues are harmful effects of human activity on the biophysical environment. Environmental protection is a practice of protecting the natural environment on the individual, organizational or governmental levels, for the benefit of both the environment and humans. Environmentalism, a social and environmental movement, addresses environmental issues through advocacy, education and activism.[1] These disasters take a heavier human toll and come with a higher price tag. In the last decade, 2.4 billion people were affected by climate-related disasters, compared to 1.7 billion in the previous decade. The cost of responding to disasters has risen tenfold between 1992 and 2008. Destructive sudden heavy rains, intense tropical storms, repeated flooding, and droughts are likely to increase, as will the vulnerability of local communities in the absence of strong concerted action.[2] Environment destruction caused by humans is a global, ongoing problem. By the year 2050, the global human population is expected to grow by 2 billion people, thereby reaching a level of 9.6 billion people.[3] The human effects on Earth can be seen in many different ways. A main effect, is an increase in global temperature. According to the report "Our Changing Climate", the global warming that has been going on for the past 50 years is primarily due to human activities. The UN Environment's Sixth Global Environmental Outlook (GEO-6) in 2019 is the most comprehensive assessment of the state of the world's environment. The report also offers a rigorous analysis of Earth's prospects for a healthy future. It contains chapters on the most important environmental issues facing the Earth in the next decades. The most important problems:[https://www.unenvironment.org/interactive/global-environment-outlook/].[4] erpopulation, urbanization and consumption. There are about 7.7 billion people living on Earth in 2019. At the same time these people will be increasingly drawn to life in cities (50% now). It is estimated that by 2050, roughly 68% of the population will live in urban areas. Urbanization increases energy consumption by raising the demand for housing, food, public utilities, land use, transportation, use of more electric appliances, etc.[5,6] Food production and waste for growing population. Earth encounters a rapid global population growth and in addition climate pressures that will affect agriculture. The result will be high demand of more food to feed the additional population. Countries have to use greater efficiency and resilience in food production and to encourage people everywhere to adopt diets that are more sustainable (reduce meat consumption).

Food waste is a huge part of the problem. About 1/3 of all food produced for human consumption is ultimately lost or wasted. [7,8] Climate change and rising temperatures, Floods, droughts, forest fires and other climate disasters are already disrupting Earth's food supply, natural resources and human health. Such threats will probably become more frequent in the future. [9,10] Biodiversity is under serious threats as a result of human activities in exploiting natural resources (air, soil, marine environment, forests, aquatic resources). The main dangers worldwide are population growth and resource consumption, climate change and global warming, habitat conversion and urbanisation, invasive alien species, over-exploitation of natural resources and environmental degradation. The three greatest proximate threats to biodiversity are habitat loss, overharvesting, and introduction of exotic 7 species. Toxic pollution, have specific targeted effects on species, but are not generally seen as threats at the magnitude of the other causes. [11,12] Overexploitation of natural resources and ecosystems. Throughout of the history of established human societies their survival dependent on exploitation of natural resources. Even primitive humans have manipulated natural resources to produce the materials (food, energy. construction materials, medicinal products) they needed to sustain their growing populations. Natural resources are an important material basis for a stable natural economy and social development. With industrialization and urbanization mankind's demands for natural resources increased substantially and large scale exploitation and consumption resulted in deterioration and exhaustion of nonrenewable natural resources. The overexploitation of natural resources (air, water, soil, forests, minerals, etc) and Earth's ecosystems by humans has long-lasting consequences for the future provision of natural resources and ecosystem services. Inevitably if this trend continues there will be problems in the provision of food, increase health hazards and risks of natural disasters. Emission of greenhouse gases (GHG) may affect the global climate for centuries, the non-sustainable harvest of fisheries and forests may leave these systems degraded for decades. The limitations of natural resources has 8 been widely recognized by the scientific community and the transition to sustainability constitute the focus of an ongoing debate.[12,14] The global problem of hazardous/toxic waste. Hazardous or toxic wastes (liquid, solid and sludge) are discarted materials that can cause substantial threats to environmental resources (air, water, soil) and to human health. Hazardous waste is dangerous byproduct of a wide range of activities, including manufacturing, farming, water treatment systems, construction, automotive garages, laboratories, hospitals, and other industries. Hazardous waste contains chemicals, heavy metals, cacinogens, pathogens, radioactive or other toxic materials. Hazardous waste are also municipal and households generated waste, from items such as discarded food, plastics, furniture, batteries, used computer equipment, and leftover paints or pesticides. On a global scale humans produce every year more than 400 million tons and the amount is increasing. [15]

Ecological connectivity: A bridge to preserving biodiversity:

Large-scale industrialization has resulted in widespread fragmentation of previously intact landscapes around the globe. From the clearance of richly populated rainforests to the damming of mighty, arterial rivers, the knock-on effect of isolated, impacted ecosystems is detrimental to the health of flora and fauna alike, and in severe cases, threatens species extinction. Landscapes are also not limited to the terrestrial realm as ecosystem connectivity extends beyond continental shores into marine seascapes and the oceans. Initiatives to promote landscape connectivity are offering hope in various global locations, but much more focus in planning to reconnect habitat patches or preserve existing connectivity is needed. This is vital to preserving the remaining biodiversity and to protect the interlinked ecosystems on which we all depend. National efforts require expansion to the international level, as ecosystems are not bounded by country borders. From marine reserves to wildlife corridors and beyond, this wide-ranging chapter explores the issues of, and solutions to, fragmentation in the natural world and the imperative for joined-up thinking in planning for the preservation and conservation of biodiversity and species survival.

Emerging and neglected zoonotic diseases

The 20th century was a period of unprecedented ecological change, with dramatic reductions in natural ecosystems and biodiversity and equally dramatic increases in people and domestic animals. Never before have so many animals been kept by so many people—and never before have so many opportunities existed for pathogens to pass from wild and domestic animals through the biophysical environment to affect people causing zoonotic diseases or zoonoses. The result has been a worldwide increase in emerging zoonotic diseases, outbreaks of epidemic zoonoses as well as a rise in food borne zoonoses globally, and a troubling persistence of neglected zoonotic diseases in poor countries. Around 60 per cent of all infectious diseases in humans are zoonotic[16] as are 75 per cent of all emerging infectious diseases.[17] On average, one new infectious disease emerges in humans every four months.[18] While many originate in wildlife, livestock often serve as an epidemiological bridge between wildlife and human infections. This is especially the case for intensively reared livestock which are often genetically similar within a herd or flock and therefore lack

the genetic diversity that provides resilience: the result of being bred for production characteristics rather than disease resistance.[19] An example of livestock acting as a "disease bridge" is the case of bird flu or avian influenza pathogens, which first circulated in wild birds, then infected domestic poultry and from them passed to humans. The emergence of zoonotic diseases is often associated with environmental changes or ecological disturbances, such as agricultural intensification and human settlement, or encroachments into forests and other habitats.[20] Zoonoses are also opportunistic and tend to affect hosts that are already stressed by environmental, social, or economic conditions.[21]

Conclusions:

Environmental issues and emerging global challenges in the 21st Century. Humankind has witnessed urgent pressures from the climatic changes and environmental pollution challenges by emerging pollutants. There is overwhelming evidence in the last decades that anthropogenic activities drive global environmental change in what has been come to be called the Anthropogenic 'Era. Modern human societies have engaged in increasingly disruptive modes (increasing non-renewable energy use, consumption and waste of food, increasing exploitation of natural resources). Overpopulation and urbanization caused immense changes in the water cycle, imbalances and degradation in the marine and terrestrial ecosystems, acidification of the oceans and degradation of forested area. Despite the increasing numbers of international treaties, national and international regulations to reduce air pollution and water contamination by toxic and hazardous chemicals, a high proportion of pollutants are still discharged in air, sediment, rivers, lakes and open seas, oceans. The majority of scientists and environmental state agencies understand now that chemical pollution needs to be dramatically reduced because it is destroying the environment contaminate food and water, causing diseases in humans and wildlife. Protecting the environment is a long and daunting task, requiring continuous planning, governmental policies, and public and industrial participation.

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Estimation of thermodynamic parameters by stability constants of lanthanides (III) complexes with 5-bromo, ortho hydroxy acetophenone – N– (4'– nitrophenyl) imine at 25^0C

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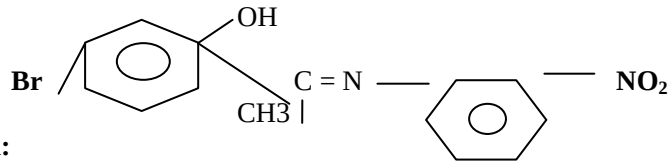
Abstract:
Estimation of thermodynamic parameters by stability constants of trivalent lanthanides complexes with 5-bromo, ortho hydroxy acetophenone – N – (4'– nitrophenyl) imine at 25^0C have been determined in 50 % (v/v) ethanol-water medium at 25^0C and μ = 0.1 M ($NaClO_4$) ionic strength by Irving – Rossotti method. A knowledge of enthalpy and entropy for these complex formation of rare earths enable us to interpret the trends inn log K values of complexes in solution. The thermodynamic parameters for the formation of 1:1 and 1:2 complexes have been calculated.

Key words: *Thermodynamic parameters like enthalpy and entropy, lanthanides, Schiff bases.*

Introduction: Estimation of thermodynamic parameters by stability constants of metal complexes has not been revealed to the enough extent so far particularly on the trivalent lanthanide complexes of Schiff base derived from 5-bromo, ortho hydroxy acetophenone – N – (4'– nitrophenyl) imine. The aim of the present paer is to explain the coordination behavior of this Schiff base towards lanthanides (III) ions in 50 % (v/v) alcohol-water medium. The observed values of stability constants of these complexes have been explained on the basis of ionic size of the metals, basicity of ligand, gadolinium break and tetrad effect and also used in the determination of thermodynamic parameters. The changes in thermodynamic parameters are used to explain the stability of these complexes.



Experimental:
All the chemicals used for the synthesis of bidentate ligand and their complexes were AR grade. The Schiff base 5-bromo, ortho hydroxy acetophenone – N – (4'– nitrophenyl) imine was synthesized by reported method.[3] The solutions of lanthanide complexes were prepared in the double distilled water and standardized.[4] The initial ionic strength of all the solutions was maintained at 0.1 M by $NaClO_4$. An Elico LI – 120 P^H meter in conjunction with a combined electrode was used. The measurements were made at 25^0 C (±0.01º) and μ = 0.01M $NaCLO_4$ in 50 % aqueous ethanol. The log K^H and log K values were computed by half – integral method, point wise calculations and also by the method of least squares. The average log K values were used to calculate ΔG from the Van't Hoff's isotherm. The ΔH and ΔS values were calculated from the Van't Hoff's isochore and the equation ΔG = ΔH - TΔS, respectively. The data are listed in Table – 2. The higher Pk values of 2-hydroxy-5-methyl acetophenone and 2-hydroxy-5-bromo acetophenone than that of their parent phenols are attributed to the predominant effect of intermolecular hydrogen bonding between phenolic OH group and $COCH_3$ group present in the acetophenone. The pK_1 value of synthesized Schiff base 5-bromo, ortho hydroxy acetophenone – N – (4'– nitro phenyl) imine which represents the de-protonation of NH group at azomethine nitrogen atom and phenolic OH group were determined at n_A = 0.5. The values were further checked from the plots of log $[(2\text{-}n_A)\sqrt{(n_A\text{-}1)}]$ vs B and log $n_A/(1\text{-}n_A)$ vs B (B = pH meter reading) and are given in Table -1. The pK_1 value of ligand is lower since it is having bromo substituent at *para* position to amino group. This can be attributed on the basis of domination nature of -M effect of bromide group.

Table – 1: Complex formation of lanthanides (III) with 5-bromo, ortho hydroxy acetophenone – N – (4'– nitro phenyl) imine

Temp ⟶	**25 ºC**
Ligand pK_1	9.76

Results and Discussions:

Table – 2: Stability constants and thermodynamic parameters of lanthanides (III) complexes of bidentate Schiff base 5-bromo, ortho hydroxy acetophenone – N – (4'– methyl phenyl) imine at 25^{o} C ± 0.02^{o} C and 0.1 M $NaClO_4$.

Complexes	log K	-ΔG KJ Mol^{-1}	-ΔH KJ Mol^{-1}	ΔS KJ Mol^{-1}
La (III)	5.96	34.008	15.956	60.577
Ce (III)	6.04	34.465	11.967	75.495
Pr (III)	6.13	34.978	16.754	61.155
Nd (III)	6.34	36.177	13.762	75.216
Sm (III)	6.40	36.519	13.430	77.480
Eu (III)	6.48	36.975	16.754	67.856
Gd (III)	6.36	36.291	14.506	73.104
Tb (III)	6.45	36.804	16.986	66.505
Dy (III)	6.68	38.117	13.677	82.013
Ho (III)	6.54	37.318	14.183	77.632
Yb (III)	6.34	36.177	13.762	75.216

It is clear from the figure that the ligand 5-bromo, ortho hydroxy acetophenone – N – (4'– nitro phenyl) imine follows the following order of stability of their complexes.

Cu > Zn > Ni > Cd > Co > Mn

The screening of *4f* –electrons is showed in the stability constants of the present rare earth metal complexes, which exhibits very small difference in these values with the increase in atomic number. In these complexes the rare earth metal ions bind predominantly to oxygen and weakly to nitrogen of the Schiff bases.[2] These complexes show a regular increase of stability constants from La (III) to Eu (III) with a discontinuity of Gd (III) and Tb (III) which is commonly known as gadolinium break. After Tb (III), stability constant increases up to Dy (III) and then decreases for Ho (III) as shown in Table – 2. This shows occasional maxima and minima after gadolinium break. The change in free energy is directly related to log K values. The stability constants of trivalent La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, and Ho complexes with 5-bromo, ortho hydroxy acetophenone – N – (4'– methyl phenyl) imine follows the order Dy > Ho > Eu > Tb > Sm > Gd > Yb = Nd > Pr > Ce > La. These stabilities are similar to the observations made by number of workers [7-10] and are accordance with Irving – Williams orer.[11] The thermodynamic parameters for lanthanide complexes with Schiff base were obtained from log K_1 and log K_2 at 25^{0}C temperature. It seems that the log K_1 and log K_2 values decrease with increase in temperature, indicating that the high temperature does not favour the formation of stable complexes. The ΔH values are all negative, while ΔS are all positive. The resulting ΔG values are all negative. The more negative values of ΔG indicate that the 1:1 and 1:2 complex formation is thermodynamically favored. The negative values of ΔH also lead to the same inference. The entropy effect is found to be predominant over the enthalpy effect which is indicated by the high positive values of entropy.

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Impact of Covid-19 Pandemic on Mental Health In Health Sector: An Overview

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Abstract

COVID-19 Pandemic outbreak came up with the certain other problems involving public, administrative and healthcare sector concerns.(i) It resembled the SARS outbreak but posed such challenges against the world that are uneasy to handle. The disease which started from Wuhan, China has now affected almost every country in a ruthless manner. Healthcare workers are working day and night just to protect the citizens despite being at high-risk exposure and they are being aimed by the virus due to shortage of Personal Protection Equipment kits. (ii) Not only this, but they are being brutally harassed by the patients themselves. Social, economic, psychiatric and many other factors are responsible for deteriorating the health of these frontline healthcare workers who are now being allegedly regarded as "Healthcare Warriors".(iii)

Keywords: *The novel coronavirus 2019 (SARS-CoV-2), COVID-19, Mental Health in Covid-19 Pandemic Medical staff, Anxiety, Stress, Depression,Mental Health, Psychological effect*

Introduction

World Health Organization (WHO) declared the COVID-19 outbreak as a global emergency on January 30, 2020 SARS-CoV-2 has left a long lasting impact on everyone worldwide and specially the medical fraternity. treating the patients.(*iv*) COVID-19 is the public name given to the scientific name SARS-CoV-2 which has been studied by Coronavirus Study Group of the International Committee on Taxonomy of Viruses3 and has found its symptoms in accordance with severe acute respiratory syndrome coronavirus (SARS-CoV) which first came into light in 2002 and this re-emerged with a different name ten years later as the Middle East respiratory syndrome coronavirus (MERS-CoV).4 With the research done on the impact of this virus and its origin, the preliminary details trace its origin to a family of single-stranded RNA viruses which are also known as Coronaviridae. The rampant rise in the total number of people reported worldwide as of writing is 12,170,408 while the world has seen an untimely death of 552,112 humans worldwide, and the overall recovery number has been 7,069,188. The high surge in the numbers of cases worldwide led the WHO to declare it as Pandemic (public health emergency) if adequate precautions are not taken, OPD (outpatient department) and OR (operating room) can potentially expose patients as well as health care providers to cross contamination.(*v*) Front line health care providers has mortality rate of 1.4%.but in countries like Italy it has gone up to 9%.8 All above mortality is mainly due to higher pathogen exposure. Despite following all the guidelines by CDC and WHO to manage the patients, health care workers are affected in this crisis. The various challenges faced by health care workers include hazards like more prone to pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical and psychological violence. **Psychological Impact on Healthcare Professionals:** Healthcare professionals dealing with COVID-19 are under increased psychological pressure and experience high rates of psychiatric morbidity, resembling the situation during the SARS and H1N1 epidemics. Due to the increased risk of exposure to the virus, our frontline doctors, nurses and healthcare workers fear that they may contract COVID-19. They worry about bringing the virus home and passing it on to loved ones and family members - elderly parents, new born and immune compromised relatives. Our healthcare staff also report increased stress levels when dealing with uncooperative patients which are not adhering to safety instructions, and feelings helpless when dealing with critically ill patients, as there is no definitive treatment available as well as limited intensive care beds and resources.(*vii*) A survey of nearly 1,300 healthcare workers10 treating people with COVID-19 in hospitals in China showed high rates of depression, distress, anxiety and insomnia. Guilt, anger, anxiety, fear, shame and depression were all shown which lead to resignations and poor work performance indeed, there have been reports of suicide in healthcare workers in Europe during the COVID-19 pandemic. Chronic stress leads to health disorders like backache, fatigue, headache, irritable bowel disorder, anxiety etc. Co-morbidities including diabetes, hypertension or chronic respiratory diseases make one more vulnerable to corona-related complications. So Government should introduce stress management workshops and counseling in health sector and it should be conducted at a regular intervals. Use effective stress reducing techniques such as mindfulness, yoga, deep breathing exercises and guided imagery meditation, they are an excellent way of combating anxiety and achieve deep mental and physical relaxation. All these steps will go a long way in making the workplace

of health care worker stress-free.(*viii*) Nurses, female workers, front-line health care workers, younger medical staff, and workers in areas with higher infection rates reported more severe degrees of all psychological symptoms than other health care workers. Moreover, vicarious traumatization in non-front-line nurses and the general public was higher than that of the front-line nurses.

Misbehavior with Healthcare Workers : Despite serving patients of COVID-19 and risking their life, healthcare workers were treated very badly. Reports say that doctors have been spat at and chased away from homes. Some physicians and their families have also been ostracised by their neighbours and landlords because of their exposure to patients infected with COVID-19. One video, which has gone viral, showed a mob throwing stones at two female doctors wearing personal protective equipment in the central city of Indore. The doctors had gone to a densely-populated area to check on a woman suspected of having Covid-19 when they came under attack. Despite being injured, one of the doctors seen in the video, Zakiya Sayed, said the incident "won't deter me from doing my duty". At the Ghaziabad hospital, some of the quarantined attendees allegedly used abusive and vulgar language against members of staff". So it is the duty of admiration to provide security to medical fraternity and punish the culprits so that health workers can work stress free in this pandemic. Simultaneously special insurance and health package can be awarded to provide sense of security to health care providers. Recently GOVT. OF INDIA passed an amendment bill for protection of health care workers in COVID pandemic. We can take this thing as positive impact of COVID 19 for the security of health care professionals.

Higher Risk of Pathogen Exposure and Infection : The World Health Organization reported that one in ten health workers is infected with coronavirus in some countries. In May 2020, the International Council of Nurses reported that at least 90,000 healthcare workers have been infected and more than 260 nurses had died in the COVID-19 pandemic. In March 2020, one in four doctors in the UK were off sick in isolation or caring for a family member with COVID-19. According to WHO, health workers are at risk due to following reasons

Lack of personal protective equipment.

Lack of measures to prevent the spread in hospitals.

More pressure of treatment, work intensity, and lack of rest indirectly increased the probability of infection for healthcare workers.

Delayed recognition of COVID-19 symptoms and lack of experience in dealing with respiratory pathogens. To help combat these issues, WHO officials recommended the following.

1. Training healthcare workers to recognize respiratory diseases
2. Increased access to personal protective equipment
3. Support for health workers
4. Strong hospital surveillance systems
5. Recognition that every healthcare system has gaps

Conclusion

The impact of the coronavirus pandemic and the lockdown it triggered is clearly visible in financial markets. The healthcare sector is at the epicentre of this unprecedented global pandemic challenge, and the private sector has risen to the occasi. During SARS-CoV-2 outbreak, the health care workers face aggravated psychological pressure and even mental illness. It would be recommended to the policymakers and managers to adopt the supportive, encouragement & motivational, protective, and training & educational interventions, especially through information and communication platform.

Coronavirus Impact on Indian Healthcare Sector : The coronavirus pandemic has sent shockwaves to the health system, societies, and economies around the world. The impact of the coronavirus pandemic is clearly visible in financial markets. The COVID-19 virus has created not only a healthcare crisis but also an economic one and a COVID-19 recession is now a reality. Healthcare has generally been immune to recessions in the past. Demand for medical care has been a constant since people get sick, whether times are good or bad. Also, those with health insurance have their out-of-pocket costs taken care of and are still able to afford to get quality care. The goal has been to keep medical offices clear so as to reduce the risk of disease spread. People are postponing care that is not urgent. This includes imaging procedures, surgeries, visits to fill prescriptions, etc. While healthcare workers are busy dealing with COVID-19 patients, healthcare offices are still suffering from the decline in other patients. Some primary care practices have reported reductions in the use of healthcare services. There has been an increase in unemployment insurance claims from healthcare businesses as well. The longer the recession lasts, the greater will be the economic harm. Most businesses can

handle short-time shutdowns, but sustained shutdowns might be more difficult to manage. Relief funds will not last forever, and small businesses, including medical offices, will have to make difficult decisions. Jobs will decline, which means fewer people will get paid, and those who are working may have to face wage declines. This will result in reduced spending, and the cycle will continue. There is one silver lining, however. Medical care that is being deferred today will eventually be sought out later. Postponed visits and surgeries will be rescheduled for later, and medical staff may be able to catch up on billings. This may be true for healthcare, but other industries like entertainment and restaurants may not have such a swift recovery. Nevertheless, a recession still poses a challenge to healthcare workers and healthcare institutions. It all depends on how long the COVID-19 disease spread continues and how long it takes for life to go back to normal.

Issues with Personal Protective Equipments supply and usage: Healthcare workers rely on personal protective equipment to protect themselves and their patients from being infected and infecting others. But their shortages are leaving doctors, nurses and other frontline workers ill-equipped to care for COVID-19 patients. Due to limited access to supplies such as gloves, N -95 medical masks, respirators, goggles, face shields, gowns, and aprons will make health care providers more prone for infection. Based on WHO modelling, an estimated 89 million medical masks are required for the COVID-19 response each month. For examination gloves, that figure goes up to 76 million, while international demand for goggles stands at 1.6 million per month. To meet rising global demand, WHO estimates that industry must increase manufacturing by 40 per cent. There has been considerable concern in the UK that front line clinicians are not getting the correct PPE. There are also concerns over use of facemasks, goggles, face shield as little training has been provided for donning PPE kit, surgical mask and face shield. An ill-fitting mask due to poor donning or prolonged use can increase the risk of infection and also cause bruises. The wrong use of protective equipment causes difficulties in breathing and limited access to toilet and water, resulting in subsequent physical and mental fatigue.9 This poses both moral and ethical dilemmas to healthcare professionals who are patient focused, thereby creating a sense of inadequacy and undervaluation, resulting in workforce stress. The World Health Organization has warned that severe and mounting disruption to the global supply of personal protective equipment (PPE) – caused by rising demand, panic buying, hoarding and misuse – is putting lives at risk from the new coronavirus and other infectious diseases. Guidance related to Donning and Doffing of PPE is also not clearly understandable to professionals. So adequate staff training, adequate supply of PPE and proper guidance are required to control infections and limit deaths in health care workers.

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Effects of Covid With Respect To Health, Education and Psychological State Of Common People

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Abstract

Pandemic is an epidemic which happens on a large scale which not only affects one country but all the countries the world gets affected. We have come across various epidemics from past few centuries but nothing has been this devastating when we compare it to Covid- 19. It disrupted the peaceful progress of the nations. This pandemic has been challenging to everyone in the country. It has been even more difficult on the developing nations like India. Indians had to face several problems and it is not physically challenging but mentally challenging as well. A lot of changes has occurred and a lot of lives has been lost in the country and we see the economic, political state of the country being completely disturbed. This paper aims to throw light of the effects of pandemic on health system, education and psychological state of a common man. This paper talks about how people tried to cope up with the difficult situations and the failure of health system in the country and with special reference to Karnataka state.

Keywords: *Pandemic, Psychological state, Health, Digital Literacy, Online Education, Technology, Work from Home*

Effects of Pandemic on Education:

The Covid-19 completely struck the education system around the world. The decision of complete and immediate closure of schools and educational institutions was initiated to curb the infection spread and practice social distancing. 2020 marked the era of e-learning. Online classes were the only form of imparting education. This movement pressed in the need of digital literacy of children, teachers and even parents and this also lead to lot of people accessing internet through mobiles, laptops etc. It was much easier for educational institutions and children in urban area to equip themselves with different learning platforms. However, due to lack of digital knowledge, access to laptops, smartphones and data connectivity and power issues students in villages faced challenges in learning. The colleges also resorted to online and internet-based teaching to UG as well as PG students. Ensuring efficiency of teaching and teaching was a major setback. Online education system was welcomed by working professionals and students pursuing higher education, as they could plan online courses accordingly with the option of taking up their employment full time. But for the students at their early development stage, conducting and learning through online platform was really a big challenge. It is known fact that at that age they require to be groomed in a classroom environment, with peer interactions, guidance and support from the teacher as a moderator. It is the time when children get an opportunity to develop basic skill sets for their life. All these learning was a hindrance in the online setup. In this age group, online platform also proved a greater level of involvement from the parent's end which was not much in classroom learning. The effectiveness of leaning is a concern to be studied with greater perspective. On the other hand, online classroom learning was viewed as a great option by the students progressing higher learning as they need freedom.

The online learning is convenient, flexible and comes with reduced cost, importantly it improves the skill sets and digital literacy of teachers and also students. However, this medium of learning lacks social interaction and also encounters technical problems. Two-way feedback is very essential in a learning process, but the online classes cited a very important problem of getting feedback from students about their understanding of the subject which is a major hindrance for understanding the effectiveness in learning and self-motivation. Technology is very prevalent in many countries in the world. In India, the lower income earning families cannot afford to buy the electronic gadgets like mobile phones, computers, laptop and supporting educational platforms and also lack support that may be needed beyond classroom learning. This has affected the social and mental health of the students. The use of technology and increased use of media use is again associated with sleeping disorders, behavioral change, aggressive attitude and lack of socializing among peers and elders. Excessive media exposure is also affecting the physical health, as it contributes to obesity.

Effect on the psychological state of the common man:

Let us not forget the plight of the common man in the pandemic. Lockdown was needed during this pandemic but not to forget the effects of it on economically backward section of the society. A lot of them lost their jobs, families and had faced the most difficult times. For example construction workers, domestic

helps, part time drivers and many more. It was hard for them to even get access to food materials and this we have seen many number of times on news channels. Farmers could not get hold of required materials and had to face zero income. We can talk about the metro city of Karnataka Bangalore, numerous people come to Bangalore to earn for a living. Most of them were left stranded in the city. We saw a large unemployment problem wherein many IT companies like India bulls reliving 2000 people, Ola laying off 1400 people employees, Uber 600 employees and other minute companies had to relive their employees and most of had their salary cut as they were not allowed to physically be in office. Certain educational institutions pressurized parents to pay off the fee even though only online classes were being conducted, this caused middle class parents difficult to cope up with the situation. Starts ups had to be closed down as they could get their funding's. According to statics 41% in India were running out of funds. When we consider the plight of a farmer, we understand it had not been easy for them too. By not getting enough resources to cultivate crops at a given time, he is losing his sole income to fend for his family. Children from past 2 years have been missing schools and colleges. How successful are the online classes everyone are aware of. The psychological state of people in lockdown has been affected as well. Before lockdown everyone had a routine and a regime they followed. Lockdown not only curbed all that but it made people restless and impatient in many ways. Lockdown was very much required to stop the corona pandemic from spreading across the state. But was this lockdown effective? How effective it can be if they all of sudden reopen the colleges, malls, nightlife etc. Once again we would be facing the same situation. This lockdown has hit the common man in a lot of ways. By being unemployed, and less sources of income to family and children losing out their education for quite a long time and more important thing is just to survive in this pandemic. Covid has not only created a havoc in the world but it has affected the psychological state of people. This pandemic has a huge impact on people mind, both positive and negative. This lockdown has given people a chance to work from home, stay with family and improve their personal relationships. But this has been enjoyed only by a small percentage of population. The larger part of the population has had a negative impact on them as they have been victims of anxiety, depression, and post-traumatic stress after the disease. The frontline workers had very less rest compared to the rest. They were supposed to work extra shifts and had less time to take care of themselves, which in turn caused them to fall ill. Subra Sarkar has said that this lockdown has increased the suicidal tendencies among youth and because of the quarantine and isolation it has had a bad impact on youth and clinical observations show increase usage of drugs and alcohol. The government of India has launched certain programs like National health mental program (NHMP) District health Mental Program (DHMP) but these facilities have been available only for certain section of people. Not everyone could get access to it. There is no way one could track how a normal person like a cab driver or an auto driver who depend on their daily wage would feel in this lockdown. Without the financial source we few people ending their lives. But on a good note the government of Karnataka has introduced a new scheme where all the cab- auto drivers would get some amount of money. Not to forget to mention we have come across in social media the plight of mothers in this pandemic. In one side not only they were concerned about the safety of their family but to manage the family and getting the children to study is big task. The housewives had double the work and their psychological state of being has been affected badly. If few had the chance to mend their relationships, few had to move apart from their relationships.

Effect of Pandemic on Health System:

Covid -19 severe acute respiratory syndrome (SARS-CoV-2) was first identified in December 2019 in Wuhan city, China, and later spread to other countries. At the beginning when COVID-19 started people became nervous and We Indians got stuck and feared ourselves .All the people were finding very difficult in terms of mental stress and they did not know how to overcome stress. The symptoms of Covid -19 during second wave were severe fever, cough, Mild pneumonia, severe pneumonia, tiredness. During this situation whenever patients got fever they were scared of going to hospitals and were they were not properly treated and another important thing many people are from below poverty line were in they were finding difficulty in terms of paying bills and they were financially unstable. And another important thing is whenever they were tested positive that patient used to go to hospitals and treatment was taken immediately and for few treatment was successful and some were affected badly. And in certain cases many patients were tested negative and those patients who ignored and they did not get proper guidance from doctors and when it was severe and many of the people died because of insufficient information. Covid-19 has affected all the ages from (18-25years) and majorly it has impacted senior persons. This was continuous for certain period and then researchers, medical field and Government started taking initiatives and helping the people who are in need and BBMP played a very important role and they helped people with medicines and those people who tested positive was given bed facility in government

hospitals, then people found themselves bit relaxed so and people felt positive and gave moral strength, to the patients who were suffering from Covid. And people realized and understood the importance of mask and became very conscious and also the importance of Social distancing. People themselves took initiative if any symptoms caused to them like cold, dry cough themselves started doing self-isolation and cured themselves. In this second wave of covid-19, common people did not get hospital facility and no proper treatments were given to patients , 35,040 official Covid-19 deaths were recorded in Karnataka till June 30 caused huge death rates and majority of the priority was given to the VIP's ,there was the time where in patients was not treated properly .Major problem caused during this wave was oxygen and ventilator problem. We have seen many incidents where in doctors were negligent in treating the patients 24 patients died in Chamarajnagar district due to leakage of oxygen cylinder and where doctors also did not pay any attention. During COVID-19 there was a situation where in there were a lot of patients was cured and successful and many also had negative impact due to over dosage of medicines this again reflected into Black fungus .This is also severe syndrome were it was difficult to be treated because medicine cost was very huge and many people were admitted to a hospital and few lost eyes, problem in tongue and a major health issues. After the Covid-19 impact people have realized the value of maintaining the genuine relationship with family, friends and also learnt how health is also very important and being hygiene and people have started concentrating on health, yoga, fitness and online tools, new innovations have improved.

Conclusion:

Though it has been challenging to every section of the society people are trying to overcome the effects of this pandemic and trying to normalise the situation. The second wave particularly has had a devastating effect on people. We see people adopting to the new changes and leading their lives. The government is making all the possible steps to ensure the safety of its citizens and provide a healthy environment. People should have more responsibilities towards themselves and the society for the collective harmony and healthy ambience for all. It is important to understand that we are supposed to co-exist with the pandemic. A lot of efforts are being taken to improve the education sector using innovative teaching methods, a lot improvements are being made to improve the health facilities and to make working from more comfortable and less stressful.

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Economic Growth And Sectoral Composition Of Himachal Pradesh Economy: A Comparatative Study Of Two Districts

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Abstarct

Economic growth and sectoral composition are very important aspects for an economy and its development and to analyse it well at the state level, economy at the district level plays a very crucial role. Nation's economy can be well encapsulated and analysed by studying the parameters at the state level of respective nation, similarly state's economy can be well analysed by studying the parameters at the district level. In the era of specialisation where every small aspect in the economy is given equal importance, the importance of policies alteration at the district level cannot be ignored, thus it is very importance to study the districts and analyse them for effective policy making for growth and development. As rightly said by Ahluwalia, S. M (2000) "A better understanding of the reasons for the superior performance of some states would help to spread success from one part of the country to the other". This study pertains to the explorative analyses of the economic growth and sectoral composition of the two districts in Himachal Pradesh and highlight their respective performances. The study will also analyse the pace of structural change each district undergoing in the present study. The study is based on secondary data using simple methodologies such as statistic ratios and percentages for the time period from 2011 to 2016. The finding of the study will try to capture performance and economic growth path of both the selected districts and will elucidate the contrasting differences between them. The study aims to address the gaps in the district performances and the need to take care the unreasonable disparities to tap the full economic potential of the economy of the state and of the district, also to suggest an appropriate policy for the development of the state.

***Keywords** : Economic Growth, Sectoral Composition, Economic Disparities.*

Introduction

Economic growth and sectoral composition have been topics of significance for most of the researchers working on economic development since for the longest time period. Indian economy with huge size, wide structural and economic changes is better fathomed and interpreted when is deliberated at the regional level which narrows down the variability and facilitates better recognition of the special characteristics of economic growth. Economic growth can be seen as an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. To understand regional economic growth and its composition, one has to investigate the data at the regional level. This study tries to explore the variations that exist within the state particularly in context of two districts in Himachal Pradesh. The next section of the paper explains the profile of Himachal Pradesh, its achievements and challenges.

Profile of Himachal Pradesh

Himachal Pradesh consistently registered high rates of growth since 1990, higher than its prosperous neighbour state Punjab (Planning Commission, 2014). Economic growth in H.P. has been supplemented by remarkable progress in social and human development outcomes. The state has been adjudged as best state in inclusive growth in the country.(World Bank, 2016).Both economic and human development indicators have exceeded the rest of India.(Sanam,2008;World bank.2007).The economy H.P at the time of statehood in 1971 was largely dependent on the agriculture but with the pace of time as the process of development proceeded the percentage of primary sectors has decreased from 52.29% to 16% in 2016-2017 whereas the share of secondary sector and tertiary sector have increased from 18.95%and 24.76% in 1971 to 40.1% and 44.4% respectively in 2016-017.In short span of time H.P has become a model of development not only for smaller states but for the bigger states of the country in the field of Education, Health, Horticulture, social welfare and inclusive growth (Economic Survey, Govt. of Himachal Pradesh, 2016-2017). The next section of the paper entails to the literature survey.

Literature Review

State in the globalising world plays a vital role in promoting economic growth and development of a nation so it is important to understand the economic changes within a state for spatial development and analyse the performance, growth to make it reach its maximum potential growth. As stated by Aluwalia, S. Motek (2000) stressed upon the need to find the reasons for regional differences in the growth rates and devise a development model of constraint breaking strategies for the poor performing states to be successful like rich and better performing states.

Adabar Kshmanidhi (2002). the study talks about steady state growth and regional differences. The dynamic panel growth framework i.e. dynamic fixed panel growth regression has been used in the database. The study was conducted for the year 1976-77 to 2000-01 in 14 states. The findings of the study had stated that there had been conditional convergence when per capita investment, population growth, human capital and state particular factors were controlled. It was also revealed that active policy was important for steady growth and regional development.

Awasthi, A. (2014) the study examines the path of growth and development of Uttar Pradesh economy by investigating the structural changes in the economy since 1980-1981 till 2010-2011 and factors influencing the growth and income of various sectors. The study is based on the secondary data using annual compound growth rates and regression analysis for affecting factors.

Singariya, M. R. (2014). The study investigates the trends of economic growth in the economy of Rajasthan and talks about its relative share in the economy of India as a whole. The study has examined year wise growth rates of per capita net national product, per capita of state districts and per capita net district domestic product of the district of Rajasthan. The findings of the study revealed that the economy of Rajasthan still depends on agriculture and agriculture depends on the rainfall, if the rain is satisfactory or good enough, the growth rate is also satisfactory or otherwise.

Snehi, Y. (2016). The study explains the transition process of development discourse of the Himachal Pradesh economy since post independence era and examines the ongoing concerns in the process of development. The study is descriptive in nature and analyses is based on secondary sources. The finding of the study stated that since 1971 there was a change in the government expenditure priorities of the state as the expenditure on agriculture and allied activities followed an uneven pattern, initially it increased from 16.42 % to 27.46 % then declined to 11.67 % from 1967 to 1979-80 to 2002 respectively.

Aggarwal, A. (2016). The study examines the disintegration of output per capita in the economy of Punjab and compared it with other 15 state economies of India concerning growth of employment and productivity. The analyses for the study have been done using Shapely Decomposition Analysis for the period from 1993-94 to 2011-12. The results of the study showed that although Punjab economy has been dropped from the Output Per Capita race when compared with other state economies in the given period but the structural transformation has positively helped the state to diversify its economy

From the literature review it has been observed that studies analysing the growth, structure change, performance and other aspects of the economies at the national level, no serious effort has been made in the state of Himachal Pradesh, particularly in these two districts regarding the growth composition, pattern and differences in them. Hence, this gap in the research has evoked an investigation to study the growth process in the district of Kangra and Chamba of Himachal Pradesh to bring out the contrasting economic differences in them and compare their patterns of growth , sectoral composition changes and performance in the study time period.

Objective Of The Study

To access the economic growth and sectoral composition of kangra district from 2011 to 2016 using GDDP database.

To access the economic growth and sectoral composition of chamba district from 2011 to 2016 using GDDP database.

Methodology

The study shall be explorative and analytical in nature based exclusively on secondary data sources. The data mainly is collected from published sources like Statistical Year Book of Himachal Pradesh which is published annually, Handbook of district Domestic Product of H.P, Economic Census 2005. The time period of the study is 2011 to 2016. The economic growth have been measured with the following variables such as growth in GDDP, per capita district income, sectoral composition, literacy rate and workforce participation. Simple tools such as ratios, percentages, Compound annual growth rate (CAGR) have been used for analysing results.

Tables, GROWTH RATE OF OUTPUT OF EACH DISTRICT: TABLE NO -1

Districts	CAGR(2011-2016)
kangra	12.77
chamba	7.72
HP	11.15

Source:district statistical Abstarct of H.P of various years

Compound Annual Growth Rate ((Gross Value Added & Gross District Value Added) Sector-wise at Current Basic Prices) TABLE NO-2

districts	CAGR(2011-2016)	PRIMARY SECTOR	SECONDARY SECTOR	TERITARY SECTOR
kangra	12.77	8.03	8.16	15.55
chamba	7.72	-0.47	5.18	15.82
HP	11.15	7.28	9.41	14.51

Source:district statistical Abstarct of H.P of various years

Sectoral Contribution to GDDP FROM 2011-2016 TABLE NO-3

	YEAR	Sectoral Contribution to GDDP (in percentage)		
DISTRICT	YEAR	PRIMARY	SECONDARY	TERITARY
KANGRA	2011	16.82	24.13	59.05
CHAMBA	2011	27.5	39.57	32.93
HP	2011	17.16	43.81	39.03

Source:district statistical Abstarct of H.P of various years

Source:district statistical Abstarct of H.P of various years

DISTRICT	YEAR	PRIMARY	SECONDARY	TERITARY
KANGRA	2016	14.16	20.75	65.08
CHAMBA	2016	20.04	35.97	43.99
HP	2016	14.9	41.14	43.97

District wise Per Capita Income at 2011-12 to 2015-16 Current Prices TABLE NO- 4

DISTRICTS	2011-12	2012-13	2013-14	2014-15	2015-2016
KANGRA	53889	61847	68883	76253	86637
CHAMBA	73916	77817	84617	93892 9	98006

Source:district statistical Abstarct of H.P of various years

LITEARACY RATE : **TABLE N0 5**

	DISTRICT WISE LITERACY RATE -CENSUS 2001 AND 2011		
DISTRICT	2001 CENSUS	2011 CENSUS	
KANGRA	80.1	85.7	
CHAMBA	62.9	72.2	
HP	76.5	82.8	

Source:statistical Abstarct of H.P of various years

TABLE NO -5 DISTRICT WISE MALE & FEMALE WORK PARTICIPATION RATE 2001 & 2011 Census

	MALES		FEMALES	
DISTRICT	2001	2011	2001	2011
KANGRA	50.73	59.8	37.41	40.2
CHAMBA	53.87	54	45.97	46
HP	54.62	57.41	43.67	42.59

Source: Census of India, 2001&2011

Results Of The Study

Over the period of time, district kangra and district chamba have grown in different paces, CAGR of output in each district 12.77 and 7.72 (table no. 1) which clearly indicates that Chamba's growth process

has been little slow almost half the CAGR of district kangra which is a matter of concern. Regional inequalities are to be reduced if any state or district wants to prosperous and sustain its growth in the long run. The sectoral composition (table no 2) shows that in district kangra primary, secondary and tertiary sectors have grown at the rate of 8.03 , 8.16 and 15.55 whereas in district Chamba the growth rate of primary sector in output has been negative -0.47, in secondary sector 5.18 and in tertiary sector 15.82. This shows that chamba district's growth in primary sector has been nil as compared to kangra and to fill the gap , the policies need to be prioritize the targeting sector which is primary sector as majority of the labour force is dependent on this sector for employment and thus the gap needs to be addressed and primary sector's contribution has to be increased by prioritising its growth and development.

The sectoral composition in gross district domestic product (DDP) in district kangra in 2011 has been 16% appx in primary sector ,24 %appx in secondary sector and 52%appx has changed to 14%appx,20 %appx and 65 %appx respectively. This clearly shows that within the district kangra , the economy has gone under structural change as the output contribution each sector in DDP has gone under change adhering the path of clark- fisher hypothesis i..e structural transformation hypotheses which says as the economy of the state goes under structural change and the contribution of primary sector starts shrinking with growth and development and share of contribution of secondary and tertiary starts increasing. Hence the results have verified the clark-fisher hypotheses.

The sectoral composition of chamba district in GDDP has bee 27.5 %, 39.57% and 32.93 % in primary , secondary and tertiary sector repectively in 2011 has changed to 20.4%, 35.99 % and 43.99 % in respective sectors in 2016. This clearly indicates that the structural change has not been much in district chamba which is a matter of concern as for growth and development according to Clark- Fisher hypotheses, the economic structure needs to go under change which has not happened in chamba district much, thus for effective policy ,it is very important to identify the targeting sectors and also important to initial steps that will alter the economic structure as that will help the district to grow and develop.

The literacy rate in district Kangra has increased from 2001 to 2011 and also is much higher than district Chamba. Hence there is a need efforts to be made in education sector in district Chamba to be able to compete with other growing districts of the state to tap its full potential growth as education is huge source of human resource which is very important for growth and development. (table no. 5)

The workforce participation rate of females in 46% approximately Chamba is more than district kangra, showing that women in Chamba are more involved in the economic activity generating DDP as compared to district kangra where the women participation growth rate is mere 40% approximately thus more policies can be initiated involving more women participation that will also reduce the gap between employment in men and women, also increase employment opportunities in totality in the state.

Conclusion

In this paper an attempt was made to assess the extent of changes in economic growth and sectoral composition of Himachal Pradesh economy in its two districts in terms of various economic growth indicators. The study shows that there has been a contracting differences in both districts economies in terms of pace of structural changes, differences in growth rate of DDP of both districts, per capita district domestic product has also been significantly different that has lead to widened regional disparities; it is a matter of concern if growth process is to be sustained in the long time in the state. There exists a significant level of disparity among sectoral composition parameter between two districts of the state.The disparity needs to be dealt with an appropriate policy in the targeting area by various government initiatives that this study has helped us to identify. The study has also gauged the process of structural change in both the districts of the state and has recommended an altered policy at the district level according to the pace and stage of structural change it is experiencing. In the times of specialisation every sector , every district has to have a policy of its own according to their identified crucial areas so that it can reach to its maximum potential growthand development.

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Water Crises In India

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Abstract:-

All processes of life are directly or indirectly connected to water. For this reason, water occupies a special place in the problems of the environment"Dr Wolfgang Ludwig PhD Natural Sciences Physicist. In 2005, the Global Water Initiative said ***India had 'abundant' water in 1975*** *but that by* ***2000****, this happy state of affairs had turned into 'stress' even as demand has continued to grow.* **India is water stressed today and is likely to be water-scarce by 2050. Already, many parts of the country are water-scarce** ***Water scarcity is becoming an inflammable issue day by day****. If we do not act early we might make an irrecoverable damage. Let's peak into the future to see what it holds for us...The population of India is expected to stabilize around* ***1640 million*** *by the year* ***2050.*** *In year 2001* ***gross per capita water availability was 1820 m3 / yr*** *(today it has gone down further) In year 2050 it will* ***decline as low as 1140 m3 / yr*** *Total water requirement of the country for various activities around the year 2050 has been assessed to 1450 km3 / yr. This is* ***3 times*** *of present availability of ~500 BCM / yr (1 BCM = 1 cu kilometer)*

Viewed In The International Perspective:-

Country with water < 1700 m3/person/yr is tagged as ***water-stressed*** *and < 1000 m3/person/yr as* ***water scarce.***

Key Terms: - *Water, Scarce, Drinking Water.*

Introduction:-

Water can live very well without people, but we **people can only live for 3 days without water.**" This quotation already contains the whole truth about the importance of water as the most essential form of nourishment for all forms of life. But humanity treats water as if it were an infinite resource. Only around 3 per cent of the total amount of water available in the world is fresh water. Most of this is only available in the form of ice or subterranean water which cannot be exploited by us so that all in all, only around 0.2 per cent of all the water in the world can be used for drinking water. **Water cannot be reproduced; it is recycled in a closed circuit.**

The human body is 2/3 water, and this fact alone shows just how important healthy drinking water is for us. Every cell in our bodies needs water to function properly. Without water there would be no people, no animals, no plants. To maintain all bodily functions, a human needs up to 3 liters/5 pints of fluids a day. Unlike hunger, which a human can survive for several weeks as the body possesses sufficient reserves of fat, a lack of water will lead to certain death of a period of 3 days as the human body cannot retain any reserves of water.Humanity has been aware of this fact for thousands of years. In ancient Rome, for example, contamination of water was still seen as one of the greatest crimes. But we believe that we must sacrifice everything, and everything includes our water, on the altar of progress and so-called "prosperity." The people in our "prosperous" society have lost all respect for water and for Nature. In the industrialized countries, for example, daily water consumption per head is between 150 and 300 liters/33-66 gallons. And of this only around 2 per cent is used for drinking or cooking. The rest goes to flush toilets, to wash clothes, to wash the dishes, to wash the car, to clean the house, on body care or on watering the garden, etc. And then there are the huge amounts consumed by industry. Up to 400 metric tons of water is used, for example, just to produce one metric ton of steel. Almost every day we hear or read in the media that experts fear that there will be water shortages in the near future; or we learn how many diseases have their origin in poor water quality. Chemicals, fertilizers, air pollution, electro smog, etc. are the reasons why water has lost its power of self-regeneration today. In earlier times water still had this power of vitalizing the whole organism. Today, the emphasis seems to be more on putting so many chemicals (chlorides) into the water that it presents - at least from a scientific point of view - "no risk to health." (Refer1)

Definition:-

Water is a chemical compound consisting of two hydrogen atoms and one oxygen. The name water typically refers to the liquid state of the compound. The solid phase is known as ice and gas phase is called steam. (Refer2)

Also Known As: Dehydrogenate monoxide, H_2O

Meaning:-

We have been using **water without any type of control since the beginnings of the industrial era.** Since then, very few measures have been taken that guarantee an efficient use of water. **It is urgent to change**

this way of acting. Today **almost 900 million people do not have access to potable water and every day this number is increasing**

India isn't a naturally water-rich country, it has several dry areas and only two main sources of fresh water—glacier melt, which is restricted to the months of April to June, and the three-month-long monsoon season that runs until September

India's water crisis is often attributed to lack of government planning, increased corporate privatization, industrial and human waste and government corruption. In addition, water scarcity in India is expected to worsen as the overall population is expected to increase to **1.6 billion by year 2050**. To that end, **global water scarcity** is expected to become a leading **cause of national political conflict in the future**, and the prognosis for India is no different.

Theoretical Background:-

On a positive note, some areas of India are fortunate to have a relatively wet climate, even in the most arid regions. However, with no rain catchment programs in place, most of the water is displaced or dried up instead of used.

Whatever the means, India needs solutions now. Children in 100 million homes in the country lack water and one out of every two children are malnourished. Environmental justice needs to be restored to India so that families can raise their children with dignity, and providing water to communities is one such way to best ensure that chance (Refer3).

Water Usage In India:-

A growing population combined with huge demand of water for development purposes has put **excessive stress on available water resources**.

1) Irrigation: 82 per cent; 2) Industrial: 12 per cent and 3) Drinking: 6 per cent

And today we are facing **Drinking Water Shortage!**

Geographically India has been gifted in abundance by nature. Nature provides enough rainfall which is sufficient for our needs. But today, global Warming is resulting in unpredictable monsoon which causes less number of rainy days with high intensity.

The problem thus is not low rainfall but erratic rainfall.

Overall In India:-

1) Rain water harvested :< 18 per cent; 2) Water wasted: > 80 per cent only (+/-) 19 per cent variation in average rainfall causes **flood** and **drought**.

This is because only 3 per cent of the rainwater percolates in the ground naturally, rest just flows away i.e. run off. Existing Rainwater harvesting system manage to use only 10 per cent of rainwater. Thus the real cause of **water scarcity is sheer mismanagement of valuable rainwater**.

Food Crisis is directly related to water crisis. There would be a sharp decline in agricultural production, which will negate all of the previous efforts at food security. India will become a net importer of grain, which will have a huge effect on global food prices, as well as the global supply of food. A rise in food prices will aggravate poverty because people will have to spend larger portions of their income on food. In addition to devastating the agricultural sector of India's economy, the water crisis will have a big effect on India's industrial sector, possibly stagnating many industries.

Water Scarcity Across The States In India:-

1. **Bihar** and **West Bengal** have the **lowest per capita length of rivers and canals**—less than 4 centimetres—one of the primary reasons for the non-availability of water for irrigation purposes and the falling agriculture sector in these states.
2. Nearly **all the states except Karnataka** have been found to be suffering from the problem of deficient and scanty rainfall in their region.
3. The worst affected among the states are **Delhi, Sikkim, Uttar Pradesh, Rajasthan and Chhattisgarh**. The stage of ground water development reflects the usage of water with respect to availability of water resources in the region.
4. The **situation of ground water is critical in Delhi, Punjab, Haryana and Rajasthan.** It becomes more evident from that fact that more than **50 per cent** of the assessed units in these states are found to be **critical or over-exploited with respect to the availability-usage situation of water resources**. These states need urgent attention from the government and the implementation of proper water management techniques to prevent severe water crises.
5. States like **Himachal Pradesh and Mizoram** have the lowest per capita replenishment of water, less than 70 cubic metres. Looking deeper at the future demand of water, it is interesting to note that the demand for water is going to be doubled in the next 15 years in many states. This raises an alarm bell

or all stakeholders to take adequate steps to control water abuse and the storage of water for future usage (Refer4).

6. Nearly **650 villages and 3,200 hamlets in nine districts in Maharashtra are facing the worst-ever shortage of drinking water.** "In the last five years, it's a worst-ever situation. Water levels in irrigation dams have reduced drastically. In the last week of March, the administration deployed tankers and bullock carts to supply water, but we are unable to tackle the situation the ongoing drought in Maharashtra is being described as the **state's worst in many decades, causing agricultural distress and forcing villagers to move to urban areas looking for work. In some parts of Manmad of Nashik District in Maharashtra state receives water after 25-30 days.**
7. **In Bhopal Five injured in dispute over water (Refer5)**
8. **Research:-**
9. Analysts say India's per capita water availability is set to **slip below the critical 1,000 cubic metres mark by 2025**, and the country is expected to join China in facing significant water stress
10. 'Water–The India Story', a widely quoted study by market research firm Grail Research, points out that India's per capita domestic consumption of water is expected to **grow to 167 litres a day by 2050, up from 88.9 in 2000**.
11. Factor in the **growing population** (**expected to increase from 1.13 billion in 2005 to 1.66 billion by 2050)** and the picture starts to look bleak.
12. One recent report, by Ravi Narayanan, vice chair of the Asia Pacific Water Forum, stated that een conservative estimates suggest that **over 40 million people still need to be provided with safe water and about 100 million people with adequate sanitation just to reach Millennium Development Goals for urban India, much less reach universal coverage.**
13. In May this year, the vast central state of **Madhya Pradesh** (MP) saw violent clashes over water that led to five deaths. Such incidents have become common in MP, where official estimates (likely to prove optimistic), suggest about **70 percent of the state's 65 million people don't have adequate access to water.** Indeed, one recent newspaper report said **as many as 175 towns in the state have water supply only once every 2 or more days, while another 20 make do with water once every 5 days.**
14. Even in its leafy, green capital of Bhopal (ironically known as the city of lakes), there's an i**ncreasing struggle to access water, with police being called in to some districts to ensure water distribution remains orderly**.
15. Water issues are also driving politics. The southern states of **Tamil Nadu and Karnataka have been locked for decades in a battle over sharing the water of the 800-kilometre** Cauvery River. The riparian states, one on the river's upstream and the other on the downstream, continue to clash over the quantity of water that's being distributed from the river.
16. Rohini Nilekani, Chairperson of *Arghyam*, a water conservation not-for-profit, says the lack of thorough analysis of **the issue has fuelled many of the problems now being encountered across the country**. As a funding agency, *Arghyam* focuses on quantity, quality and access to domestic water.
17. 'At present, agriculture guzzles nearly **90 percent of India's water consumption**, even though it contributes only about **17 percent of the country's GDP**. This imbalance is, suggests Grail Research's report, set to grow, with production of water-intensive crops expected to jump by 80 percent between 2000 and 2050, while the volume of water used for **irrigation in India is likely to increase by 68.5 trillion litres between 2000 and 2025.**
18. **Findings:-**
19. **In India 90 percent of our rainwater is available for only 3 to 4 months a year**. If the monsoon fails, an entire season is lost,
20. Living people and the environment need water to *survive*. That can't be disputed. But water has a financial cost because investments are made to transport it, treat it.
21. D.R. Sikka, former director of the Indian Institute of Tropical Meteorology says tough **policy decisions need to be taken to ease agriculture's dangerously insatiable appetite for water**.
22. Grail's findings suggest that by **2050, groundwater levels in the Ganges basin will be depleted by between 50 and 70 percent**; levels in the Krishna, Kaveri and Godavari basins, which provide water to the big southern states, could be depleted by as much as half.
23. India is generally seen as **under-legislating its groundwater, with almost anybody being able to extract water with little or no permission.**
24. Farmers have also been encouraged to produce bumper, water-intensive crops like rice, even in states like Punjab, Haryana and Western UP which aren't really water-rich.

25. The farmer lobby is very strong in India.
26. Sikka says. 'But governments haven't taken a long term view of our water policy. Over the last many decades, political systems have given farmers free electricity. This has enabled them to use electrical pumps at will to extract groundwater.'
27. Since it was established in 2004, the **CII–GBC** has conducted 40 water audits and now helps **save 8 billion cubic metres of water annually**. Meanwhile, 413 large and medium-sized companies have become signatories of the CII Code for Ecologically Sustainable Business Growth requiring them to reduce specific consumption of energy and water by 2 to 6 percent every year over the next 10 years.
28. Local community participation is crucial because large engineering projects and ambitious ideas like the interlinking of rivers could actually lead to more disruptions if not carried out properly industry must still play a leadership role by working with local communities **beyond their own premises and profitability to create awareness on the three R's—reduce, recycle, replenish**.
29. **Solution To Water Scarcity:-**
30. The solution thus remains, is to capture the runoff water and saving of evaporation losses, i.e. converting this 80 per cent non-productive water into productive water by percolating it in the ground. But Rainwater does not percolate automatically; it has to be recharged i.e. directed to ground. This is exactly what **Kedia Farm Pattern - KFP** does.
KFP can harvest 80 per cent of rainwater i.e. 80 per cent of rainwater is percolated in the ground. Out of which 40 – 50 per cent is stored as soil moisture compared to the usual 10 per cent and the rest further infiltrates to increase ground water level.
If implemented on a large scale KFP can also revive drying rivers and wells and prevent drought and floods.

Due to its percolation ability and innovative technology, KFP is an outright solution to Water Crisis.

Suggestions:-

1. Top priority, should be given to drinking water without politics.
2. It is high time that people of India should cooperate and share water.
3. Water tankers to be provided into service to supply water to drought-affected villages.
4. Water supply to the industrial sector should be curtailed.
5. There should be no politics with regard to water management.
6. Wastage of water should be avoided.
7. All Indians should be educated with regard to water management.
8. Rain harvesting could be one solution for water collection. Collected water can be immediately used for agriculture, and with improved filtration practices to reduce water-borne pathogens, also quickly available for human consumption.

Pipe lines should be repaired on time.

How to save Water (Four persons per family)

A) Current use of water	**Average**
1. Bath under shower	50 liters
2. Shaving	10 liters
3. Brushing	10 liters
4. Use of full flash	08 liters
5. Washing vehicles by pipe	45 liters
6. Tap running washing Clothes	110 liters
7. Utensils washing one by one	80 liters

Total Use of water 305 litres (average consumption)

Change in behavior	**Per day water saving**
1. Average use of water	Per person 30 liters
2. Bathing-bucket 20 liters	Per person 09 liters
3. Shaving-Mug 1 liters	Per person 09 liters
4. Brushing-Mug 1 liters	Per person 10 liters
5. Use of dual knob flash Tank utilization 50 lit.	Per family 25 liters
6. Use of bucket for washing vehicles20 liters	Per family 90 liters
7. Use of bucket for washing clothes 20 liters	Per family 60 liters
8. Use of bucket for washing utensils 20 liters	Per family 60 liters

Total save 534 liters i.e. 04 person family per day

Conclusion:-

Pure water consists of hydrogen and oxygen, {H2O}, and is a colorless, odorless, tasteless, transparent liquid, which is very slightly compressible. At its maximum density, 39 [deg] Fahr. Or 4[deg] C., it is the standard for specific gravities, one cubic centimeter weighing one gram. It freezes at 32[deg] Fahr. Or 0[deg] C. and boils at 212[deg] Fahr. or 100[deg] C. (see {Ice}, {Steam}). It is the most important natural solvent, and is frequently impregnated with foreign matter which is mostly removed by distillation; hence, rain water is nearly pure. It is an important ingredient in the tissue of animals and plants, the human body containing about two thirds its weight of water.

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Technological Impact on Banking Sector between Pre-Covid and Covid 19 Period with Special Reference to Maharashtra Gramin Bank in Maharashtra.

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Abstract

T*he covid 19 pandemic effects on the structure of the economy. The structure of economy plays a key role in different sectors like agriculture, banking, production, employment, IT sector etc. Banking sector around the world bank offices are closed during first lot. In closing period customers had made transactions from home with the assist of information technology support by using mobile, laptop etc. The country was already on a digital first trajectory with one of the highest volumes in the world when the pandemic struck, and further propelled the use of contactless digital technology. The impact of technology laid down on banking customer is not only technological advancement but, more importantly, it is the foundation of a new mechanism for the deliverance of good governance.*

Introduction

Banking today is a flourishing industry, focused on technological innovation. Banks play an important and active role in the economic development of a country. Banking systems of any country needs to be effective, efficient, and disciplined because it brings about a rapid growth in the various sectors of the economy. Liberalization brought several changes to Indian service industry. Technology is revolutionizing all areas of human endeavor and activity. It has now brought in e-banking, which is gradually replacing the traditional branch banking. Internet banking has emerged as the biggest focus and targetable area. The customers are able to choose their banker from a number of banks offering wide range of services and delivering quality service. The commercial banks in India are now becoming more market oriented and customer friendly. Internet banking is changing the banking industry and is having a significant impact on the banking relationship. Banking industry is fast growing with the use of technology in the form of ATM's, online banking, telephone banking, Mobile banking etc., this growth has been strongly supported by the development in the field of technology, without which this could not have been possible. Beside it will change our lifestyle in coming years. Banks now a day's provide a wide range of services to satisfy the financial and non- financial needs of all types of customers from the smallest account holder to the largest company and In some cases of non - customer. The range of services offered differs from bank to bank depending mainly on the type and size of bank. This paper describes the need impact importance and benefit of modern banking services of banking sector.

Statement of the problem

Banking system plays a very significant role in the economy. An efficient banking system must cater to the need of high end investors by making available high amount of capital for big project in the industrial, infrastructure and service sectors. The facility of internet banking anables a consumer to access and operate their bank account without actually visiting the bank premises. The facility of ATM's and the credit/debit cards has revolutionized the choices available with the customers. In the modern day economy people are becoming busy with their life style and find no time to make these payments by standing in queue, the services provided by the bank is commendable. With the growing internet awareness among customers, increase in role of banks in e-business and it would become an important part of the banking sector in the years to come. Nevertheless these banking services are considered to be the strategic tool for overall development.

Objectives of the study

1. To know the impact of technology in banking sector.
2. To know the impact of technological banking services.
3. To aware the importance with respect to modern banking services.
4. To realize the benefit of technological banking services.

Methodology

Secondary data has been collected for this paper. The same has been compiled from various sources like journals, books, magazines, websites and reports.

Need of the study

The pace of development for the Indian banking industry has been tremendous over the past decade and the future growth of India's banking sector will remain high. India's financial services sector

will enjoy generally strong growth during coming years, driven by rising personal incomes, corporate restructuring, financial sector liberalization and the growth of a more consumer oriented, credit oriented culture. The banks were finding it difficult to compete with the international banks in terms of the customer services without the use of the information technology and computers. The use of the modern innovation and computerization of the banking sector of India has increased many folds after the economic liberalization of 1991 as the country's banking sector has been exposed to the world's market. Technology based modern banking services use of advanced technology has led to the shift from traditional banking methods to modern banking methods. Currently, the most common and useful technology- based banking methods are online banking, mobile banking, video banking, telephone banking, ATM's, plastic money and so on.ATM's are electronic machines, which are operated by a customer himself to deposit or to withdraw cash from bank. For using an ATM, a customer has to obtain an ATM card from his bank. The ATM card is a plastic card, which is magnetically coded. It can be easily read by the machine. The two most common technologies used for electronic payments are as follows:

National Electronic fund Transfer (NEFT) : It is nation -wide payment system facilitating one-to-one fund transfer. Under this scheme individual, firms and corporate can electronically transfer funds from any bank branch to any individual, firms or corporate having an account with any other bank branch in the country participating in the scheme. For being part of the NEFT funds transfer network, a bank branch has to be NEFT enabled.

Real Time Gross Settlement (RTGS) : The acronym RTGS stands for Real Time Gross Settlement. RTGS system is a fund transfer mechanism where transfer of money takes place from one bank to another on a real time and on gross basis. This is the fastest possible money transfer system through the banking channel. Settlement in real time means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. Gross settlement means the transaction is settled on one to one basis without bunching with any other transaction. Considering that money transfer takes place in the books of the Reserve Bank of India. The payment is taken as final and irrevocable. The Reserve Bank is in the process of replacing the existing RTGS with NG-RTGS, which provides more functions and facilities.

Data collection and Analysis

For understanding the role of Technological impact in banking sector following data collected in respect of Maharashtra Gramin Bank in Maharashtra which gives clear picture of using some electronic means of transactions in banking by consumer :

Table no 1.

Month wise NEFT Transaction of Maharashtra Gramin bank

NATIONAL ELECTRONIC FUND TRANSFER (NEFT)								
Year	**2019 (covid perid)**				**2018 (Pre covid period)**			
Month	**TOTAL OUTWARD DEBITS**		**RECEIVED INWARD CREDITS**		**TOTAL OUTWARD DEBITS**		**RECEIVED INWARD CREDITS**	
	NO. OF OUTWARD TRANSACTIONS	**AMOUNT (Rs. Million)**	**NO. OF INWARD TRANSACTIONS**	**AMOUNT (Rs. Million)**	**NO. OF OUTWARD TRANSACTIONS**	**AMOUNT (Rs. Million)**	**NO. OF INWARD TRANSACTIONS**	**AMOUNT (Rs. Million)**
April	86837	10381.70	340007	6845.60	69926	6476.61	128361	5364.20
May	85901	11824.30	348471	7759.40	70487	4647.95	115852	4191.02
June	79119	10369.00	241139	6775.40	74931	5419.17	181981	4534.53
July	79247	9725.40	251874	5582.80	70495	3600.84	135800	4150.72
August	73802	84135.70	208689	54480.80	67984	5235.90	117908	4566.36
September	68168	84888.30	263449	54005.60	60402	3951.72	119615	4261.97
October	72765	80465.90	283949	51861.40	71226	4257.67	142528	3537.93
November	76264	92634.20	296874	57922.20	63912	3528.87	144397	3988.71
December	76264	92634.20	296874	57922.20	65945	3700.97	124056	3452.91

January	84022	106651.50	243603	74223.60	70890	3789.46	150592	3983.25
February	94924	121859.00	456385	104457.50	65434	4484.30	141139	4344.20
March	85118	91036.90	582460	122906.30	92782	5367.80	359023	6582.40
Average per month	**80203**	**66384.00**	**317814**	**93037.00**	**70368**	**4538.44**	**155104**	**4413.18**

Continued…..

Increase in Transaction between 2018 and 2019				
	TOTAL OUTWARD DEBITS		**RECEIVED INWARD CREDITS**	
Month	**NO. OF OUTWARD TRANSACTIONS**	**AMOUNT (Rs. Million)**	**NO. OF INWARD TRANSACTIONS**	**AMOUNT (Rs. Million)**
April	16911	3905.09	211646	1481.40
May	15414	7176.35	232619	3568.38
June	4188	4949.83	59158	2240.87
July	8752	6124.56	116074	1432.08
August	5815	78899.80	90781	49914.44
September	7766	80936.58	143834	49743.63
October	1539	76208.23	141421	48323.47
November	12352	89105.33	152477	53933.49
December	10319	88933.23	172818	54469.29
January	13132	102862.04	93011	70240.35
February	29490	117374.70	315246	100113.30
March	(-)7664	85669.10	223437	116323.90

(**Source: Reserve Bank Of India / RBI Bulletin**)

From the above table we understand that number of interbank and customer makes the transaction by national electronic fund transfer facility. There is increase in the no. of transaction between 2018 and 2019. In 2018 on an average per month total outward debit no of 70368 customers makes Rs. 4538.44 Million transaction were done on monthly basis. On other hand total outward credit no of 155104 customers makes Rs.4413.18 Million transaction were done. In 2019 on an average per month total outward debit no of 80203 customers makes Rs. 66384 Million transaction were done on monthly basis. On other hand total outward credit no of 317814 customers makes Rs. 93037 Million transaction were done.

Table no 2 .
Month wise RTGS transaction of Maharashtra Gramin bank

Year	2019 (Covid Period)				2018 (Pre covid period)			
	Inward		Outward		Inward		Outward	
Month	**Volume**	**Value (in Rupees Billions)**	**Volume**	**Value (in Rupees Billions)**	**Volume**	**Value (in Rupees Billions)**	**Volume**	**Value (in Rupees Billions)**
April	3455	38.81	5653	36.18	2413	13.66	4322	12.60
May	3422	35.22	6424	31.17	2631	13.78	4897	13.51

June	3086	33.93	7003	30.41	2151	15.62	5295	14.48
July	2823	3369.63	5840	2960.94	1807	16.93	4013	17.41
August	2904	2882.02	5655	2558.96	1609	12.62	4015	11.97
September	3021	5201.87	5277	4879.44	1684	20.94	3871	21.12
October	3345	3116.00	6098	2865.98	2087	15.77	4457	15.08
November	3861	3072.29	5985	2733.98	1966	15.11	4145	15.50
December	4838	3936.96	7071	3579.29	2306	17.33	4066	17.14
January	5127	4457.65	8114	4268.60	2811	17.95	4718	18.14
February	4808	3123.34	7218	3428.10	2667	15.50	4361	15.23
March	4344	7668.78	7436	7920.87	3302	36.91	5573	37.01
Average Per month	**3753**	**3078.04**	**6481**	**2941.16**	**2286**	**17.68**	**4478**	**17.43**

Continued…..

Increase between 2018 and 2019				
	Inward		Outward	
Month	**Volume**	**Value (in Rupees Billions)**	**Volume**	**Value (in Rupees Billions)**
April	1042	25.15	1331	23.58
May	791	21.44	1527	17.66
June	935	18.31	1708	15.93
July	1016	3352.7	1827	2943.53
August	1295	2869.4	1640	2546.99
September	1337	5180.93	1406	4858.32
October	1258	3100.23	1641	2850.9
November	1895	3057.18	1840	2718.48
December	2532	3919.63	3005	3562.15
January	2316	4439.7	3396	4250.46
February	2141	3107.84	2857	3412.87
March	1042	7631.87	1863	7883.86

(Source: Reserve Bank Of India / RBI Bulletin)

From the above table we understand that number of interbank and customer makes the transaction by Real Time Gross Settlement facility. There is increase in the no. of transaction between 2018 and 2019. In 2018 on an average per month total Inward no.of 2286 customers makes Rs. 17.68 Million transaction were done on monthly basis. On other hand total outward credit no of 4478 customers makes Rs.17.43 Million transaction were done. In 2019 on an average per month total inward debit no. of 3753 customers makes Rs. 3078.04 Million transaction were done on monthly basis. On other hand total outward credit no of 6481 customers makes Rs. 2941.16 Million transaction were done.

Table No 3.
Month wise Mobile Banking Transaction of Maharashtra Gramin Bank

Month -wise Mobile Banking Transactions for the Year 2018 and 2019.							
	Year	2019 (covid period)		2018 (Pre covid period)		Increase / Decrease	
Sr. No.	Month	Volume (Actual)	Value (In Rs'000)	Volume (Actual)	Value (In Rs'000)	Volume (Actual)	Value (In Rs'000)
1	April	67194	392816.60	33085	195337.63	34109	197478.97
2	May	70555	437533.93	35409	216577.45	35146	220956.48
3	June	57310	358620.55	32616	208718.79	24694	149901.76
4	July	73421	477472.18	44403	285077.41	29018	192394.77
5	August	74661	440063.41	38995	234221.72	35666	205841.69
6	September	73600	429400.37	41011	235542.65	32589	193857.72
7	October	81941	490606.53	48793	287976.70	33148	202629.83
8	November	83736	496968.62	15343	113005.97	68393	383962.65
9	December	85994	516066.22	18829	137305.93	67165	378760.29
10	January	97234	590014.98	20431	145919.35	76803	444095.63
11	February	95738	577806.96	2237	52257.77	93501	525549.19
12	March	90280	572911.54	23150	163482.08	67130	409429.46
Average per Month		**79305**	**481690.16**	**29525**	**189618.62**		

(Source: Reserve Bank Of India / Rbi Bulletin)

From above Table it seen that bank customers uses mobile banking facility on daily basis. Data has indicates month wise volumes of mobile banking transaction between 2018 and 2019. It seen that there is increase in mobile banking transaction. Table shows difference between 2018 and 2019 month wise data of mobile transaction. In 2018 an average volume of mobile transaction is 29525 and value in Rs. 189618.62 but there is increase in 2019. In 2019 an average volume of mobile transactions were 79305 and value in Rs. 481690.16

Conclusion :

From above analysis it find that role of technology in banking sector moves towards the tremendous development. Modern computerised technological banking services are easy and suitable for doing day today financial transaction. It gives speed, reliability to customer. Customer can save time and money. Due to using computer-based system there are lack in human mistake. By using of electronic means like debit/credit cards ATM machines customer get ease and speed in procurement money. In last decade we seen that there is too much increase in number of customer in banks. Due to the application of technology in banking sector everyone has knowing economic condition of banks. Now the banks has working in rural and urban area as secured financial mediator for its customer.

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Role of SCBs in the Economic Development of Marathwada Region

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Abstract:

Banking services are broadly spread overall the countries. Banking sector acts as a backbone of modern business. A well organised banking system is necessity for the economic development of the country. The scheduled commercial banks are playing an important role in the economic development of the country. If the banking system in a country is effective, efficient and disciplined, it brings a rapid growth in the MSME sector, service sector, and agriculture sector of the country. As we know that the agriculture sector is the backbone of economy of the any country like India. The general role of scheduled commercial banks is to provide financial services to general public and business ensuring economic and social stability and sustainable growth of the economy. Scheduled commercial banks mostly provide short term loans to small, medium and large scale enterprises in the country. Its primary functions are to receive, transfer and lend money to the individual (personal) businesses, government and financial institutes with surplus funds. They use those deposits and borrowed funds to make loans or to purchase securities. Indian banks consist mostly of schedule commercial banks which includes both public sector banks and private sector banks. This research study is based on the secondary data, which provide the essential findings on SCBs and how it helpful in the economic development of the country. So this research study will helpful in finding out that how SCBs are helpful in credit flowing, employment generation in the both urban and rural areas and how it will contribute in the development of Indian economy.

Keywords*- Scheduled commercial banks, capital preservation, credit creation, productivity.*

Introduction:

A commercial bank is a type of banks that provides services such as accepting deposits, lending loans, and investing asset. A large number of formal institutional agencies like Co-operatives Banks, Regional Rural Banks, Scheduled Commercial Banks, Non– Banking Financial Institutions, and Self-help Groups etc. are involved in meeting the short-term and long-term needs of the customer. The major roles that commercial banks play in the economic developments of the country which are capital preservation and appreciation, credit creation, increasing productivity, development agriculture and foreign trade, implementation and execution of monetary policies etc. Both agriculture and allied industries are an excellent source of growth and national income. Both public and private banks are now involving themselves in a lot of agree-based activities as well as manufacturing industry activities. Due to liberalization, privatization and globalization the role of banking sector changed dramatically. The credit is one of the critical inputs for agricultural development.

Banking

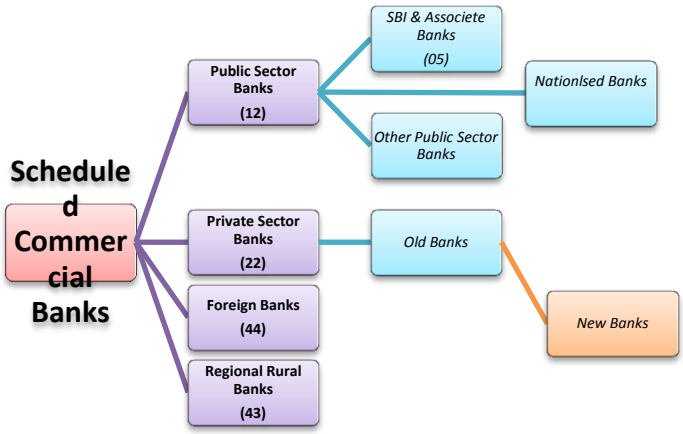
According to section 5(1) (b), "Banking means accepting for the purpose of lending or investment of deposits of money from the public, repayable on demand or otherwise and withdrawal by cheque, draft, or order or otherwise"

Banking regulation act -1949. According to section 5 (c) of the BR Act 'A banking company is a company which transacts the business of banking in India. A bank is a financial institution which mobilizes savings from the people as deposits and provides loans. In the Indian banking structure, central bank in the name of Reserve Bank of India regulates, directs and controls on the banking institutions. RBI is the central bank of our country which was established on 1st April 1935 under the RBI act of 1934. It holds the top position in the banking structure. Indian banks are classified into commercial banks and Co-operative banks. Commercial banks comprises: (1) Scheduled commercial banks and (2) non-scheduled commercial banks. SCBs are further classified into public sector banks, private sector banks, foreign sector banks and co-operative banks.

Structure of Scheduled Commercial Banks:

Scheduled Banks: Banks which have been included in the second schedule of RBI Act 1934. The scheduled banks have a paid-up capital and reserves of gross value of not less than Rs.5 lakhs; they have to persuade the RBI that their affairs are carried out in the interest of their depositors.

Public Sector Banks: Public sector banks are the financial institutions in which the majority of stakes are held by the central government, which should be more than 50% in our country. There is no difference between the nationalised banks and public sector banks. With the announcement made on 30th August 2019, the no. of PSBs comes down from 27 to 12.



Private Sector Banks: The private sector banks are those banks where greater portion of stake or equity are held by the private shareholders. At the present there are 22 private sector banks in India working under the regulation of RBI Act 1934.

Foreign Banks: A foreign bank is a type of international bank that is obligation to following the regulations of both its home and its host countries. These banks have loan limits which are based on the capital of the parent bank, thus allowing foreign banks to provide more loans than other subsidiary banks. Foreign banks are those banks out which are of the country.

Regional Rural Banks: Regional rural banks established on October 2, 1975 in India. These banks provide credit to the weaker section of the rural areas, particularly the small and marginal farmers, agriculture labour, and small entrepreneurs. At present there are 43 RRBs working in India under the regulation of reserve bank of India.

Objectives of the Study:

1. To study the functions of scheduled commercial banks in India.
2. To study the district wise number of accounts opened in scheduled commercial banks in the Marathwada region.
3. To study the district wise outstanding credit of SCBs according to occupation in the Marathwada region.

Period of the study: this study covered a period of two years that is 2017-18 to 2018-19.

Methodology: On the basis of the above mentioned objectives, the following methodology will be adopted in this study.

Data Source: This study is depended on the secondary data source. The secondary data is collected from the RBI bulletin, RBI websites, articles, published journals etc. The secondary data is related to the scheduled commercial banks of Marathwada region in Maharashtra state.

Functions of SCBs:

The functions of scheduled commercial banks are divided into two categories which are primary functions and secondary functions.

1. Primary function of SCBs: The scheduled commercial banks perform the various types of functions which are explained below.

Accepting Deposits: The commercial banks accept a various types of deposits from people especially from its clients. These deposits include current account, saving account, recurring account and fixed account etc. These deposits are accepted based on various repayment periods.

Making Advances: The commercial banks provide loans and advances in various forms. It includes an overdraft facility, cash credit, bill discounting etc. They also give demand and term loans to all types of clients against proper security.

Credit Creation: It is the most significant function of the commercial banks. While sanctioning a loan to a customer, a bank does not provide cash to the borrower instead it opens a deposit account from where the borrower can withdraw the money. In these process commercial banks create credit money.

Secondary Functions: Along with the primary functions each commercial bank has to perform several secondary functions too. This is also including more agency functions or general utility functions. The secondary functions of commercial banks can be divided into agency functions and utility functions.

a) *Discounting bills of exchange:* It is a written agreement acknowledging the amount of money to be paid against the goods purchased at a point of time in the future. The amount can also be cleared before the quoted time through a discounting method of a commercial bank.

Overdraft Facility: It is an advance given to a customer by keeping the current account to overdraw up to the given limit.

Purchasing and Selling of the Securities: The bank offers you with the facility of selling and buying the securities.

Locker Facilities: Bank provides lockers facility to the customers to keep their valuable belonging or documents safely. Banks charge a minimum of an annual fee for this service.

Paying and Gather the Credit: It uses different instruments like a promissory note, cheques and bill of exchange.

Role of Scheduled Commercial Banks:

Banks are one of the most important parts of any country. In this modern era, its necessity is very important. A developed financial system of the country ensures to attain development. In the modern scenario, all banks have provided loans and advances, outstanding credit facility to agriculture, industry, transport operators, trade, finance, personal loan, professional and other services etc. The primary role of the bank credit is generating employment opportunities and set up MSMEs in the rural, semi urban and urban areas.

Table No.1, District wise No. of Accounts of SCBs in Marathwada Region

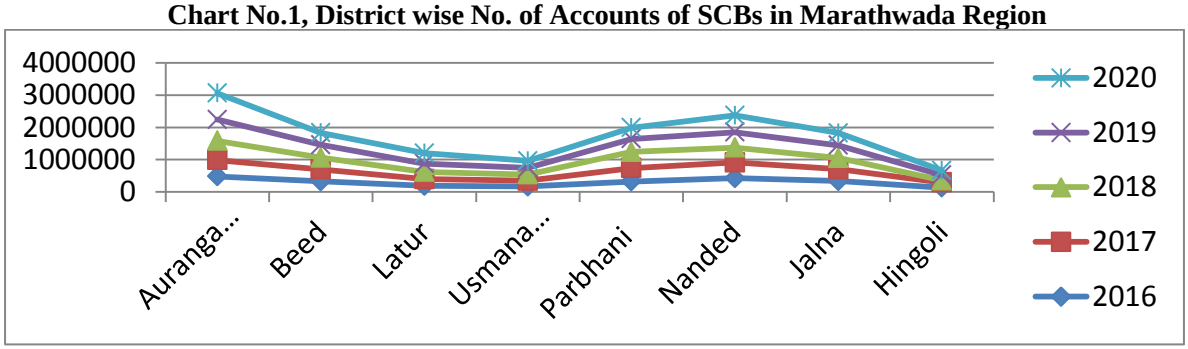
(Accounts in thousand)

District	2016	2017	2018	2019	2020
Aurangabad	479888	505786	593678	660417	819812
Beed	327282	371018	360630	397232	373517
Latur	191254	207608	222757	254306	325568
Usmanabad	168155	181414	192980	206567	212529
Parbhani	322249	415677	499403	401154	349074
Nanded	425265	485170	462802	475187	520151
Jalna	337022	365816	347870	393531	377803
Hingoli	132030	159233	67607	162957	145096
Total	**2383145**	**2691722**	**2747727**	**2951351**	**3123550**

Data source: https://dbie.rbi.org.in

Table no. 1 shows that the numbers of activated accounts of scheduled commercial banks in Marathwada region have been increased 'year by year'. There are eight district have been included in the Marathwada region. The accumulated number of accounts of scheduled commercial banks in the year of March 2016 is 2383145 (lakh) and at the end of March 2020 the total number of accounts opened in the SCBs is 3123550 (lakhs), under the regulation of RBI act 1934.These all Indian commercial banks have provided beneficial services to the customer like zero balance account, debit card, credit card, various loans, online payment service, digital banking services etc., banks play an important part in the development of rural area.

Chart No.1, District wise No. of Accounts of SCBs in Marathwada Region



Above chart shows the line position of largest number of accounts rapidly opened in 2016 to 2020 in Aurangabad Beed, Parbhani, Jalna and Nanded District. Lowest no. of accounts opened in Usmanabad and Hingoli districts because both are geographically small destination places and minimum number of population is living in both districts. As well as there is not huge employability. So, the number of borrowers seems to be low that is shown in the table no.2 and table no. 3.

Table No.2
DISTRICT-WISE CLASSIFICATION OF OUTSTANDING CREDIT OF SCB

According To Occupation –March 2018

(Amount in Crore)

OCCUPATION	Aurangabad	Beed	Hingoli	Jalna	Latur	Nanded	Usmanabad	Parbhani
I. AGRICULTURE	**3630**	**2429**	**592**	**2963**	**1623**	**3185**	**1714**	**3833**
1. Direct Finance	3344	2349	540	2842	1505	3036	1674	3759
2. Indirect Finance	287	81	52	121	119	149	41	73
II. INDUSTRY	**6058**	**520**	**37**	**483**	**702**	**974**	**181**	**462**
1. Mining & Quarrying	1333	2	0	14	2	2	3	1
2. Manufacturing & Processing	4068	480	29	438	606	744	151	413
3. Electricity, Gas & Water	41	1	1	2	1	78	11	2
4. Construction	616	36	7	29	93	149	16	46
III. TRANSPORT OPERATORS	**531**	**36**	**11**	**28**	**101**	**212**	**37**	**45**
IV. PROFESSIONAL AND OTHER SERVICES	**977**	**109**	**16**	**103**	**148**	**179**	**67**	**73**
V. PERSONAL LOANS	**7279**	**1318**	**176**	**840**	**1465**	**2153**	**639**	**906**
1. Loans for Housing	4151	751	115	417	794	1341	340	520
2. Loans for Purchase of Consumers	11	1	1	2	4	3	0	2
3. Rest of the Personal Loans	3117	566	61	422	667	809	299	384
VI. TRADE	**1618**	**333**	**47**	**373**	**550**	**499**	**182**	**342**
1. Wholesale Trade	558	65	15	134	132	97	19	29
2. Retail Trade	1060	267	32	239	418	402	164	313
VII. FINANCE	**282**	**15**	**6**	**53**	**15**	**23**	**11**	**14**
VIII. ALL OTHERS	**294**	**19**	**6**	**35**	**88**	**233**	**36**	**27**
TOTAL BANK CREDIT	**20668.0499**	**4778.5157**	**890.5021**	**4878.0097**	**4692.2078**	**7458.6593**	**2867.7608**	**5701.5147**

(Source: dbie.rbi.org.in)

Table No.3
DISTRICT-WISE CLASSIFICATION OF OUTSTANDING CREDIT OF SCB
According To Occupation –March 2019

(Amount in Thousand)

OCCUPATION	Aurangabad	Beed	Hingoli	Jalna	Latur	Nanded	Usmanabad	Parbhani
I. AGRICULTURE	**38361283**	**28763184**	**13934844**	**35242774**	**16419882**	**33811484**	**19041808**	**32201375**
1. Direct Finance	35915458	27908373	13298116	33837275	15444789	32163189	18331290	31663126
2. Indirect Finance	2445825	854811	636728	1405499	975093	1648295	710518	538249
II. INDUSTRY	**63658204**	**5214604**	**435888**	**4970994**	**7360132**	**10321728**	**1810595**	**4381384**
1. Mining & Quarrying	16025330	17029	2896	115362	38169	23341	32242	9463
2. Manufacturing & Processing	39824561	4739054	349324	4371428	6178200	7999757	1452861	3688082
3. Electricity, Gas & Water	428306	12626	8576	17688	150597	737795	80537	16824
4. Construction	7380007	445895	75092	466516	993166	1560835	244955	667015
III. TRANSPORT OPERATORS	**6622266**	**576293**	**143583**	**316184**	**1246587**	**2533119**	**401926**	**591528**
IV. PROFESSIONAL AND OTHER SERVICES	**14523755**	**1316827**	**249991**	**983641**	**1604192**	**1830856**	**850626**	**792975**
V. PERSONAL LOANS	**74125497**	**15010365**	**4146886**	**9831256**	**16856676**	**24611752**	**7583280**	**9145289**
1. Loans for Housing	48355276	8525255	2303763	4928259	9444859	14601835	3843817	5121547
2. Loans for Purchase of Consumer Durables	492406	186889	232558	170947	228883	346076	92417	195414
3. Rest of the Personal Loans	25277815	6298221	1610565	4732050	7182934	9663841	3647046	3828328
VI. TRADE	**16938961**	**3726428**	**1058435**	**3933059**	**6032924**	**5408593**	**2151663**	**3111500**
1. Wholesale Trade	5379408	632048	201929	1490348	1341001	922700	243676	290966
2. Retail Trade	11559553	3094380	856506	2442711	4691923	4485893	1907987	2820534
VII. FINANCE	**1340802**	**88149**	**34692**	**120469**	**486258**	**125327**	**52316**	**33730**
VIII. ALL OTHERS	**7489049**	**371669**	**144229**	**811336**	**1234463**	**1431339**	**520587**	**410884**

(Source: dbie.rbi.org.in)

The above table no.2 and table no. 3 describe the outstanding credit position of occupation wise scheduled commercial banks in the Marathwada region. The large amount of outstanding credit is shown in Aurangabad, Beed, Nanded, Jalna, Parbhani, and Latur districts because those are geographically big areas and there are agricultural, industrial, transport, professional services, personal loans like housing loans, purchase of consumer durables loans, trade and finance related services have been provided to the customers in large scale. Hence the SCBs has been disbursed credit to the priority sector, industry, trade and finance but the outstanding credit amount is not recovered by the bank at the end of march 2018 and 2019.

Conclusion:

According to the Reserve Bank of India Act-1934, all Indian and Foreign banks are classified into two categories i.e. scheduled and non-scheduled banks out of these the scheduled commercial banks are promoting banking services to the all sectors which are contributing in the economic development of Marathwada region in Maharashtra state. Scheduled commercial banks are concentrating on providing more modern banking services to the rural areas. This sector has been the backbone of Indian economic development. In the modern era, all banks want to give first priority to the rural areas while disbursing credit to agriculture, micro, small and medium enterprises. The main roles of SCBs have to increase the large number of employment generation in the both urban and rural areas in Marathwada (Maharashtra) region in India.

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Bang of Covid-19 on Health and Fitness

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Abstract

Our health is inextricably joined to the environment. We have a tendency to live in, from rural areas to dense cities, the water we drink to food we eat, from the places we live to place we work, and therefore injury to our natural environment additionally ends up in damage to human health. The health and safety concerns of human being are paramount for the well being of a country and are an important factor in building a nation. Every human being is proud to health and wealth, but coin has two sides, positive and negative. In the positive sense, the virus called Covid-19 is ruling over the entire human race and has taught us that how we take care of our family's health and how to manage our needs of daily life using minimum resources. In the negative sense, we lose our mental stability, our courage, our health too.

Introduction

It was about an ending of year 2019, a virus resides in the body of thousands of people in the city of Wuhan China, where it got its name Covid-19. Within a couple of days it spread all over the world and more than millions of people affected by this new virus named Covid-19. Number of people lost their lives because of this dangerous virus. Many people lost their loved ones and those spaces can never be filled again especially when its parents and grandparents. The most painful thing when people are losing their loved ones. Many people lost their jobs which significantly changed their living and family life too. We have seen people walking on the roads without food, money, just in hope of reaching their homes, their own soil. Till now this life countdown banned gathering of people. A strict lockdown is enforced to control this dangerous disease. This article attempts to analyze the change occurred due to impact of Covid-19 in the human being. Diet plays a key role in health.

Objectives

To know the impact of Covid-19 on human health.
To study the health problems of human beings due to Covid-19
To study the nutritional knowledge.

Methodology

This research paper is theoretical in nature prepared with the support of secondary sources like various books, newspaper, research journals, internet and prominent sites.

Bank of Covid-19 on health and fitness

According to WHO definition of health is ‘‘State of complete physical, mental and social well being and not merely the absence of disease or infirmity.’’ The extent to which an individual or group is able to realize aspirations and satisfy needs and to change or cope with the environment.The Covid-19 pandemic has highlighted the importance of social interaction and human contact with and almost every aspect of our lives including education, health, employment, entertainment and recreation. A year ago, most of us wouldn't have understood meaning of words such as social distancing, sanitizer, face mask, continuous hand wash, quarantine, isolation etc.Covid-19 is acted as a teacher who teaches us to take care of our health. The person who doesn't even wash his hands after coming back to home now takes a bath before touching anything in the house or coming in contact with any person in the house.As per Corona virus pandemic rapidly sweeps across the world, it is including a considerable degree of fear, worry and concern in the population at large and among certain groups in particular. In a negative sense, due to Corona virus, people undergoes stress, anxiety, depression people who suffers from Corona disease undergoes isolation. Firstly, the patient suffers from sneezing, coughing, fever and body pain. During isolation, the patient kept in a separate room where no one can come in contact with him. He receives medicinal treatment out not moral treatment. Patient is in such a condition that where no one is near him. He can't express his or shares his feelings with anyone. Because of this he undergoes depression. Depression is the most common health problem. Living a life with depression and doesn't come out of this depression, in such cases patient commits suicide too. Helping sensitize people to mental health issues and giving them the confidence to seek assistant is vital. Corona virus also affects on liver, lungs, heart, such chronic diseases etc. Elderly people depend on young ones for their daily needs, and self-isolation can critically damage a family system. The elderly and disabled people living in nursing homes can face extreme mental health issues Covid-19 can also result in increased stress, anxiety and depression among elderly people already dealing with mental health issues. However, a phone call during the pandemic outbreak can help to console elderly people. Kids can experience anxiety, distress, social isolation, and an abusive environment that can have short or long term effects on their mental health. Not all children and

parents respond to stress in the same way. Excessive crying and annoying behaviour, increased sadness/depression or worry, changes in eating habits, unexpected headaches and pain throughout their bodies, changes in their activities that they enjoyed in the past with their friends.

Conclusion

In a positive sense, everyone is unique with their body and mind. If we have positive thought in our mind, we will be happy automatically we will be healthy from inside. Nowadays we started believing in our Ayurvedic treatment which increases our immunity naturally. Regular exercise is very important for healthy life. Pranayams and morning walk is very useful due to which we releases our mental stress. Health and nutrition is very important aspect in Covid-19. We give first priority to our health. Dietary habits and choices play a significant role in health. A healthy diet is one that is arrived at with the intent of improving or maintaining optimal health. By taking balanced diet and regular exercise for our body we can fight against Covid-19in a better way.

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Water and Soil Conservation New- Avenues

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Abstract :-

For many years attempts have been made for creating ecological balance by upgrading its contents .The work is going on restlessly contributing each of the factors related to ecological balance. Conservation of soil and water resources is important for sustainability of agriculture and environment. Soil erosion and water wastage have been have been proved to be the major concern before the world water and wind are major agencies which are responsible for soil erosion. Beside it there are several reasons for soil erosion such as deforestation maximum use of pesticides, arbitrariness of rainfall etc. Rain water conservation is the dire need of the time ,plenty of water flows into the sea resulting water scarcity creating in early session of the summer some times in winter session also. The paper examines the new avenues for meeting the problems of soil and water conservation.

Keywords *:- Conservation, Resources, Erosion, Ecological, Agriculture, Water, Soil*

Introduction :- Indian economy is depend on agriculture and the farmer's livelihood is depend on the monsoon. conservation of soil and water resources is important for sustainability of agriculture and environment. Soil and water are under immense pressure due to ever increasing population there by ensuing growing demand food, fiber and shelter. Soil erosion Is one of the several major deteriorative processes which results in deteriorative of the soil. There are several reasons for soil erosion such as deforestation , use of pesticides imbalance in rainfall etc. Rain water conservation is dire need of the time.

To overcome soil and water related problems likes erosion of soil and water scarcity to design some measures for it , in this scenario it is imperative that effective provisions for soil and water conservation for society betterment.Below are several ways in which Indian farmers can save water and put it to optimum use all through the year.

Rain Water Harvesting :- Harvesting can be defined as method by which the rain water is collected in tanks and reservoirs for future use. Unpredictable climatic conditions and depleting ground water levels can be mitigated with rain water harvesting. The best part about rain water harvesting is that it can be practiced in homes, offices parts etc.

Black Plastic and Organic Mulches :- Did you know that organic and black plastic mulches can save 25 percent in water requirement Black or synthetic which not only reduces the water evaporation but also helps in controlling weeds and warns the soil for on earlier crop organic mulches dust decomposition provide nutrients to the soil and conserve moisture cover crops and green mulches can be used too

Drip Irrigation:- Systems deliver water directly to a plants roots reducing evaporation that happens with spray watering system. Timers can be used to schedule watering for that cooler parts of the day properly installed drip irrigation can save up to 80 percent more water than conventional irrigation and can even contribute to infected crop yields.

Irrigation Scheduling:- Smart water management is not just about how water is delivered but also when how often and how much to avoid under or over watering their crops farmers carefully monitor the weather forecast as well as soil and plants moisture and adopt their irrigation schedule to the current condition uses flood irrigation at night to sleep down into soil and recharge the water table.

Dry Farming:- In this system farmers irrigation relying on soil moisture to produce their crops during dry season special tilling practices and careful attention to microclimates are essential. Dry farming tends to enhance flavors but produces lower yields than irrigation crops can be successfully dry farmers in India.

Going Organic :- In some area found that crops grown in organic fields greater than conventional fields in years of drought the addition to keeping many of the more toxic pesticides out of our water ways organic methods helps retain soil moisture to plants. It can helps recharge ground water supplying up to 20 percent.

Rotational Grazing :- Is a process in which live stocks are moved between fields to helps promote pastures regrowth good grazing management increases the fields water absorption and decreases water runoff , making pastures more drought resistant increased soil organic matter and better forage cover are also water saving benefits of rotational grazing. It use to keep their pastures and animals healthy.

Cover Crops :- Planted to protect soil that would otherwise go bare cover crops reduce weeds increase and help prevent erosion and compaction. This allows water to more easily penetrate the soil and improves its water holding capacity. It helps more productive than conventional fields during year of drought. It also use for building healthy soil.

Use of Compost and Mulch:- Compost or decomposed organic matter used as fertilizer has been found to improve soil structure increasing water holding capacity mulch is a material spread on dip of the soil to conserve moisture mulch made from organic materials such as straw or wood chips will break down into

compost further increasing the soils ability to retain more water in the soil during the dry season. Farmers may also use black plastic mulch as to soil cover to suppress weeds and reduce evaporation.

Capacity and Storing Water:- Many farms rely on municipal water or wells(ground water) while some have built their own ponds to capture and store rainfall for use throughout the year. Properly managed ponds can also create habit for local wildlife .It helps to minimize their impact on the surrounding watershed..

Conclusion:- The conservation of water and soil is an open ended reform action. Many new techniques for meeting these problems are emerging day by day for water conservation rain water harvesting, black plastic and organic mulching, black plastic and organic mulching drip irrigation maintaining irrigation scheduling setting up water barricades capturing and storing water by building dams etc. seems to be coming with new ray of hope. In case soil conservation many new methods have been emerged such as organic farming rotational grazing clever crops use of organic pesticides undertaking mass plantation drives, use of compost and mulch etc. can be used for good conservation of soil and there by maintain ecological balance.

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Conservation of Environment through Education

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Abstract

In the era of 21st century at one side with the help of well-developed brain human society has made an enormous development in all sectors. However, along it the various issue regarding the environmental degradation has emerged out from local to global level. The causes, consequences and remedial measures of all the environmental problems were widely discussed at national and international level during last few decades at various platform. These deliberations pointed out the need of public awareness regarding environment conservation and it can be achieved through educating the people.

The present paper is an attempt to focus the historical account of environmental education for inculcation the awareness, ethics and values in human being for the conservation of environment.

Keywords: *Environment, Degradation, Conservation, Education.*

Introduction

The speedy process of industrialization, commercialization and urbanization lead to born new environmental problems before human society. The issues like global warming, climate change, loss of biodiversity, natural resource depletion, environmental pollutions and its effect on human health become a major concern at global level. These environmental issues were thoroughly discussed at global platform through various conferences. There was a unanimous accord in order to cope with these issues there is an urge to inculcate the environmental awareness through education which is an important tool for achieving the goals of sustainable development (Stockholm, 1972).Goals of EE are to develop a world population that is aware of and concerned about, total environment and its associated problems, and commitment to work individual and collectively towards solution of current problems and the prevention of new ones (UNESCO, 1975). With considering the urge and importance of Environment education, it has been thoroughly discussed and widely accepted at international level (Tiwari *et al.,* 2007). The environmental education is considered as an indispensable tool in the battle against the degradation of environmental components. In this accordance the appealed to launch a programme for environmental education (United Nations, 1972**).** The goals of EE are to develop a world population that is aware of and concerned about, total environment and its associated problems, and commitment to work individual and collectively towards solution of current problems and the prevention of new ones (UNESCO, 1975). The environmental education plays a key role in the protection, conservation and improvement of the global environment. (Tbilisi Declaration, 1977). The public education, awareness and training for environmental education having the importance in perspective of sustainable development (Rio, 1992). National Education Policy (NPE,1986) highlighted that all ages and all sections of society, beginning with the child the environmental consciousness should be inculcated into teaching in schools and colleges. The Government of India set up a Center of Excellence in Environmental Education with considering its vital role to aware the society (Kartikeya, 2000). The journey of environmental education has been geared up in India, through the Supreme Court in their judgments of writ petitions (M.C. Mehta Vs Union of India, 1991; M.C. Mehta Vs Union of India, 2003) has directed for the urgent need for environmental education. The Supreme Court Bench had issued an order on November 22, 1991 to all state governments, and to the State Education Boards, to make environmental education, a compulsory subject (*India times*, 2003).

Objectives of Environmental Education

A number of new objectives and guiding principles for developing environmental education at all levels in both formal and non-formal level were formulated at the Tbilisi Conference (UNESCO, 1977).

Participation - to provide individuals, groups and societies with opportunities to be actively involved in exercising their skills of environmental citizenship and be actively involved at all levels in working towards sustainable development.

Knowledge - to help individuals, groups and societies gain a variety of experiences in, and a basic understanding of, the knowledge and action competencies required for sustainable development

Values - to help individuals, groups and societies acquire feelings of concern for issues of sustainability as well as a set of values upon which they can make judgments about appropriate ways of acting individually and with others to promote sustainable development

Skills - to help individuals, groups and societies acquire the action competence or skills of environmental citizenship - in order to be able to identify and anticipate environmental problems and work with others to resolve, minimize and prevent them

Awareness - to create an overall understanding of the impacts and effects of behaviors and lifestyles - on both the local and global environments, and on the short-term and long-term.

Guiding Principles of Environmental Education:

1. To consider environment in its totality (natural, artificial, technological, ecological, moral, aesthetic).
2. To consider a continuous life process.
3. To be interdisciplinary in approach.
4. To focus on current, potential environmental situations.
5. To emphasize active participation in prevention and control of pollution.
6. To examine root cause of environmental degradation.
7. To provide an opportunity for making decisions and accepting their consequences.

Conclusion: Along with the process of development in all areas there is an urge to protect and conserve the environment in its totality. Education is not only to literate the people but it is purely too aware them regarding the importance of quality of environment. Education plays a key role to inculcate the consciousness among the individuals for the protection, conservation and betterment of environment.

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Nature and Nurture in Scripture for the Wellbeing of the Society: A RechercheResearch

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Abstract

Since time immemorial, the bond between man and Nature has been extremely strong and pristine environment shows us that man and Nature are the part of the organic whole living together in harmony. Environment has been one of the major sources of inspiration to the poets, dramatists and writers and our scriptures give divinity to Nature and ask us to conserve it. Our ancestors learnt to live with five elements of Nature, the Panchamahabhutas and actually worshipped them in reality and symbolically. Nowadays protection of environment is a burning problem of our global world. But this is a matter of pride for us, the Indians that this concept of protection of the environment was already present in our ancient Vedic literature, the Ramayana, the Mahabharata, the Puranas and several Sanskrit texts which are full of important life lessons, flash the light of the then environment and ring true today for India, as well as for the cosmic world. The Srimadbhagavadgita also advises us not to try to change the environment but to improve it. Now it is our responsibility to maintain the equilibrium and see that Nature is not disturbed or interfered with, lest it should lead to chaos and confusion as aptly pointed out by Earnest Hemingway, the famous American novelist, who warned, "Mending nature is ending nature". We must follow the highest ideal needed in our present competitive era to make our global village fit for us. Sarva-bhootasuhritva.(SrimadBhagavadgita 6.31)

Key words: Environment, Nature, nurture, global village.

Introduction

Since time immemorial, the bond between man and nature has been extremely strong and pristine environment shows us that man and Nature are the part of the organic whole living together in harmony. The very word "environment" or "*paryavaran*" equivalent to French term "Environment" and Latin term "in-viron" means something that encircles us, surrounds us, engulfs us and affects our lives. In ancient time men had scanty of needs still then they got all of them from the Nature, *viz.* food to eat, cloth to wear, shelter to live, ornaments to decorate body, weapons to protect themselves from the attack of wild animals *etc.* But human beings are constant travellers who are subconsciously integrated to the past which is always on its journey. They never ever stop. From centuries to centuries they are travelling and changing themselves and causing change to their surroundings without knowing it. Writings are the record of our journey and literature is the mirror of the society and culture. Environment has been one of the major sources of inspiration to the poets, dramatists and writers and our scriptures give divinity to Nature and ask us to conserve it. We have an enormous amount of literature beginning from the *Rig-Veda* till today, where we find that people respected Nature very highly and established various relationships with the natural elements for the wellbeing of their own selves as well as their society. From time immemorial various Indian scriptures proclaim that God sleeps in the rocks, dreams in the plants, stirs toward wakefulness in the animals, and spreads in mankind the message that the whole Universe is one family.: *Vasudhaiva Kutumbakam* | (*Maha Upanishad* VI, 73) Indeed reverence for Nature and its creations is the unifying ethical principle in almost all religions of India. They have all kept Nature above man. Our ancient people learnt to live with five elements of nature, the *Panchamahabhutas* (earth, water, air, light and cosmos) and actually worshipped them in reality and symbolically. We get lots of information about the relationships between man and nature and the human behaviours and indebtedness towards nature from the writing in the ancient Indian treaties and literatures. Presence of greenery around and other activities of Nature make our heart receptive, mild and humane. It helps in giving expression to our feelings and sentiments. Poetry of the whole world has given maximum place to Nature as nothing is beyond that. Causing destruction to it is our own destruction. Our ancestors knew this. This is quite evident in the *Vedas*, the first texts in the library of mankind and considered to be the greatest treatise on environment. This most precious Indian Heritage that contain the earliest lessons for preservation of environment and ecological balance give a very detailed view on environment of the then time and ensure a healthy relationship between man and Nature. This relationship should be as sacrosanct as between mother and child. The Earth was looked upon as universal mother and all living beings, her children. In *Vedic* times rituals were encouraged and performed with a view to keeping the environment pure and prefect. The flora and fauna were considered to be the two important facets of Mother Nature. The *Vedas* have glorified the greenery and identified it with divinity.

Nowadays protection of environment is a burning problem of our global world. But this is a matter of pride for us, the Indians that this concept of protection of the environment was already present in our ancient *Vedic* literature. The *Vedic* seers always pray for the welfare of all creatures and all regions to maintain global peace and harmony. When they pray for peace at all levels in the "*Shanti Mantra*" they side by side express their

belief about the importance of coordination and inter-relationship among all natural powers and regions and wishes that not only regions, waters, plants, trees, natural energies but all creatures should live in harmony and peace everywhere. The *Vedic* people regarded Nature and the environment in a holistic manner and revered each of its constituents and entities by carefully preserving them. The *Ramayana* and the *Mahabharata* surprisingly contain many environmental and ecological issues described in them besides depicting a blissful and harmonious life in the cosmic village. As we read the stories in the *Ramayana*, we get to know love for Nature, animals, plants and vegetation and also get an inherent message about the need to preserve it all. The birth of the epic itself stemmed from a statement of compassion for the Nature by the sage Valmiki when he uttered his first utterance to a hunter and the shlokas which followed, trying to stop him from killing one of the *Krouncha* birds, -- *"ma nishada"* –literally means "Abstain, wild man". In the *Ramayana* flora and fauna, the vast environmental glory that existed the then time nourish some thoughts in our mind on how we can better co-exist with our natural surroundings even in today's world. In the *Ramayana* there are references of vast treasure of medicinal herbs, plants and trees that are beneficial to us even today. Not just being a part of it, the animals and birds that played pivotal roles in the *Ramayana* have set the highest principles of ethics and valour to mankind and thus have become epitomes of worship to us. Here we get an inherent message about the need to preserve these all for the benefit of our global village. Going against Nature was considered unethical and disastrous. In the *Ramayana* Rama's life long fight to destroy the evildoers who were engaged in heinous and macabre activities making the forests and sacred spots their hideouts is the reflection of *Krishna's* activity in establishing Dharma dominating the unscrupulous and peevish activities of the immoral person.: *Paritraanaaya Saadhoonam vinaashaaya cha dushkritaam |Dharma-sansthaapanaarthaaya sambhavaami yuge yuge* || (*Bagavad Gita* 4.8) Nature has got maximum place in the melodrama of human event the *Mahabharata* which is full of important life lessons on the then environment that ring true today. Like the *Ramayana*, the *Mahabharata* covers rough and mild both the aspects of Nature and environment in its time. Growing trees, making ponds are considered pious. There is no scarcity of natural fountains, but rich people have artificial fountains near their houses. People love Nature and worship it like God. Elements of Nature have been attached with the festivals. Many rivers, mountains, trees, animals and birds are worshiped. But it is not easy to understand the concept of environment in the *Mahabharata* exactly from our today's point of view. In this great epic the Nature is viewed as the extension of the same consciousness. Every human being is a product of the main elements of Nature It is a fact that our ancestors, during the period of the *Mahabharata* were very close to them and they were well aware of the impact of environment on our life. Presence of greenery around and other activities of Nature make our heart receptive, mild and humane. It helps in giving expression to our feelings and sentiments. Poetry of the whole world has given maximum place to Nature as nothing is beyond that. Causing destruction to it is our own destruction. Our ancestors knew this. This is quite evident in the *Mahabharata* that reveals the importance of trees which has been explicitly became the theme of several *Puranas*, the vast storehouse of remarkable tales.:*angat angat sambhavasi hrdayad abhijayase | atma vai putranamasi sanjiva saradah satam* || (*Srimad Bhagavatam* 10.78.36) The importance of forests in Indian epics can be understood from the fact that the *Mahabharata* devotes a book to the forests called the *Aranyaka Parvam* (also *Vana Parva*, *Aranya Parva i.e.* "The Book of the Forest") which mentions the period of twelve years spent by Pandavas in exile in the forest (Aranya). Indeed plants who were the friends and guardian of the early-men play an important and vital role in the human life. There is no denial of the fact that the *Mahabharata* has given birth to the Hindu system of medicine, *Ayurveda* that prescribes that almost all the plants and flowers have medicinal value. In the *Srimadbhagavadgita* Lord Krishna proclaims that he accepts a leaf, flower, fruit or water or whatever is offered with devotion.: *Patram Pushpam phalam toyam, yo mey bhaktya prayachchati, Tadaham bhakt yupahrutam asnaami prayataatmanaha* | (9.26) The *Srimadbhagavadgita* also advises us not to try to change the environment but to improve it, or wrestle with it and if it seems hostile at times tolerate it and reminds us that it is our evolutionary responsibility to conserve Nature for the future generations. Thus, this is not an exaggeration that what we think today in connection with keeping good health of the public the same had been thought years before in our great ancient epics, the *Ramayana* and the *Mahabharata*. The relationship of plants with mankind is pertinently observed in the *Puranas* that severely criticize the unnecessary cutting of trees and prescribe the punishments for this prohibited act. The people should be alert to learn from the *Puranas* about different aspects of the plantation and their protection and should let them grow properly by which lives may be wholesome and comfortable on this earth, not only for the human beings but for all the living entities. Ancient Indian texts time and again speak of norms for an ideal way of life in which the universal fraternity with all kinds of living beings is the undercurrent. All the poets of Sanskrit literature, with no exception, are great lovers of nature. They not only loved Nature but also identified themselves with it. There are many instances to highlight the love of Sanskrit poets for flora and fauna in Harshavardhana's magnum opus *Nagananda*, Kalidasa's *Kumarasambhavam*,*Abhijnanasakuntalam* and *Raghuvamsam.* In our culture and scripture, every creature in Nature has been treated and worshipped as a divine being and even venomous serpents are treated as God or Goddess and worshipped. It may evoke great interest to point out that all animals forgetting their identity used to live together in and around the hermitages of saints. Ruthless exploitation of

natural resources by man, as a partof industrial and other human-centered development, forgetting the simple fact that the human species isonly one among the multifarious members of the cosmos, has already wreaked havoc in our environment nowadays. The phenomena like global warming, wildlife extinction, soil contamination, industrialpollution of air, water and other basic necessities for the sustenance of living species on the earth, are the hazardous results of this reckless exploitation. Being belatedly awakened to this grim reality we are frantically in search of measures to prevent this degradation further. Now it is our responsibility tomaintain the equilibrium and see that Nature is not disturbed or interfered with, lest it should lead to chaosand confusion as aptly pointed out by Earnest Hemingway, the famous American novelist, who said"Mending nature is ending nature". So there is no iota of doubt that our ancient scriptures encourage us tonurture Nature and inspire us to follow the highest ideal needed in our present competitive era to make ourglobal village fit for us, "Friendliness towards all that lives".: *Sarva-bhootasuhritva* | (*SrimadBhagavadgita* 6.31)

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Health Infrastructure in Uttar Pradesh

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Abstract:

Healthcare is one of the important components and a basic aspect of human needs. Thus, healthcare has been declared a fundamental right of every person. This implies that the state has a responsibility for the better health of its people. Thoughts Healthcare is a primary necessity of societ This research paper examines different aspects of healthcare services, facilities and health infrastructure available in Uttar Pradesh. Major health outcomes like life expectancy add birth and infant mortality rate depends off available health facilities like hospitals combats and health trend personals. Uttar Pradesh has achieved a considerable progress in providing health infrastructure and its access to healthcare services to the mass population. However, less developed state like Uttar Pradesh need attention to improve health infrastructure & health facility. The state of Uttar Pradesh in has around 4635 public hospitals as of 2018. The provide healthcare facility to the people living in study area the government has established 3277 Primary Health centres, 371 community health centres. Current 58310 beds are available in government hospitals in Uttar Pradesh currently 964 allopathy, 17 Ayurvedic and 1483 homeopathic hospitals and 240 blood banks.

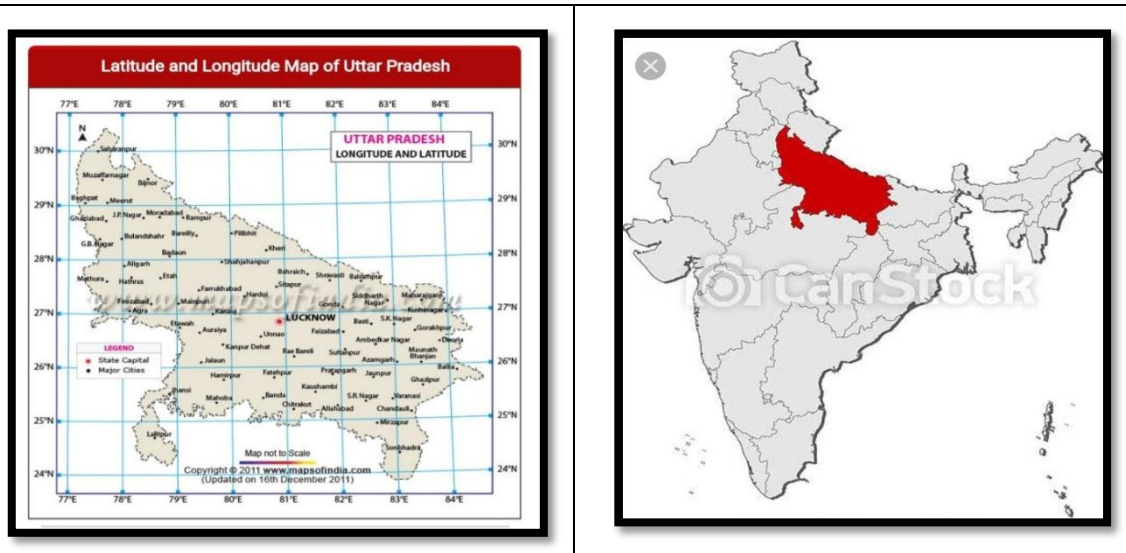
Keywords: *Health, Hospitals, Infrastructure, Health Care Facility*

Introduction:

Health infrastructure has been described as a basic provision for the delivery of public health activities in a productive and meaningful manner. The five components of health infrastructures are skilled, workforce integrated, electronic information system, public Health Organization resources and research Department of medical health and family welfare government of Uttar Pradesh is playing a vital role in improving the health status and quality of living of the people of Uttar Pradesh.This department is responsible for providing medical health and family welfare related services to the densely populated estate in Uttar Pradesh (166, 95, 2859) Spread over of vast area of 240, 982 sq. km.

Study Region:

Uttar Pradesh is India's fourth largest and most populous state of India located in the North - Central part of the country. It is spreads over a large area and the plains of the state are quite distinctly different from the high mountains in the north. The state is divided into 18 divisions and 75 districts with the capital being Lucknow. It covers 243, 928 sq. km. Areas to 7.33% of the total area of India Uttar Pradesh is bounded by Uttarakhand and Himachal Pradesh on the North-west, Haryana and Delhi on the west, Madhya Pradesh on the south, Chhattisgarh and Jharkhand on South-east and Bihar on the east, situated between 23° 52' North to 31° 28' North Latitudes and 77°3' to 84°3' East Latitudes



Location Map of Study Area

. It has been noticed in 2011 that the absolute increase in population is more in urban area than in rural areas. The current ruler urban distribution is 68.84% and 31.16% level of urbanisation has been increased from to 7.81% in 2001 to 31.16 in 2011. The proportion of rural population declined from 72.19 to 68.84% over this. Between 2001 and 2011 The health services are provided through a huge network of facilities both in urban and rural areas is still the urban population in up has been increasing rapidly and recent decades along with rabbit urbanization. As per 2011 census 4.44 crores person and residing in towns and cities of Uttar Pradesh.

Discussion:

With the objective of providing areas, the department provides three tier medical services in their study area. Under this, at the first level, health services are provided in urban areas, health services at the second and the 3rd level are provided in ruler areas. First level health services are provided in urban areas through district male and female or combined hospital and other district level these hospitals are generally 100 - 500 bedded hospital where various medical facilities are provided. And present there are 80 district level hospitals, 06 combined hospital and 63 female hospitals are available.

At this level health services are provided through community health.

Table No. 01

Health Services in Uttar Pradesh

Sr. No.	Health Services	No. of Centres
1.	*PHC_S*	*3277*
2.	*CHC_S*	*671*
3.	*SDH_S*	*-*
4.	*DH*	*174*
Total:	**4122 Centres**	

Source: State UTs HMIS Portal Status as 20 July 2018

Health Care Services:

Centres established at the Tehsils and block levels. Presently the standard for setting up the CHC is population. For each per lakh population in rural areas one CHC is set up. Each CHC is set up with the objective of providing a standard health services to them public in the rural areas. According CHC acts as "refferal unit" in rural areas. Each has 30 beds. At the third level health services are provided in remote rural areas through the Primary Health centres. Additional Primary Health centres and sub centres PHCs/ Additional PCHs establish at the village level having 04 bed each. They are presently 1856 wives of centres 822 blocks levels PHCs and 2830 additional PHCs operations. Basically, mainly mother and childcare programme in implemental using sub-centres. Around 20,000 sub-centres on 5000 village population are functioning mannerly managed by ANM There are many challenges such as storage of healthcare professionals increasing cost of healthcare, the mushrooming of private healthcare and a lack of planning. Author of the rural population in the state has been deprived of primary healthcare in Christ structure according to the norms of Indian public health standards (IPHS), which sets infrastructural and human resource standards for public health institutions in India. Uttar Pradesh required 31, 037 sub centres, 5, 172 PHCs and 1293 CHCL to meet the healthcare demands of its population. But the state is 33% short of sub centres and PHCs and 40% shortage of success, according to RHS (2015). This is storage of public healthcare institutions further impacts the implementation of central Delhi is sponsored health program which in turn requires an effective network of public health institutions successive state government have failed to plan, prioritize and understand health care need. To provide healthcare facilities to the people living in rural India, the government has established 25743 Primary Health Centres, 158417 Sub beds are available in government Centres, & 5624 Community Health Centres. Currently, 713986 beds are available in government hospitals in India which amounts to 0.55 beds per 1000 population. The study region has number of hospitals, beds, urban data was reported 37,156,000 unit in 2017. This records an India government hospital Uttar Pradesh. Number of hospital beds: urban data updated yearly average in 36, 545, 000 unit from December 2006 to 2017. This with observations the data reaches all time high to 37,156,000 unit in 2017 and recorded low of 20,550,000 unit in 2006.

Table No: 02

Uttar Pradesh Medical Facility (Government Hospitals-2016)

Sr. No.	Categories of Hospitals	No. of Hospitals
1.	Allopathic	*964*
2.	Ayurvedic	*17*
3.	Homeopathic	*1483*

Government Health Care Facilities:

The Medical facilities in study area are presently not up to the mark as far as the government facilities are concerned. The number of government hospitals are 964 allopathic, 17 Ayurvedic and 1483 homeopathic in the Uttar Pradesh In recent years use of Ayurvedic and homeopathic medicines as compared to the path medicines is gradually increasing and their study region is not an exception to this, allopathic treatment is helpful in providing immediate relief to those with acute suffering police stop in Ayurvedic and homeopathic medical systems through the effect is slow they treat the causes and they do not have any side effects considering the growing needs availability of homeopathic and Ayurvedic medicines in the medical store is also gradually increasing as in many cases even allopathic doctors prescribe these medicines. According to the figures available with MCI Uttar Pradesh there are 78, 476 doctors in the state while the number of Aayush (Ayurveda) yoga and said healing doctors in the state is 89756. According to the World Health Organization recommendation, the estate should have at least 2.1 Lakh doctor for its population of approximately 21 crores.

Table No:03

No. of Government Ayush Hospitals in Uttar Pradesh

No. of Hospitals	*2315*	*11361 (No. of Bed)*
Local Body	-	-
Other	*01*	*100(No. of Bed)*
Total	*2316*	*11461(No. of Bed)*

Source: Ministry of Ayush

Currently 4635 allopathic, 17 Ayurvedic and 1483 government hospitals in the study region they are 1483 government homeopathic hospitals functioning in the Uttar Pradesh out of which 89 are in the urban areas and rest are in the rural areas. Currently there are 12, 1382,000 2019 allopathic doctors in India fully stop the problem is word in the government sector since only around 1 Lac allopathic doctors work there and even every doctor service 11,528 people. In 822 Blocks & 107452 Village.

Table No:04

Allopathic Health Facilities in Uttar Pradesh

Sr. No.	**Year**	**No. of Govt. Hospitals**	**No. of Beds**	**No. of Allopathic Doctor**	**Dental Surgeon**
1.	*2011*	*861*	*56384*	*10164*	*278*
2.	*2015*	*964*	*59945*	*10798*	*198*
3.	*2018*	*4635*		*10754*	*188*

There are around 240 blood banks all over the state with every district being served by government private voluntary and charitable blood banks In the private sector there are 05 private medical colleges and hospitals 20 rental colleges side a vast network of overs 4750 nurse in homes and 12468 private hospitals.

Health Programmes:

Health program also successfully providing the preventive healthcare facilities to the people of the study region.

Important health program are as follows:

1. Family planning
2. Immunization
3. Malaria eradication
4. prevention from aids
5. Filaria eradication
6. Blindness control
7. Iodine deficiency disorder
8. TB control program

Being run and monitored by the department Officials

Uttar Pradesh has achieved a considerable progress in providing health infrastructure and its access to healthcare services to the mass population. However less developed state like study area need attention to improve health infrastructure and health facility.

Conclusion:

To provide healthcare facility to the people living in Uttar Pradesh the government has established 3277 Primary Health centres, 671 community health centres. Currently 58130 beds are available in government hospital in Uttar Pradesh. To conclude Uttar Pradesh is the most populous state in the India utilization of public healthcare facilities is less compared to private healthcare services. Healthcare infrastructure needs to be increased as well as Uttar Pradesh is lacking in available of healthcare professionals.

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Hazards of Acid Rain

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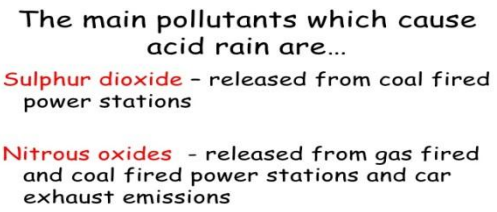
***Abstract**:*

Acid rain is one of the most dangerous pollutants of the modern times. It is considered as one of the most dreaded and critical environmental problem encountered by the globe. The term acid rain or acid deposition describe the process of deposition of acidic components like sulphuric acid, nitrous acid and different organic acids on terrestrial and aquatic ecosystems. It increases the concentration of hydrogen ions (H+) in the nature which is very harmful for the plants, animals and the whole ecosystem. The major cause of acid rain is the emission of toxic gases like oxides of sulphur (SO) x and nitrogen (NO) x which reacts with the moisture and water vapour present in the atmosphere to produce acids. These acids falls on the earth in the form of rain, commonly known as acid rain. Vegetation and soil are the prime acceptors of this dangerous rainfall and are highly effected by it both in terms of quantity and quality. The acid rain majorly effects the soil pattern, physiology of land and numerous flora and fauna. It affects the plant growth and dampens the crop production. Acid rain is also found to be very harmful for human beings as it can produces irritation and infection in lungs, eyes and throat. High exposure of it can lead to lungs disorder, asthma, bronchitis and many other respiratory and skin diseases. The paper deals with the negative impacts of acid rain and different measures to curb it.

***Key words**: Acid rain, causes, effects, control.*

Introduction:

Acid rain is a broader term that describes the phenomenon or process by which the acid falls from the atmosphere to the earth. Acid rain includes acidic components, fog, mist and snow. Robert Angus Smith, the Britisher scientist first used this term in 1872 to explain and analyse the acidic nature of the rainfall around the Manchester city. The more accurate and common term which is generally used by the scientists is acid deposition. Europe has seen the devastating effect of acid rain in the past, now scientists are worried about the hazards of acid rain in India. Acid rain water can cause much damage to the country's biodiversity, ecosystem and thus can severely hamper the economy. Unfortunately in some parts of India the acid deposition has been reported and the situation is likely to get worsen in the coming years., Thus,acid rain has the potential to broadly affect the economic, social, environmental and medical state of any country and has been called an unseen plague of the industrial era. The large scale industrial revolution and dependency on the use of coal, crude oils, it's distillates, and fossil fuels has led to the acidification of the environment. The burning of fossil fuels, coal based power plants and diesel motors are mainly responsible for the degradation of environment. The burning of fossil fuels and coal releases the oxides of sulphur and nitrogen in the atmosphere which leads to the formation of an acid rain. These oxides. ie SOx and NOx reacts with other chemicals and impurities to produce corrosive that are washed out either in wet or dry form by rain as acid deposition. Thus in the case of acid rain water vapour reaches the atmosphere, condenses and reacts with atmospheric gases like SOx and NOx, now when it rains these pollutants comes on the surface in the form of acid rain and gets deposited on the plant's, leaves, surface and water bodies. This accumulation of acidic components and pollutants damaged the natural property of the species present in the ecosystem. Other sources of pollutants which causes acid deposition includes smelting of iron and metallic ores like zinc and copper, manufacturing of sulphuric acid, operation of acid concentrator's in the petroleum industry, production of disinfectants and bleaching agent, and many In

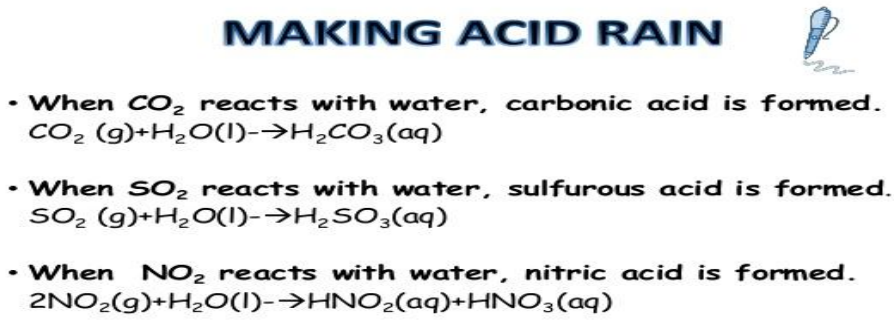


2020 India emitted nearly 21% of global anthropogenic (man made) SO2 emissions , i e about 6000 kilotons / year. As per the reports, the biggest emission hotspots in India are thermal power plants which are mainly located at Singrauli, Neyveli, Sipat, Mundra, Korba, Tomar, Talcher, , Chandrapur and Vishakhapatnam. Renewable energy capacity has been increasing in India's power station delivering more

than 75% of the subcontinents new capacity additions during the financial year 2019-20. But most of the coal plants in India are lacking in fuel gas desulfurization (FGD) technology, which is necessary to scrub emissions clean off the sulphur. In 2015 the Ministry of Environment, Forest and Climate change (MEFCC) introduced SO2 emissions limits for coal power plants. But the plants missed the initial deadline of December 2017 for the installment of FGD units. Though the deadline was extended till 2022 most of the power plants are operating without compliance. Further emission of oxides of nitrogen (NO)x is another potent factor for the acid rain. The emission of nitrous oxide (N2O) a greenhouse gas which is 300 times more harmful than CO2 increased by 32% between 1980 to 2020 according to a research paper published in Nature, 2020.Nitrous oxide is a dangerous gas for the sustainable existence of human's on mother planet. It has third highest concentration after carbon dioxide (CO2) and methane (CH4) in the atmosphere among the greenhouse gases which are primarily responsible for the global warming and acid rain. Nitrous oxide (N2O) can sustain in the atmosphere for upto 125 years and it's global concentration levels increased from 250 parts per billion in 1750 to 340 parts per billion in 2018.- a jump of nearly 35% . The growth has been the quickest in the past five decades because of human emissions. The study, which analysed 20 natural and human sources of oxides of nitrogen (NO)x it was found that 45% of the total emissions came from human sources. It is also a matter of concern that that major proportion of these gases came from agricultural sector, mainly because of the use of nitrogenous fertilizes. The latest Greenhouse analysis report mentions that areas in Delhi- NCR, UP, MP and Odisha are the biggest contributors of Sulphur and Nitrogen pollution in India which is really an alarming situation as these pollutants acts as a catalyst towards the occurrence of acid rain and deposition. C. K. Varshey, Professor School of Environmental Sciences, JNU; New Delhi warns that, "Acid rain may cause impereble damage to the country's biodiversity and even damage the food chain". Acid rain is also called the acid deposition or accumulation because this term includes other forms of acidic precipitation like snow or mist. It is of two types:

Wet deposition and **2. Dry deposition**

Wet deposition. It refers to acidic rain and fog and mist. The acidic chemicals and impurities present in the moist atmosphere falls in the form of rain, fog or mist. Since this acidic water comes directly in contact



to the surface and plants and is being absorbed therefore it can provide much harm and negative impacts on the human beings and ecology.

Dry deposition. In the areas where the weather remains dry the acidic components gets fused with dust and soil and gets deposited on surfaces, buildings, plants and trees. This mode of deposition is also very harmful for the human's as they come in direct contact with these acid depositor's. However the dry deposition of gases and chemicals can be washed out through rains and storm's.

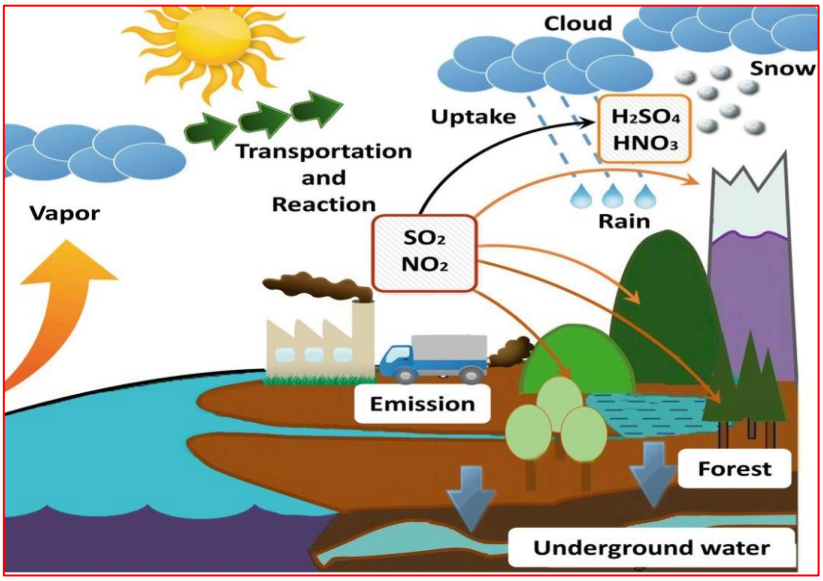
Effect on soil: Soil is one of the most important constituent of the biodiversity. Each and every plant depends on the nature and fabric of soil for it's growth and development. Acid rain disturbs the nature and dynamics of the soil by acidyfying it. This results in the increase of exchangement of hydrogen ions and nutrient cations like potassium K, magnesium, and calcium in the soil. These cations are liberated into soil and are leached out in soil solution from acid input. This acidic leaching of soil creats nutritional deficiencies and loss of fertility. Production cycle and decay rate also gets highly effected by the acid rain. Plants and tree's require healthy soil for their growth and development which becomes very difficult as the acid rain gets dissolved into the soil and destroys it's basic nature. As a result of this, plants and tree's are more susceptible to viruses, fungi and pests. In some regions of the world long term changes in the chemistry of soil may have already occurred as a result of hazardous acid rain. However, soils containing calcium and limestone are more able to neutralize the acidic components like sulphuric acid and nitric acid as they are alkaline (basic) in nature. Hence the soil which is rich in calcium and limestone neutralises the

acidic rain water maintaining the pH nearly at 7 (neutral medium). So, the real problem lies in the region's where the nature of the soil is acidic or neutral as the acid rain acidifies the soil to large extent thus hampering the growth of seeds and plants.

Effect on water resources: Acid rain releases many metals like aluminium (Al) , copper (Cu), magnesium (Mg), etc from the soil into water bodies like small lakes, ponds and streams which are highly toxic to aquatic species. According to Nature, 2010 about 75% of the lakes in U.S and nearly 55% of water bodies in Canada are acidified, where the pH is below from the alarming level of 5. This badly affects the aquatic system and is responsible for the extinction of many species. Further the acid rain contains nitric acid (HNO3) which has nitrogen (N) as the main component. Due to acid rain the nitrogen (N) content of the water bodies increases which proves to be fatal for fishes and their eggs. The fish eggs requires optimum tempreture and pH to hatch. With the mixing of acidic components especially nitrogen (N) , the pH of the water decreases and at pH below 5, the eggs are difficult to hatch. So, the acid rain has all the ingredients to destroy the aquatic system and aquatic species.. In case of shell fish their calcareous shell gets dissolved in acidic condition and aquatic species.. In case of shell fish their calcareous shell gets dissolved in acidic conditions. Acidification effects shell forming mollusks,shell fish, coral reefs,seagrass beds and initial stages of aquatic species.

Effect on forests: Acid rain severely effects the vegetation and forest by reducing their natural growth. It decreases the rate of photosynthesis and increases the susceptibility to drought. It can also effect the roots of ,

small plants and increases the probability of disease process like, die back. It can further cause burning of small plants and leaves. In different studies it is found that the menace of acid rain can cause large scale

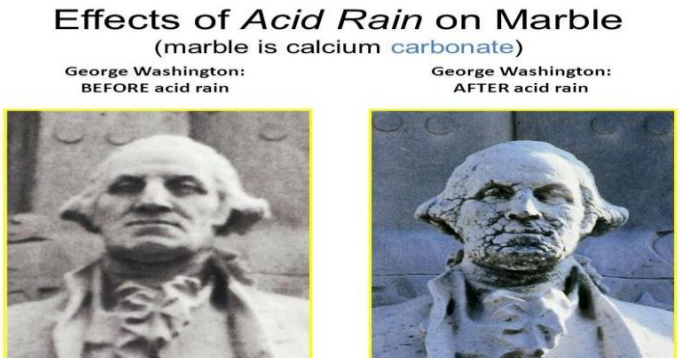


devastation of forests and natural habitat if the concentration of toxic gases like sulphuric acid and nitrous acid increases from the threshold limit.

Effect on human's: Acid rain has lot of negative effects on the health of human beings. The most serious among them is the respiratory problems. Emissions of sulphur dioxide (SO2) and nitrogen dioxide (NO2) gives rise to health problems like dry cough, asthma, bronchitis, headache, throat infections, etc. Acid rain indirectly effects the human beings by getting into their bodies through water, fruits and crops. Heavy metals like mercury (Hg), cadmium (Cd) and zinc (Zn) which gets accumulated in human bodies are linked to brain dysfunction ,neurologic disorders and even Alzheimer's

Effect on structures: The impact of acid rain on structures and stone monuments made of marble, limestone and buildings containing large amount of carbonate have been recognized, and is found that they gets severely affected by the acid rain. Nitric acid, sulphuric acid and other acidic chemicals gets deposited over coatings and surfaces which causes fading and degradation of the paint and surfaces. Acid degrades the marble and limestone by reacting with it thus corroding the structures and monuments. Sulphuric acid (H2SO4) which is the main constituent of acid rain results in the dissolution of calcium carbonate (CaCO3) to give the aqueous ions, which are washes away during the rain. The chemical reaction involved is. **CaCO3 +H2SO4→Ca2+(aq)+SO42- +H2O+CO2**

Conclusion:



The utmost solution to combat acid rain is to combat the pollution and the emission of toxic gases like oxides of sulphur (SO) x and nitrogen (NO) x. Acid rain is mainly caused by coal burning power plants that releases these gases, one should analyse about the measures and steps taken to curb this menace. One of the possible solution can be the use of sulphur less coal as sulphur reacts with air to form sulphur dioxide (SO2). Another option is to install device's like scrubbers and filters to remove the harmful gases leaving the smoke stacks of the power plants. Alternatively, power plants can use alternative fuels like natural gas and gasoline which produces much less sulphur dioxide (SO2) than coal. To reduce the chances of acid rain emphasis should be given on the use of renewable energy sources like solar and wind energy. There are also other sources of energy which have the potential to become the energy source for the future. These are nuclear energy, hydro energy, chemical energy and geothermal energy on which attention should be paid. Environment friendly methods need to be adopted strictly by each and ever one to diminish the chance of acid rain. In developed countries, the concern over the effects of pollution and acid rain has catalysed the process to enact different laws related to the restrictions of emission of toxic gases in the environment. The results are encouraging as slight decrease in acidic deposition has been observed in the last few years. However much has to be done to acquire a sustainable limit. Hence each of us must take a vow to preserve our natural habitat and biodiversity by contributing towards the action and programmes initiated by the government and NGO's to reduce the pollution and emission of toxic gases in the atmosphere. Causing damage to the environment will only lead to the extinction of species and unfortunately no technology will be helpful to save our mother planet.

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An overview of Industrial development in Assam

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Abstract:

Industrial development has been a major contributor to economic growth of a nation. Industrial development is composed of four basic factors, namely, business, technology, government and labour. Successful industrial projects can be achieved only through close and proper cooperation and mutual understanding between these factors. Industrial development enables the environment to tackle inequalities among and within countries either developed or developing, accelerates structural transformation and social mobility, provides new jobs and reduces social exclusions. Industries changed the pattern of human relations. It eased human life and provides more comfort and luxuries. It raises the standard of living. It brought radical changes in every structure of the society. Industrial development introduces a form of philosophical change where people obtain a different attitude towards their perception of nature. With the help of proper natural resources, a nation could bring development as well as better life to its citizens. Industrialization is viewed as a cumulative process of increase in labour productivity, income, saving investment, employment and output, leading to diversification of the economy. The present study aims to understand the development of industries in the state of Assam, India and how it affects and influences the people's life of the region.

Keywords: *industrial development, economic growth, develops nation, standard of living, industrialization*

Introduction:

Development is considered as an effective transformation of the structure of society of an economy. Modern economic development can be recognized as the shift of resources from agriculture sector to industry. The term "Industry" refers to the manufacturing activity. It provides means of livelihood to a large number of workers engaged directly or indirectly in it. The word industry derives from the Latin word "*industria*" which means skill and resourcefulness. Industry may be defined as the application of complex and sophisticated methods to the production of economic goods and services. In the words of Charles Moore, "Industry is the production of an economic goods and services within an economy". The section 2(f) of Industrial Dispute Act 1947 defines industry as a systematic activity carried on by cooperation between an employer and his workmen for production or distribution of goods and services with a view to satisfy human wants or wishes. Thus, it is a productive structure where a large scale production has been done in a limited time period with quality with the help of application of scientific and technological instruments and equipments.Industrial development means the growth of manufacturing industry. It is a basic process for achieving economic development through harnessing a regions natural resource and rendering them into production wealth. It is a key to the economic development of a region. Industrialization process starts with the growth of industries. With the process of Industrialization, the nation could become more developed as more industries will bring more production and hence development as a whole. It has the potential to help achieve a variety of social objectives such as employment, poverty eradication, gender equality, labour standards and greater access to education and healthcare. In India, manufacturing Industries combined about 30 percent of the gross domestic product. These industries provide employment to about 28 million people. Thus industries are the major source of national income and output. Many states in India are highly industrious namely, Tamil Nadu, Maharashtra, Gujarat, Uttar Pradesh and Andhra Pradesh. Assam, a state of north east India, is also achieving development through Industries. Looking at the various aspects of economy in the region, this paper tries to understand the role of industries in Assam in bringing development to the nation.

Objectives:

The present paper focused on the following two objectives:

To study the development of industrial sector in the state Assam

To explain the role of industrial factors in people's life of the region.

Methodology:

Data and information presented in the paper are collected from various secondary sources like books, journals, newspapers, authentic websites, and government reports.

Development of Industrial sector in Assam:

Assam, a north eastern state of India, is most commonly known for its tea plantation and crude oil production industries. This region is also an important region for many small and cottage industries. It is the largest economy in the north east region. The state shares its border with Arunachal Pradesh, Nagaland, Manipur, Tripura, Mizoram, Meghalaya and West Bengal. The state shares international border with

Bangladesh, Myanmar and the kingdom of Bhutan. Assam is India's gateway to northeast and act as a vital link for trade with Southeast Asian countries. The state, Assam has adopted numerous investors' friendly policies to attract investments and accelerate industrial development in the region. The Industrial policy of 1991 was a landmark for the economic development of the country. According to the Department for Promotion of Industry and International Trade (DPIIT), the FDI (Foreign Direct Investment) inflows in Assam were valued at US$ 10.49 million between October 2019 and December 2020. The Industrial scenario of the state is investment friendly. Assam has a vibrant industrial base. From the oldest tea industry and oil production to the stock exchange in the region, its industrial base spreads across a wide range of existing industries in petrochemicals, petroleum, fertilizers, textiles, cement, paper, plastics, cosmetics and a host of products and services. Assam is still making desperate efforts for gearing up industrial activities by harnessing the un-tapped resources available in the state by introducing growth inducing factors. The state's prime objective has become the creation of a industrialization environment by setting up industrial sectors with the perspective of industrial development in the region. It also plans to attract more investment in the state. Assam is a state with unlimited opportunities. There is a possibility to be a future international trading hotspot. The Industrial Policy of 2008 would like to emphasis on new capital formation through the creation of ecologically compliant assets in a sustainable manner. The policy would like to identify some specific sectors which offer tremendous potential for income and employment generation. Moreover, the government has also recognized the importance of the faster growth of the rural economy, for the development and progress of the state. As the state is also rich in agriculture, the policy, 2008, decided to develop the agro based services and investment involving large participation of the people. Involvement of people can contribute to the state's economic health and prosperity.

Assam is the largest economy in the North East Region of India, the most industrially advanced state of the region. Some potential sectors of the region include: OIL, GAS and COAL industries, pharmaceuticals and medical equipments, plastic and petrochemicals, power, textile, handloom and handicraft, agro horticulture, food processing, organic cultivation and bamboo, minerals industries of coal, limestone, china clay, glass sand, iron ore, sillimanite, and granite. The state has also Tourism sector. It attracts tourist for its wildlife sanctuaries, eco-tourism, lakes and places of historical heritage. The state is the largest tea producing region in the world and contributes 50% to the tea production in India. Assam is also the largest producer of gold silk (muga). Currently there are 29367 no.s of registered SSI units in the state. State government has been trying to make the industrial growth with sustainable ideas. The industrial scenario of Assam is confined with the growth of employment oriented.

Role of Industries in people's live of Assam:

1. Industrial development is viewed as a leading factor in country's economic growth. It also helps in the rapid growth of national and per capita income. It accelerates employment opportunities to the people and also helps to raise the standard of living. In the state Assam, industries play an important role in the lives of the people. Majority of the population are from rural economy. Introduction of new technologies in the agricultural sector can increase the production with quality and profit maximization. The importance of industry cannot be denied. It was the gradual growth and expansion of industry, led to the creation and expansion of other sectors that are now part of modern societies like banking, industrial production on a large scale, concentration of capital, division of labour, increase in productivity, new innovative technologies etc. Apart from this, industry also influences people's life in various ways.
2. Industries reduces unemployment and poverty: industries open many new job opportunities to the people which reduces the problem of unemployment. As it is very common to our knowledge that one problem leads to another. In the same way, employment of the people also solves the problem of poverty.
3. Industries leads to urbanization: most people of the state live in villages. They migrated to urban areas to engage in jobs. They settled with their own nuclear families. This settlement results in growth of urban areas. They started living from a rural way of life to a urbanized way of living.
4. Industries leads in modernization: industries introduce modern and highly technique scientific equipments in the field of production. Due to which people who are engaged in cultivation can have better production with less period of time. Moreover, modern technology has also eased people's life and provide them luxary and comfort.
5. Industries increased the importance of education: as industries provide various job opportunities, it needs people with different skills and qualifications. To be qualified and skilled, one must have proper education. Thus it enhances the education system in the region. The region also rich in dynamic education institutions.

6. Industries decrease the magnitude of superstitious belief: rise of literacy rate in the region has also decreased the magnitude of superstitious belief. People become more scientific and logical. They started working with less superstitious belief and more logical thinking.
7. Industries increase the standard of living: people with good income source can fulfill their necessities. They can have a good way of life with basic and minimum facilities.
8. Industries flexible the societal structure and norms: increase in the growth of industries, make people literate and modern due to which existing rigid structures become flexible. Norms that are very strict in nature changes into new norms. People irrespective of caste, class, race, gender can work equally together.
9. Industries reduces crimes: unemployment in any place can create criminal activities like robbery, theft, murder, kidnapping. In order to survive people need a survival source, which industries provide by generating employment opportunities. It reduces the level of crime among the people.
10. Industries make people self reliant: people in the region become more self reliant. They are no longer need to be under burden of lend. They can buy and fulfill their basic amenities by themselves. As there is no taking of lend from others, people can have a life of mental happiness.

Conclusion:

Today we live in the era of science and technology. A nation is powerful and advanced, only if it's technologically advanced. A country only through proper utilization of its resources with scientific ideas and technology can achieved development. Setting up of industries can develop the nation's economy. Assam, state of North East India, is developing with the setting up of industries. Industrialization in Assam dates back to the days of first commercial plantation of tea and tea occupies an important position in the state's economy along with its oil refineries. It is also undeniable that industry can only give benefits to a nation. There are environmental issues too related with the development of industries. Pollution, human displacement, deforestation are common problems every region face due to industrial development. But, it is the role of the state government to keep in mind while planning for development of the region. Hence, Assam government has also strategies to bring sustainable development.

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Importance of Water Resource Management in Sustainable Development

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Abstract:

Water is an essential resource for all life on the planet. Water shortage is a central worry that influences development and sustainable development. It parallels the environmental change impacts as far as space and scale. Both there interlaced concerns are testing human security and intersection the limits of countries.Water emergency and its effects are unambiguously perceptible at the neighborhood, territorial, national and transboundary levels. Water instability undermine harmony by quickening existing clashes, yet in additional by making the danger of new clashes. It is firmly connected to nourishment security and financial development prospects at all these four distinct levels. Sustainable Development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services based upon which the economy and society depend. Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generation to meet their own needs.

Keywords: *Sustainable, territorial, environment, destitution, discriminatory, water resources management.*

Aims & Objectives:

1. To study concept of Sustainable development and water resource management.
2. To find out importance of sustainable development of water resources management.
3. To find out major problems relating to water resource.
4. To find out methods of water resources management.

Data Base :

The above objectives are to be tested by collecting secondary data information to supplement first hand data information.

Sustainable Development *:*

Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services based upon which the economy and society depend. The desired result is a state society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. While the modern concept of sustainable development is derived mostly from the 1987 Brunt land report, it is also rooted in earlier ideas about sustainable forest management and twentieth century environmental concerns. As the concept developed, it has shifted towards focus more on economic development, social development and environmental protection for future generations. It has been suggested that "the term sustainability" should be viewed as humanities target goal of human – ecosystem equilibrium, while sustainable development refers to the holistic approach and temporal processes that lead us to the end point of sustainability. Modern economies are endeavoring to reconcile ambitions economic development and obligations of preserving natural resources and ecosystems, as the two are usually seen as of conflicting nature. Instead of holding climate change commitments and other sustainability measures as a remedy to economic development, turning and leveraging them into market opportunities will do greater good. The economic development brought by such organized principle and practices in an economy is called managed sustainable development.

Water Resources Management *:*

It is fact that large part of our water resources inn used in agriculture in an inefficient manner. There is urgent need to view water resources in their entirety with the quantity and being in focus. Importance should be given to the latest knowledge and techniques available particularly of aquatic ecosystems and local skills as well. Changes in land use, degradation of soil, deforestation and over extraction of ground water due to increasing population is effecting water availability. Water resources management is the activity of planning , developing distributing and managing the optimum use of water resources. It is a sub-set of water cycle management. Water is very essential for our survival. The field of water resources management will have to continue to adapt to the current and future issues facing the allocation of water. With the growing uncertainties of global climate change and the long term impacts of management actions, the decision-making will be even more difficult. It is likely that ongoing climate change will lead to situations that have not been encountered. As a result, alternative management strategies are sought for in order to avoid setbacks in the allocation of water resources.

Ideally, water resource management planning has regard to all the competing demands for water and seeks to allocate water on an equitable basis to satisfy all uses and demands. As with other resource management, this is rarely possible in practice. One of the biggest concerns for our water based resources in the future is the sustainability of the current and even future water resources allocation. As water becomes scarcer, the importance of how it is managed grows vastly. Finding a balance between what is needed by humans and what is needed in the environment is an important step n the sustainability of water resources.

The Major problems relating to water resources are :

1. Rising demand for water for irrigation and industrial use besides domestic use.
2. Highly skewed distribution of water on earth and
3. Growing pollution of water supplies**.**

As a result many regions in the world are already overusing this resource such that more will be withdrawn than is being replenished by annual runoff. Many areas in the world face water shortage. Southern Italy, Spain, Greece, most of the Arab states, India, Taiwan. Japan western Australia, north-western and south-eastern Africa past, Mexico the Peruvian coast and south-eastern United states, Groundwater tables are falling at a worrisome rate. Polluted water is a dangerous problem, especially for developing countries, as it is a major cause of communicative diseases : developing nations also suffer because they lack the money to create water storage and distribution systems to reach all the people. In recent times it has been said that the next major war will be not over oil but over water. The need of the day is to manage water resources.

Methods to manage water resources*:*

The main methods are***:***

1. By increasing supply.
2. By reducing degradation.
3. By reducing waste and use.

Some of these methods bring their own problems. Dams have been criticized for changing the morphology of river beds, banks, estuary and coastline through altered sediment load, an reduction in revering and floodplain habitat diversity by preventing floods. Besides, huge dams cause large scale displacement of people with its attendant problems, Water diversion is not only expensive and it can have serious ecological impact.

Conclusions:

The study of water resources is highly useful in understanding the importance of water resources management and sustainable development. Also there may be territorial disputes over who has rights to the water in the clouds. In the end reducing waste and careful use are the best ways to conserve this precious resource, and all objectives will be achieved through the development and implementation of scientific projects and human life.

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The Variety of Themes and Subjects of Hardy's Poetry

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Abstract

Hardy's poems especially his love poems which especially appeared to be a journey from Personal to the Universal. In fact, in his early years, Thomas Hardy was fascinated towards writing of novels, but the poet in him still dominated while writing novels. Hardy's turning from prose to poetry, as some critics have to say, is concerned with marriage. The three volumes of poetry published before Emma's (Hardy's wife) death in 1912 consist of philosophical poems revealing unhappy man, narrative obsessively concerned with unhappy marriage and lyrics addressed to lovers, relatives or friends, but seldom the poet's wife. After suffering for many years from disease, she died quite suddenly in November1912, Hardy was shocked, surprised and plunged with deep remorse. He expressed his complex and developing reactions to her death in a magnificent series of poems of 1912-13. Robert Gittings, in his Biography of Hardy, claims "Hardy wrote these poems out of a sense of guilt over his part in their relationship particularly, in his lack of care for her in last years of pain." But the remorse in these poems and their range of response is of a much broader nature then this being directed towards a sense of sorrow that their love which has burned so brightly as first, had perished many years ago and perhaps never been swindled. Paradoxically, as the later poems in the series reveal, it was by dying that Emma rekindled Hardy's love. Whatever guilt Hardy might have been expiating in these poems. What is impressive about them is the poignant and consoling rediscovery of his lost love. While studying Hardy's love poems it would be essential to mention Hardy's relationship with Florence who had been working as Hardy's secretary for sometimes and in 1914 became his wife. She was absolutely a great support to Hardy in his old age, but the relationship was not always an easy one for her, with a type of irony typical in Hardy's writing, Florence discovered that her roles have been reversed. Some critics have complained of what they think to the paucity of themes and subjects in Hardy's poetry.

Keywords*: Personal, Universal, Love, Shocked and Remorse.*

Introduction:

Instead of writing poems to her, Hardy wrote dozens of poems about Emma, whom he had ignored for years while she was alive. Therefore, a sense of remorse is always there in Hardy's love poems, and a note of grief can be seen in almost all his poems. Hardy tried to make his personal voice, the voice of the Universe and this is a subject and theme of my article. Hardy's poems have been given to suit the purpose of study. Hardy's first book Wessex Poems and other verses was published by Harpers in 1898 with 30 illustrations by the author. The volume contained important poems like 'The Impercipient' 'Thoughts of Phena' 'Neutral Tones', 'Hap' and 'Amabel.' The book received a mixed response,Lionel Johnson stated that in the 50 poems there were passion, humor, wistfulness, grimness, tenderness, but never joy, the radiant and invincible. It is an attempt that has been made to analyze related poems of Thomas Hardy to show his personal agonies which became the agonies of the universe. The reading of Hardy's poetry produces a sense of monotony in the readers because the same themes have been repeated again and again in his poems. In reality, however, there is a considerable variety in the themes and the subjects with which Hardy has dealt in his poems and in any case, even the same themes have been treated in different ways in different poems. Hardy had written poems of love and also war-poems. He has written poems dealing with his childhood and the members of his family, especially his parents. He has written poems giving expression to his feelings and sentiments about his past life. He has written poems based upon his travels, and upon his reminiscences of the past. His poems were of belief and unbelief. Above all, he has written poems about the suffering and the misfortunes of human life, and has speculated in them about the causes of that suffering and those misfortunes. He has also written poems about social injustice. Thus, it is somewhat unfair to complain that there is a dearth or scarcity of themes in Hardy's poetry. Besides, Hardy has shown his talent for handling different forms of poetry. He has also written lyrics, dramatic monologue, personal and autobiographic poems, ballads and narrative poems, and descriptive poems with a large component of reflection and meditation in them. Hardy was a prolific writer of poetry; and his poems show an unusual kind of creative genius behind them. Talking about the various kinds of poems which Hardy wrote, a critic has classified them as war-poems, poems of pilgrimage, poems of love and so on. Writing about the themes of Hardy's poetry, another critic says that Hardy's poems deal with love, with the mysterious relationship between Nature and man, with the presentness of the past, with the pastness of the past, and the tragedy of its pastness and its irreplaceableness, with the necessity but also the impossibility of holding religious belief, and with the indispensableness but also the incredibility of the old beliefs. In the ballads and the narratives, Hardy does not just tell stories but also records his impression of

the nature of things, and his impressions of love, infatuation, violence, deceit, selflessness or devotion. In such poems Hardy probes reality and arrives at certain conclusion which however are tentative.

Review of Literature:

Let us take a brief look at some of the poems of Hardy in order to determine the variety of themes with which he deals. First, there are the poems which deal with Nature, and with the relationship between Nature and man. In this connection, we may consider two poems: The Darkling Thrush, and Afterwards. Hardy's "The Darkling Thrush" is the most representative of 19th century British poetry. He wrote the poem on 31st December 1900 and it is an indicator of modern poetry. "The Darkling Thrush" was written when Hardy was 60 years old, in his house at Dorset, towards the end of the last century. This poem is a good illustration of his compassion towards living creatures. It exemplifies the exactness and accuracy of Hardy's description of nature. The poem opens with a description of the severity of the dreaded English winter. The lonely figure of the thrush by the little grove, staring at the passing of the day and the end of the century stands out against the bleak environment which the poet imagines to be the corpse of the 19th century. The poem closes on a note of hope. So, the poem is Hardy's farewell to the dying 19th century. It celebrates his typical theme of man in an alien universe yet finally exploding into an orchestration of joy at the perception of 'sonic blessed hope.' Though the bleakness of the atmosphere hardly warrants it, the song of the bird gives token of some blessed hope for the world of which it has foreknowledge. The poem also invites comparison with Wordsworth's "To the Cuckoo," Keats's "Ode to a Nightingale" and Cowper's "To the Nightingale." It was originally entitled "By the Century's Death-bed." In Afterwards, the poet wonders if, after his death, people will recall the fact that he was a keen and sympathetic observer of natural phenomena. In this poem, he depicts himself as a close and sympathetic observer of the activities of even the small creatures like the hedgehog. He asks if, after his death, people would realize that the mysteries of Nature and the scenes of Nature had a great interest for him. When the poet dies, somebody would remark that the sight of a moth alighting upon a bush was a familiar sight to him. Similarly, he says, he had an eye for such mysteries as the "full-starred heavens." In short, when the poet dies he would be remembered as a man who used to take notice of all such things. Thus, here he depicts himself as a great lover of Nature and as a keen observer of natural scenes and occurrences.

Analysis:

Among the war-poems, just like "Drummer Hodge" and In Time of the Breaking of Nations stand foremost. Drummer Hodge is thought to be Hardy's finest war-poem. Here Hardy expresses his deepest sympathy for a man called Hodge who fell to his death in a South African battle field and was buried unceremoniously without even his dead body having been put into a coffin. Hodge was a northerner, now lying in a Southern grave. That portion of the foreign soil, where Hodge lies buried, has acquired forever the character and the personality of Hodge himself. Alien stars from foreign skies would shed their light upon Hodge's grave. This poem fully brings out the pity of war; but the greatest merit of this poem is the self restraint which Hardy here shows in depicting the tragedy of an individual who was killed in war. Hardy does not become sentimental; and yet he conveys to us his deepest regret at what has happened. In the other poem, Hardy points out that agricultural occupations would continue in spite of the outbreak of wars, and that men and women would continue to fall in love with each other even when the story of a war has been forgotten. As we know war is certainly tragic, but war is a passing episode in the everlasting life of mankind on this earth. The basic human activities would go on in spite of the wars. "Neutral Tones" is a lovely lyric. It stands the test of time and place. It is grand in its theme and versification. It is dated 1867, the year Hardy deserted Tryphena Sparks, his first love whom he called his lost prize. So, it clearly shows Hardy's sad sense of filial love. "Neutral Tones" expresses the memories of a striking but dreary landscape which reflects a very bitter moment of existence. Here, love is regarded as the tormentor who deceives, the theme of it is universal in its touch and appeal. The poem's diction is simple and plain. The lyric forecasts Hardy's mature strength and lyrical quality. "A Broken Appointment" is one of a fine elegies. It is well-known for its expression of Hardy's tragic sense of love, remorse, waiting, separation, loss and bereavement. The poem is written on Florence Heriniker. It is told that Hardy loved her and in her collaboration he wrote a short story. Hardy's personal feelings are almost everybody's.

Conclusion

Among the love-poems of hardy, the most famous are those which he wrote after the death of his first wife, Emma. These came to be known as the poems of 1912-13. In all, Hardy wrote a hundred or more poems to commemorate his love for Emma of the days of their courtship and of the early years of their married life. The sheer range of subject matter in Hardy's poetry marks him out as a great poet. Some critics have expressed the opinion that Hardy was great only in respect of about a dozen poems which he wrote after the death of his first wife, Emma. Now, these poems do certainly represent the summit of his

poetic achievement. But it would be highly unfair and unjust to regard the rest of Hardy's poetic output as second rate. So, we can't believe that a man who wrote just twelve great poems, would write a thousand other poems which were only second rate-companions. It was not just the death of his wife who inspired Hardy to write great poetry. There is nothing narrow about Hardy. The whole of human life and the life of Nature is his field; and there is no subject on which Hardy could not write a poem.

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Recycling Industries - Environment Protection by Waste Management to Wealth Maximisation

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Abstract

The environmental problems which may arise in India, due to population growth, increased industrial and agricultural activities, and depletion of natural resources in the next 25 years. Environmentalism, a social and environmental movement, addresses environmental issues through advocacy, education and activism. The study focuses on only four key industries dealing with recycling, treatment and disposal of different waste material in their own way in different categories of waste. The research paper is purely based on secondary data. Emerging Ideas, activities and solutions of different corporate houses/industries are studied from the official websites and news publications available. By 2025, India's waste management sector is expected to be worth US$13.62 billion with an annual growth rate of 7.17 percent. Much of the waste India produces simply ends up in landfills without proper processing or treatment – redirecting this untapped waste to proper treatment and processing facilities will open up new investment possibilities.

Keywords: Environment Protection, Pollution, Waste Management, Recycling Industries.

Introduction:

The word "Environment" is most commonly used to describe "natural" environment and means the sum of all living and non-living things that surround an organism, or group of organisms[1].The environmental problems which may arise in India, due to population growth, increased industrial and agricultural activities, and depletion of natural resources in the next 25 years. Selected aspects of problems which require special attention are treated with particular emphasis on rural situations. The present status of the various aspects of human settlement—such as quality of air, water, sanitation, health, and housing—as well as aspects of conservation of forests, soils, and wildlife, is outlined as far as possible in a quantitative manner. It is visualized that environmental management will have to be more serious and of growing dimensions in the coming years[2]. Environmental protection is a practice of protecting the natural environment on the individual, organizational or governmental levels, for the benefit of both the environment and humans. Environmentalism, a social and environmental movement, addresses environmental issues through advocacy, education and activism[3].

Types of pollution[4]:

Air Pollution-Air pollution is the contamination of air by smoke particles and harmful gases. They are mainly oxides of carbon, nitrogen and sulphur and also include burning of fossil fuels like oil, gas or coal, the exhaust fumes from your vehicles and the mismanagement of landfill waste caused by garbage pollution etc.

Land Pollution-This kind of pollution is actually the degradation (becoming unusable) of Earth's surface . Land pollution is mainly caused by improper disposal of waste and the misuse of resources. Reasons for land pollution are, litter on every corner or on the side of the road, oil spills, illegal dumping in natural habitats, pesticides and other farming chemicals, nuclear accidents or radiation spills and e-waste.

Water Pollution-Water is known as a "universal solvent," water is able to dissolve more substances than any other liquid on earth. Toxic substances from farms, towns, and factories readily dissolve into and mix with it, causing water pollution. Used water is wastewater. It comes from our sinks, showers, and toilets (think sewage) and from commercial, industrial, and agricultural activities (think metals, solvents, and toxic sludge). More than 80 percent of the world's wastewater flows back into the environment without being treated or reused[5].

Review of Literature:

M. Dinesh Kumar and Vishwa Ballabh (2000)[6], In this paper, the authors analyse the water problems, emerging issues and management challenges in India. The authors argue that the demand for water will grow by leaps and bounds during the next few decades due to population growth, especially in urban areas, concentration of urban population in a few urban cities, rising income levels, and rapid industrial growth. While water resources would continue to deplete due to groundwater degradation, surface water pollution, and depletion of existing surface reservoirs, water scarcity problems would grow in terms of both intensity and extent. Challenges to evolving sustainable, equitable and efficient management of India's water resources are several. Secondly, existing institutions in the water sector are technically oriented, sectoral, and centralised, having the mandate of managing supplies. The agencies fail to respond to the conflicting needs and interests of different stakeholders due to poor organisational co-ordination.

Monika & Jugal Kishore (2010)[7], In India, the quantity of "e-waste" or electronic waste has now become a major problem. Disposal of e-waste is an emerging global environmental and public health issue, as this waste has become the most rapidly growing segment of the formal municipal waste stream in the world.(1) E-waste or Waste Electrical and Electronic Equipment (WEEE) are loosely discarded, surplus, obsolete, broken, electrical or electronic devices.(2) In India most of the waste electronic items are stored at households as people do not know how to discard them and is also a rich source of metals such as gold, silver, and copper, So e-waste trade and recycling alliances provide employment to many groups of people(3) Improper dismantling and processing of e-waste render it perilous to human health and our ecosystem. (4) to review the public health risks and strategies to combat this growing menace.

Patrick Akata Nwofe (2015)[8], In this study, the municipal solid waste management and disposal methods in Abakaliki Metropolis, Ebonyi State, Nigeria is presented. The characteristics and composition of these wastes and the environmental issues associated with its management are also investigated. Structured questionnaires were used to obtain primary data from a random size of population in the areas that have the highest accumulation of heaps of solid wastes in the Government designated waste dumping sites and open spaces on the major streets within the metropolis. Environmental and health issues arising from the unsustainable management of the wastes were assessed from oral interviews and field observations in the study areas. The results indicates that the waste dump sites (designated and non-designated) on the major streets and several open spaces are left unattended for long periods such that the rubbish heaps; encroach on the roads thereby limiting the road users access, generate serious air pollution issues. The results also show that the composition of the wastes in the metropolis is heterogeneous because it contains both biodegradable and nonbiodegradable materials such as e-wastes, plastic, polythene materials, hospital wastes, and hair designers wastes amongst others.

Research Methodology:

The study focuses on only four key industries dealing with recycling, treatment and disposal of different waste material in their own way in different categories of waste. The research paper is purely based on secondary data. Emerging Ideas, activities and solutions of different corporate houses/industries are studied from the official websites and news publications available. Wealth maximisation approach is studied from articles in newspaper, journals, published reports and research papers.

Need of the Study:

Our environment faces several problems, and many of these seem to be worsening with time, bringing us into a time of a true environmental crisis. The key issues are Pollution(Pollution of the air, water and soil caused by toxins such as plastics, heavy metals and nitrates and industrial waste) and Waste disposal(An excessive amount of waste is produced and dumped in the water resources, along with nuclear waste is particularly dangerous, as well as plastics and electronic waste)[9].When reason which cause different type of pollution many types of wastes which is to be handled in different ways are liquid or solid householdwaste, hazardous waste, medical/clinical waste, electrical waste (e-waste), construction & demolition debris, green waste[10]. Industries are mostly responsible for creating pollution whether it is water or air but this study try to find out different industries involved in overcoming the problems and giving solutions for it. This study is a way to problem solving rather than problem creator on the part of industries.

Objectives of Study:

To study different types of Pollutions and their causes.

To find out different types of waste products which are responsible for pollution.

To study the corporate sector/ Industries involved in waste mgt. and ideas working behind thesolutions given by the best waste management companies/Recycling industries and wealth maximisation.

Corporate Sectors/Industries Involved In Waste Management[11]:

VA Tech Wabag GMBH : Wabag is helping companies clean up their act by reusing waste water. It is sometimes said that water, and not oil, is the real liquid gold today. Water technology company VA Tech Wabag would certainly agree. The Chennai-based company recycles industrial and municipal waste water either for reuse as drinking water or to plough back for industrial use and money has been flowing like water. Executive Director Amit Sengupta says 10 to 15 per cent of the company's revenues come from recycling, but he expects it to account for 50 per cent of Wabag's business in the next 10 years. Last year, the company recorded revenues of Rs 1,000 crore in India.

Arora Fibres : Arora brought the technology to India after tying up with Korean company Mijung, which specialised in converting PET bottles into polyester yarn. His factory in the industrial belt of Silvassa in Dadra & Nagar Haveli has the capacity to process 18,000 tonnes of plastic a year and he plans to increase that to 48,000 tonnes by next year.

Hanjer Biotech Energies : Irfan Furniturewala, Chairman, Hanjer Biotech Energies, at a waste processing plant in Mumbai. Hanjer plans to take over four to five closed biomass power plants to generate around 40 MW of green power waste management company, Hanjer Biotech Energies realised that when it kickstarted India's first green power plant in Jalgaon in Maharashtra this year by using a by-product of solid waste as fuel. The biomass power plant had been closed because of the unavailability of husk rice, the raw material for fuelling the plant, which pushed Hanjer to turn to refuse derived fuel (RDF) from municipal solid waste to generate seven megawatts (MW) of green power.

Cerebra Integrated Technologies : Gururaja Upadhyay, Co-founder, Cerebra Integrated Technologies, at an e-waste segregation plant near Bangalore. 'The company is building India's largest e-waste recycling plant with the capacity to process 90,000 tonnes of e-waste' Cerebra will extract precious and other metals from mountains of e-waste. One Bangalore-based infotech company, Cerebra Integrated Technologies, is doing its bit to reduce the glut of e-waste that some activists say is potentially the most dangerous waste problem in the world. It is building India's largest e-waste recycling plant that will begin operations by the end of this year. The plant will have the capacity to process close to 90,000 tonnes of e-waste. But e-waste is also a treasure trove of precious and other metals. Cerebra sees big business in the mountains of e-waste in Bangalore which produces 200,000 tonnes of e-waste a year. The company plans to make its millions by extracting metals such as gold and platinum from the e-waste piling up in the city.

Conclusion and Suggestions:

From this study it is concluded that waste entrepreneurs all over the country–people who have tinkered with technology and come up with the best way to not just dispose of garbage but to convert it into solid, money-making proposals. Much of the action can be attributed to judicial activism and the subsequent stipulations of the Municipal Solid Wastes (management and handling) Rules, 2000 and Biomedical Wastes (management and handling) Rules, 1998. This makes it mandatory for municipal bodies to set up waste-processing/disposal units before December 2003[12].By 2025, India's waste management sector is expected to be worth US$13.62 billion with an annual growth rate of 7.17 percent. Much of the waste India produces simply ends up in landfills without proper processing or treatment – redirecting this untapped waste to proper treatment and processing facilities will open up new investment possibilities[13].These industries should be encouraged and new start up should be set up on this line. Simple and handy technology/methods/innovations should be introduced for disposal of household waste.

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Hindu Epics and Environmental Concern

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Abstract:

Hinduism not only a religion, but also it has had played a major role in protecting our environment since ages. The Hindu epics has clearly mentioned about various ways of protecting nature through rites and rituals performed by Hindus. Hindus do not regard rivers and seas just as vast sheets of water but as embodying the primeval element of nature. Hindus knew about the presence of life in plants, centuries before it was scientifically proved by Famous Scientist Dr. Jagadish Chandra Bose. The Mahabharata describes how trees feel pleasure and pain and grow like human beings. God resides in all the atoms of this world and controls everything in this world. One must renounce all that is unfair and take all that is sacred. We must eschew from grabbing the wealth of other creature existing. The writings of Hindu epics are more relevant in contemporary society for saving our environment from any degradation.

Introduction:

Man is no other than environment with a little difference that he is only being who enquires into the self. He himself is the composition of five elements e.g. earth, water, fire, ertha and air. If all five components are perfectly balanced then the body remains salubrious. Any imbalance causes alfunctioning in human body. Despite it, man is effected by other elements such as type of his food, water, environment and his cerebration. All could he do for well-functioning of his body as per required is living a homely life in harmony with environment inside and outside following the minimum harm policy to environment. Involvement of inner self is essential. It is easy to travel in one's inner self and begin pushing a little and effective step at own level without blaming others. Because all we do is the manifestation of the brain working inside. How it is possible most probably through living a plain life, devoid of any demonic atrocious desire to overcome the nature of excess backfires man himself. Hindu Epics not only guides a person about his duties at various levels, actions, fruit of actions and a holistic outlook towards the world; but interestingly also talks about sustainability in a very comprehensive manner.

Relation between Environment and Hindu Epics:

In Hinduism, the number of books considered as sacred is legion., The Ramayana containing the life and deeds of Sri Rama, and the Mahabharata which deals with the story of the Pandava- Kaurava princes as also of Sri Krishna have inspired the Hindus for millennia to face the problems of life. The Bhagavadgita more commonly known as the 'Gita', which is a part of the Mahabharata is an extremely popular scripture. Its central message is that one should discharge one's duty however hard an unpleasant it be bravely and with selfless dedication. Every one of us has to perform his or her duty designated as 'Svadharma' to please God, to serve the world and to repay one's debt to the society. The reinterpretation of the epics leads to a rational enquiry with a post navigational effect society and societal references describing eating habits, status of children born out of wedlock all describe eco-philosophy.

The Ramayana:

It is the history of the family of the solar race descended from Ikshvaku where Sri Ramachandra was born, the Avatar of Lord Vishnu and his three brothers. The ideal characters like Rama, Sita, Lakshmana, Bharata and Sri Hanuman. The lives of Rama, Bharata and Lakshmana provide a model of fraternal affection and mutual service. Sri Hanuman stands as an ideal unique Karma Yogin. The life of Sita is regarded as the most perfect example of womanly fidelity, chastity and sweetness. Ramayana – the saga that depicts the unshakable sense of duty and accountability of a son, a brother, a wife, a husband and a king – talks at length about prosperity without damaging the environment. Ayodha, the kingdom of Lord Ram didn't have a gaudy and flashy display of wealth. The modest citizens believed in an ethical framework, leading to equality, satisfaction and prosperity, while ensuring sustainability. The practices followed, did not destroy the flora and fauna of the region. They used their intellect, but was backed by intuition. Kishkinda, the kingdom of the forest dwelling community known as Vanars, was the epitome of living in harmony with nature, which was reflected in their dwelling and food habits. Biodiversity in the kingdom was rich and well preserved. Madhuvan forest protected by generations of Kishkindha rulers. A framework of equitable laws of nature was followed in Kishkindha. The inhabitants behaved instinctively and their actions were honest. In contrast, Lord Ram is described as the protector of all beings and during

his reign, agriculture flourished, due to a conducive atmosphere and rainfall, leading to prosperity in different walks of life. It is mentioned that when Lord Rama got a chance to choose a boon, he opted for the wellbeing of all living beings, free flowing rivers and flourishing nature all around. The royal flag of Ayodhya had a picture of a tree along with the forest dwelling communities mentions various Gurukuls and Ashrams scattered across the country, dedicated to holistic education. The Ashrams were full of biodiversity. Rishis invariably enquired with visitors about not just their wellbeing; but that of the flora and fauna in their respective regions. Ram, Sita and Lakshman, when in the forest during their exile, lived in the most eco-friendly way. They observed the sustainable ways of the Ashrams. On one occasion, while going to the Ashram of Agasti Rishi in southern India, Lord Ram points out to Lakshman, the peaceful attitude of animals in the surrounding forest, which he links to the positive vibrations emanating from the Ashram. References about wild animals leaving peacefully in the vicinity of Ashrams of Rishis such as Atri. Rishi Mandkarni is said to have created the artificial Panchapsar Lake, which held water throughout the year, satisfying the thirst of animals and humans. Rishi Matang – the Guru of Shabari – had nurtured a forest for the purposes of meditation and education. This epic has vivid descriptions of the diverse seasons of India and its rich natural wealth at nearly 500 places, including mention of about 125 tree species, 30 mammal species, 15 bird species and various marine creatures; and forests such as Chaitrarathvan, Nandanvan and Matangvan.

The Mahabharata:

The Mahabharata is the history of the great war 'Battle of Kurukshetra' between Pandava and the Kauravas who were cousins and descendants of the lunar race. The Pandavas obtained victory through the grace of Lord Krishna. After the completion of the war, the part known as the **'Shanti Parva'** which talks at length about governance, administration and the duties of the king, also enumerates the need for conservation of resources. It asserts that it is the king's responsibility to ensure wellbeing of all and that no group of living things is harmed. The story of the fowler and the pigeons exhorts readers to protect wildlife and refrain from hunting. While expressing his wish to renounce the material world and retire into the forest, Yudhishthir says that he longs to listen to the cheerful sounds of birds and animals of the forest, which are charming to the heart and the ear. He describes the joy derived from the fragrance of myriad flower-bearing trees and creepers that grow in the forest. He further reassures that he shall not do the slightest injury to any creature in the forest. In Shanti Parva, Maharishi Ved Vyasa, while describing the importance of the right time or season, gives examples from the world of nature, based on his empirical observations, which also go on to show that the environment at that time was pristine and unharmed. He explains that cosmic and climatic factors such as phases of the moon, strong winds, moisture laden clouds, long dark nights and raging rivers full of water, are all time dependent. He further talks about lakes adorned with lotuses of different kinds, forest trees decked with flowers, and the seasonal excitement of birds and animals. At another place, he describes the act of cutting a tree in the forest as a sin. Bhisma, while sharing his knowledge about the world, gives an example of an ascetic living in a large forest and solely subsisting on fruit and roots, while practicing Yoga and having his senses under control. This ascetic harboured love towards all creatures in the forest. Creatures, big and small, including lions, tigers, elephants, leopards, rhinoceroses and bears, used to approach him without causing any harm.

Bhagavad Gita:

This Epic is set on a battlefield with the sons of the congenitally blind king Dhṛitarāṣṭra leading his army into battle against the sons of his deceased younger brother, Pāṇḍu, who inherited the throne due to his older brother's blindness. Looking across the battlefield, the mightiest warrior of his time, Prince Arjuna, one of the five Pāṇḍava brothers, sees his teachers and uncles, as well as his hostile cousins and their followers. After trying to defend his position with a medley of socio-moral arguments, Arjuna collapses in anxiety and thus ends the *Gītā*'s first chapter. In the second chapter, Arjuna following this confession, surrenders to his dear cousin, charioteer and friend Kṛiṣhṇa as his disciple and asks HIM to enlighten him and resolve his inner conflict and dissipate his grief. Bhagawad Gita advices people to maintain a balance in thoughts and actions, including materialistic consumption and conservation. Thus, Gita starts from the materialistic level going all the way to the spiritual level, encouraging purity of the mind. It advises human beings to avoid excess consumerism, which leads to tamasic behavior, does not give lasting fulfilment and also damages individual health, society and environment. Gita advices humans to draw resources from nature in such a manner that they are not totally exhausted. Thus, using renewable resources in a judicious way, such that they can be replenished, is recommended, rather than using non-renewables. This is the concept of "*Dohan*" of resources, instead of "*Shoshan*".

Conclusion:

Mankind will have to return to nature's bosoms and partake of it' s bounties in the manner of a child who lovingly and gracefully gets the best of its mother. Development is not just a matter of the fulfillment of economic goals but the total growth of all aspects of human life in their organic unity. Ecology and development can blend if man realizes that he is a part of nature's mechanism and that his destiny lies not in degrading its resources but in making a judicious use of them. In the light of global warming or global cooling trends, rise in ocean level, heavy growth of algae in rivers and lakes, changing seasons, thinning of ozone layer and other threats to life- supporting systems one may ask whether what man has achieved in the name of development is worthwhile. Trees being nature's major processors of solar energy which is vital for our existence, yielding fruits, flowers, wood or medicine, have been worshipped by the Hindus as a matter of gratitude. Besides being useful to human beings they serve as abode of birds, reptiles and other creatures.

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Technology-based marketing with a focus on social media

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Abstract:

Social Networking sites have appropriated today's world. From what was started just for recreation, these days these websites give a bunch of opportunities to its users starting from promoting their product, increasing awareness on social problems, sharing photos, video calls, connexion teams and forums of interests, promoting an inspiration. Indeed, the usage of networking sites has been so various that a lot of individuals use it for over simply recreation This clearly shows social networking sites function an imaginative answer to several business issues. The explosion of social media development is as fascinating as that and also the pace at that it's growing is exasperating. world corporations have recognized social media promoting as a possible promoting platform. This paper discusses ideas of social media and social media promoting and different aspects just like the growth and edges, role and connection of social media in promoting, social media promoting.

Introduction:

Social media has condemned the planet in each sense. within the field of selling, advertising, whole building, promotions social media is that the most wanted methodology adopted by entrepreneurs' young and recent. The trem social media brings to mind the foremost used networking sites like Facebook, Twitter and LinkedIn. Social media is wide employed in numerous businesses like tiny business, banking, retail promoting, B2B promoting, travel and business promoting, monetary establishments promoting.

Rational of the study:

Any type of business relies heavily on marketing. It can range from large-scale promotions and commercials to one-on-one word-of-mouth marketing. The essence of a firm is marketing, which is how the brand name is communicated to the desired audience. Traditional marketing strategies, such as print and visual media, are becoming more expensive all the time. A full-page colour advertisement in the 'Time of India' costs roughly 200,000 rupees, if not more. As a result, it's critical to keep an eye out for new and innovative marketing techniques. Online marketing, particularly social media marketing, is a viable option. This paper attempts to assess the effectiveness of social media marketing.

Objectives:

1. To survey the impact of demographic factors on social media usage.
2. To determine how social media contributes to the growth of the E-Commence industry
3. To determine the reason of following the favourite brand on social media.
4. To make recommendations on how a firm might effectively use social media to market its products.

Review of Literature:

Kaplan, Andreas M. and Michael Haenlein. 2010. In there article ***"Users of the globe, Unite! The Challenges and Opportunities of Social Media***." given ten items of recommendation for firms that arrange to utilize Social Media. opt for rigorously, choose the applying, guarantee activity alignment, Media arrange integration, Access for all, Be active, Be attention-grabbing, Be humble, Be amateurish, Be honest

Michael Rodriguez et al (2012) directed a study on ***"Social Media's Influence on Business-To-Business Sales Performance"*** emphasised on the effectiveness of social media marketing by analysing 1699 business to business purchasers from around twenty 5 industries. The study proves that the social media is so helpful for B2B firms in generating new sales. Social media is that the simplest tool for locating new purchasers and deepening the link with existing customers.***Helena Alves, Cristina Fernandes, and Mario Raposo (2016)*** in there paper titled ***"Social Media Marketing:*** A Literature Review and Implications: IMPLICATIONS OF SOCIAL MEDIA selling " all over that the bulk of studies have here to targeted either on analysing the patron perspective on social media selling in an effort to understand however they react to those means that or on however firms area unit ready to extract the utmost potential price from recourse to such channels for managing their relationships with shoppers**.**social media that displays a more professional orien-tation, by which firms can obtain resources for the cre-ation of value, for example, inkedIn.Another line of research that does not appear in thearticles analyzed encapsulates the formation of socialcapital by consumers through their participation in so-cial media and the implications for creating value fromfirm products and services. As mentioned by Akaka,Vargo, and Lusch (2012), the focus on value creationlies in the individual capacity of actors to adapt andintegrate the resources they access through their socialnetworks in the meanwhile enhanced and increased bysocial media. Finally, the results

demonstrate how themajority of studies adopted quantitative approachesand thereby indicating the need for more qualitativeapproaches to understand consumer social media be-haviors.

Conclusions And Limitations

Given the scarcity of studies systematizing the informa-tion conveyed by the research done thus far on the fieldof social media marketing, we carried out this system-atic reiew of the literature on this theme. The resultsshow that the majority of studies have hitherto focusedeither on analyzing the consumer perspective on socialmedia marketing in an attempt to perceive how theyreact to these means or on how companies are able toextract the maximum possible value from recourse tosuch channels for managing their relationships withclients. However, more studies are necessary to explorethe approach of companies as they engage in socialmedia marketing, in understanding the key barriers and obstacles to their usage. Theresults also point to the need for qualitative studies tobetter grasp recourse to social media marketing utiliza-tion within the framework of marketing strategies. Themain limitation of this study would be the fact that theresearch was limited to the term "social media market-ing," considering only the Web of Science database, and only including articles in journals. Therefore, comple-mentary analysis including other databases would be necessary to confirm this study's conclusions

Hypothesis:

H1: There is a significant influence of demographic variables on social media usage.

H2: There is significant influence of social media contributes to the growth of the E-commence

Research Methodology:

Research Design: Exploratory research design has been used for the study.

Sampling: Data were collected from a **convenience sample** in the Hyderabad area through self-administrated questionnaires.

Sample Size: A sample of 67 responder are being collected.

Tools used: SPSS has been used for analysing data.

Analysis and data analysis:

H1:Null Hypothesis: There is no significant influence of demographic variables on social media usage.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.380[a]	6	.110
Likelihood Ratio	13.850	6	.031
Linear-by-Linear Association	.468	1	.494
N of Valid Cases	66		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .27.

Interpretation: The results denote that there is no there is no association between age and use of social media.

H2: Null Hypothesis There is no significant influence of social media contributes to the growth of the E-commence

Correlations

			Social media can be adequately used for various Business to Consumers	Which do you_think_is_the_most_effective_Social_Networking_s
Spearman's rho	Social_media_can_be_adequately_used_for_various_B2C2_to_Consu	Correlation Coefficient	1.000	.186
		Sig. (2-tailed)	.	.134
		N	67	66
	Which do_you_think_is_the_most_effective_Social_Networking_s	Correlation Coefficient	.186	1.000
		Sig. (2-tailed)	.134	.
		N	66	66

Interpretation: As the no significant association between influences of social media contributes to the growth of the E-commence

Conclusions:

Social media is functioning additional as an enquiry engine lately as a result of individuals trusting individuals rather trusting firms. Additionally, folks assume that it might be cheaper to shop for from individuals directly instead of about to the corporate web site. Hence an interest is on to search on a social media where individuals are found and communicated with. Social media selling creates a positive impact on several business markets like money establishments, travel and touristry businesses, retail businesses, information businesses, industry, and so on. Since the method of social media selling saves cash, time and is very participating and attention-grabbing social media selling looks to be succeeding huge issue to hit the planet as a full. One of the most important blessings of social media selling as against ancient advertising is that potential customers are often exactly targeted. for instance, in Facebook, if an individual species that his space of interest is interior designing; his home page would have advertisements of interior designers on that. Thus, it does not appear to be a trouble for the client as a result of they would undoubtedly wish to examine those advertisements. As for the business owner, he/she must pay if an individual clicks on his/her advertisements. so, it's a win- win state of affairs for each the business owner and therefore the client. equally tiny business start-ups ought to utilize the endless opportunities provided by social media sites like Facebook, Twitter and LinkedIn. the most important advantage for tiny business start-ups is that the quantity of cash to be spent on advertisements are often massively curtail and whole building are often done effectively.

Recommendations:

From this report it may be ended that social media presence is inevitable within the future years. Not solely that social media is helpful as a promoting tool, it's become the order of the day to be gift in social media. so, this report recommends all quite businesses- tiny scale, massive scale, business to business purchasers, business to client purchasers, producing industries then on to be actively gift within the social media. An important reality to be unbroken in mind during this context is that the majority social networking sites have a cyclic growth. It starts from minimum, attains a most and goes right down to a minimum once more. Thus, this can be the right time to take a position time and resource in widespread social media websites like Facebook, Twitter and LinkedIn. attributable to the comparatively touch of investment, it's not a high-risk investment because the usage of social media can return to a minimum solely step by step. In comparison with ancient advertisements, social media promoting caters to a a lot of centered clusters of individuals and therefore will yield higher results. This doesn't mean that corporations ought to stop victimization ancient media and begin victimization on-line and social media alone for advertisements. this might end in calamitous results. An important issue to be unbroken in mind is that once we say one in each seven folks square measure on Facebook, there are often many duplicate accounts and virtually half the overall range of accounts isn't being accessed each day. This limits the possibilities of meeting new prospects and thereby causes a hindrance for generating new business leads. additionally, still the remaining folks of the planet square measure hoping on ancient media which implies that we tend to can't ignore them. so the simplest resolution is to mix each ancient and social media for promoting. this can bridge the gap between those individuals active on social media sites and people who hope on ancient media. corporations should watch out in choosing explicit adverts for explicit media. The online presence of corporations should be ofttimes updated and it should be joined with one another and with the corporate web site. It should be maintained well and solely relevant posts should be updated. tiny businesses ought to embrace this excellent technology and reap the advantages of being on the social media for promoting.

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Environment and Society

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Abstract:

Environment and society are the most important subject of contemporary education system. In each class of any board where there are studying environmental studies and social studies for the better understanding of environment, environmental protection and to check the environmental degradation. Similarly study of society as well as knowledge regarding society, family, group, community and individuals and their various patterns of relationships are more important because of proper realization and judgement of an individual and their surrounding. We should study society and sociology. If we want to know regarding society; we should study sociology. Because sociology is the general science of society. Both the combination of these two subjects as environment and society are as social-environmental studies became more vital today. Both the subject is neck-related to each other and interdependent; without one another cannot exist. So, if we want to discuss about environment and society of course we have to analyze the reciprocal impact on one another. That's why we are able to preserve and protect our environment and also to built a balance society.

Concept

The concept of environment is very important in environmental studies. Environment is an essential factor of our society as well as animal world, no society can exist without environment. Environment is that which surrounds us, also including me. In environment both the elements as living and non- living are existed. In environment where man and other living organisms are surrounded by non-living components such as land, air, water and atmosphere etc. At the same time, when environment is maintaining a balance between living, non-living, material, non-material, animate, in-animate etc. So, without environmental balance, a balanced society is impossible; that's why in our environment where has pollutants and contaminants factors which has harmful effects on social life. So, to reduce environmental pollution and contamination we should have clear conception about our environment.

Meaning

Environment is derived from the French word 'environ' or 'environner' meaning 'around', or 'round about', 'to surround' or 'to encompass'. These in turn originated from old French word 'virer' and 'viron' which means a 'circle around', the 'country around' or, Environment is a broad concept encompassing the whole range of diverse surrounding in which man perceives, experience and react to events and changes. The environment is taken to refer to as anything external to the perceived which influences or might influence the perception process. Environment and life are interrelated to each other; this relationship is extremely intimate and reciprocal. Environmental differences varies in habits and living style of the dwellers concerned in terms of different dwelling environments which are created through a process of constant selection and adaptation arrangements of human living. So environment is a key factor in determining human psychological and social welfare and also the well being of mental and physical health. So environment which is surrounding us including me also.

Definition

1. In 1972, Stockholm conference where defined that "the term environment is all those elements which is the complex inter relationship from the framework, setting and living conditions for making by their very existence or by virtue of their impact".
2. The English Environmental Protection Act, 1990 where defined the "environment as consisting of all or any of the air, water and land, and the medium of air includes the buildings with air within other natural or man-made structures above or below ground".
3. According to Doughlas and Holland, "the environment is a word which describes all of the extrensic forces influence and conditions which affects the life, nature and behavior and the growth and development and maturation of the living organisms".
4. Woodworth and Marques defined, "environment covers all the outside factors that have acted on the individual since he began life".

From the above definitions, we can say that environment is a concrete factor that surrounded and saved plants and animals by it's living and non-living elements.

Society

Concept: Society is the web of social relationships; social relationship between individual to individual, group to group and also institution to institution. So without the network of social relationships no society is possible. Society has been established for the healthy being of individual because no individual can live alone; he or she needs family, group and community. Society is a process of social interaction by which an individual can make cooperation, competition, conflict, accommodation, assimilation, acculturation etc. George Simmel said that sociability is the main essence of society where has the ability to social being. In society where has micro, meso and macro relationships; so simply to say society is the web of social relationships.

Meaning

The word society is derived from the Latin word 'socious' meaning ‘companionship, friendship and society'. Society has been established by the sharing of individuals, emotions and ideas which may be verbal or non verbal. Famous Greek philosopher Aristotle said that man lives in towns, cities and villages but never alone. So human life and society always go together; society is purely abstract in nature but not concrete because we cannot see or touch society only can realize society. Giddings say that society is the subject of mental communication. P. Gisbert said that society and sociability is mainly a mental matter where two or more individuals share their ideas and emotions for making social communication which can make society.

Definition

1. According to P. Gisbert, “Society in general, consists in the complicated network of social relationship by which every human being is interconnected with his fellow man”.
2. Talcott Parsons defined that “Society is a total complex of human relationship in so far as they grow out of action in terms of means and relationship, intrinsic or symbolic”.
3. F.B. Reuter defined “Society is not a thing but a process of association”.

So, from the above definitions we can define that society is the complexity of social relationship which is established within groups.

Reciprocity of environment and society:

1. **Society is dependent on environment**
2. **Society is related with environment**
3. **Society is shaped by environment**
4. **Society is saved by environment**
5. **Environment is saved by society**
6. **Environment helps to protect social life**
7. **Environmental degradation is the main factor of social problem**

Society is dependent on environment- Each and every society id depended purely on environmental geographical condition. Geographical climatic factors are the fundamental for establishing human society. Mainly the favorable factors of environment help to build human society. So, without environmental favorable factors no society cannot exist. Society is related to environment- The relationship between society and environment are very close. Environment helps to build society by its favorable factors. Similarly, society and its members help to protect environment. So, without one, another cannot exist properly. If the relationship between society and environment become disrupted than society will face several problems and environment will degrade. Society is shaped by environment- The shape of society is made by environment. If environment is rich in various resources than society will be developed; if environment is poor in resources than society will not be developed. So societal affluency, richness, development is dependent purely on environmental condition as its resources, climate, weather, calamities, disasters etc. So societal formation and shaping are depended on environment. Society is saved by environment- Environmental factors and elements are saving our society. Every society’s members are dependent on environmental factors are air, water, land, jungle, food, fruits and vegetables. So, all the needs of society are fulfilled by environment. We are fulfilling our needs from environment. Environment is treated as our guardian of society. So societal protection and existence are depended on environment. Environment is saved and shaped by society- Similarly in our post-modern era, most of our society is high technology base society, where people are depended on machines and engineering. They never thought about environmental formation and protection. Most of them, are involved with developmental project and program. That’s why environmental degradation are occuring in an alarming rate. Where has a great role of society as well as its member to control our environmental degradation and to save our environment by without harming any environmental factors and elements.

Environment helps to protect social life- Environment helps us by providing a wide range of benefits. As environment is our God made home for human society. Where God has provided air for breathing food for eating, water for drinking, land for living and travelling, cultivating and sun for energy sourcing. So, an ecological balance and food chain are making by the bliss of environment as well as God. Environmental degradation is a fundamental for social problems- Environmental degradation as air, water, land pollution, deforestation and increasing Global warming, increasing ocean water level, appearing blue whole and occurring earthquake, flood, cyclone, Tsunami, draught and famine. Those above said calamities and disasters has a great impact on society as well as human life, due to creating various kinds of social problems as poverty, unemployment, beggary, child labor etc. Though natural problems and social problems are different, yet, natural problems are the fundamentals for creating social problems at the same time social problems has great impact on our environment. In the concluding part, we can say that the key relationship between environment and society are always persuasive on each other. Without one, another cannot exist and stay properly. So, that as a member of society at first, we have to protect and preserve our environment, then we can take a balance and healthy society. Otherwise, a condition will arise where probable environmental degradation and social problems will come up.

"**Save environment, safe society".**

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Impact of Climatic Changes on Socio Economic Factors in South Odisha W.R.T Cyclone Phailin

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Abstract

Cyclones occur about five times more frequently over the Bay of Bengal as compared to the Arabian Sea. Warmer surface water currents, lower circulation of its surface water with the cooler waters below, and lower wind currents over its surface make the Bay of Bengal a hotbed of natural cyclones. Over the years, the cyclones have become increasingly more powerful due to the effects of global warming, which increases the temperature of the surface water, a condition that favours the start and acceleration of cyclones. In the new millennium, a barrage of cyclones has battered the east coast of India and neighboring Bangladesh. The India Meteorological Department categorised recent Cyclone Amphan of 2020 as the only Super Cyclone after 1999, and nine others as 'Extremely Severe Cyclonic Storm', including Cyclone Phailin. On 12 October 2013, Cyclone Phailin made landfall over the southern part of coastal Odisha, near Gopalpur in Ganjam district. It affected over 12 million people, resulting in damages costing more than 260 billion INR. The coastal district of Ganjam, which bore the brunt of 'Phailin', is estimated to have suffered a loss of at least Rs 3,000 crores due to the cyclone fury, which has deprived lakhs of people of their livelihood and damaged 2.4 lakh houses. Fishermen have suffered massive losses as their nets, boats and catamarans have been damaged. The farming community has also been hit with the standing paddy crop submerged in water. There has been extensive damage to the standing paddy crop as a huge area of land covering paddy fields has been submerged in rain water. There has been huge loss to horticulture farming also as an enormous number of mango and coconut trees have been uprooted. Ganjam is the worst-affected district in Odisha in terms of loss of livelihood and property. More than 2.4 lakh houses have been damaged, which includes fishermen huts and other 'kutcha' houses. Around 1,000 MSMEs of the district, including rice mills, cashew processing units, kewda distillation plants, crusher units, granite processing units, hotel industries and salt industries, were severely affected in the calamities. Several other enterprises engaged in electrical manufacturing, plastic and polymer, fabrication and engineering and wood based industries also sustained huge loss. It can be summarized that the cumulative financial losses across all the sectors had pushed back socio-economically the people and the entrepreneurs of Ganjam by at least 5 to 7 years. Also thousands of victims of the cyclone are still struggling to get back to normalcy. Lacs of landless farmers are forced to become migrant labours because of financial burden due to crop loss. Thousands of small businessmen have closed out their businesses and are earning their livelihoods as either employees or workers.

Keywords*- Phailin, Coastal Odisha, Crop damage, Livelihood, MSMEs*

Introduction

World Scenario

There were 905 natural catastrophes experienced by us worldwide in 2012. Out of them, 93% have been identified as weather-related disasters. The economic damage caused by these events was estimated as INR 10,20,000 lakhs and the agriculture sector was the worst affected one. If we look in to the categories of natural disasters experienced during this period, 45% were classified as meteorological in nature (storms), 36% were hydrological (floods), 12% were climatological (heat waves, cold waves, droughts etc.) and 7% were geophysical (earthquakes and volcanic eruptions).

Indian scenario

Food security in India is severely challenged by natural disasters such as floods, cyclones and drought. India is prone to flood in about 49.8 million hectares which accounts for 12.3% of the geographical area (NRAA, 2013). Out of the total geographical area of India, about one-sixth area with 12% of the population is found to be susceptible to drought and 8% of the total area of India is cyclone prone. Natural disasters like cyclone, tsunami, typhoons are major natural disasters in coastal areas. The devastation to lives, infrastructure, and agricultural lands and animals leave the people in the region to lose hopes of reviving their lives after such catastrophe. The farming community is worst affected by destruction of standing crops by seawater influx, contamination of wells from salt water, uprooting of coconut trees in coastal areas, loss of productive lands due to salt water ponding, degradation of lands due to sediment deposits or erosion, loss of agricultural tools, loss of small livestock and draft animals, and destruction of fisheries.

Most severely cyclone and flood affected areas

India is quite susceptible to cyclones and floods due to its geographical location surrounded by water on three sides. West Bengal, Odisha, Andhra Pradesh, Tamil Nadu, Kerala and Gujarat come under most severely cyclone and flood affected areas of India. In each of these states there is a need to identify the most severely flood affected districts and blocks so that contingency measures can be taken at accurate level. For example, the districts such as Kendrapara, Jagatsinghpur, Balasore, Bhadrak, Puri and Cuttack districts fall under most severely cyclone and flood affected areas in Odisha. The cyclone and its associated flood incidence causes severe damage to agriculture in several ways. The crops get affected both in terms of establishment and productivity. The stagnation of water inside the crop fields result in crop damage. The pulses and oil seeds and vegetable crops are highly susceptible to flood and the flood will result in their complete crop loss. In case of paddy, the duration of flood will decide the extent of damage to crop. The average annual flood damage was found to be about 3.57 m ha of cultivated area based on the survey of 47 years between 1953 and 1999 Surveys of farmers' behavioral changes, using open-ended questionnaires, has suggested that nearly 80% of respondents decide to abandon agriculture and were expecting the government to announce relief packages for their livelihood and alternative employment opportunities. The State of Odisha is vulnerable to multiple natural hazards. Due to its subtropical littoral location, the state is prone to various hydro-meteorological hazards such as tropical cyclones, storm surges and tsunamis. The state has a 480 km long coastline with a signifi cantly high population density in the coastal areas as compared to the interior regions. Odisha's population stands at 41 million as per the 2011 census and a large portion of this population are located on the plains of its river systems. The rivers in these areas contain heavy alluvial deposits of silt that substantially reduces the carrying capacity resulting in frequent fl oods that at times is compounded by breach of embankments. India's east coast is one of the six most cyclone prone areas in the world. Although the coastline of Odisha is only about 17% of the Indian east coast, it has been affected bynearly 35% of all cyclonic and severe cyclonic storms that have crossed the east coast and associated storm surges that have often inundated large tracts of coastal districts. On an average, about fi ve to six tropical cyclones form in the Bay of Bengal every year, of which two to three are within the mild to severe range. Taking together the storms and severe storms, coastal Odisha is about twice as vulnerable as compared to the other eastern states. The State has two cyclone seasons, the fi rst during the pre-monsoon period (April – May) and the second during the post-monsoon period (September - November). In October 1999 the cyclone that hit Odisha was classifi ed as a 'Super Cyclone' due to its severity and left the state virtually paralyzed due to the destruction to its infrastructure and communication systems. The cyclone severely affected around 18 million people in 14 districts and left about 10,000 people dead. The Very Severe Cyclonic Storm (VSCS) Phailin5 originated from a remnant cyclonic circulation from the South China Sea. The cyclonic circulation lay as a low pressure area over the Tenasserim coast on October 6, 2013. It subsequently moved over to the north Andaman Sea as a well-marked low pressure area on October 7. It concentrated into a depression over the same region on October 8 moving west-northwest wards, and then intensifi ed into a deep depression on the morning of October 9 and further into a cyclonic storm (CS), 'Phailin' in the evening of the same day. Moving northwest wards, it further intensifi ed into a severe cyclonic storm (SCS) in the morning of October 10 and into a VSCS in the forenoon of the same day over east central Bay of Bengal. The VSCS Phailin crossed Odisha and the adjoining north Andhra Pradesh coastnear Gopalpur (Odisha) around 2230 hours IST on October 12, 2013 with a sustained maximum surface wind speed of 200-210 kmph gusting up to 220 kmph. It caused very heavy rainfall over Odisha leading to fl oods and strong gale winds causing large scale structural damage and storm surges triggering widespread coastal inundation over Odisha. The Ganjam district was the most affected. The cumulative amount of rainfall during this spell was as high as 241.1 mm in the district and about 2,812 villages have been affected. Public and private properties, agricultural crops and horticultural plantations have all suffered severe damage. All surface communication systems, telecommunication, power supply and water supply lines were totally disrupted.

Findings and Inference

Urban Infra affected

Cyclone Phailin that crossed coastal Odisha on November 12, 2013 caused major damages to coastal infrastructure, particularly to *kutcha* and semi-*pucca* houses due to high speed winds and associated rainfall. The State of Odisha has about 83% of its population in rural areas and the predominant building typologies in the disaster affected areas include (i) *kutcha* structures (i.e. semi-permanent houses of wattle and daub8 construction with thatched roofs or asbestos sheets); and (ii) *pucca* structures (i.e. houses made with Reinforced Cement Concrete (RCC) structure with RCC roofs or with brick/laterite masonry with

RCC roofs). Based on the information provided by the GoO about 256,600 units were damaged in the rural areas. In addition there were losses of personal and productive assets.

District	No. of Units	INR Million	US$ Million
Ganjam	89,604	6,864.48	110.72

Summary of Damage to Urban infrastructure

Districts/ towns	Roads(kms)	Drains (kms)	St. Lights (Nos.)	Wtr Supp Sources	Wtr Supp Pipes(km)
Ganjam	82.90	57.20	250	3	32.50
Berhampur	69.65	53.30	0	1	23.00
Chetrapur	6.12	2.50	250	1	7.00
Ganjam	7.13	1.40	0	1	2.50

Agriculture and Livestock

In Odisha the agriculture and animal husbandry sectors contribute about 15% of the State Gross Domestic Product. More than 70% of the state population is dependent on these sectors. Of the total geographical area of 15.57 million hectares (mha), the total cultivated area is about 6.2 million ha (40%) and about 35% of the cultivated land is irrigated. The majority of farmers are small and marginal having limited purchasing power and low literacy. Paddy and pulses are major crops covering 50% and 25% of the cultivated area respectively and the rest of the cultivated area is covered by other crops i.e. cereals (6%), oil seeds (10%), fibers (1.5%), sugarcane (0.5%) and others (7%). Odisha generally has a surplus of rice and cereals and is deficient in pulses and oil seeds. As per the assessment completed by the Department of Agriculture, the total crop area affected by the cyclone and floods in the State was estimated at 1.3 mha out of atotal area of 6.11 mha under the kharif crop, of which 0.78 mha has sustained more than 50% loss. The damage to the agriculture sector is mainly due to loss of standing crops from prolonged submergence and damage to agriculture infrastructure. In the three most severely affected districts of Ganjam, Puri and Khordha, the total crop area affected was reported to be 0.59 mha.

Districts	Estimated Loss to Crop		Loss to Infrastructure		Total	
	INR M	US$ M	INR M	US$ M	INR M	US$ M
Ganjam	6,680.29	107.75	52.5	0.85	6,732.79	108.59

Horticulture

The agro-climatic diversity in the state is suitable for growing a variety of horticultural crops:(i) perennial fruit crops like mango, litchi, guava, oranges and limes; (ii) annual fruit crops like banana, pineapple and papaya; (iii) spices like ginger, turmeric and chilli; and (iv) a variety of roots and tubers and a wide range of vegetables. In Ganjam district the major horticultural crops grown are cashew, mango, coconut, banana, kewda12, fl oriculture, spices, and vegetable crops like tomato, cole (or stem and cabbage) crops, brinjal, greens, okra, cucumber, and different type of gourds. The overall crop loss is estimated to be as high as INR 1,555 m (US$ 25.1 m). In addition to the crop losses, the disaster caused damages to the horticulture department's infrastructure including nurseries and buildings - the estimated damages are about INR 4 million (US$ 0.06 million).

Districts	Damage to Crop		Damage to Infrastructure		Total Damage	
	INR million	US$ million	INR million	US$ million	INR million	US$ million
Ganjam	1,260.	7 20.33	0.97	0.016	1,261.67	20.350

SSI Sector-

Odisha Industries Federation (OIF) had demanded a tax holiday for small and medium industries in Ganjam district for at least couple year and also sought Rs 2,000 crore grant-in-aid to rebuild the infrastructure damaged by cyclone Phailin and recent floods. The total loss to the sector, in the district, due to the cyclone was around Rs 2000 cr. Around 1,000 medium, small and micro enterprises of the district, including rice mills, cashew processing units, kewda distillation plants, crusher units, granite processing units, hotel industries and salt industries, were severely affected in the calamities. Several other enterprises engaged in electrical manufacturing, plastic and polymer, fabrication and engineering and wood based industries also sustained huge loss. According to the General Manager, District Industry Center, Badri Patro, there were 2009 registered units in Ganjam district were damaged fully or partially due to Phailin.

Salt Industry-

The recent cyclone Phailin and subsequent floods have caused a major damage to the century old salt industry in the coastal areas of Ganjam district, affecting the livelihood of around 20,000 people. The salt sector had suffered major damage and incurred a huge loss. B P Choudhury, Assistant Director (Salt), of the state Industry Department. the salt producing areas like Humma, Ganjam, Sorada and Sumandi in the district. While infrastructure facilities like sheds, pump sets, iodisation gowdown, electric transformers have been damaged in the cyclone, there was heavy siltation in the salt fields due to the heavy rains and floods according to Secretary of Humma Binchhanapalli Salt Production and SalesCooperativeSociety. Around 10,000 tonnes of salt stocked in different godowns, about 4,500 tonnes were washed away in the cyclone and floods. The damaged salts belonged to the Bahuda Salt Production and Sales Cooperative Society and private manufacturers.

Tourism Sector –

Cyclone Phailin that hit Odisha on October 12 and the floods which followed have taken a heavy toll on tourism in the state which is already reeling under Maoist violence. Phailin has severely affected tourism in the famous Buddhist sites of Lalitagiri, Ratnagiri, Langudi, Udaygiri and Kaima areas in Jajpur district. Bhitarkanika national park in Kendrapada district, Puri and Konark sea beach sites, Gopalpur beach and Simlipal National Park in Mayurbhanj district are not impacted. Large number of foreign tourists cancelled their bookings in Bhitarkanika. Many people who had made their bookings to visit Bhitarkanika National Park months in advance have cancelled their plan, which usually gets around 30,000 tourists in the month of October only, looks deserted now. Only 2,000 tourists have visited this biodiversity hot spot this month. Income lost- At a time when we were looking for heavy inflow of tourists, the calamity has left us in the lurch. Ganjam is the worst-affected area and the government is trying its best to restore connectivity to all areas which have been cut off by floods. The industry was hopeful that tourists will come to all these sites soon as the authorities are determined to complete the needed reconstruction at the earliest possible. The growing Maoist menace in Odisha's tribal dominated districts of Koraput, Kalahandi, Rayagada, Keonjhar,Malkangiri and other areas has not only claimed lives of people, the cyclone has dealt a big blow to tourism in tribal areas.

Conclusions

From the above findings and assessment we could reach a conclusion that almost every sector irrespective of their locality be it urban or rural faced the wrath of the cyclone. The largest sector which provides employment directly or indirectly agriculture and horticulture sectors suffered the maximum, breaking the financial backbone and the social stability the rural mass. According to reports almost 40% of the victims of the cyclone in rural areas have devoid from agro sector. They have migrated to nearby cities for employment or have started working as daily labours for landlords. For immediate relief the state government had provided families in "very severely affected" villages with food assistance for 14 days in the form of 50 kg of rice and Rs 400 in cash for each family to buy *dal.* The families in "severely affected" villages will be entitled to 25 kg of rice and a cash component of Rs 200 per family for *dal.* Fishermen who were barred from venturing into the sea are being provided 10 kg of rice against loss of livelihood. Farmers who had lost their standing crops due to inundation of large tracts of cultivable area will be provided due assistance after assessment of the situation by the district authorities. It is not all about the relief packages and short term rehabilitation plans rather the focus should be on preventing such incidents of calamity to recur time and again. The single biggest factor behind such disasterous cyclones is global warming. The state and central governments should work in collaboration towards a long term vision for making the world a better place to live.

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A Study of Important Role of Supply Chain Management During Covid-19

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Abstract:-

Supply chain management is the handling of the entire production flow of a good or service starting from the raw components all the way to delivering the final product to the consumer. A company creates a network of suppliers that move the product along from the suppliers of raw materials to those organizations that deal directly with users. A novel coronavirus (CoV) is a new strain of coronavirus. The disease caused by the novel coronavirus first identified in Wuhan, China, has been named coronavirus disease 2019 (COVID-19) – 'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.'

Keywords*: CoV, SCM, 'VI, 'novel, pandemic, sustainable*

Introduction: -

What is supply chain management?

Supply chain management is the handling of the entire production flow of a good or service starting from the raw components all the way to delivering the final product to the consumer. A company creates a network of suppliers ("links" in the chain) that move the product along from the suppliers of raw materials to those organizations that deal directly with users. Supply chain management (SCM) is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective & efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities. A novel coronavirus (CoV) is a new strain of coronavirus. The disease caused by the novel coronavirus first identified in Wuhan, China, has been named coronavirus disease 2019 (COVID-19) – 'CO' stands for corona, 'VI' for virus, and 'D' for disease.

Objective of Study:

To understand the concept of SCM.

To discuss the important role of SCM during Covid pandemic

Scope of Study: - Supply chain management is an essential part of business success. The journey from idea creation to end product is a complicated process with many moving parts. Supply chain management, or SCM, is the process of overseeing how goods and services evolve from idea creation and raw materials into a finished consumer product.This study is focus on the role of SCM.

Research Methodology: - This study is based on secondary data. The researcher has been used secondary data. Number of books, references and websites are referred.

Important Role of SCM: - Supply chain management is one of the biggest chain who worked efficiently during the period of corona pandemic in world. There are following points which are focus the various role of SCM.

Identifying potential problems. When a customer orders more product than the manufacturer can deliver, the buyer can complain of poor service. Through data analysis, manufacturers may be able to anticipate the shortage before the buyer is disappointed.

Optimizing price dynamically. Seasonal products have a limited shelf life. At the end of the season, these products are typically scrapped or sold at deep discounts. Airlines, hotels and others with perishable "products" typically adjust prices dynamically to meet demand. By using analytic software, similar forecasting techniques can improve margins, even for hard goods.

Improving the allocation of "available to promise" inventory. Analytical software tools help to dynamically allocate resources and schedule work based on the sales forecast, actual orders and promised delivery of raw materials. Manufacturers can confirm a product delivery date when the order is placed — significantly reducing incorrectly-filled orders.

Increase customer service:- One of the most important supply chain roles and responsibilities is to manage the customer service. The customers should always get what they are looking for. Whether it is a product, solution to their issues or answers to their questions. The supply chain management team as to assure that the customer service platform is accessible 24/7 so the customers will feel connected to the organization they would like to do business with.

Improve Quality of Product

It is a fact that the production cost of the products has to be reduced but at the same time, the quality of the items has to be enhanced. It has to be assured that the raw material and manufacturing of the items in high-class because only then to customers will be attracted. They have to be durable, reliable and long-lasting.

Development of Best Marketing Strategies

The supply chain management team has to develop the best marketing strategies for the company to assure that their products will be present in the best possible way. The customers often decide whether they would buy a certain item or not by looking at the advertisements shared on different platforms.

Societal Roles of SCM:- Ensure Human Survival

SCM Helps Sustains Human Life Humans depend on supply chains to deliver basic necessities such as food and water. Any breakdown of these delivery pipelines quickly threatens human life. For example, in 2005, Hurricane Katrina flooded New Orleans, LA leaving the residents without a way to get food or clean water. As a result, a massive rescue of the inhabitants had to be made. During the first weekend of the rescue effort, 1.9 million meals and 6.7 million litters of water were delivered.

SCM Improves Human Healthcare – Humans depend on supply chains to deliver medicines and healthcare. During a medical emergency, supply chain performance can be the difference between life and death. For example, medical rescue helicopters can save lives by quickly transporting accident victims to hospitals for emergency medical treatment

Improve Quality of Life

Foundation for Economic Growth – Societies with a highly developed supply chain infrastructure (modern interstate highway system, vast railroad network, numerous modern ports and airports) are able to exchange many goods between businesses and consumers quickly and at low cost. As a result, the economy grows. In fact, the one thing that most poor nations have in common is no or a very poorly developed supply chain infrastructure.

Improves Standard of Living – Societies with a highly developed supply chain infrastructure (modern interstate highway system, vast railroad network, numerous modern ports and airports) are able to exchange many goods between businesses and consumers quickly and at low cost.

Job Creation – Supply chain professionals design and operate all of the supply chains in a society and manage transportation, warehousing, inventory management, packaging and logistics information. As a result, there are many jobs in the supply chain field. For example, in the U.S., logistics activities represent 9.9% of all dollars spent on goods and services in 2006. This translates into 10,000,000 U.S. logistics jobs.

Opportunity to Decrease Pollution – Supply chain activities require packaging and product transportation. As a by-product of these activities, some unwanted environmental pollutants such as cardboard waste and carbon dioxide fuel emissions are generated. For example, paper and paperboard accounted for 34% of U.S. landfill waste in 2005. Only 50% of the 84 million tons of paper and paperboard waste were recycled. Also, carbon dioxide emissions from transportation accounted for 33% of total U.S. CO2 emissions in 2005. As designers of the network, supply chain professionals are in a key position to develop more sustainable processes and methods.

Opportunity to Decrease Energy Use – Supply chain activities involve both human and product transportation. As a by-product of these activities, scarce energy is depleted. For example, currently transportation accounts for 30% of world energy use and 95% of global oil consumption. As designers of the network, supply chain professionals have the role of developing energy-efficient supply chains that use fewer resources.

.Discussion:- Supply chain management is the handling of the entire production flow of a good or service starting from the raw components all the way to delivering the final product to the consumer. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective & efficient ways possible. Humans depend on supply chains to deliver basic necessities such as food and water

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Environmental Health Awareness through Education

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Abstract-

Today the whole world seems to be overwhelmed by the single issue of development. But with material development as the sole focus, the emphasis was on industrialization. All the natural resources have been used extensively for this purpose. But the complete neglect of that amounts of resources has led to many problems. Depletion of various natural elements, Pollution, climate change, many health problems have been created. The natural and manmade environment affects health. Understanding the impact of natural and manmade environment on health will enable conservation of health and natural resources. In that sense, the concept of environmental health is important. Understanding environmental health integration will help to understand the relation between environment and health. the important steps can be taken to conserve natural resources, for this environmental l health literacy and culture can be inculcate can be inculcated in students through education.

Key points- *Environmental health, Environmental health Awareness. Education for health Awareness.*

Introduction

The tide of material progress is flowing around the world. A happy life means a variety of comforts due to the modern lifestyle. The benchmark for progress is high level of industrialization, urbanization, means and means of communication. The raw material is obtained from nature. Excessive deforestation is depleting the resources of nature. Due to deforestation has taken place The result is change of seasons, global warming, irregularity of rainfall. we grew the factories but didn't take the responsibility that came with it. Population growth is also a burning issue. So, there was an increase in various types of pollution. Population growth is also a burning issue. The whole creation is being adversely affected. All of these factors appear to have an effect on health. Therefore, it is necessary to understand the inter-relationship between the environment and health.

Environmental Health:

The broader concept of Environmental health includes two concepts environment and health.

Environment-The environment created by all living and non-living things come together and interact directly with all living and non-living things.Health-health is defined as a state of complete physical, mental and social well-being and notmerely the absence of disease or infirmity.Number of specific environmental issues can affect human health and wellness. Environmental health is a branch of public health concerned with all aspects of natural and built environment affecting human health. Environmental health was defined in 1989 by World Health Organization (WHO) as, those aspects of the human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. WHO website (in 2016) on environmental health states that Environmental health addresses all the Physical, Chemical and biological factors external to a person and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is focused toward preventing disease and creating health supportive environment. this definition excludes behavior not related to environment, as well as behavior related to the social, cultural environment and genetics. The environment affects our health. It focuses on the direct and indirect causes of diseases. It concerned with preventing disease, death, reduce the vulnerability to environmental conditions and encouraging behavioral change. The broader concept of Environmental health includes two concepts environment and health.

Environment-

The environment created by all living and non-living things come together and interact directly with all living and non-living things.Health-health is defined as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.Number of specific environmental issues can impede human health and wellness. According to the Encyclopedia of the environmental Health (2019) Environmental health can be defined as the interconnections between people and their environment by which human health and a balanced, nonpolluted environment are sustained or degraded. Therefore, all kinds of disturbances and disturbances in this ecological balance will have serious consequences on the health of the entire living world, especially human beings. We, the people who have been blessed as the only intelligent thought of nature, should take note of the direct impact of the environment on health and take restorative activities in this direction.

Environmental health Awareness: Awareness means consciousness or interest. It is the state of being conscious of something. Knowledge or understanding of subject, issue or situation means awareness. The cost of human development is being paid in the form of natural imbalance. If the problem arises, to solve it, one has to consider all the aspects of the problem and find out the reasons behind it. To solve the problem, it is necessary to think and plan solutions. Awareness is also needed to solve the problem related to environmental health.

Education for Environmental health Awareness:

Environmental awareness is an incredibly important part of our lives. It is necessary to create the attitude of every person in the society regarding environmental health. this can be done through education. Today's students are the citizens of tomorrow. Therefore, education plays an important role in shaping the society of tomorrow. Creating environmental health awareness from childhood will not be a problem.

Through education we can create awareness in the following way:

1. Giving Knowledge or information.
2. Creating sensitivity.
3. Adoption of Habit
4. .Attitude Generation
5. .Honest efforts

Knowledge or Information-What is environmental health, how various factors in the environment affect health? What are the effects of natural and man-made factors on health? Appropriation of natural resources and resources. Providing information and knowledge about the present, future effects on conservation, nature and human beings. Through education, it is more effective to inform them about natural and man-made processes and their effects on each other and health, information about environmental laws, policies. this information is a great way to stimulate their thinking process.

Creating sensitivity- Sensitivity is an ability to understand what others need, be helpful and kind to them. It is necessary to create sensitivity in relation to various environmental problems and health problems and their interrelationships. Creating sensitivity builds the ability to think about each problem and its consequences. Also, self-motivation is the guideline for taking appropriate action and controlling undesirable actions or behaviors by carefully considering their consequences before taking any action or behavior.

Adoption of Habits- It is necessary to inculcate in the students the habit of using resources wisely from the level. Activities should be implemented to create self-discipline in the school. These habits will be practiced throughout life. Therefore, environmental health supplementary habits should be inculcated in the students.

Attitude Generation - Utilizing the right amounts of resource to meet needs, initiatives for conservation, vision for other sections of the society and for future generations

Use and conservation. Behavior according to various environmental, social values. Maintaining social commitment. To strive for this through education.

Honest Effort - Honest effort is required to achieve all the above. Because laws, measures are known but they are not put into practice Environmental health will happen right now if all measures are implemented honestly. Environmental health is not achieved by mere formalities.

Conclusion: Environmental health is the result of the interrelationship between the two elements of environment and health. Desire has greatly diminished the human environment but has not led to conservation to that extent. There is a natural imbalance. Therefore, water, air, land, trees, minerals and other elements are adversely affected and adversely affect the health. It is necessary to understand environmental health and raise awareness. From then on, there will be rites to maintain environmental health can be achieved.

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Time Bound Analysis of Rainfall Trend in Satara District of Maharashtra : A Geographical Study

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Abstract :

In the present paper an attempt has been made to study time bound rainfall trend in Satara District for 21 years from 2000 to 2020. Rainwater is main course of water which is used for irrigation, industry, livestock and household use along with drinking. Analyzing the previous trends in rainfall and rainfall variability helps to predict the future conditions and plan accordingly. This research paper aims to study tahasilwise average annual rainfall trend in Satara district during the period of 2000 to 2020. Three parameters i.e. Mean Annual Rainfall, Standard Deviation and Coefficient of Variance were used to analyze changing trend of rainfall over a period of 21 years in Satara district. It is found that Western part of study area i.e. Mahabaleshwar tahsil which lies in Sahyadri receives maximum annual rainfall whereas Eastern part of Satara district revives minimum annual rainfall.

Keyword : *Rainfall, Average Rainfall, Rainfall Variability, Rainfall Trend etc.*

Introduction :

Rainfall variability is defined as the degree to which rainfall amounts vary across an area where time period is constant or through time where area dose not vary. It is an important characteristic of the climate of an area. Variation of rainfall amount with respect to area is called areal variability whereas temporal variability is defined as variation in rainfall amount at the same area with different time period.

Study of monsoonal variations helps study and predict the extreme events like flood, drought and monsoon breaks. Spatiotemporal variability of climatic parameters can also be studied using statistical approach through the analysis of long term climatic data (**Patle et al., 2013**). Arvind, G & Kumar, P & Karthi, S & cr, Suribabu. (**2017**) done the Statistical Analysis of 30 Years Rainfall Data for the Musiri town of Tiruchirapalli district of Tamilnadu. This study aims to calculate rainfall trend and variation in rainfall in Satara district during the years of 2000 to 2020.

Study Area :

Western limit of Deccan plateau defines the limit of Satara district which lies in Southern Maharashtra. Topographical extents of the district are 17°5' to 18°11' north latitudes and 73°33' to 74°54' east longitude. The district has west stretch of about 144 km and the north-south 120 km. It covers an area about10, 480 sq.km. Satara district has the population of 3,003,741 according to 2011 census.

Objectives :

1. To study the mean annual rainfall of the study area for the period of 2000 to 2020.
2. To find out changing trend of rainfall and coefficient of variation.

Data and Methodology :

Secondary data has been collected regarding talukawise rainfall for the years of 1998 to 2020. Census report, District Gazette of every year and annual reports published by agriculture department and yearly district social and economic review published by government agency has been referred to collect data.Changing rainfall trend is calculated by Mean, Standard Deviation and Coefficient of Variation in percent and results were represented by chart and graph. To calculate Coefficient of Variation following formula were used.

$$C.V. = \frac{S.D.}{Mean} \times 100$$

Where,

C.V. = Coefficient of variability of rainfall
S.D. = Standard Deviation of Rainfall
Mean = Mean of Rainfall

Analysis of Rainfall Trend in Satara District :

Deviation of rainfall from the mean or the ratio of standard deviation to the mean or the variability of coefficient of variation is called rainfall variability.

Mean annual rainfall over the study area varies from 428.52 mm to 5093.58 mm. Tahsils comprising eastern part of district Khatav, Dahiwadi and Maan shows minimum mean annual rainfall whereas it is recorded highest at Mahabaleshwar tahsil which is at westward boundary. After calculating mean rainfall for respective years for each tahsil we can find that Mahabaleshwar tahsil records highest rainfall i.e. 5093.58 mm. followed by Jawali and Patan tahsils. Tahsils from middle area of satara districts

i.e. Satara, Wai, Koregaon, Karad and Khandala records medium rainfall which is 984.25 mm. for Satara tahsil and 605.16 mm for Khandala tahsil. Distribution of rainfall gradually decreases towards eastern parts of district i.e. Khatav, Phaltan and Maan tahsils records the lowest rainfall in study area which is 523.97 mm, 465.11 mm and 428.52 mm respectively.

A standard deviation measures the dispersion of a dataset relative to its mean. The standard deviation is been measured as the square root of variance by determining each data point's deviation relative to the mean. If the data points are further from the mean, there is a higher deviation within the data set; thus, the more spread out the data, the higher the standard deviation. Standard deviation for the years of 2000 to 2020 of Mahabaleshwar tahsil is highest in Satara district i.e. 1655.42. Whereas Jawali and Patan tahsils records 441.08 and 606.44 respectively. Tahsils form study area showing lowest rainfall shows lowest standard deviation too. Standard deviation of Phaltan tahsil is 209.22 , 181.01 of Khatav tahsil and 172.41 of Maan tahsil.

Table 1. Tahsilwise Annual Rainfall in mm – Satara District

Tahsils / Year	Satara	Jawali	Koregaon	Karad	Patan	Phaltan	Man	Khatav	Wai	Mahableshwar	Khandala
2000	959.6	942.5	621.8	535.9	1165	385.3	311	406	662	4158.4	442.8
2001	1031.6	1092.4	519.8	654.9	1203.4	478.4	357.6	518.6	678	4519.8	349.7
2002	621.5	1325.4	507.4	441	1223.6	317.3	336	342.6	515	5005.4	224.8
2003	553.4	1147	318.6	404.8	972.9	89.7	98.6	181.4	468.4	4395.6	217.1
2004	1032.4	1058.6	879.8	704.3	1554.6	631.4	436.5	824.7	1042.5	6374.6	971.8
2005	1821.5	2720.1	1395.6	1184.5	3289.7	449.5	542.8	605.8	1537.1	8639.5	778.4
2006	1530.4	2676.2	1258	997.3	2902.6	588.6	472.6	632.1	1334.7	8403.1	664.1
2007	1196.7	1675.9	855.8	1007.4	2208.2	695	549.2	549.1	987.1	6245.1	648.5
2008	722.5	1502	537.4	807.9	1251	339	433.1	374.2	797	5660.4	439.8
2009	909.1	1448.1	761.1	131	1179.1	835	787	779.7	905.2	4203	562.8
2010	1011.2	1530.1	904.2	872.8	1511.2	1028.4	761.5	814.6	1029	4244	562.3
2011	777.6	1737.2	497.4	593.6	1804	342.2	225.8	373.1	873.2	6456.8	433.8
2012	686	1258.8	360.6	550.6	1574.4	267.1	269	273.4	650.1	3908.7	451
2013	1182.8	1787	596	569.5	1510.3	469	407.2	574.9	881.4	3812	633.2
2014	1034.2	1638.2	470.1	663.1	1525.5	300.7	383.2	552.2	674	5650.9	485.7
2015	582.1	1175.4	360.7	317.4	826.1	317.9	302.6	376	402.7	3449.7	418
2016	981.4	1661.7	564.9	688.5	1493	395.6	396.4	499.1	812.4	5583.7	540.1
2017	957.6	1617.3	472.3	735.3	1267.7	538.4	485.6	654.9	790.7	4898.6	584.7
2018	946.41	1502.7	440.58	637.44	1460.27	258.83	256.02	465.09	596.52	5283.95	364
2019	908	1603	1733	632	642	415	442.8	382	416	710	2223
2020	1223.22	1761.97	870.35	985.3	1543.45	625.07	744.44	823.85	1086.54	5362.03	712.7
Total	20669.23	32861.57	14925.43	14114.54	32108.02	9767.4	8998.96	11003.34	17139.56	106965.3	12708.3
Mean	984.25	1564.84	710.73	672.12	1528.95	465.11	428.52	523.97	816.17	5093.58	605.16
SD	296.17	441.08	359.3	242.95	606.44	209.22	172.41	181.01	283.31	1655.42	401.35
CV	30.09	28.19	50.55	36.15	39.66	44.98	40.23	34.55	34.71	32.5	66.32

Mahabaleshwar tahsil recording highest rainfall in study area shows 32.50 percent Coefficient of variation. Coefficient of variation i.e. C.V. of Patan tahasil is 39.66 percent, Satara tahsil is 30.09 percent, Jawali tahsil is 28.19 percent, Krogaon tahsil is 50.55 percent, Karad tahsil is 36.15 percent, Patan is 39.66 percent, Phaltan is 44.98 percent, Maan is 40.23 percent, Khatav is 34.55 percent, Wai is 34.71 percent and Khadala is 66.32 percent.

Figure 1 : Tahsilwise Average Annual Rainfall In Satara District.

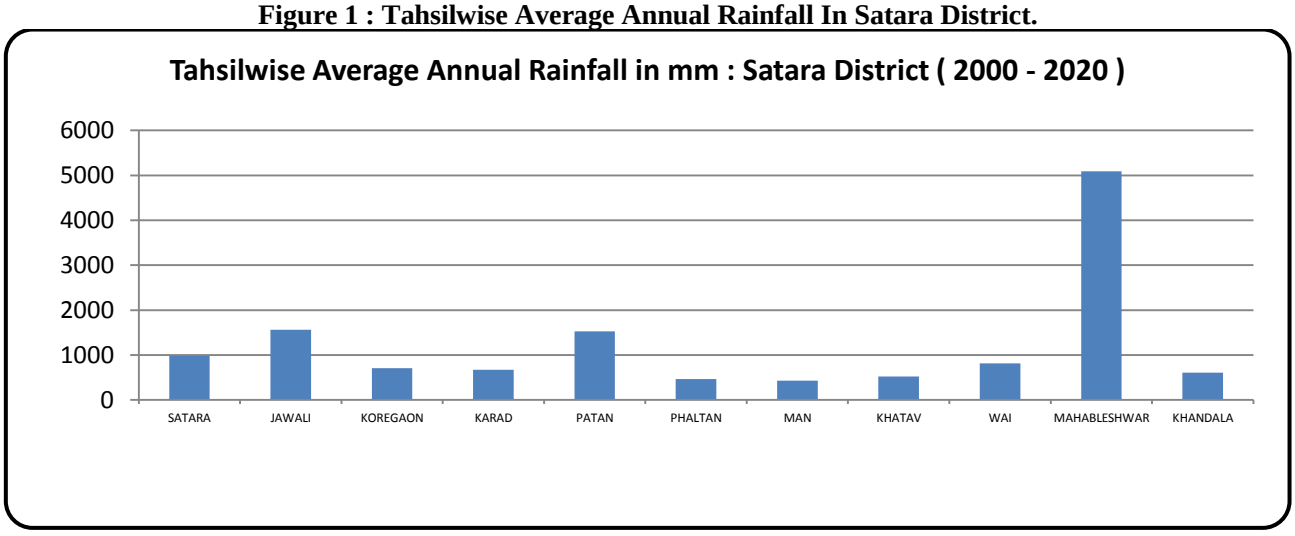

Table no.1 and Figure no. 1 depicts that there is reasonable difference in Annual Average Rainfall in Tahsils of Satara district. During the time span of 2000 to 2020 it is clear that Mahabaleshwar tahsil received highest rainfall in study area. Patan, Jawali and Satara tahsils recorded medium annual average rainfall, while Koregaon, Karad and Wai shows slightly low than the medium and Phaltan, Maan and Khartav tahsils records lowest average annual rainfall in Satara district over the period considered for this study.

Conclusion :

Tahsilwise Standard Deviation and Coefficient of Variance were calculated and tabulated to show variations in rainfall within the span of 21 years. Highest yearly average annual rainfall in Satara district was recorded in the year 2005 i.e. 22964.5 mm. Comparing 11 tahsils of Satara district we found that Mahabaleshwar is the one which receives highest annual rainfall which lies at western part and as we move towards east boundary of study area the amount of mean annual rainfall decreases gradually. The tahsils lying in middle part of district receives moderate or medium annual rainfall which are Satara, Wai, Koregaon, Karad and Khandala tahsils. Khatav, Phaltan and Maan these are the three tahsils lying at eastern part of Satara district records lowest amount of rainfall and hence faces drought conditions regularly.

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Teaching English Language through Popular Culture

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Abstract

The youth of today's generation live a life dominated by technology and pop culture by the excessive use of television channels, social networking websites, blogs, music and film genre, video and computer games etc.,. Young generation lives a life in terms of what they see in movies, television shows, fashion and popular magazines etc. People are seen to be using language creatively in specific local context to achieve their particular social and cultural goals. These artifacts of popular culture are found to be the effective in teaching of English language to non-native speakers. The present article covers impact of popular culture on everyday language environment of Indian youth and studies various ways and methods by which popular cultural forms can be used for English language learning students.

Key Words: *language, media, popular culture, pop, music, learning, social, television.*

Introduction

Popular culture has been found to be effective in various studies involving English language learners. Popular culture consists of widely recognizable cultural artifacts presented in a variety of forms. Storey (2006) goes on further and suggests that popular culture is culture that is appreciated by a large group of people and is comprised of the artifacts and icons of any given time and place. It has been seen that, with the emergence of television channels, social networking websites, blogs, music and film genre, video and computer games etc., the youth of today's generation live a life dominated by technology and pop culture. The pressure to fit in the group, to be one in the crowd, is so overpowering for today's youngsters. Most of them live a life dedicated by what they see in movies, television shows, fashion and popular magazines etc. people are seen to be using language creatively in specific local context to achieve particular social and cultural goals; in this process language and culture are reshaped and altered to fit new trends and locally meaningful identities. The present paper covers impact of popular culture on everyday language environment of Indian youth and studies various ways and methods by which popular cultural forms can be used for English language learning students. It has been seen that the language environment of youth is influenced by almost all forms of popular culture; they enjoy being a part of it as it assures their identity in their groups. All forms of popular culture are important means of English language learning if used wisely and properly in classroom situations.

Objectives of teaching English

One of the main objectives of teaching English to non-native speakers is to prepare them for real life situations they encounter on an everyday basis. English teachers strive to provide their students with a language model that they can utilize in their future lives and careers. Generally, English lessions, mostly contain presentations, and practice of grammar, vocabulary and pronunciation. Although, there are fundamentals without which hardly any student can go very far, there is still something which needs to be included in the complex of information and experience that students should be expressed to, ideally, while studying. The question is how a non – native speaker of English be equipped with language competence. It has been seen that a non-native speaker takes a lot of time to catch up accents of native speaker. Jim Cummins (2012) had shown that ESL learners need five to seven years to catch up native English; they may acquire fluency in everyday conversational language with one or two years of exposure to English. However, today, the world has opened to media especially social media, opportunities to travel, be it holiday, work or students exchange programme cultural competence is more vital than ever. Therefore, incorporation of forms of popular culture within a class room time can provide students with a valuable addition to their theoretical competence base.

Media and learning of English

Incorporation of various forms of popular culture in curriculum is very easy for a teacher and at the same time attractive for students as music, TV programmes are extremely accessible, one does not need to leave the bedroom to listen to native speaker or see them on screen. This makes ideal source material for a foreign language class room. Because it not only allows students to listen to standard language (grammar, vocabulary, pronunciation) but also provides example of colloquial language in more authentic, less artificial situation than a text book might do. On the other hand, it allows listeners / spectators to immerse themselves in the real like lives of native speakers. "Popular culture tells us a lot about the people of the society" (Steinberg, 2011, online) As, apart from social media, music and television seem to be the focus of students leisure time these days, it seems to be a great opportunity to include these phenomenon in English class rooms, in this way, without actually realizing they are learning,

by means of exposing themselves to popular culture, students acquire competence about the target language and society. Angel Lin (2011) had done a research on hip hop rap music and English language learning, she suggests that hip-hop is a great source through which learning of a language is possible. Through rap students can learn useful phonetic skills which they can transfer to their regular English learning. They may acquire new identity of a creative language user thorough developing a hip hop rapper identity. It also helps in overcoming psychological barriers associated with learning a foreign language. However, she says the issue of East Asia in terms of learning English as a foreign language, is that pop culture is mediated in the local language, and teachers of English need to build bridges where English can come in as a comfortable lingua franca.

Online Resources

Apart from websites related to spoken English, there are end numbers of websites that provide an opportunity to learn English. The time is changing now, people are not seen to be reading text books, instead they study music, films, and documentaries from around the world, read stories and poetry, play online games and do online work. In this sense, facebook or any other social networking website can be an effective tool in learning of an English language. Various groups are available on facebook with regard to age, gender, culture and society. They communicate with one another, do writing and may have their own blog. Some groups may have native speakers, by using such site, learners may have an opportunity to not just learn English but also know socio cultural aspects of target language and culture. Books are dubbed by native speakers now a days, and are available online with free of cost, learners can listen such audio books and sharpen their language skills (pronunciation, grammar, idioms, phrases etc).

Movies and TV Shows

English movies can become a good source of teaching English, it tells us something that is not written in text books. And an interesting thing with movies is that they are every one's favorite. Students learn new words, sentence patterns, pronunciation etc from dialogues shared by characters. Learners may listen carefully and think about others' ideas. They can have an opportunity of learning English by looking around the world through movies. Because as Cummins (2000) states that the "conceptual knowledge developed in one language helps to make inputs in the other language comprehensible." If a child already understands the concept of "help" or "wisdom" in their own language, all they have to do is to acquire the label for those terms in English. They have a far more difficult task, however, if they have to acquire both label and concept in their second language, second language learning becomes simple in this way. Hence we can say that, motivating students to learn English by movies or TV Serials or Documentary films, they know a lot about target culture and language. In doing so, if they can identify themselves with one of the characters, it will increase the chances they will willingly watch the same repeatedly. Students are more likely to benefit from the process of education if it is filled with activities they enjoy. Movies and TV Shows not only provides them multiple layers of social and political phenomenon and 'food for thought' but it is also a fun raising activity.

Examples of Activities:

1. Film scripts may prove to be a very good basis for this exercise. The teacher can either use script to point out aspects of pronunciation, vocabulary or grammar.
2. Screen shots or paused frames of an episodes can for instance, simulate grammar practice. Using a set of grammatical structure, students can be asked to describe what is happening, what has happened, and what will happen.
3. Again such frames can be used for vocabulary practice, as students can describe people, places, things (cloths, furniture etc), they can see on the screen using selected target vocabulary.
4. An episode of a TV show or movie can be used as a source for creative writing. The students can write the continuation of plot (including dialogue) or an alternative ending to the plot line they have seen.
5. It can also be utilized into drama lesions, where a teacher can play the muted picture on the screen and ask the students to be narrators – ask them what they see, or dub the actors on the screen.

Classroom situations in India

Learning takes place within a web of social relationships as teachers and pupils interact both formally and informally. Schools are institutional spaces for communities of learners, including both students and teachers. Children are constantly interacting with the physical environment of their schools during structured or unstructured time, consciously or unconsciously. Yet not enough attention is paid to the importance of physical environment for learning. According to NCERT (2005) survey, "classrooms are overcrowded, with no alternative spaces to learn, nor are they attractive, inviting or sensitive towards children's needs. Inappropriate school design may drastically affect the teacher's productive output and classroom management. In fact, "the role of this all - encompassing, physical environment has been

restricted merely to shelter the educational activity." However, ensuring minimum requirements of infrastructure and available materials, teachers are supporting a flexible planning that helps in achieving curricular aims Keeping in mind needs of students, a teacher should provide language learners with an opportunity to acquire language with developing task engagement. According to Egbert (2007), an engaging task is to engage students in task and have deeper focus that leads to great success. In doing so, teachers should understand first needs and interests of their students. As stated above, when learners connect with and feel like the material is a realistic part of their lives, they may be more interested in the task. Interaction in this way becomes a key fact in language learning. Hence the task engagement must be incorporated by interactions. Hence using popular culture in learning English language paves the way for further interaction.

Conclusion

In this context, if views and experiences of students are involved on learning of phonology, practical grammar, listening comprehension or general competence in English, it would become a very successful exercise; they would be more involved and responsive in terms of learning. Because, it has been seen that, people enjoy talking about things they like to do. Including such topics in learning of English would prove to be a motivating exercise for the students. It can be made more personal, if students start to identify themselves with what they see, hear and read. If students are made to involve in listening to / watching thing they enjoy and discuss what they like and feel, makes them realize that there are people with similar views and experiences and it gives their views, a sense of belonging.

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A Paradigm Shift In Conventional Marketing Into Green Marketing: An Overview and Perspectives in Today's Era of Global Warming.

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Abstract:

In wake of 'Global warming' issues relates to environment in terms of business, trading, marketing as well influenced lot in this rapid transient era of doing activities in respect to the aforementioned factors which are relied upon ample way. Therefore, all these elements are tend to resort of 'Green Marketing' in this changing scenario, embarking on this path thereby reducing more and more chronic situation taking up towards eviction of human as well as creatures. I acceded myself very much, due to transformation happening around me so rapidly. I explained my views in succinctly way because of known kind of issues about this. Moreover, conservation of environment is everyone's obligatory duty by virtue of reviews I accumulated in this reference. Through this paper I illustrated with veracious manner so that, furthermore it would be very helpful for me to nurture and enriched by way of sharing perspectives in this way. Though by such issues we cannot confidently says, that anyone influenced and introspect likewise. I plight on this issue that tends to make me just go and aware to your inhabitants who more or less dependent on nature and creatures and by that they utilized , mobilized resources derived from nature

.**Introduction:**

Green marketing refers to the practice of developing and advertising products based on their real or perceived environmental sustainability. When a company's green marketing activities are not substantiated by significant investments or operational changes, they may be criticized for false or misleading advertising. In true manner, if this practice adopted by all one upon others dependent at that moment such paradigm shifting steadily turned out to be happening. According to **Hawker (ecology of commerce, 1995)** business has three issues to face. These are what it takes what it makes and what it wastes. What it takes is the material; from the environment, (its ecosystem) through extracting, mining, cutting, hunting, and other means. What it makes is the product of commerce, goods and services that are derived from the natural environment through the process of conversion and transformation. What it waste represents eco-cots arising from the garbage, pollution and destruction of natural systems, which are the consequence of taking and making products and these costs are not internalized in the most of the accounting system, The critical importance of the factors that contributes to the large scale environment destruction. The important factors and as per Hawker view it is very true that, for every marketing activity in today's era of global warming there must be keeping in view of ecosystem and as a thinkers described the milieu about environment in terms of deriving lot of things for utilization and when the moment coming for conservation, protection and safeguarding our surrounding while carried out things merely for own used , this is somewhat absence in view of commercializing in consideration of keeping environment at first. The critical importance of the factors that contributes to the large scale environment destruction, increasing concern of the people towards the environment has lead to the worldwide revolution to become green and environment friendly. People, government, organisation, institutions are taking rigours efforts to encourage production and usage of eco-friendly or eco-labelled products. As a matter of fact, period is transient for any particular activity related to marketing that transitioning from traditional to conventional steadily. As such, if products and goods are completely eco- friendly available and no one ready for resort to conventional marketing method for marketing his/her product/goods and firmly decided unanimously then see the transformation. This has lead to the emergence of theconcept of green marketing. Green marketing is a part and parcel of overall corporate marketingstrategy (**Menon and Menon**), but there are difference between these two, and that is, GreenMarketing involves production and promotion of environmental friendly products and services. The Chartered Institute of Marketing explains that "Conventional Marketing is the management process that identifies, anticipates, and satisfies consumer requirement profitably." However "Green Marketing is a holistic process that anticipates, identifies and satisfies the requirement of customers and society in an ecologically sustainable manner. The concept of green marketing was introduced with serious concern for the environment and to reduce the adverse effect of conventional marketing on ecology and consumer habits. For sustainable development, it is necessary to amalgamate management activities with ecological activities. As suggested by authors like **Ottaman (1993) and Ken Peattie**, (1993) that conventional marketing is out and green Marketing is in." Presently,

green marketing is an emerging concept but gradually it will become mainstream activity because of all the advantages it provides. Green marketing is beneficial for everyone including businessmen, customers and most importantly, environment and nature. This paper is make over ideas, concepts regarding green marketing, eco-logical products ,environment friendly goods, derived from above mentioned philanthropist whose contribution towards conservation in view of global warming was plentiful as compared today's human beings thinking about this subject which somewhat emerging kind considered. It is our obligatory duty to safeguarding our interest towards environment by way of offering eco-friendly products and goods in widely. This is what I carried out some inferences regarding this issue which is very indispensable and gaining momentum to each marketing activities thereof.

Paradigm Shift of Conventional marketing in Green marketing:

1. Transitioning period for accepting ideas and concepts by virtue of keeping environment neat and clean by way of selling and offering ecological products and goods so that , replication and imitation goes hand in hand in terms of green marketing and conventional marketing perspective.
2. Green marketing is a holistic approach which involves identification, anticipation and
3. satisfaction of needs of customers in an ecologically sustainable manner, whereas, Marketing
4. involves identification and satisfaction of needs and wants in a most profitable manner.
5. Conventional marketing focuses on economic desires of the company whereas green
6. marketing carefully integrates social and environmental requirement with economic desires. Green marketing and conventional marketing both are inverse to each other while keeping environment healthy but when in terms of activities involved both are interrelated to each other .
7. In my view, when one can satisfies the customers at that time make them motivated for buying such products because of that we can keep out environment healthy and hygienic.
8. Conventional marketing does not consider the impact of goods and services on natural
9. environment whereas green marketing encourage production and promotion of eco-labelled
10. products and services only. Companies who give preference to green marketing practices over conventional marketing practices prove to be more credible to their targeted customers. In general marketing as we seen the practices where no such concern having in the minds of people while buying and consuming those products. Moreover, they did not ever perceived themselves that , whatever they bought are they harmful or healthy for environment such underlying motives not seems in case of conventional . Whereas, in green marketing once they persuade consumers mind about this concept and besides pattern of buying and selling behavior seems wherein then transition towards conservation happening furiously .
11. Green marketing help in optimum utilisation of optimum utilization of scare resources.
12. Green marketing ensures maximum satisfaction of human needs and wants in most profitable
13. and environmentally sustainable manner Green marketing encourages production and distribution of recyclable, non-toxic and environmental friendly goods and services. Green marketing focuses on sustainable development and growth. It helps in reducing depletion and exploitation of natural resources.Green marketing educates customers and provide them with the opportunity to participate inenvironmental friendly activities.Green marketing promotes value-addition, energy saving, better performance, health and safety and convenience.

Whatever we are fetching from environment something that provides means of livelihood and sustenance, for that we as human are doing nothing by perceiving products and services which comprised such ecological phenomena. It cannot certainly said any one such as trader, marketing products and service provider, Customers, Consumers, and all those who relied upon environment their highest responsibility to conserve and used resources in a optimum level so as to prevent ourselves from toxic material and persuade others for protect ecological biodiversity and resources which depleted very speedily. The crux of idea about this study and paper carried out from the under mentioning reviews and literature with these references one would be bring into existence. In context of this global issue whosever adhere to the makeover by virtue of obtaining resources which depleted Green marketing was introduced in the workshop organised by the

Conclusions: As much I getting through this concept and phenomena, I found one thing i.e. without taking any initiatives from consumers as well as customers tend to accept the ecological products thereof marketers not leaving a hope and intention to keep on delivering and selling such products ,due to this our environment and ecosystem sustained for long lasting . After exploring the concept of green marketing and conventional marketing I havecome to this conclusion that though green marketing is an emerging concept but it is more beneficial than traditional marketing. As Paul Hawker (1995) states that business is the only mechanism on the planet today powerful enough to produce the changes necessary to reverse global

environmental and social degradation.From the study one more thing I conspicuously and persistently say, until from whom such products and services obtaining they always keeping in view that , resources are in scarce and it is our obligatory duty to conserved and sustained so that , others are motivated . I mean to say by virtue of transition would not happened from our side we cannot expect from others .

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Climate Change and Health - A Historical Study

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Abstract

Climate change presents growing threats to public health security – from extreme weather-related disasters to wider spread of such vector-borne diseases as malaria and dengue. The impacts of climate on human health will not be evenly distributed around the world. The Third Assessment Report (Intergovernmental Panel on Climate Change-2001) concluded that vulnerability to climate change is a function of exposure, sensitivity, and adaptive capacity. Developing country populations, particularly in small island states, arid and high mountain zones, and in densely populated coastal areas are considered to be particularly vulnerable. India is a large developing country, with the Great Himalayas, the world's third largest ice mass in the north, 7500 km long, and densely populated coast line in the south. Nearly 700 million of her over one billion population living in rural areas directly depends on climate-sensitive sectors (agriculture, forests, and fisheries) and natural resources (such as water, biodiversity, mangroves, coastal zones, grasslands) for their subsistence and livelihoods. Heat wave, floods (land and coastal), and draughts occur commonly. Malaria, malnutrition, and diarrhoea are major public health problems. Any further increase, as projected in weather-related disasters and related health effects, may cripple the already inadequate public health infrastructure in the country. Hence, there is an urgent need to respond to the situation. Response options to protect health from effects of climate change include mitigation as well as adaptation. Both can complement each other and together can significantly reduce the risks of climate change.

Introduction

Climate change is a significant and emerging threat to public health. Effects of climate change include higher temperatures, increases in precipitation patterns, rising sea levels, weather related natural disasters, increased drought and decreased food security. Hence, it is finding an increasingly central position on the international agenda as most recently evidenced by the Nobel Prize awarded to the former US Vice President, Al Gore, and a team of UN experts under the chairmanship of Dr.Rajendra K. Pachauri (Director General, The Energy and Resources Institute, New Delhi) for their work on the subject. In 2008, the World Health Organization (WHO) focused on the need to protect health from the adverse effects of climate change. The World Health Day – 2008 theme "Protecting health from climate change" raises the profile of health dangers posed by global climate variability and change. It was selected because overwhelming evidence shows that climate change presents growing threats to international public health security.

Abjective: Global climate change and associated increases in climate variability will have severe implications for human health with disproportionate effects on countries such as India, which already face significant public health and health care delivery challenges including resource constraints, high rates of endemic infectious disease, and substantial inequalities in healthcare access. Innovative, applied research in low- and middle-income countries is critical in order to characterize these risks and identify the most effective strategies to address them. This article describes the process of global climate change, its current and future impacts on human health in general and India in particular, and how we can lessen those adverse impacts by mitigation and adaptation strategies.

Methods: This article focused on the current state of the science regarding climate change and human health in India. We review relevant published literature then outline knowledge gaps, discuss on going research efforts, and highlight specific high-priority research directions.

Global Climate Change Climate change occurs over decades or longer time scales. Until now, changes in the global climate have occurred naturally, across centuries or millennia, because of continental drift, various astronomical cycles, variations in solar energy output, and volcanic activity. Over the past few decades, it has become increasingly apparent that human actions are changing atmospheric composition, thereby causing global climate change. Humankind's activities are altering the world's climate by increasing the atmospheric concentration of energy-trapping gases (greenhouse gases [GHGs]), thereby amplifying the natural "greenhouse effect" that makes the Earth habitable. These GHGs comprise, principally, carbon dioxide (mostly from fossil fuel combustion and forest burning) plus other heat-trapping gases such as methane (from irrigated agriculture, animal husbandry, and oil extraction), nitrous oxide, and various human-made halocarbons. According to the Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC), the observed effects include:

1. The global average surface temperature has increased by approximately 0.65°C over the last 50 years.

2. Eleven of the last 12 years (1995–2006) rank among the 12 warmest years since records began in the 1850s.
3. The rates of warming and of sea level rise have accelerated in recent decades.
4. Many areas, particularly mid- to high-latitude countries, have experienced increases in precipitation and there has been a general increase in the frequency of extreme rainfall.
5. In some regions, such as parts of Asia and Africa, the frequency and intensity of droughts have increased in recent decades.
6. The frequency of the most intense tropical cyclones has increased in some areas, such as the North Atlantic, since the 1970s.

As we continue to change atmospheric composition, climatologists forecast further warming during the coming century and beyond. The IPCC has made the following projections for the next century:
Global mean surface temperature will rise by 1.1–6.4° C, depending partly on future trends in energy use. Warming will be greatest over land areas and at high latitudes.Heat waves, heavy precipitation events, and other extreme events will become more frequent and intense. Sea level rise is expected to continue at an accelerating rate.

Impact Of Climate Change On Human Health Our personal health may seem to relate mostly to prudent behaviour, heredity, occupation, local environmental exposures, and health-care access, but sustained population health requires the life supporting "services" of the biosphere. Populations of all animal species depend on supplies of food and water, freedom from excess infectious disease, and the physical safety and comfort conferred by climatic stability. The world's climate system is fundamental to this life support. A changing climate is likely to affect all these conditions and hence have a powerful impact on human health and well-being. In its Third Assessment Report, the United Nation's IPCC concluded that "climate change is projected to increase threats to human health." Climate change can affect human health directly (e.g., impacts of thermal stress, death/injury in floods and storms) and indirectly through changes in the ranges of disease vectors (e.g., mosquitoes), water-borne pathogens, water quality, air quality, and food availability and quality. Global climate change is, therefore, a newer challenge to on-going efforts to protect human health.

Health Effects Of Extreme Temperatures Extremes of temperature can kill. While Himachal Pradesh and Uttaranchal experienced a cold wave, other parts in the country were subjected to heat wave. In 1998, the heat wave in Orissa was recorded as one of the worst, claiming more than 2000 lives. 1998 was the warmest year globally.Andhra Pradesh reeled under heat wave in 2003, killing 1421 people, which is an all-time high in the history of Andhra Pradesh.Effects of heat wave were also observed in Uttar Pradesh, Haryana, Punjab, Rajasthan, Gujarat, Bihar, and Orissa in 2003. In June 2005, Orissa recorded the highest temperature of 46.3°C in Bhubaneswar of the last 33 years, which is 10° above normal,leading to a heat wave. This is not limited to India only. In July 1995, a heat wave in Chicago, USA, caused 514 heat-related deaths (12 per 100,000 population) and 3300 excess emergency admissions. The record high temperatures in Western Europe in the summer of 2003 were associated with a spike of an estimated 70,000 more deaths than the equivalent periods in previous years. Most of the excess deaths during times of thermal extreme are in persons with pre-existing disease, especially cardiovascular and respiratory disease. The very old, the very young, and the frail are the most susceptible. Extremes in maximum and minimum temperatures are also expected to increase. Therefore, it is anticipated that there will be an increase in the number of deaths due to greater frequency and severity of heat waves.

Health Effects Of Extreme Weather Events Extreme weather events such as severe storms, floods, and drought have claimed thousands of lives during the last few years and have adversely affected the lives of millions and cost significantly in terms of economic losses and damage to property. India and the subcontinent saw five of the 20 major natural calamities recorded worldwide in terms of victims. Orissa is no stranger to cyclones, but the 1999 cyclone was unprecedented for the sheer severity, with wind speed reaching over 300 km/h, leaving nearly 10,000 dead, and has gone down in history as the Super cyclone. In 2003, floods claimed thousands of lives and rendered millions of people homeless in Assam, Bihar, West Bengal, Orissa, Uttar Pradesh, Himachal Pradesh, Rajasthan, and Gujarat. Severe drought conditions is most of the north west, major parts of north India, north east India, and parts of Andhra Pradesh, the Telangana and Rayalseema regions, and parts of Tamil Nadu destroyed crops to the tune of USD 25 million, with many starvation deaths being reported. Floods are an annual feature in Bihar, but the 2004 floods was unique for its severity. Recent climate emergencies in India included a heat wave in Orissa (2004), a cold wave in Uttaranchal and Uttar Pradesh (2004), a tsunami affecting Tamil Nadu, Andhra, Kerala, and the Andaman-Nicobar Islands (2004), floods in Madhya Pradesh and Gujarat (2005), rains and floods in Maharashtra (2005), and a cyclone in Andhra Pradesh (2005). These climate extremes, apart from

health, also damage the public health infrastructure. India, like other developing countries, is poorly equipped to deal with weather extremes.

Health Effects Of More Variable Precipitation Patterns The Indian metropolitan city of Mumbai was besieged with India's heaviest downpour of the century in July 2005, killing nearly 600 people. According to the Indian Meteorological department, it was the heaviest ever rainfall received in a single day anywhere in India, recorded at 94.4 cm in the last 100 years. It broke the record of the previous highest rainfall at one place in India at Cherrapunjee in Meghalaya of 83.82 cm, recorded on 12 July, 1910. On the other hand, Cherrapunjee in the north eastern state of Meghalaya, generally well known for being the wettest place in the world, is going through a rare rain crisis and is experiencing dry spells. This may lead to floods in some areas and drought in other areas and thus endangering food security and also affecting the quantity and quality of water. More variable rainfall patterns are likely to compromise the supply of fresh water. For example, in Kashmir (India), heat events have been increasing in the last decade. Rainfall in Srinagar appears to have been declining and Kashmir has experienced warmer than average winters, with snow melting as early as January and droughts occurring in the summer months of July and August. Water shortages have been reported during what have traditionally been wet summer months, with water having to be trucked in on occasion. There has been an increase in waterborne diseases and skin problems due to water shortages.

Results: Relevant research efforts underway in India focus on climate variability and heat-related mortality, air pollution and cardiovascular disease, waterborne disease, and vector-borne diseases such as malaria, dengue, Chikungunya, and Japanese Encephalitis. Proposed recommendations to advance relevant research include the following:

1. Improve environmental monitoring and surveillance systems.
2. Create uniform repositories for environmental and health data.
3. Promote development and use of satellite and geospatial technologies.
4. Merge and Analyse diverse data using multidisciplinary/multidimensional approaches.

Conclusion: Innovative, multidisciplinary investigations using environmental epidemiology to elucidate health risks posed by climate change in regions such as India are possible, but will require expanded partnerships among researchers, governments, and communities so as to develop a benefit strategy that addresses public health challenges. Climate change is expected the human wellbeing in many different ways such as capital, ecosystem, disease and migration, irrespective of the importance of issue, it is not clear how to compute value with the current great of the art of Economics.

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Influencing Geographical Aspects for Floriculture Development in Solapur District

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Abstract

Floriculture is an agronomic discipline. It involves flowering and decorative plant cultivation. It is pleasing to the eye. Seasonal biennial and perennial decorative flowers are included. Floriculture contributes to job creation and foreign exchange earnings. The overall increase in income has encouraged farmers to consider floriculture as a year-round crop. As a result, farmers earn a lot of money, and there are more job prospects.

Keywords*: Floriculture, Geographical aspects, development, Solapur District, India*

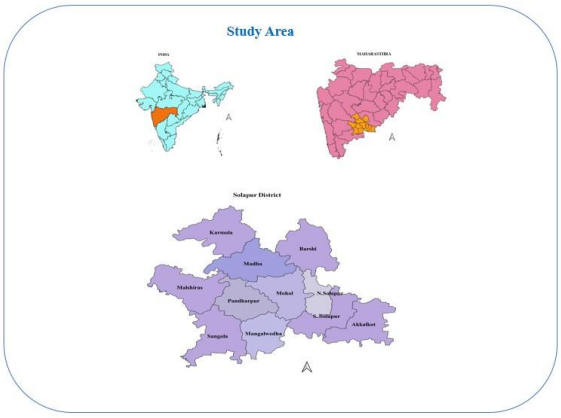
Introduction

Flowers have the greatest advantage in terms of land and water requirements when compared to rice and wheat farming. Floral crops also guarantee good pricing practically throughout the year, and the lock-in time between sowing and harvesting is much shorter than for other commodities. The cultivation of flower and ornamental plants within the garden and arable land is known as floriculture (Biswas, 2013). India has managed to increase the production of flowers by identifying the huge potential for export to foreign countries (Prakash and Muniyandi, 2014). Floriculture is the important commercial economy of the agricultural sector. It includes production processing and marketing of all flowers (Kodam, 2012).

Physical elements such as physiography, climate, soil, water, and socioeconomic status all have an impact on the floriculture industry. Farmers' attitudes toward a higher standard of living, as well as their dependence on physical and socioeconomic elements, have led to the region's adoption of floriculture.

Study Area

Geographically Solapur is located between 17.10 to 18.32 degrees north latitude and 74.42 to 76.15 degrees east longitude. The district covers geographical area of 14844.6 km². Which is 4.82% of the total area of Maharashtra State in the western part of India. Out of the total area of the district 338.8 km² (2.28%) is Urban area whereas remaining 14505.8 km² (97.72%) is Rural area. This area receives 603.79 mm of annual average rainfall resulting in a drought every third year. The Solapur district is situated on the state's south-eastern border, with maize-wheat, sorgham-bajra, and fodder-wheat as the main crops.



Location Map of the Study area

Factors Controlling Floriculture

Physical Factors

The following are the physical variables that have an impact on Solapur district's floriculture:

Climatic Factors

1. Temperature and Relative humidity

The climate follows a hot tropical monsoon weather pattern. The temperature in Solapur is of 30˚C to 40˚C, while humidity is 76 %. If we are looking for weather in during April, be prepared for maximum and minimum Temperatures ranged from 18°C to 34°C, Summer days in month of May are frequently punctuated by rainstorms known as dust storms .

2. **Rainfall**
   The average annual rainfall is about 558.2 mm, the location of Solapur district comes under rain shadow area. It has been observed that the south-eastern parts of the district receives slightly more rainfall than the western part of the district.
3. **Natural Vegetation**
   In the study area, the forest cover is very poor. The forest occupies about 342.41 sq. km area in the district and is classified as forest area and unclassified forest.
4. **Fog**
   In winter this area is mostly affected by fog it is too much unfavourable on flower cultivation.
5. **Soil**
   The soil of the district is consists of decomposed regolith rock material this is also known as Murum. The soils of this district can be broadly classified as i) Shallow Soils, ii) Medium Black Soil and iii) Deep Black Soils.
6. **Irrigation**
   Bhima, Sina, Man, and Nira rivers are the major source of irrigation water to the floricultural fields in the district .
7. **Cultural Factors**
8. **Capital**
   Floriculture producers in the area have invested between Rs 10000 and Rs 15000 per hector in their cultivation. Due to their weak financial situation, they were unable to invest during the lockdown.
9. **Market**
   They used to bring it via the local market yard on a regular basis. They picked the flowers early in the morning on the same day. They transported it through local market yard on a regular basis. They picked the flowers early in the morning on the same day. The flowers are sold in the market in two forms: loose flowers and garlands, each costing Rs 20/kg (loose flowers) and Rs 16/kg (garlands). In this way, they were able to earn Rs 1000 to 1200 every day and follow a regular spending pattern.
10. **Labour**
    On average, 5 to 7 individuals per hectors of agriculture are employed. They worked from home on a regular basis and kept the agriculture running properly. They are unable to hire outside labour. It's their optimistic attitude.
11. **Occupation**
    The majority of people run their households based on their flower gardening. This is their primary source of income.
12. **Analysis and Results**
    During the survey, some major results were discovered, which are listed below: - Flowers. We've noted that their two sorts of flowers are grown independently in the winter and summer seasons. During the winter, they usually grew Rose, Chrysanthemum, Marigold, Tuberose, Jasmine, Aster, and other flowers.
13. **Strength**
    We discovered that the land is entirely newer alluvial, which is quite beneficial for flower growth.
    The Bhīma, Nira, ,Sina Rivers are source of water source for the land.
    The environment in this area is quite good, making flower cultivation a breeze.
    We discovered that the majority of the family members are involved in flower production.

Weakness

1. Except during the winter season, they can not make any money selling those flowers. As a result, this is a seasonal practise.
2. Because of the huge volume of visitors throughout the winter, flower gardens suffer greatly.
3. They couldn't depend on the government for assistance in its cultivation anyway.
4. Fog affects many flowers during the winter season.
5. The early participation of their wards cultivation field has resulted in a huge dropout problem.
6. We discovered a major issue shortly after the survey that some people in their area are also involved in smuggling flowers to other countries.

Opportunities

Many people flock to the area because of its beauty, and they buy a variety of flowers from the area. As a result, the farmers in this area will have more options to earn money.

Another opportunity in this area is the local market and Mumbai market.

They can also take advantage of inter-cultivation and communal load.

Threats

1. Major problem to flower growers is a lack of infrastructure, which is mostly related to flower conservation, such as cold storage.
2. Finally, we discovered that flower farmers planted flowers on the vested land of India's railway development. They may lose this cultivation at any time in their lives. We believe it poses a greater hazard to them.
3. Farmers are also threatened by a lack of capital.
4. There is no connection to the worldwide and national flower markets;
5. There is no floriculture industry.

Conclusion

Beautiful flower kinds are grown along the South Solapur tahsil, resembling a multi-colored carpet. The winter season is extremely important since it is the best time for flowers to bloom. The potential for floriculture development in this region is enormous. The socio-economic situation in this region is steadily improving as a result of this practise. For such horticulture to flourish sustainably, a research-based training programme with public awareness as well as infrastructural adjustments are required. Geographically, the long-term viability of several variables is beneficial to the growth of this region with special attraction.

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Socio-Economic Status of Fishermen of Devarjan Reservoir of Latur District Maharashtra

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Abstract

The Devarjan reservoir is a medium sized reservoir having full water spread area 401 ha (4010 $10^3M^{3)}$ during rainy season. The Devarjan reservoir is constructed near Devarjan village Taluka Udgir District Latur in 1993, on river Devari. The geo coordinate of Devarjan reservoir are Latitude 18.3332518^0'N' and Longitude 76.9948482^0'E. The present work was mainly undertaken to investigate Socio-economic Status of Fisher communities, Caste and tribe and their population, Involvement of fisherwomen in fishing, Housing, Educational status, Modern facilities, Wages and Income. The present work was mainly undertaken to investigate Socio-economic status of Devarjan reservoir Fishermen for a period of 2 years during June 2019 to May 2021 and it is first effort in this direction from this reservoir.

Key Words*- Reservoir fishery, Socio-economic status, Devarjan reservoir.*

Introduction

India's inland resources are important source of food and provides employment to sizeable sections of the society in rural area. The Devarjan reservoir is a medium sized reservoir having full water spread area 401 ha constructued near Devarjan village Taluka Udgir District Latur in 1993, on river Devari. The geo coordinate of Devarjan reservoir are Lattitude 18.3332518^0'N' and Longitude 76.9948482^0'E.. The present work was mainly undertaken to investigate various aspects of Devarjan reservoir like Fisher communities, Caste and tribe and their population, Involvement of fisherwomen in fishing, Housing, Educational status, Modern facilities, Wages and Income. The present work was mainly undertaken to investigate Socio-economic status of Devarjan reservoir Fishermen for a period of 2 years during June 2019 to May 2021 and it is first effort in this direction from this reservoir. The Devarjan reservoir fishing tender is allotted to Devarjan madhyam prakalp Mastyavyawsaik Sahkari Sanstha. Devarjan Tq. Udgir Dist. Latur called as Devarjan Medium Project Fish Co-operative Society, Devarjan Tq. Udgir Dist. Latur. Reg No LTR 916/1990-91/Dt 6/9/1990 On Devarjan Reservoir, Devarjan Medium Project Fish Co-operative society, Devarjan Tq. Udgir Dist. Latur was working on this reservoir having 25 members belongs to Caste Chambar, Matang, Lingayat and Banjara. The Chambar caste members were 15, Matang caste member was 06, Lingayat caste members were 03 and Banajra Caste member was 01. It was firstly reported that during study period only 10-12 active fishermen of the fish co-operative society belonging to village Devarjan were involved in fish catch.

Material and Methods To study the socioeconomic status of fisherman of Devarjan reservoir, the data on socio-economic status of fisher communities of Devarjan reservoir includes, caste and tribe and their population, Involvement of fisherwomen in fishing , housing , educational status, modern facilities, wages and income, of Devarjan reservoir was collected by survey, study, observations, questionnaires and photography from active fishermen during June 2019 to May 2021 and the data was analyzed.

Result and Discussion Devarjan medium project reservoir is located near village Devajan, Taluka Udgir, district Latur. It is situated 18 km away west south direction to Udgir. To reach Devarjan reservoir one have to travel from udgir -Nalegaon road and have take left turn at Twiatgyal cross (which is about 5 km from udgir) and later on move towards village shekapur, and from village shekapur one have to take right direction towards village Devarjan. Devarjan Medium Project Fish Co-operative Society, was working on Devarjan reservoir since 1993. The fish catch obtained from Devarjan reservoir was marketed by the fishermen of fish co-operative society into the Udgir and Nanded fish market and the huge catch of dried weed fishes and small sized fishes to the Wholesaler on the reservoir itself. It was observed in Devarjan reservoir fish market system that, member fishermen of the fish co-operative society in each group had made tie-up or agreement with fish retailers for fish sale. i.e. whatever the fish catch harvested in a day by all fishermen was marketed to the fixed fish retailer on the site of reservoir on credit basis. This retailer collect the harvested fish catch between 10;00 am to 10.30.am and sold to another retailer of Udgir fish market. During the study period, it was observed that fish retailers is the working members of the fish co-operative society of Devarjan reservoir and was involved only in fish marketing process and not in fish harvesting.

Fishermen caste and tribe and their population:

Total 25 members of the Devarjan Medium Project Fish co-operative society working on Devarjan reservoir belongs to village Devarjan belongs belongs to Caste Chambar, Matang, Lingayat and Banjara. The Chambar caste members were 15, Matang caste member was 06, Lingayat caste members were 03 and

Banajra Caste member was 01. It was firstly reported that during study period only 12 active fishermen of the fish co-operative society belonging to village Devarjan were involved in fish catch.

Table 1 Distribution of active fishermen according to age group of Devarjan reservoir during Ju ne 2019 to May 2021

Sr.No	Age group	Fishermen number	Percentage
1	21-30	05	20.00%
2	31-40	12	48.00%
3	41-50	04	16.00%
4	51-60	04	16.00%

Table 2 Caste wise details of active fishermen of Devarjan reservoir

Sr.No	Caste	Total	Percentage
1	Chambar	15	60.00%
2	Matang	06	24.00%
	Lingayat	03	12.00%
3	Banjara	01	04.00%

Involvement of fisherwomen in fishing:

As on Devarjan reservoir all fishermen involved in fishing and involvement of fisherwomen are found in sorting of weed fish harvest in summer for helping purposes. They are also doing all the house hold works at the site of Devarjan reservoir in peak fishing season.

Housing: The active fishermen involved in fishing belong to village Devarjan. The house of fishermen present in Devarjan are small sized and made up of stone bricks and clay. The fishermen belongs to village Devarjan comes by walking to Devarjan reservoir. There was no any permanent house or hut constructed by the fishermen around the reservoir. However, in the peak fishing period (December to May) a temporary shade was constructed to take rest at afternoon.

Educational status and educational facilities: During the study period it was observed that most of members of the society were moved away from fishing process and involved in other works like labor work, brick construction, farm working as an of the main reason to provide educational facilities to their children. The educational facilities for education are present at village Devarjan. It was found that out of 08 Active fishermen all fishermen were literate, They have completed their education up to $10^{th}$and 12^{th} classes only. The children of fisher community were going to school shows positive attitude towards the children education.

Fishing license: The main objectives of the fishermen's fish co-operative society was to collect the tender cost amount and fish seed purchase amount and transport amount. The Devarjan Medium Project Fish co-operative society charges Rs 10 per kg as license fees for fishing in Devarjan reservoir to the society member. This policy was launched due to financial problem of the co-operative society since from many years.

Fishing wages and Income: It was observed that the fulltime fishing activates were started after Dipwali festival i.e. from November up to may ending and 1 to 2 months in monsoon season. The active fishermen were allowed to sale their fish catch to the local fish merchant or middlemen. The fishermen of Devarjan reservoir sale their fish catch to middle men or fish merchants on the site of reservoir at morning 10:00 am to 10:30 pm. There is a fix contract for fish purchase between fishermen and a particular middlemen i.e. one middlemen purchase the catch of all fishermen. Due to such type of contract there is assurance of fish sale on reservoir site to fishermen and there was very less fluctuation in fish price of purchase. The price fluctuation in observed according to the season i.e. in winter season fish sale and fish purchase price was high as compare to summer season and monsoon season. The fish co-operative society collects fishing commission as Rs 10/kg from fishermen.

Table .3 Fish Sale price at the site of Devarjan reservoir.

Sr. No.	Fish catch	Fish Sale rate in Monsoon season	Fish Sale rate in Winter season	Fish Sale rate in Summer season
1	Fishes larger than 1kg	Rs 55-60/kg	Rs 65-70 /kg	Rs 55-60/kg
2	Fishes smaller than 1kg	Rs 50-55/kg	Rs 55-60/kg	Rs 50-55/kg

Source; Data collected in Interviews with fishermen of Devarjan reservoir

Table 4 Wages to active fishermen of Devarjan reservoir

Sr. No	Fish catch	Wages/income in Monsoon season	Wages/income in winter season	Wages/income in Summer season
1	Fishes larger than 1kg	Rs 45-50/kg	Rs 55-60/kg	Rs 45-50/kg
2	Fishes smaller than 1kg	Rs 40-45/kg	Rs 45-50/kg	Rs 40-45/kg

Source; Data collected in Interviews with fishermen of Devarjan reservoir

g. income to Fishermen:

As every active fisherman are engaged in fishing for duration July to August and November to May of every year. The catch obtained in the month of July, August is abundant, and the fishes are of large size ranges from 1 kg to 5 Kg Generally every fisherman gets a catch of 250 to 300 kg in monsoon season (July and August) where as 650 to 900 kg in winter season (November to May). Along with fish harvesting fishermen were involved in other works like Labour

Table 5 Average Income of each fisherman of Devarjan reservoir.

Sr. No	Year	No of Fisher population	Total fish catch in Kg by fishermen	Average fish Sale amount in Rs	Average wages/income to per fishermen in Rs
1	2019-2020	10	10500	630000	63000
2	2020-2021	12	13500	810000	67500

Source; Data collected in Interviews with Secretary of the fish Co-operative society

Modern facilities

Fishermen and their child are using motor cycles for transporting fishes from reservoir to market They are using different types of vehicle like Tampo for large scale fish marketing in summer. For communication purpose they have basic mobiles as well as android mobiles, which will be become entertainment gadgets to them.

Discussion: As productivity is concerned, Devarjan reservoir has good productivity , therefore there is wide scope for the development of the fishery sector in this reservoir and also be the best option for application of Pen-culture, Cage Culture methods. Devarjan reservoir was characteristically loaded with variety of weeds, located in all corners of reservoir. Naturally the Devarjan reservoir support the weed fish occurrence, hence, in the existing situation of flood water loss from the reservoir, along with the weed fishes, there is loss of IMC and other fishes. The new trend of catfish development, Murrel culture could be established through cage culture and pen culture practice along with IMC stocking which will definitely helpful in socio-economic upliftment of fisher community.

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Fishing in Devarjan Reservoir

Sun drying of weed fishes in summer

Temporary shade to take rest at Devarjan reservoir.

Study of Fishing Gears and Crafts Used In Deverjan Reservoir, Latur District, Maharashtra, India

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Abstract

The Devarjan reservoir is a medium sized reservoir of about 401 ha area, (4010 10^3M^3) constructed on Devari River at Devarjan Tq. Udgir, Dist, Latur in 1993. The geo coordinate of Devarjan reservoir are Lattitude 18.3332518^0'N' and Longitude 76.9948482^0'E. Fish fauna of reservoirs in Marathwada region has received the attention of Valsangkar (1980), Desai (1980). However Sakhare (2002), Niture (2008) worked on Fishing methods employed in Yeldari reservoir of Marathwada region. The present study deals with the study of gears and crafts used for fishing in medium sized Devarjan reservoir of Latur district Maharashtra, for a period of 2 years, during June 2019 and May 2021.The important Indigenous gears used in this reservoir are Gill Net, Drag- Net, Hand Drag Net, Hook and Line, etc .The crafts used are Wooden non-mechanized boat, Thermocol rafts, and Air filled tubes for fishing.

Key Words- *Fishing methods, Devarjan reservoir, Gears and crafts*

Introduction

The Devarjan reservoir is a medium sized reservoir of about 401 ha area, (4010 10^3M^3) constructed on Devari River at Devarjan Tq. Udgir, Dist, Latur in 1993. The geo coordinate of Devarjan reservoir are Latitude 18.3332518^0'N' and Longitude 76.9948482^0'E.. It was the first ever-major project in Udgir region to initiate the process of economics development of Udgir region. Reservoirs and lakes contribute the inland fishery resource in term of production potential. Indian reservoirs has a rich variety of fish species, which supports to the commercial fisheries. The present study deals with the study of gears and crafts used for fishing in medium sized Devarjan reservoir of Latur district Maharashtra, for a period of 2 years, during June 2019 and May 2021.The important Indigenous gears used in this reservoir are Gill Net, Drag Net (Wadap), Hand Drag Net Hook and Line, etc .The crafts used are Wooden non-mechanized boat, Thermocol rafts, and Air filled tubes for fishing.

Material And Method

The active fishermen population present in Devarjan village working in Devarjan reservoir was 12 during study periods belongs to different caste and tribes. Fish landing and fishing activities were observed and studied for a period of 2 years, during June 2019 and May 2021 and information on methods of fishing in reservoir was collected. Beside this, interviews and questionnaires method was adopted to collect data on size of nets, its types and operation for fishermen involved in fishing. Information was also collected on different gears and crafts used in reservoir by photography.

Results And Discussion

On Devarjan reservoir fishing is carried out throughout the year. Indian Major carp species and exotic carp species stocked in Devarjan reservoir and other local fishes were harvested by using various kinds of gears named by various traditional names. Gillnet, drag net, Hand Drag Net, Hooks and line were used to catch the fishes. To operate the fishing nets the Wooden non-mechanized boat, thermocol rafts of 1 to 2 person carrying capacity and motor vehicle air filled tubes for fishing. The structure of different gears and crafts used in Devarjan reservoir is given below. -

Gears

Gill Net:

In Devarjan reservoir the most commonly used net is gill net. Gill nets are passively operating nets and are generally classified as surface, mid water and bottom gillnets. These nets are allowed to drift along the wind or water current or the nets are set at particular depth by anchoring and are referred as drift gill net, set gill net, bottam gill net. It is called gill net because the fish gets entangled in to the mesh in the opercular region. The gill nets of various dimensions i.e. from 10 m to 50 m in length and 2 m to 4 m in height of mesh size varies from 1.4 cm to 8 cm were commonly used for fishing by the fishermen of Devarjan reservoir. These gill nets were made up of synthetic fibers commonly called as Nylon net or Disco net. Every full time active fisherman has 05 to 10 kg nylon net. The quality of Nylon fiber used for the preparation of these types of net is very poor; therefore, the fishermen change their gill nets within 3 to 4 months due to tearing of nets. Gill nets are with floats made up of thermocol pieces, soft pieces or plastic pieces fixed at regular intervals to upper line of the

net where as stone pieces or metal pieces were used as sinkers, which are attached at regular intervals in lower line of the net.

Fishing operation by Gill Net:

The gill nets are generally set in the evening at between 4 to7 pm in the reservoir. Every fisherman arranges 5 to 10 kg gill net or 1 to 5 gill nets of different mesh size according to the size of fish to be caught at different places. On the next day morning at between 6 to 9 am fishermen check the nets by using thermocol raft and collect the fish catch. By fortune the fishermen got the fishes trapped in gill net where as some time the fishermen not get the fish catch. Once again, the gill nets kept arranged in water and at evening, the nets were checked for fish. If at evening the fishermen got the fishes in their gill nets, such fishes were kept trapped in mosquito net trap bag in the water for overnight or mostly such fish catch is carried to home for consumption. The gill nets were purchased from either Udgir market or from Nanded market at cost Rs 500 to 700 per Kg As gill nets always remained in water, the nets are damaged in 4 to 5 months

Drag- net (Wadap)

The large sized drag nets of variable dimensions made up of synthetic nylon fibers or mosquito net were used in fishing operation by the fishermen. The Drag nets were purchased from Nanded market and cost varies from Rs35,000 to 45,000. The Drag-net operations were observed from March to June of every year in Devarjan reservoir by the fishermen of the society. The Drag net used in Devarjan reservoir are commonly called as 'Wadap'. These are generally large sized nets of variable dimensions and mesh sizes, as per requirements i.e. water level in the reservoir, availability of budget and man power etc. The net are rectangular in shape and made up of from 3 to 10 pieces of synthetic nylon fibers different mesh size net pieces or mosquito net, each piece of the net is 2-6 m. in height and 3-7 m.in width. The good quality plastic float are fixed to the upper line of flanks of the net while the stone pieces or iron pieces are fixed to lower line of the flanks of the net.

Operation of the Drag- net (Wadap)

To operate the drag net there was variation in the requirement of fishermen number, depending on the variation on the size of the Drag-bag net. 6 to 10 fishermen are required to operate these nets.The terminal flank of the net are either fixed to iron anchor on the coast of reservoir or held in the hands of a fishermen group on the coast of reservoir, rest of the part of the net is lodged on the combined 3 - 4 jointed thermocol rafts or wodden boat. 2 to 5 fishermen carry the net away from the coast of reservoir and release the net in the water with the help of bamboo sticks. The net is released in semicircular manner so that another flank of the net is carried to the coast of the reservoir. The distance between the terminal points of flanks of the net on coast of the reservoir after encircling the water body varies from 5 to 10 feet. Finally both the terminal ropes of net flanks are dragged by two separate groups of the fishermen or one end remains fixed to the anchor and other terminal rope of flank is dragged. When the net flanks are dragged towards the coast line of reservoir then the fish and prawns are directed towards centre of the net .The lower lines of net remain at the bottom of reservoir due to presence of weight. The catch enters and gets trapped in to the center of net which is removed on the coast of reservoir.

Hooks and Line: -

This type of fishing gear used to catch the predatory fish species from the reservoir. This equipment contains a long nylon wire or rope having free terminal metallic hard hooks are fixed. To each hook fresh bait like earthworm or small sized weed fish species like the one *Chela sp*, *Puntius ticto*, *Amblypharyngodon mola*, *Ambassis sp*. etc are fixed to attract the predatory fishes.

Operation of hooks and line-

.All the hooks were baited with freshly caught (not dry) weed fishes.Usually the line is released in a straight line or some times in a random direction in the reservoir water.

The predatory fish like *wallago attu, Heteropneustes fossilis, Mystus seenghala,* usually attracted towards the baited fish, they engulf the bait along with hook and get trapped or hooked. The operation of line and hooks gear depends on availability of weed fishes used as bait. Hence, there is no fixed time to release the hooks and line but after its release the entire hook and system was removed after every 2 to 3 hours, to check the trapped fishes, and again the hooks and line was released in the same direction or at different direction. The line and hooks are checked for increase in weight regularly. The efficiency of this gear depends on population of predatory fishes. This is an effective method for the eradication of predatory fishes from the reservoir too The

use of hooks and line gear was found occasionally when the weed fishes were found abundantly in the Drag net operation

Hand lift net/Hand Drag Net/Scoop net (Pilna net); Hand Drag net is locally known as 'Pilna'. It is a conical shaped bag net tied on a triangular bamboo frame. One pole of the bamboo frame is extended by about 1 m for operating the net. The net consist of triangular frame of bamboo of height 5 to 6 ft. There is a small piece of bamboo fixed in the anterior region of the triangular frame of the net, which is used to hold the net and to drag the net. At the front part of the bamboo frame, a net piece of 3 to 4 cm mesh size is fixed from the basal bamboo up to small piece of bamboo fixed in the anterior region of the triangular frame, and at the centre, a conical mosquito net bag of 8 to 15 feet length is fixed. There is a rope fixed at the two ends of the bottom bamboo of the net frame, which forms a belt like structure, which is fixed around the waist of the fisherwomen. The catch remained trapped in the central bag. The efficiency of the net is catch of 0.5 - 1 kg Prawns (*Macrobrachium malcolmsonii*) per day.The frame is dipped into water, pushed forward along the bottom to some distance before being lifted up. This type of gear is mostly operated in shallow waters of 0.5-1m depth. It is being used occasionally round the year to catch the prawns.This is single person operated net. The modified version of this net of quadrangular type may require three persons to operate. The net is dragged on the bottom of water body by keeping the bamboo frame vertical. It is dragged for 50 to 70 meter distance and finally the frame is lifted to collect the trapped catch. Finally the catch collected in central bag is removed by lifting the whole frame of the net for about 1-2 ft. from the water surface.. Partially it is drag net, bag net and lift net. It is locally named as 'Pilna'. The efficiency of the net varies from 0.5-5 kg prawn catch per day, depending on population density of prawn in the reservoir. The structure of the 'Pilna net' is as shown in the photo .

Crafts

Masula type wooden non-mechanized boat

This type of boat was also found to be used by the fishermen in fishing in the Devarjan reservoir.. In this boat, wooden planks were also used in wooden frame. The length of this craft was 18 feet and width at the centre was 4 to 5 feet. The base of this craft was flat. The carrying capacity of this crafts was 8 to 10 person. This craft is operated by using one or two flipper by 1 to 2 fishermen. The boat is usually used for carrying fishes from catchment area to bank.This boat has greater buoyancy which allows the boat to sail with large carrying capacity These crafts were not so famous due to high construction cost of Rs 60, 000 – 80,000 rupees.

Thermocol raft-

The crafts used in Devarjan reservoir are locally called as 'Nav' or 'Hodi'. It is made up of from thermocol sheet of 7 × 2.5 feet long with 6 to 8 inches thickness. The Nav is prepared by using single continued sheet of thermocol or two thermocol pieces of size 3.5 × 2.5 feet each covered or packed tightly by mosquito net. The cost of each crafts is about Rs 800 to 1000 in Latur or Nanded market. The fishermen have to purchase the crafts individually. During 2020 to 2021 study duration, almost all crafts used were of these types. As this crafts were not suitable to carry large sized heavy Drag nets like Zorli or Wadap. Hence, 3 to 4 thermocol rafts were connected to each other laterally to form large sized platform. The thermocol rafts is navigated by single fishermen with the help of hand flipper made of single bamboo stick of 5 feet length with plastics flippers fitted at both the end of bamboo.To drive this boat with the help of flipper need a good balance technique and practice. This craft found to carry 5 to 10 kg stone pieces to tie with the nets as sinkers, it also carry a net of 4-5 kg weight. The catch obtained in gill net is collected in a nylon bag or mosquito net bag. This type of bag is tied to the raft from posterior side and the bag containing catch of 30-40 kg can carried by dragging the bag in water, but not carried on the raft platform. It is single fisherman carrying raft. After fishing, the rafts are sun-dried on the coast of reservoir

Air filled rubber tubes;

Craft other than thermocol raft used in Devarjan reservoir is motor vehicle air filled rubber tubes. Usually those fishermen who are expert in swimming use this type of low cost craft and is single man operated. The old rubber tubes are used for this purpose. A wooden/plastic sheet platform is placed over the rubber tube, tied tightly with rope. It is used for setting and hauling of small mesh sized gill net Devi (1997) mentioned use of traditional catamaran with thermocol and coracle from Ibrahimbagh and Shathamraj reservoirs of Hyderabad.Ahirrao and Mane (2000) mentioned indigenous crafts and Ratnagiri type of boats from rivers and reservoirs of Parbhani district. In Yeldari reservoir of Maharashtra primitive type of crafts are used, which is a platform of 6×3 feet size with a thichness of 5 to 8 inches. It is constructed from the thermocol and covered by

a plasting covering (Sakhare, 2007) similar type of craft is used in Kalamnuri reservoir.The available information confirms that in Indian reservoirs gill-nets are the common gears (Khan *et.al*.1991; Ahirrao and Mane, 2000; Sakhare, 2002,2003, 2007, Niture 2008). Gill nets in almost all Indian reservoirs require improvements in respect of design and other parameters like mesh-size and twine size in order to increase its efficiency.

Conclusion; The different types of gears used by fishermen of Devarjan reservoir are Gill Net, Drag- Net, Hand Drag Net, Hook and Line, etc The mesh size of the gears vary from 0.5-8 cm. Through out year only Gill net, specially from July to March only Gill net is used so the harvesting of small sized fishes, weed fishes and fingerling is not harvested and weed fishes are used naturally as food by carnivores fishes is a sustainable practice carried out in this reservoir. The crafts used are Wooden non-mechanized boat, Thermocol rafts, and Air filled tubes for fishing. Some modification and modernization in Gears are required as use of small mechanized boat will help to spread gill net in maximum area for harvesting.

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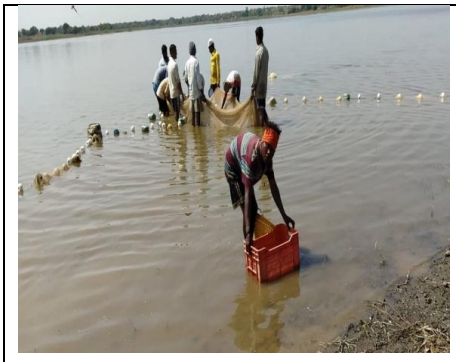
Masula type wooden non-mechanized boat	**Air filled rubber tubes**	**Thermocol raft**

		
Drag net	**Hand Drag Net (Pilna net);**	**Hooks and Line**

E-Commerce: Impact on Environment

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Abstract

Among the many transformations the Internet brings to society, the most conspicuous, and perhaps the most important, is the so called emerging (indeed, e-merging) digital economy as evidenced by the growth of Internet-based businesses for the delivery of goods and services on a global scale. In India historically, major technological innovations have not only brought fundamental change to the economic system but also far-reaching environmental impacts, for better or worse. The widespread expansion of Internet has set a prospect for the development of a new way of conducting Business called E-Commerce. Today, E-commerce has grown into a big industry and is generating huge revenues from online retailing. The rapid growth of the E-commerce is the basis of different, positive as well as negative impacts on environment. This paper explores positive and negative environmental impacts of E-commerce.

Keywords*-E-commerce, Environmental impacts, Internet, positive & Negative*

Introduction

The Internet has created a new economic ecosystem. The Internet has now entered almost every corner of the world. E-commerce means electronic commerce. It means dealing in goods and services through the electronic media and internet. E-commerce is a paradigm shift. It is a ``disruptive" innovation that is radically changing the traditional way of doing business. . E-commerce is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the Internet. E-commerce is conducted using a variety of applications, such as email, fax, online catalogs and shopping carts, Electronic Data Interchange (EDI), File Transfer Protocol, and Web services. It can be thought of as a more advanced form of mail-order purchasing through a catalog. E-commerce is the movement of business onto the World Wide Web. The effects of E-commerce are already appearing in all areas of business, from customer service to new product design.

A more complete definition is: E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals (C. Nisha and G. Sangeeta, 2012).

Types of E-commerce Models There are four main types of ecommerce models that can describe almost every transaction that takes place between consumers and businesses.

Business to Consumer (B2C): When a business sells a good or service to an individual consumer (e.g. you buy a pair of shoes from an online retailer).

Business to Business (B2B): When a business sells a good or service to another business (e.g. A business sells software as-a-service for other businesses to use)

Consumer to Consumer (C2C): When a consumer sells a good or service to another consumer (e.g. you sell your old furniture on eBay to another consumer).

Consumer to Business (C2B): When a consumer sells their own products or services to a business or organization (e.g. An influencer offers exposure to their online audience in exchange for a fee, or a photographer licenses their photo for a business to use).

Examples of Ecommerce Ecommerce can take on a variety of forms involving different transactional relationships between businesses and consumers, as well as different objects being exchanged as part of these transactions.

Retail: The sale of a product by a business directly to a customer without any intermediary.

Wholesale: The sale of products in bulk, often to a retailer that then sells them directly to consumers.

Drop shipping: The sale of a product, which is manufactured and shipped to the consumer by a third party.

Crowd funding: The collection of money from consumers in advance of a product being available in order to raise the start-up capital necessary to bring it to market.

Subscription: The automatic recurring purchase of a product or service on a regular basis until the subscriber chooses to cancel.

Physical products: Any tangible good that requires inventory to be replenished and orders to be physically shipped to customers as sales are made.

Digital products: Downloadable digital goods, templates, and courses, or media that must be purchased for consumption or licensed for use.

Services: A skill or set of skills provided in exchange for compensation. The service provider's time can be purchased for a fee.

Impacts Of E-Commerce On Environment

Positive impacts on the environment

Transportation emissions

E-commerce business models allow for organizations to conduct business without physically commuting. Transportation is responsible for a large number of harmful emissions/pollution, and by reducing your organization's reliance on it, you can reduce your carbon footprint. Additionally, if E-commerce organizations allow employees to work from home, they can decrease their footprint even further.

Paper waste

Paper waste is created by most organizations. When information is transferred digitally, it reduces the need for the use of physical paper throughout the business. This can help reduce an organization's footprint by reducing (or eliminating) paper waste. Paperless business models have a number of benefits and can be made possible using E-commerce capabilities.

Digital storage

The digital transfer of information paired with digital manufacturing could eliminate warehouses and create on-demand production. It is not exactly common knowledge among consumers at large, but warehouses can be an environmental issue. Warehouses consume large tracts of land and freight trucks traveling to and from them can create air pollutants, pavement/road damage, noise pollutants, and potential traffic safety issues.

Negative impacts on the environment

Although the potentials of the Internet to save material and energy cannot be denied, it is too early to conclude that E-commerce has only positive impacts on the environment. Each potential positive impact is coupled with a potentially overwhelming negative impact as well. It should be noted that each E-commerce industry and its respective supply chain could pose its own challenges.

Transportation emissions

Even though E-commerce business models reduce the number of transportation emissions put into the air by their customers, their delivery trucks and other vehicles (e.g. planes) can still emit large amounts of harmful pollutants. Additionally, the location of the customer to the distribution center can make a large impact as well. Wholesale businesses are already primed for cutting down transportation emissions, but this is not always possible for businesses operating at different scales. Since there is a large emphasis on the importance of immediacy in business — especially in shipping offerings — businesses may have to send out freights that are only partially full. This will require additional trips and more transportation emissions.

Packaging

All shipped items require some degree of packaging, but the online shipping boom is creating a massive cardboard footprint from all of the materials used to ship. Additionally, organizations want to make sure their products are received in perfect condition. This can result in excessive padding techniques using Styrofoam packing peanuts or additional paper. As mentioned above, immediacy is key. When people want something, they want it now, and this can result in buying a number of items one-at-a-time, rather than waiting and making a larger order. This can contribute to additional packaging waste. Although most packaging materials can be recycled but not whole.

Item returns

Not every customer is satisfied with an item that is shipped to them. For example, an item may not be the same as it appears online, it may not fit, something could have been broken in transit — there are a variety of possibilities that lead consumers to return the item. Item returns contribute negatively to the environment through both transportation emissions and packaging issues. If an item needs to be returned, it takes double the amount of transportation used to get the item to the consumer. If the item is exchanged for another item, you are tripling the amount of travel required for one item — essentially tripling the number of transportation emissions. If you ripped open the box, you may not be able to reuse the packaging. If you are exchanging an item, there is a possibility that the packaging will not be reused. At a minimum, there are three different paper shipping labels being used.

Conclusion

A developing country may well attempt to be modernized if it introduces E-commerce effectively and efficiently. The emerging digital economy is not only exceedingly complex, but also the pieces of it are highly interdependent, which tends to cause system effects, both good and bad, to multiply rapidly in unpredictable ways. Viewed from the perspective of non-linear dynamics, environmental effects could be much larger than anticipated and unpredictable.It is very clear from the different studies, surveys and our experiences that the E-commerce is actually a double-edged sword. The positive impacts of ecommerce are that it is energy saving and time saving but these aspects are related to negative impacts also, such as pollution, wastage of material, resources and energy. So, with both the negative and positive environmental impacts of the Internet considered, what are the combined net effects of the digital economy on the environment? The honest answer is that we don't know, and worse, that such impacts may not be knowable in the conventional sense because many aspects of the environmental impacts of digital economy. E-Commerce in India is destined to grow both in revenue and geographic reach. The challenge of establishing consumer trust in E-commerce poses problems and issues that need further research. E-Commerce is a boon for any country- if given right impetus and good environmental framework to prosper can significantly lead to country's progress and development.

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Covid-19 and Its Impact on Agriculture

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Abstract

Majority of the population in India depends upon the agriculture sector. Agriculture is the backbone of any India. It is the main sector which generates employment in our country. In the ongoing pandemic situation, the source of revenue of all the farmers and the people who are dealing in this sector are at high danger. Farmers in India were not capable of harvesting their crops because their labourers had run away back to their villages. The crops were left floppy on the farm and the productive nature of the land-living is no longer obtainable. Which leads to a lot of loss for the farmers who are totally dependent upon farm produce as a source of income. In the early months of the lockdown, transport vehicles were not allowed to enter other states. The agricultural produce is short, so it produces a lot of damage in the agricultural product. The closing of restaurants and road foodstuff channels eliminates the market basics for all these agriculturists.

Keywords: *Agriculture sector, Pandemic situation, Farmers in India, The land-living, Road foodstuff channels.*

Introduction

India is not only affected by the pandemic but it is also affected by Cyclone Amphan and earthquakes have also disturbed the agricultural area. Indian farmers all over the country are wondering over their feet and they are thinking why Divinity is treating them in such a way. This is a very critical time for the farmer who has totally invested in this agriculture sector and whose source of income depends upon agriculture. If we take the example of , it is the biggest creator of fertilisers. It is the first nation that was infected with the Covid-19, there has been a difficult impact on farming. Due to worldwide disturbance, farmers are facing a lack of agricultural inputs. In India, the process of agriculture will be disturbed due to the kharif season. Indian farmers need many quintiles of seed for kharif and rabi season but with many obstacles this has not been acquired. The food supply chain has been achieved by the pandemic which also results in a lack of food safety between the greatest helpless segments of the population. We also observe that the migratory labourers directly affects the agricultural sector employment. Many labourers have lost jobs and due to this, the demand for food will also go down or be reduced from them. Many agricultural labourers are incapable of boosting themselves out of insufficiency and food uncertainty. Synchronized strategy comebacks are needed to give funds for farming and the maintenance and working conditions of agricultural workers. National lockdown has strictly affected livings and agriculture across rural India [1, 2].

Methodology

We have used an online method using various online sources for this work, which has mainly surveyed some important impact on agriculture. The given paper was prepared by studying the available published literature, and different government and non-government information from reports and official websites. Scientific literatures were collected through electronic means from the database of Science Direct, web of Knowledge, news paper etc. Also we use research Gate, and Google scholar for this study. From various views, this study implies the information which regards the effect of COVID-19 on agriculture (1).

Result and Discussion

Majority of India's farmers are small farmers who have less than two hectares of farm. The Rabi as well as Agat crop was ready for harvest in many fields when the COVID-19 crisis brought, this was also the time for gathering of plantation crops. At the aftershock of the lockdown, harvest of the Rabi and Agat crops has been delayed due to non-availability of labour, machinery like, harvesters, threshers, tractors etc. Transport facilities and restrictions on movement were declared at that time so farmers of unpreserved merchandise like fruits, vegetables, and flowers have been incurring losses. This was the peak flowering season when the demand was also in height. Many farmers who cultivate flowers and vegetables as a cash crop in their farming system, have gained loss in what would otherwise have been the period of peak earning from sale of flowers and vegetables. Ingathering of plantation crops has been late, disturbing the cash stream of farmers. Agriculture labourers were not ready to go to work due to lack of transport. Labour work under the Mahatma Gandhi National Rural Employment Guarantee Scheme has stopped. Particularly small dairy and poultry farmers engaged in contract farming had faced a main loss with many private contract businesses rejecting to boost the yield. Family groups were between the most weak in terms of food and nutrition security. In addition to farm based activities, the collection and sale of non-timber

produce by farmers has been seriously affected by the lockdown, with no agents coming and markets closed. The casual sector is a major source of credit in rural areas, and using at high rates of interest is expected to increase to stream over the disaster. The agents were charging heavy interest for advance credit to be paid after harvest of flowers and vegetables but farmers were unable to pay due to disturbance of the supply chain. There were also gaps in reaching relief in cash and kind to the poor and needy as seen in media reports. Several civil society organisations with field existence have been involved in providing support that is possible under the conditions. Consciousness programmes on COVID-19 and cautionary actions to be taken have been conducted in many villages. Farmers predict many challenges as farmers and farm labourers set out to reconstruct their livelihoods. Migrant labourers who decide to return will not be able to go back instantly. In such a situation there is a need for both help and reintegration actions, to help the affected and élite the filaments again, overcome the loss sustained and rebuild their lives. Active procedures by the state with caring views begin working in an additional release; whoever is needy gets the necessary support and is not left hungry due to hurdles like lack of ration card and cash. So for that there should be increase the amount under the PM Kisan Nidhi from the present amount 6,000/- to 15,000/- measures to control indicting of excessive interest by private sector on term loans and overdraft agriculture accounts, loss acquired due to damage the crops like flowers, fruits, vegetables and include harvest of crops on farmers' fields by labour.

Conclusions

Observing an online survey and news lockdown had a major impact on the farmer, reducing the yield and income of farmers. Lockdown has been very impacted on farmers' mind stability. The observations from various parts of the sources show that reduced income has also affected the health and mentality of farmers. This review article tries to explain the brief analysis of the impact of COVID-19 lockdown on agriculture.

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Impact of Covid-19 pandemic on sports & exercise

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Abstract:

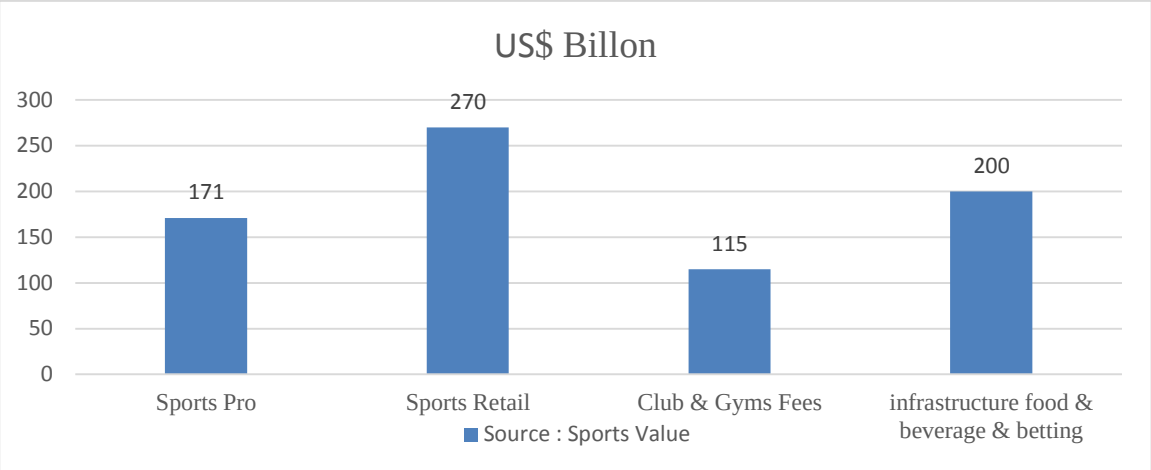
The present paper is based on UN document dept. of economics & social affairs may 2020 further sport industry statistics (by sport value) the impact of the covid-19 on sporting events. The impact of covis-19 on physical activity & exercise with the recommendation of WHO for periodize exercise by cone lading covid-19 pandemic recommendation on sporting & exercise events & the impact of covid-19 on physical activity & well – being.

Key Words: *Covid -19 sporting events sport industry athletes, FIIFA, UN, UNESCO, WHO, physical activity and well-being*

Introduction:

Sport is main contributor to economics and social development of any country. Its role is well recognized by government's including in the political dealation of the 2030 agenda which reflects on "the contribution sports make to the empowerment of women and of young people individuals and communities as well as to health education and social inclusion objectives" All over world the world the covid-19 pandemic has spread to almost in all countries social & physical distancing measures lockdowns of business schools colleges universities and overall social life which have become common place to curtail the spread of the disease have also disrupted many regular activities of life including sport and physical exercise this policy brief highlights challenges covid-19 has posed to both the sporting world and to exercise and well-being including for marginalized or vulnerable groups. Covid-19 father provides recommendations for governments and other stakeholder's as well as for UN system B support the safe reopening of sporting events as well as to support activity during pandemic and beyond.

World revenues – sport industry:



The impact of covid-19 on sporting events:

To protect the health of athletes and others involved most major sporting events at national regional & international levels have been cancelled or post ponded from marathons to football tournament athletics champion ship to basketball games handball to ice hockey rugby cricket sailing skiing weightlifting to wresting and many more sports activities. The Olympics and Paralympics for the first time in the history of the modern games have been postponed and will be hold in 2021 or unpredictable period. The global value of the sports industry is estimated at us$756 billion annually in the face of covid-19 many millions of jobs are therefore at risk globally not only for sports professionals but also for those in related retail & sporting services industries connected with leagues and events which include travel tourism infrastructures transportation catering and media broadcasting among others. rofessional athlete are also under pressure to reschedule their training while trying to stay fit at home and they risk losing professional sports who may not support them as initially agreed. In addition to economic repercussions the cancellation of games also impacts many social benefits of global and regional sport events which can cement social cohesion contribute for the social & emotional excitement of fans. As well as their identification with athlete leading to greater physics activity of individuals. Sport & exercise has long been considered a valuable tool for fostering communication & building bridges between communities and generation through sport various social group are able to play a more central role towards social transformation & development particularly in divided societies within this contort sport is used as a tool for creating learning opportunities &

accessing often imaginal or at rei inoculations. Major sporting organizations have shown their solidarity with efforts to reduce the spread of the WHO and launched a pass the massage to kick out coronavirus campaign led by well-known football players in 13 languages calling on people to follow five key steps to stop the spread of the disease focused on

1. Hand washing
2. Coughing etiquette
3. Not touching one's face
4. Physical distance and
5. Staying home if feeling unwell

The closure of education institutions around the world due to covid-19 has also impacted the sports education sector which is comprised of a broad range of stakeholders including national ministries and local authorities public & private education institutions sports organizations and athletes. As the world begins to recover from covid-19 there will be significant issues to be addressed to ensure the safety of sporting events at all levels and the wellbeing of sporting organizations.

Impact of covid-19 on physical activity & exercise:

The global outbreak of covid-19 has resulted in closure of gyms stadiums pools dance & fitness studios physiotherapy centres parles and playgrounds many individuals are therefore not able to actively participate in their regular or group sporting activities outside of their homes under such conditions many tend to be lese physically active have longer screen time in regular sleep patterned as well as worse diets resulting in weight gain and loss of physical fitness. The WHO recommends 150 minutes of moderate intensity or 75 minutes of vigorous intensity physical activity per week. The benefits of such periodic exercise are proven very helpful especial in times of anxiety crisis and fear due to local of access to regular sporting or exercise routing may result in challenges to the immune system. Physical health including by leading to commencement of or exacerbating existing disease that have their roots in a secondary lifestyle. For many exercising at home without any equipment and limited space can still be possible. For those whose home life can involve long periods of sitting these may be option to be more active during the day for example by stretching doing house work climbing stairs or dancing to music.

Conclusions & recommend tings:

The covid-19 pandemic has had and will continue to have very considerable effects on the sporting world as well as on the physical & mental well being of people around the world.

The following recommend tings seek both support the safe reopening of sporting events & tournaments.

The impact of covid-19 on sporting & exercise events:

Sporting federations & organization

Professional sport ecosystem

The impact of covid-19 on physical activity & well-being:

1. Supporting physical activity
2. Research & policy guidance
3. Technical co-operation & capacity development
4. Outreach & awareness raising
5. Promoting positive social attitudes & behaviour

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Daniela bas Melissa martin care pollack and Robert venue division for inclusive social development in UN DESA the impact of covid-19 on sport physical activity and well-being and its effects on social development policy brief no.73 by UN department of economic & social affairs may 2020.

Soil Texture: A Geographical study of Marathwada Region in the year 2020

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Abstract:

The soil texture of the field has deteriorated in marathwada the proportion of organic carbs has dropped to a worrying level. In the soil of the field in the all eight district the proportion of various elements contined in the soil this is a derease of fifty percent. Farm land in eight district of marathwada it is made of basalt rock. These soils had high nutrient value and constituents which resulted in larg numbers of agricultural products being harvested however, the soil texture of the entire marathwada has deteriorated today as soil conservation and component values are not maintained. Because the conservation efforts have not been made in the past few years for soil conservation, the organic matter content of the soil has decreased greatly.therfore we need to improve the soil texture by increasing the participation with farmers in the awareness.

Keywords: *Soil Texture, Organic carb, Soil Conservation and Productivity.*

Introduction:

The present study focused on the problem of degradation of soil texture or soil quality in all eight districts in marathwada region and it study says the soil texture of has deteriorated and organic carb levels have dropped to a worrying level. The soil in marahwada is made up from basalt rock the medium black soil covers about 64.75 per cent portion of the Marathwada region. The coarse and shallow soil covers about 22.26 per cent portion of the Marathwada region, percentage of coarse shallow soil is the highest in Aurangabad district and the lowest in Osmanabad district. Soil is a dynamic and complex system of air, water, decomposing organic matter, living plants and animals. In addition to this, soil consists of rock fragments, clays, sands and silts organized into definite pattern as dictated by environmental conditions. Marathwada region revives an annual rainfall of 740.37mm. The annual average rainfall is not uniform in all district of Marathwada regions. In last 15 years annual average rainfall is 651.07 mm. in Aurangabad, 806.8 mm. in Parbhani, 706.74 mm. in Beed, 879.27 mm. in Nanded, 701.6 mm. in Osmanabad, 696.64 mm. in Jalna, 784.6 mm. in Latur and 744.86 mm. in Hingoli. In last fifteen years highest annual average rainfall in Nanded district and lowest in Aurangabad district.

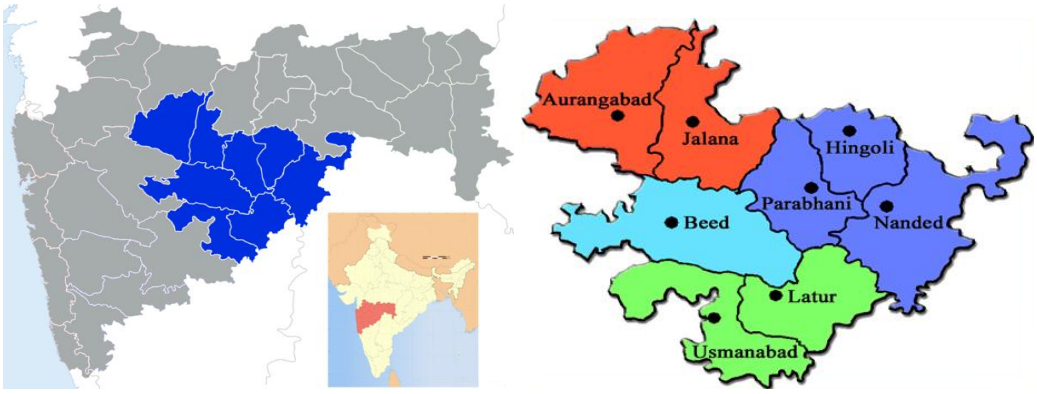
Aims and Objectives:

To study the soil texture in Marathwada region.

To study the lack of Content of microorganisms in the soil of Marathwada region.

Methodology: For this study secondary data are used and for the explanation of data Graphical methods is be used.

Study Area: Marathwada has total area of 64590 km^2 (24,940 sq. mi) In Marathwada district-wise geographical area is Aurangabad 10100 sq. kms, Beed 10693 sq.kms., Nanded 12442.08 sq. kms. Latur 7157.00 sq. kms., Jalna 7718.00 sq.kms., Hingoli 8056.05 sq.kms., Parbhani 6511.58 sq.kms., and Osmanabad 7512 sq.kms. With 57.0 lakh hectares suitable for agriculture and had a population of 18,731,872 at the 2011 census of India Density (per km2) Geographically Marathwada region is situated between 170. 35’ to 200.40’ North latitudes and 740.40’ to 780.15’ East longitude the region is bounded by the Jalgaon, Buldhana and Akola districts on the north, by the Nasik and Ahmednagar districts on the west, Solapur district on south side and Andhra Pradesh on the east. the word "Marathwada" has been used since the times of the Nizams. The region coinciders with the Aurangabad Division of Maharashtra. It borders the states of Karnataka and Telangana, and it lies to the west of the Vidarbha and east of Khandesh regions of Maharashtra. The largest city of Marathwada is Aurangabad. Over these areas, droughts and exceptionally dicey weather hinders rural development to major extent. “Topographically, Marathwada is situated in such a way that it has always received less rainfall compared to the rest of Maharashtra. The eight districts are in Marathwada division Aurangabad, Beed, Hingoli, Jalna, Latur, Nanded, Osmanabad, and Parbhani.

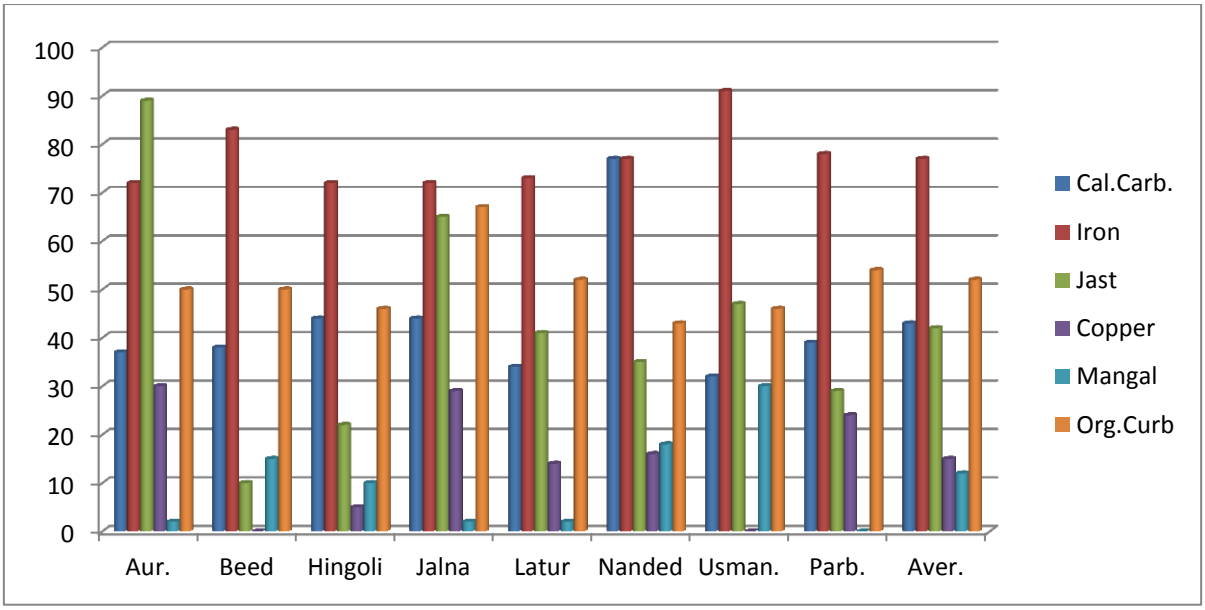


Discussion

Most of the region is covered with deep black cotton soil derived from the Deccan trap volcanic rock **However**, the soils vary greatly in texture and depth. The deep black soils are found along the river banks of Godavari, Manjara, Purna, Dudhana and Penganga and their tributaries and the soil is capable of retaining moisture The soils are, however, course, shallows and relatively poor, along the hill slopes and at the foots of the hills. θThe major portion of the region is covered by medium black soil. The medium and deep soil in the region is rich in plant nutrients and can support kharif or rabbi crops like jowar, bajra, wheat, pulses, cotton, sugarcane. The medium black soil covers about 64.75 per cent portion of the Marathwada region. he coarse and shallow soil covers about 22.26 per cent portion of the Marathwada region, percentage of coarse shallow soil is the highest in Aurangabad district and the lowest in Osmanabad district. The Marathwada region is a part of Maharashtra State which plays a major role in countries repeatedly affected by the scanty rainfall, this region is included in Drought Prone areas. Considering the statistic of the present study, it is noticed that the soil in marathwada region is mainly composed of calcium carbonate, iron, and just, copper, mangal and organic curb. Considering the above factors of Aurangabad district in marathwada , it is noticed that the soil in the district has a lack of calcium carbonate content is 37%,iron content 72%, just content is 89%copper content is 30%, mangal content is lowest 02% and organic curb content is 50%.

Lack of Microorganisms in the soil (in percent %) :-

District	Calcium carbonate	Iron	Jast	Copper	Mangal	Organic Curb
Aurangabad	**37**	**72**	**89**	**30**	**02**	**50**
Beed	**38**	**83**	**10**	**00**	**15**	**50**
Hingoli	**44**	**72**	**22**	**05**	**10**	**46**
Jalna	**44**	**72**	**65**	**29**	**02**	**67**
Latur	**34**	**73**	**41**	**14**	**02**	**52**
Nanded	**77**	**77**	**35**	**16**	**18**	**43**
Parbhani	**39**	**78**	**29**	**24**	**00**	**54**
Osmanabad	**45**	**71**	**20**	**23**	**04**	**45**
Average	**43**	**77**	**42**	**15**	**12**	**52**



Beed district has the lack of highest iron content of 83% in the soil. And other contents scimantensiy 38%, 10%, 00%, and 15% and 20%. Considering Hingoli district of the soil has lack of calcium carbonate 44%, iron 72%, just 22%, copper 0.5%, mangal 10% and organic curb are 46%. Proportionally the lack of content of above elements in the soil of Jalna district are 44%, 72%, 65%, 29%, 02% and 67%. And the Latur districts statistical data of microorganisms are shows proportionally 34%, 73%, 41%, 14%, 02% and 52%. Like this 77%, 77%, 35%, 16%, 18% and 43% lack of content of microorganisms are in Nanded district. Proportionally in Parbhani district the lack of contents of microorganisms are 39%, 78%, 29%, 24%, 00% and 54%. Osmanabad districts data shows the lack of content of microorganisms are 45%, 71%, 20%, 23%, 04% and 45% Considering the lack of average microorganisms in the soil in marathwada region the amount of calcium carbonate is 43%, iron 77%, just 42%, copper 50%, mangal 12% and organic curb 52%. According to the district in Hingoli and Jalna district has lack of highest amount of calcium carbonate 44% and lack of highest amount of iron 83% in Beed district. Considering to lack of just is highest amount 89% in Aurangabad and lowest amount 10% in Beed district. The lack of highest copper content is 30% in Aurangabad district and lowest in Beed district, the lack of highest amount 18% of mangal in Nanded district and lowest amount 00% in Parbhani district the lack of highest amount of organic curb in Parbhani district 54% and lack of lowest amount of organic curb in Nanded district it is 43%.

Conclusion

Collectively, soil microorganisms play an essential role in decomposing organic matter, cycling nutrients and fertilizing the soil, Soil microbes are of prime importance in this process. Soil microbes are also important for the development of healthy soil structure. All of the above microorganisms need to be available in abundance for soil fertility. Considering the above factors of marathwada region it is noticed that the amount of microorganisms in the soil of these eight districts has been highly reduced. The highest loss was in Aurangabad district where the iron content of the soil was reduced by 72%, jast by 89% and organic curb by 50%.this followed by jalana district with the highest reduction of organic curb by 67%. Therefore, it is necessary to implement a campaign for soil conservation in marathwada region, in which restrictions should be imposed on the use of chemical fertilizers and pesticides, mainly in agriculture, as well as the use of modern methods of organic fertilizers and irrigations.

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Impact of COVID-19 on Indian economy

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Abstract

The Indian economy, after subdued growth in 2019, had begun to regain momentum January, 2020 onwards, only to be stalled by the once-in-a-century black swan COVID-19 outbreak. The year 2020 threw at the world a bedlam of novel COVID-19 virus, threatening all that was taken for granted –mobility, safety, and a normal life itself. This posed the most formidable economic challenge to India and to the world in a century. The economy witnessed a sharp contraction of 23.9 per cent in Q1: FY 2020-21 and 7.5 per cent in Q2: FY 2020-21 due to the stringent lockdown imposed during March-April, 2020. Sector-wise, agriculture has remained the silver lining while contact-based services, manufacturing, construction were hit hardest. While some of the effects of COVID-19 on the economy are short term, many have lasting impacts. The lockdown have hugely impacted the supply-chain management and sent the GDP and import-export cycle plummeting. There are three major areas of impact for Indian businesses which are linkages, supply chain and macroeconomic factors. This is indeed the worst recession since the Great Depression in the 1930s.

Keywords: *COVID-19, GDP, Agriculture, Services, Manufacturing, Supply chain,management etc.*

Introduction

Ever since the first outbreak of corona virus (covid19) in Wuhan, China, the world has changed in more ways than one. Apart from the devastating effects of the pandemic, the death toll and struggling healthcare systems, the virus has left the economies world-wide staggering and even drowning in many parts of the world.

The global health crisis prompted by COVID-19, in addition to an enormous human toll, has engendered the largest economic shock the world economy has witnessed in the last century. The pandemic and associated lockdown measures led to a de facto shutdown of a significant portion of the global economy, thereby triggering a global recession in FY 2020-21. The world economy was estimated to contract in 2020 by 4.3 per cent, as per World Bank, and 3.5 per cent, as per IMF. The crisis World is facing today is unique in a number of ways. Firstly, the health crisis-induced global recession is in contrast with previous global recessions which were driven by confluences of a wide range of factors, including financial crises (the Great Depression in 1930-32; 1982; 1991; 2009), sharp movements in oil prices (1975; 1982), and wars (1914; 1917-21; 1945-46). Secondly, this recession is highly synchronized as the fraction of economies experiencing annual declines in national per capita is highest since 1870—more than 90 per cent, even higher than the proportion of about 85 per cent of countries in recession at the height of the Great Depression of 1930-32. The pandemic is, therefore, once in a 150-year event with an unprecedented impact with all regions in the world projected to experience negative growth in 2020. It is aptly called the 'Great Lockdown'. Leaning from this experience, India implemented an early and stringent lockdown from late March to May to curb the pace of spread of COVID-19. With the economy brought to a standstill for two complete months, the inevitable effect was a 23.9 per cent contraction in GDP as compared to previous year's quarter. This contraction was consistent with the stringency of the lockdown. Although the majorly affected sectors include travel and tourism, logistics, auto, metals, drugs and pharmaceuticals and retail, among others, education as we know it, has completely changed and is impacted too.

Objectives of the study

1. To study overall impact of COVID-19 on Indian economy
2. To study the impact of COVID-19 on GDP of India.
3. To study impact of COVID-19 on different sectors.
4. To study the short term and long term recommendation for different sectors

Research Methodology

The present study based on secondary data. The secondary data are collected from different sources such as internet, books, articles in newspapers and public investigations.

Impact of Covid-19 on Indian economy

On May 31, the Indian government released the data for GDP that during the financial year 2020-21, GDP contracted by 7.3 percent. It is the most severe contraction from the time India got its independence. The reasons behind this trajectory are obvious – lockdown leading to the closing of business units, increasing unemployment rate and a significant decline in domestic consumption. For the current financial year, the Reserve Bank of India has anticipated growth of 10.5 percent. But the rating agencies across the globe

have downgraded it due to the impact of the second wave of COVID-19. Moody's initially projected 13.7 percent of growth for FY 2021-22, but later lowered it to 9.3 percent. The same goes with S&P Global Rating. They have lowered the 11 percent growth to 9.8 percent in case of moderate impact of the second wave, but for a worst-case scenario, it would be 8.2 percent. The ideas around a third wave are not helping the situation at all.

Here's a brief look at how some major industries have been affected due to the pandemic:

Education and E-learning

The end of the month march 2020 recorded the spread of Covid-19 pandemic to over 185 countries and resulted in closure of over 95 percent of all schools, colleges and universities impacting close to approximately 350 million students. It can be stated that the lockdown, caused by COVID 19 has had a measurable impact on the commercialized educational institutions as due to the nature of their business, a loss of revenue stream in form of students may not be good for them and has caused a reduction in the revenue streams. However, the advent of e-learning via apps, college owned learning portals, collaborations with MOOC and Online course providers can be used as a way to make up for the loss of revenue, caused by the lockdown.

Food & Agriculture.

COVID-19 induced lockdown in India disrupted food markets which forced consumers to alter their consumption patterns. Consumers prioritized what they wanted and what they really needed. Various surveys report that individuals lost their jobs or their income decreased during lockdown. The lockdown coupled with sudden negative income shock posed serious concerns about food and nutrition security in India. However, the magnitude of the impact of the COVID-19 lockdown on farmers' agricultural production, experience of food insecurity, income from livestock and daily wages is still largely unknown. Understanding this impact has important implications for preparing for upcoming agricultural seasons, informing the targeted provisions of emergency food rations to those most in need, and re-building a more resilient, sustainable, and equitable agri-food system.

Aviation & Tourism

The COVID-19 pandemic had a massive impact on the Indian aviation sector in 2020 and major airlines facing losses and challenging times laid off employees, sent them on leave without pay, or cut their salaries. The effect of this disruption can be gauged by the loss figures of India's two largest airlines. Indi Go incurred net losses of □2,884 crore and □1,194 crore in Q1 and Q2 of this fiscal respectively. Spice Jet posted net losses of □600 crore and □112 crore in Q1 and Q2, respectively. It estimated that just 50-60 million passengers, 40-50 million domestic and less than 10 million international would travel in 2020-21. In 2019-20, approximately 205 million air passengers, 140 million domestic and 65 million international travelled in India. CAPA India projected in October that the Indian aviation industry will lose a combined USD 6-6.5 billion in FY21, of which airlines will account for USD 4-4.5 billion.

Auto Sector

According to the Society of Indian Automobile Manufacturers, the sector registered negative growth in sales of all vehicle categories in FY21 (2.24% decline in sales of passenger vehicles, 13.19% fall in sales of two-wheelers, 20.77% fall in sales of commercial vehicles, and 66.06% fall in sales of three-wheelers).The employment scenario in the automobile sector has been affected and the an estimated job loss in the auto sector at 3.45 lakh, according to a parliamentary panel report submitted to Rajya Sabha Chairman in December 2020.

Restaurant services

Nearly 40 per cent of restaurants had to shut shop due to the Covid-19 outbreak last year.The National Restaurant Association of India (NRAI) which represent the majority of Indian restaurants had advised its members to shut down their dine-in services when the lockdown began which majorly impacted the dine-ins, pubs, cafes and also food delivery platforms such as Swiggy and Zomato which faced drop of 60% in revenue.

Telecom

There has been a significant amount of changes in the telecom sector of India even before the COVID 19 due to brief price wars between the service providers. Most essential services and sectors have continued to run during the pandemic thanks to the implementation of the 'work from home' due to restrictions. With over 1 billion connections as of 2019, the telecom sector contributes about 6.5 per cent of GDP and employs almost 4 million people. Increased broadband usage had a direct impact and resulted in pressure on the network. Demand has been increased by about 10%. However, the Telco's are bracing for a sharp drop in adding new subscribers.

Raw materials and Electronic parts – Nearly 55% of electronics imported by India originate from China. These imports have dropped to 40% due to the pandemic and hence Indian government came up with the promotion of *Atma nirbhar* or indigenous production in a bid to reduce dependency. The lockdown has also resulted in reduced exports of raw materials like organic chemicals, cotton, mineral fuels resulting in substantial trade deficit for India.

Pharmaceuticals

The pharmaceutical industry has been on the rise since the start of the Covid-19 pandemic, especially in India, the largest producer of generic drugs globally. With a market size of $55 billion during the beginning of 2020, it has been surging in India, exporting Hydroxychloroquine to the world, esp. to the US, UK, Canada, and the Middle-East.There has been a recent rise in the prices of raw materials imported from China due to the pandemic. Generic drugs are the most impacted due to heavy reliance on imports, disrupted supply-chain, and labour unavailability in the industry, caused by social distancing. Simultaneously, the pharmaceutical industry is struggling because of the government-imposed bans on the export of critical drugs, equipment, and PPE kits to ensure sufficient quantities for the country. The increasing demand for these drugs, coupled with hindered accessibility is making things harder. Easing the financial stress on the pharmaceutical companies, tax-relaxations, and addressing the labour force shortage could be the differentiating factors in such a desperate time.

Oil and Gas

The Indian Oil & Gas industry is quite significant in the global context – it is the third-largest energy consumer only behind USA and Chine and contributes to 5.2% of the global oil demand. The complete lockdown across the country slowed down the demand of transport fuels (accounting for 2/3rd demand in oil & gas sector) as auto & industrial manufacturing declined and goods & passenger movement (both bulk & personal) fell. Though the crude prices dipped in this period, the government increased the excise and special excise duty to make up for the revenue loss, additionally, road cess was raised too. As a policy recommendation, the government may think of passing on the benefits of decreased crude prices to end consumers at retail outlets to stimulate demand.

Textiles Industry – Due to the halting of operation of textile factories in China, the export of raw materials such as cotton, other fabric, yarn from India has been majorly affected. The raw material unavailability, depletion in work force and working capital constraints has resulted in reduced demands and purchasing capacities.

IT industry – The dependence of the IT sector on many of the above-mentioned sectors such as manufacturing, retail, hospitality, communication etc. has resulted in major impacts on purchasing ability and investing patterns on IT services. This has impacted the requirement of additional work-force and inflow of revenue in this sector.

Impact of Second wave on three major sectors

Agriculture

The second wave has seen stricter and longer lockdowns in the rural parts of the country. Due to the lockdowns, APMC Mandis have been closed for operations or have taken such steps voluntarily. Specifically, APMC Mandis in Gujarat, Rajasthan and Maharashtra were closed during the peak harvesting season. Farmers were not prepared for the ensuing chaos. As the Mandis have still not opened fully, crops are rotting in the fields. Due to the closure of Mandis, vegetable vendors, and processing industries have also been hit. We can see the contrasting impact of the first and the second wave in the agriculture wage growth data. The average wage growth for the agriculture sector for the period of November 2020 to March 2021 has reduced to 2.9 percent (2nd wave) from 8.5 percent in April to August 2020 (1st wave).

Manufacturing

Manufacturing was at the receiving end in both the first and the second wave. To control the Corona virus spread, most of the manufacturing sector had to work at a lesser capacity or shut down. Non-essentials manufacturing was hit for longer and with more severe restrictions. The fear of prolonged lockdowns led to migration back to villages. In addition, the global and local supply chains had also not fully normalized after the first wave. This has meant higher cost of procuring raw materials for both small and large industries. As per the IHS Markit India Manufacturing Purchasing Managers' Index (PMI) in May 2021, PMI slumped to 50.8 from 57.5 reported in February. It is at a ten-month low.

Services

The first wave required a steep learning curve for the organizations to develop infrastructure and processes for remote working. For the employees, first wave lockdowns were a new paradigm and it took them some time to adjust to work from home and be productive. Prolonged lockdown and unlocking phases during the first wave ensured that both the employer and employee got into a rhythm and the productivity started

reaching pre-covid levels. The second wave disrupted this rhythm. But the impact of the second wave has been localized and centered around groups of people with typical disruptions costing 3-4 weeks of productivity. My assessment is that the services sector will be the least hit from wave 2 from an output standpoint.

The table below summarizes the above ideas:

Time period	Indian GDP % growth	Service GDP % growth	Manufacturing GDP % growth	Agriculture GDP % growth
FY 21 (Reflection of the wave-1)	-7.3%	Contracted by 16 %	Contraction by 7.2 %	A growth of 3.4%
% contribution to the overall GDP	Nill	55 %	17.4 %	17.8 %
Expected impact of the wave-2	8.2% to 9.3% (Overall growth due to base effect but reduced forecasts by rating agencies)	Significantly lower than wave-1	Lower than wave-1	Higher than wave-1

Source- *Financial express, June21, 2021*

Conclusion

The impact of corona virus pandemic on India has been largely disruptive in terms of economic activity as well as a loss of human lives. Almost all the sectors have been adversely affected as domestic demand and exports sharply plummeted with some notable exceptions where high growth was observed. In view of the scale of disruption caused by the pandemic, it is evident that the current downturn is fundamentally different from recessions. The sudden shrinkage in demand & increased unemployment is going to alter the business landscape. Adopting new principles like 'shift towards localization, cash conservation, supply chain resilience and innovation' will help businesses in treading a new path in this uncertain environment. To summarize on the macroeconomic numbers of GDP, it is expected a less severe impact of the second wave due to less strict, localized lockdowns and practically a lesser number of days in reaching the peak number of infections. Agriculture will see a deeper cut from the second wave compared to the first wave where it grew. The V-shaped economic recovery is supported by the initiation of a mega vaccination drive with hopes of a robust recovery in the services sector. Together, prospects for robust growth in consumption and investment have been rekindled with the estimated real GDP growth for FY 2021-22 at 11 per cent. India's mature policy response to this "once-in-a-century" crisis thus provides important lessons for democracies to avoid myopic policymaking and demonstrates the significant benefits of focusing on long-term gains. The fundamentals of the economy remain strong as gradual scaling back of lockdowns along with the astute support of *Atmanirbhar Bharat Mission* have placed the economy firmly on the path of revival.

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Industrial Growth and Environmental Degradation

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Abstract

The paper shows that how industrial growth impacts adversely on the environment, While industrial development invariably creates more jobs in any region, possibilities of adverse effects on the environment also increase, if adverse effects are not reduced.Dust, smoke, fumes and toxic gas emissions occur as a result of highly-polluting industries such as thermal power plants, coal mines, cement, sponge iron, steel & ferroalloys, petroleum and chemicals. In industry-specific clusters, these have not only become hazardous, but also cause irreparable damage to our ecology and environment, often breaching the environment's carrying capacity. However, it is imperative to ensure that industrial units cause the least pollution. Adequate and effective pollution control measures are required so that adverse effects on the environment are minimised.

Necessary technological know-how and institutional back up support are available inthis regard.

Key words:-*Industrial growth, adverse impact on the environment, industry and environment,*

Introduction

Industrialization is the social and economic transformation of society from an agrarian to an industrial economy. Although new methods and machinery simplified work and increased output, industrialization introduced new problems as well. Some of the negative impact included air and water pollution and soil contamination that resulted in a significant deterioration of quality of life and life expectancy. Industrialization also exacerbated the separation of labour and capital. Those who owned the means of production became disproportionately rich, resulting in wider income inequality. Industrialization impacted society in other ways. Workers were forced leave their families and migrate to urban areas in search of jobs. They worked long hours, were poorly nourished and lived in overcrowded conditions, which led to disease and stress. One negative by product of industrialization is environmental pollution that can adverselyimpact human health. When companies do not pay for the environmental damage they cause, or when these harms are not captured in pricing, this is considered a negative externality. The cost burden is placed on human society in the form of deforestation, extinction of species, widespread pollution, excessive waste and other forms of environmental degradation.

Objectives

Industrial growth is one of the key aspects of a country's development. The Government of India wants to enhance the manufacturing sector's contribution to India's gross domestic product, raising it to a 25 per cent share over the course of a decade and creating 100 million jobs. Currently, there are nearly 3,000 designated industrial zones in India. Some of these, such as the industrial corridors, investment regions and manufacturing zones, are very large.The risks associated with industrial development include higher pollution levels, overuse of natural resources and increased amounts of waste and waste water posing a threat to ecosystems. In 2009, the Central Pollution Control Board declared that 150 stretches of river and 43 industrial areas were critically polluted. Pollution caused by hazardous substances from industry (such as waste, waste water and emissions) and the overuse of natural resources puts sustainable development at considerable risk.The Indian Government has made a clear commitment to achieving industrial growth while also protecting the environment. At the same time, the private sector is increasingly interested in adopting modern processing techniques for clean and resource-efficient industrial production. Indian public and private-sector stakeholders are jointly implementing strategies for efficient, environment-friendly and climate-friendly industrial development.

Approach

The Sustainable & Environment-Friendly Industrial Production project is being implemented jointly by GIZ and the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. The aim of the project is to mitigate a numberof nationally significant environmental problems, with the main focus placed on industrial waste water management. The project demonstrates methods for the reduction of acute environmental pollution and for improving resource efficiency in industrial production. This involves piloting technical solutions as well as business and management models at selected sites, achieving positive results and direct impacts in terms of improved environmental conditions. These pilot approaches will serve as examples for subsequent replication nationwide.

The project activities are grouped into the following areas:

environment-oriented modernisation of three industrial areas (showcasingsolutions)

establishing conducive conditions at the national and state levels

knowledge management and dissemination

These activities focus on the conveyance, treatment, recycling and reuse of waste water,the management of sewage sludge, monitoring systems, and improving processes in individual industries. The measures are complemented by training and skills development, as well as the creation of a virtual platform for the exchange of best practice technologies. The project also supports efforts to establish an enabling framework at central and state levels. To this end, it proposes new measures for the policies, plans and support programmes intended to prevent or reduce pollution and to improve resource efficiency in industrial zones. Actors, such as industry associations, industrial site operators and private companies, as well as relevant entities at the central and state levels, are all encouraged to get involved in the project at various stages. Women are steadily emerging as change-makers in terms of behavioural change to overcome environmental problems. For this reason, the project is working to create practical management and planning approaches for sustainable industrial zones that areoriented toward the inclusion of women. The pilot locations for the project are selected industrial areas in the states of Uttarakhand, Gujarat and Delhi. In these states, it is expected that the project will lead to the adoption of technological and managerial best practices promoting efficient, environment- and climate-friendly industrial development in 10 industrial zones. International consultants have started developing new management structures and servicedelivery mechanisms for industrial areas, as well as online monitoring systems for industrial waste water, enforcement directives and green rating systems for industrial areas.

Meanwhile, work is also advancing in terms of the project's support for policies at thenational and state levels and on developing guidelines for adoption by the state governments.

Environment fact sheet: industrial development

Industrialisation has the potential to help achieve a variety of social objectives such as employment, poverty eradication, gender equality, labour standards, and greater access toeducation and healthcare.

At the same time, industrial processes can have negative environmental impacts, causing climate change, loss of natural resources, air and water pollution and extinction of species. These threaten the global environment as well as economic and social welfare.

The overriding policy challenge for the EU is to promote the positive impacts of industrial development while limiting or eliminating its negative impacts throughout the world. The development and application of environment-friendly technology, products andservices, and management systems have the potential to achieve both environmental sustainability and economic growth. The EU is determined to ensure a pattern of economic and industrial development that is sustainable. A high level of environmental protection and sustainable resource use, economicgrowth and social cohesion are mutually reinforcing policy goals Fact 1: Current Patterns Of Industrial Development Are Unsustainable. Industrial processes play a major role in the degradation of the global environment. In industrialised countries, environmental regulation and new technologies are reducing the environmental impact per unit produced, but industrial activities and growing demand arestill putting pressures on the environment and the natural resource base. In developing countries a double environmental effect is occurring: old environmental problems, such as deforestation and soil degradation, remain largely unsolved. At the same time, new problems linked to industrialisation are emerging, such as rising greenhouse gas emissions, air and water pollution, growing volumes of waste, desertification and chemicals pollution.Fact 2: Sustainable industrial development contributes to the eradication ofpoverty in a lasting way. The more developed a country's industrial capacity, the greater the potential for economic growth and development. If carried out in a sustainable manner, taking into account the oftenfragile nature of the surrounding environment, societal patterns and economic conditions, thiscan achieve lasting improvements in living standards, incomes, working conditions, education and healthcare. If, on the other hand, industrial development is coupled with environmental degradation and resource depletion, societal exploitation and economic recklessness, the associated benefits, if any, will not last. Fact 3: EU environmental policies have reduced the negative impacts of industrialprocesses. Since the EU started legislating in the area of environment more than 30 years ago, it has driven development towards more environmentally sound technologies and systems. One directive that is doing a lot to minimise pollution from around 55 000 major industrial and agricultural installations in the EU is the integrated pollution prevention and control (IPPC) directive from 1996. Unless they have a permit, installations are not allowed to operate. The permits must be based on Economic and legal framework Taxes and subsidies Voluntary agreements Legislation Environmental technologies Applying lifecycle thinking Lifecycle information Product design obligations Environmental management systems Consumer information Green public procurement Corporate purchasing Labelling IPP Toolbox 'Green' public procurement 'Green' public procurement (GPP) could have significant benefits for theenvironment. In the EU, around 16 % of GDP is spent by public authorities on purchasing goods, services and works, and it is possible to introduce environmental criteria into the various stages of the public procurement procedure. 'Green' purchasing can

lead to savings both for the public authorities making the purchases and for society in general, when considering the lifecycle cost of the product or service. In establishing a GPP policy and communicating it, an authority demonstrates that action in this area leads to concrete results, setting an example for others to follow.

Fact 4: Stimulating technological innovation is driving progress towards more sustainable industrial practices

To be sustainable in the long term, industrial development needs to be based on sustainable use of natural resources. The EU promotes global resource efficiency and sound waste management, amongst other things, by supporting the implementation of relevant multilateral environmental agreements in developing countries. In development cooperation, provision of better access to basic services such as water, sanitation and energy, is contributing to achieving sustainable consumption and production. In 2005, the European Commission launched a long-term strategy on the sustainable use of natural resources. The objective is to decouple environmental impacts related to the extraction and use of natural resources both in the EU and globally from economic growth. In a joint effort with the United Nations Environment Programme (UNEP), the Commission will establish an international scientific panel to provide information on key environmental impacts from the extraction and use of natural resources from a lifecycle perspective; to advise on policies and strategies to achieve decoupling; and to promote knowledge transfer and capacity building for developing countries

Conclusion

Industrialisation has the potential to help achieve a variety of social objectives such as employment, poverty eradication, gender equality, labour standards, and greater access to education and healthcare. At the same time, industrial processes can have negative environmental impacts, causing climate change, loss of natural resources, air and water pollution and extinction of species. These threaten the global environment as well as economic and social welfare. Now that we've realized what an impact the industrial revolution has had and is still having on the environment, what can we do to fix it? The other option is to treat industrial waste to remove toxic components so that the rest of the waste can be disposed of safely. It isn't always easy, and it does require that each factory implements the proper procedures to purify or cleanse their waste by products. However, it can help reduce the soil, air and water pollution being produced by these facilities, and also help in conservation of natural resources. The industrial revolution may have changed the waythat we look at the world, but it also changed the impact we had on this planet that we call home. Now that we've realized the problem, it's up to us to fix it so that we can continue to grow and change without destroying our home in the name of progress

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Impact of COVID -19 on Agriculture and Food Security in India

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Abstract:

The COVID-19 pandemic is happiness and human emergency deflation, food security, and nourishment of many individuals around the globe. Many individuals were experiencing yearning and hunger before the infection hit, and, except if the rapid move is made, we could see a universal food crisis. The COVID-19 pandemic similarly increases the caution on the earnest need to change the world's food outlines. Around the world, food frameworks stay a driver of environmental change and the planet's unfolding natural emergency. This emergency can fill in as an important moment to rebalance and change our food frameworks, making them more inclusive, manageable, and multipurpose. As per the International Labor Organization (ILO), the ascent in joblessness resulting from Covid-19 could be up to 25 million worldwide. On the off chance that the lockdown proceeds further, the effect will probably be significantly more severe on the

Keywords*: Agriculture, COVID-19, food security, impact*

Introduction:

The world of humanity has already experienced different pandemics that significantly impacted human activities like agriculture, traveling, transportation, learning, fitness, fishing, excavating, business, etc., and also affected the economy and the environment (Raul Siche, 2020). Another new infection, coronavirus (2019), which causes the disease recognized as COVID-19, affects humanity. We are facing the unintended effects of the covid-19 on the agricultural systems in the whole world. COVID-19 is spreading continuously and causing hard times to humanity and has postured serious With the increasing growth of infectious diseases, there is also an increase in hunger and malnutrition as the condition worsens, making movement restrictions more and more stringent—agriculture which is the most important sector related to food security human development. There is a need to understand and estimate the immediate consequences of Covid on the universal linkage of agricultural and food systems and should be able to track unexpected risks, understand short-term and long-term effects, and plan substantial short- and long-term measures. Food security contains two key fundamentals: economic access, or whether people have enough money to buy food, and physical access, or whether people can find available food. The COVID-19 pandemic may cause a food crisis in emerging nations due to continuing and rising economic and physical accessibility problems.

Impact on Agriculture activities

The lockdown at the back of COVID-19 has interrupted all commercial events and activities. This lockdown is the vital step to fight against the disease but has distressed agriculture, which is the mainstay of about 55% of the country's 1300 million population, which subsidizes around 17 percent of Indian GDP. Luckily, the spreading of contagion is not very fast in India because the Government has been taken suitable and timely measures to control this pandemic, but the effect of COVID-19 drastically affects the monetary conditions. COVID-19 has its effects on agriculture and supply chain activities. The lockdown period is the peak of rabi, and crops like wheat, chickpea, barley, field pea, oat, etc. were ready to harvest or almost reaching maturity, and then the field harvests sell in mandis for certain earning maneuvers by elected government organizations, nonetheless, lockdown caused in Peak harvest time with no gaining. Due to the lockdown, one more problem arises the marketing/selling of farm products. The lack of transport services and cautious blocking of highways encouraging the migration of harvest labor and agri-machineries disrupted the supply chain. It is due to the unavailability of customers and mainly because of market insecurity and propaganda.

Impact on Food Security

The COVID-19 pandemic is intimidating the extended valued food safety in India (FSI). It affected all four facets, i.e., 'accessibility, exploitation, steadiness, and food consumption. There are thousands of people already facing food shortage and Starvation before Covid-19 and, unless instant measures are applied, we could face a worldwide food crisis. This pandemic came when already people were suffering from malnutrition or Starvation. Recently, the UN assessment declared that the eco this pandemic severely threatened the economy of the country. Due to this ordinary, 83 million to 132 million people may face hunger in 2020. The collective effects of COVID-19 itself, timely taken governmental interferences, and the mitigation measures, without significant synch, interrupt the working of food organizations. This severity has occurred, especially in Punjab for rice, in which subsidized industrial

farming is heavily used. Covid-19 does not show any significant effect on food availability. Until March 1, 2020, India had adequate food grain stocks: 58.4 million tons and 3 million tons. It is not valid for other supplies such as fruits and vegetables, eggs, meat, milk, and sugar, comprising 78 percent of the total food consumptionAlready the production of fruits and vegetables is declined, and due to shut down, it is also not noticeable, which ultimately intercept the food supply chain in countries already facing other calamities; FAO did a survey at the grass-root level and stated that the small marginal farmers are facing problems to purchase essential inputs – such as seeds and fertilizers –due to high cost of these inputs, result in a drastic reduction in domestic returns.

Challenges faced due to Covid-19 in Agriculture

The COVID-19 virus is responsible for universal health hazards, and even now, it is having shocking effects on the global economy directly and indirectly by taking essential measures to control the spread of the virus. There are surveys had been taken to assess the effect of the national lockdown in contradiction of COVID-19 on agricultural & allied sectors as well as the living of people. According to the survey, approximately 40 percent of farmers face yield losses is due to unavailability of labor, lack of transport facilities, and shortage of storage. The lockdown results in a lack of farming labors as many are frightened to leave their families and villages to go to work. Due to the present lacking, the next forthcoming weeks will likely notice a rise in the demand for workers and the wage amount. Due to the unreachable input materials, e.g., Hoes and tractor for field preparation, seeds, fertilizer, labors, pesticides, etc., responsible for late sowing and harvesting crops, this is the first shortcoming observed in this pandemic. Though, this is prime time for agricultural sectors to sell their products used in agricultural operations. The second evident effect of COVID-19 is a disturbance in the supply of agricultural commodities in rural areas. Some transporters received permission from the Government to transport foodstuffs, vegetables, fruits, groceries, and cereals and facilitated home deliveries via truck, and some conveyers failed to grant permission. According to an available report, the railway ministry advises that shipping filling has reduced from an average of 10,000 freight rakes per day to only 3,000-4,000 now. Therefore, the farmers are forced to market their produces at a meager price and generate meager profit. This pandemic's significant and drastic effect is on the food provision manufacturing industry; leaders noticed that most hired employers lost their jobs. The third most crucial effect of COVID-19 is the loss of employment in the agricultural sector. During the lockdown period, most agricultural activities got disturbed and restricted due to labor scarcity, transportation, deficiency of storage, etc. affects the employment in the agriculture sector. However, Government assists farmers to compensate for their losses in allied activities. When PM Modi Ji proclaimed nationwide lockdown in March, the automatic reaction was a massive departure of migrant labor return to their homes, as laborers were encouraged to wait out the lockdown while at home.

Conclusion

The Government emphasizes continuous monitoring of agricultural supply chains to confirm that they function at the capacity required to meet low-to no-income populations' food security demands. Other initiatives allow for the free movement of fruit and vegetables, and farmers' shandies (open-air market stalls) and weekly shandies will continue to support the sale of vegetables. Nutrition programs like Integrated Child Development Services (ICDS), mid-day meals, and anganwadis (rural childcare centers) provide rations and meals to recipients at home. The Government has transferred INR500 per month to the bank accounts of 200 million women through the Jan Dhan financial inclusion program.

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Comparison of Interval Training Effect on Speed and Explosive Strength on Players of Kabaddi and Kho-Kho

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Abstract :

The aims was A Comparison of Interval Training Effect on Speed and Explosive Strength on Players of Kabaddi and Kho-Kho. For this study, 10 players of Kabaddi and 10 players of Kho-Kho who were studying at T. S. Patel C.P.Ed. College, Amaliyara, District Sabarkantha was selected for the study. Their age was between 17 to 20 years. Their age was checked from the college register and was taken consideration. Criterion Measurement Speed through 50 M. Race and Explosive Strength through Standing Broad Jump. To find out the effect of Interval Training on Speed and Explosive Strength of the Kabaddi and Kho-Kho Players 't' test was applied. The conclusion are as under At the end of four weeks training increase was seen in subjects Speed and Explosive Strength. Four weeks Training was not sufficient for Speed and Explosive Strength. Very less difference was seen in Speed and Explosive Strength of Kho-Kho Group Subjects.

Keyword : *Kabaddi and Kho-Kho Players, 't' Ratio, 50 M. Race and Standing Broad Jump.*

Introduction:

Prehistoric age in India is believed to have started more than two lakh years ago, but its last period is believed to be 10 to 8 thousand years ago, which is known as the Late Stone Age. At this time 'Nishad' people were living. These Nishads are the same as today's tribes. These tribes have made a significant contribution to the development of Indian civilization. From the point of view of geologists, the Aravalli Mountains are the most ancient part of the world, where the mantle of the earth was stabilized and an environment was created for the creation of ecosystems. Tribals still call the origin of the earth in religious festivals like 'Gore', 'Dhulano Pat', 'Rcabario Pat', which is similar to the assumptions of geologists and evolutionists. This hypothesis is further strengthened by the fact that the researcher found the primitive human dwellings, stone tools and stone tombs found here, which are dated to 5,000 years. An important part of Indian civilization from which various sub-tribes of tribes have come into existence is the Bhil 'tribal culture' which first developed in the peaks of the Aravalli hills and spread from here to elsewhere. If we consider this view, the tribals are the first holders and carriers of Indian civilization. They are likely to be the forerunners of this great civilization. There are five main factors of physical fitness. Four of these factors or basic elements such as force, speed, endurance, and flexibility The fifth factor is "kinetic harmony". Power of motion before 1978 Co-ordinative Ability Agility Was called. The scientist Blume, based on his scientific findings in 1978, presented to the field that agility is a combination of several (7 types) kinetic forces and since then the term kinetic has become prevalent and prevalent among the five kinetic factors. Primarily, kinetic energy is the power under the control and regulation of the central nervous system. Momentum is an integral part of action regulation and is closely related to the psychological regulation process. Thus, it is also difficult to define kinetic energy as an easily incomprehensible force. Still 'Zimmerman' (Zimmerman-1983) Hartz (Hartz-1985) And Meinel and Schnabel (1987), etc., specifically explain the power of motion. The power of the power to combine different types of motion as an integral unit. Each activity in this relationship has different requirements, such as the combination of dribbling, catching and shooting in basketball skills. A person with this skill ability can do every part of this whole skill nicely, not only that but also very effectively transition from one skill type to another skill type. The level of kinetic energy is directly proportional to the development of a person's ability to transition from one skill type to another. Most speed types require some degree of agility, balance and speed. If the kinetic activity is not continued for a long time, it usually does not require much muscle strength and endurance. Many true sporting activities require a combination of skill types. Apart from this, speed is also important in the skills required in life like walking, motor driving etc.

Aims of the Study :

The aims was Comparison of Interval Training Effect on Speed and Explosive Strength on Players of Kabaddi and Kho-Kho.

Selection of the Subject :

For this study, 10 players of Kabaddi and 10 players of Kho-Kho who were studying at T. S. Patel C.P.Ed. College, Amaliyara, District Sabarkantha was selected for the study. Their age was between 17 to 20 years. Their age was checked from the college register and was taken consideration.

Criterion Measurement :

Sr.	Variable	Test	Standard of Measurement
1	Speed	50 M. Race	Second
2	Explosive Strength	Standing Broad Jump	Meter & Centimeter

Statistical Process : To find out the effect of Interval Training on Speed and Explosive Strength of the Kabaddi and Kho-Kho Players 't' test was applied.

Result of the Study :

Table-1, The difference of the Significance of the Mean of Kabaddi Group and Kho-Kho Group in the Performance of 50 Yard Race

Variable	Group	Pre-Test	Post Test	Mean Difference	't'
50 Yard Race	Kabaddi	52.00	92.00	40.00	6.12*
	Kho-Kho	53.00	23.00	30.00	1.88

Level of Significance at 0.05 't' 0.05 (18) = 2.09

Table-1 indicates that in 50 Yard Race, Kabaddi Group Pre test Mean was 52.00 and Post test Mean was 92.00, Mean Difference was 40.00 and Received 't' Ratio was 6.12. Which was significance at 0.05 level. Whereas in Kho-Kho Group Pre test Mean was 53.00 and Post test Mean was 23.00. Mean Difference is 30.00 and Received 't' Ratio was 1.88. Which was not significance at 0.05 level.

Table-2

The difference of the Significance of the Mean of Kabaddi Group and Kho-Kho Group in the Performance of Standing Broad Jump

Variable	Group	Pre-Test	Post Test	Mean Difference	't'
50 Yard Race	Kabaddi	34.00	59.50	25.50	2.75*
	Kho-Kho	53.00	22.00	13.00	0.02

Level of Significance at 0.05 't' 0.05 (18) = 2.09

Table-2 indicates that in Standing Broad Jump, Kabaddi Group Pre test Mean was 34.00 and Post test Mean was 59.50.00, Mean Difference was 25.50 and Received 't' Ratio was 2.75. Which was significance at 0.05 level. Whereas in Kho-Kho Group Pre test Mean was 53.00 and Post test Mean was 22.00. Mean Difference is 13.00 and Received 't' Ratio was 0.02. Which was not significance at 0.05 level.

Conclusion :

At the end of four weeks training increase was seen in subjects Speed and Explosive Strength. Four weeks Training was not sufficient for Speed and Explosive Strength. Very less difference was seen in Speed and Explosive Strength of Kho-Kho Group Subjects.

Reference :

1. *Patel, Kantibhai R., **Scientific Principles of Sports Training,** Gandhinagar: Rama Prakashan. 2001.*
2. *Shah, Chinubhai P. and others, **Vyayam Vignan Kosh-5,** Rajpipla: Gujarat Vyayam Pracharak Mandal. Rajpipla. 1982.*
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Analysis of Rainfall Variability in North Western Agro Climatic Zone Of Tamil Nadu, India

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Abstract

Rainfall directly influences the water availability and its uneven spatial and temporal distribution exacerbated by climate change has been captivated, recently. Rainfall variations are also observed in most regions at the global and regional level. Hence an attempt is made to analyse the rainfall variability in North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. In the present study, satellite data sets are used to analyse the Precipitation Concentration Index (PCI) and Standardized Anomaly Index (SAI), as they are powerful indicators for temporal rainfall distribution. The results of PCI prove that, wherever the area under moderate class of mean annual rainfall distribution is observed, the moderate class of precipitation concentration index is noticed. Concurrently, the area covered by high class of annual rainfall distribution has recorded a uniform class of precipitation concentration index. The SAI results states that, only three years -2002, 2009 and 2016, are noticed to be dry years, in the study area. The analysis of Coefficient of Correlation depicts a perfect positive relationship between rainfall and Standardized Anomaly Index. The study clearly states the changes in the annual rainfall distribution, between 2001 and 2020. As a review of water needs/obligations and priorities seems crucial, recommendations to overcome the decreasing rainfall concern are put forward for consideration.

Keywords: *Agro Climatic Zone, Annual Rainfall Distribution, Precipitation Concentration Index, Standardized Anomaly Index, Coefficient of Correlation.*

Introduction

Rainfall directly influences the water availability and its variability have an impact on the ecosystems across the world and thereby on the human population (Inter-Governmental Panel on Climate Change, 2001). Accurate and reliable precipitation data are important not only for the study of variability but also for the policy decisions of water resources, as well as assessing the impacts of climate change (Liu, 2016). The analysis of precipitation in a daily, monthly, seasonal, and annual resolution constitutes a subject of great interest, because of its strong temporal variability. In the present study, an attempt is made to analyse the rainfall variability in North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. The annual rainfall distribution is analyzed between 2001 and 2020. Precipitation Concentration Index (PCI), is a powerful indicator for temporal precipitation distribution (Oliver, 1980). As the distribution of precipitation is uneven every month, the larger the difference in monthly precipitation, the larger is the concentration of precipitation during intra-annual (Zhao et al., 2019). Standardized Anomaly Index (SAI) was used as a descriptor of rainfall variability and is calculated as the difference between the annual total of a particular year and the long term average rainfall records divided by the standard deviation of the long term data (Girma et al., 2015). Hence, PCI and SAI between 2001 and 2020 are analyzed in the study area. The Coefficient of Correlation is used to measure the strength and direction of a linear relationship between the two variables-rainfall and SAI variables, in the study area.

Study Area

The classification of agro climatic zones in India was made in the 1990's for identifying priorities and developing strategies for location-specific and need-based research as well as overall agricultural development in the country and long-term climatic parameters, particularly temperature and rainfall along with soil and crop information were used for the classification of agro climatic zones (Chattopadhyay et al., 2019).Tamil Nadu has been classified into seven Agro Climatic Zones based on soil characteristics, rainfall distribution, irrigation pattern, cropping pattern and other social characteristics (Water Technology Centre, TNAU, 2013), and is shown in table 1.

Table 1. Agro Climatic Zones of Tamil Nadu

SI.No	Agro Climatic Zones	Districts Covered
1	North Eastern Zone	Kancheepuram, Tiruvallur, Cuddalore, Vellore, Villupuram and Tirunvannamalai
2	North Western Zone	Dharmapuri, Krishnagiri, Salem and Namakkal (Part)
3	Western Zone	Erode, Coimbatore, Tiruppur, Theni, Karur (part), Namakkal (part), Dindigul, Perambalur and Ariyalur (part)

SI.No	Agro Climatic Zones	Districts Covered
4	Cauvery Delta Zone	Thanjavur, Nagapattinam, Tiruvarur, Trichy and Karur (part), Ariyalur, Pudukkottai and Cuddalore
5	Southern Zone	Madurai, Sivagangai, Ramanathapuram, Virudhunagar, Tirunelveli and Thoothukudi
6	High Rainfall Zone	Kanyakumari
7	Hilly Zone	The Nilgiris and Kodaikanal (Dindigul)

Source: https://www.environment.tn.gov.in/

The zone chosen for the present study is the North Western Agro climatic zone of Tamil Nadu. The study area comprises the revenue districts of Dharmapuri, Krishnagiri, Salem and Namakkal. The study area is situated between 11 and $12^0$55' north latitude and $77^0$28' and $78^0$50' east longitude (Figure 1).

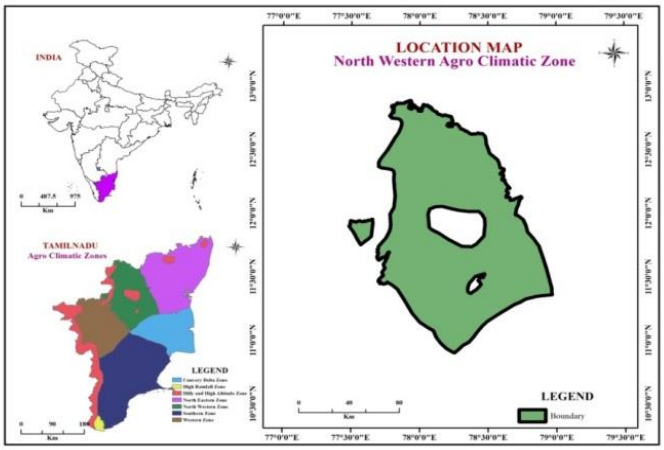

Fig.1. North Western Agro Climatic Zone of Tamil Nadu

The study area covers a total geographical area of 17490.4 sq km. Out of total geographical area, 8000 sq.km are under cultivation. The average annual rainfall of the study area is 878 mm. This zone receives rainfall from both South West and North West monsoon seasons. The average temperature ranges from a maximum of 20°C to 42°C and a minimum of 10°C to 31°C. Paddy, Maize, Ragi, Cumbu, Tapiaco and Sugarcane are the major crops cultivated in the study area.

Objectives

In the present study an attempt is made to analyse the Annual Rainfall Distribution, Mean Annual Rainfall Distribution, Precipitation Concentration Index, Mean Precipitation Concentration Index, Standardized Anomaly Index, and Coefficient of Correlation in North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. Eventually, recommendations to overcome the expected impact of future water needs in the study area, are included.

Hypothesis

The hypothesis framed for the present study is – "The study area has experienced changes in annual rainfall distribution between 2001 and 2020".

Data Base and Methodology

The PDIR-Now data (implemented by University of California- CHRS Global Realtime Satellite Precipitation Monitoring System), is downloaded from CHRS website (Centre for Hydro Meteorology and Remote Sensing). The data is a Realtime Global High-resolution data (60^0N to 60^0S) in 0.4^0*0.4^0or 4 Km*4 Km. The software Arc GIS 10.3 and Microsoft Office 2010, is used to process the data.

Results and Discussion

Annual Rainfall Distribution

The annual rainfall distribution is calculated in the North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. The resulted values are grouped into five classes - as very high (>1250 mm), high (1000-1250 mm), moderate (750-1000 mm), low (500-750 mm) and very low (<500 mm). The area covered by each rainfall classes in the study area are shown in the figure 2,3,4 and 5. The area covered by each class of annual rainfall distribution in the study area are calculated and listed in the table 2.

Table 2. Area covered by each classes of annual rainfall distribution in North Western Agro Climatic Zone of Tamil Nadu, 2001-2020 (Area in sq.km)

Year	Very Low	Low	Moderate	High	Very High
2001	-	19.2	9348.2	8123	-
2002	185.7	15262.4	2042.3		-
2003	0	38.5	11265.4	6186.5	-
2004	-	4617.5	11944.2	928.7	-
2005	-	-	426	10921.7	6142.7
2006	-	1837.5	13891.2	1761.7	-
2007	-	-	1619.8	8579.7	7290.9
2008	-	243.4	16647.8	599.2	-
2009	-	16061.7	1428.7	-	-
2010	-	-	6278.5	11211.9	-
2011	-	580.7	10686.2	6223.5	-
2012	-	178.8	5762.3	7579	3970.3
2013	-	2534.4	12112.8	2843.2	-
2014	-	1936.3	14548.3	1005.8	-
2015	-	256.3	9402.8	5682.5	2148.8
2016	-	11090.5	6399.9	-	-
2017	-	-	1081.8	14054.8	2353.8
2018	-	366.7	7515.3	9608.4	-
2019	-	77	13044	4369.4	-
2020	-	-	2955.2	10993.3	3541.9

From the table, it could be observed that, the area under each class of annual rainfall distribution varies during different year periods. The percentage of area covered by each class of annual rainfall distribution to the total geographical area (17490.4 sq.km) of the study area are calculated and the following inferences are drawn. The percentage of area under very low (<500 mm) annual distribution of rainfall to total geographical area, covers only 1 percent and that is noticed during the year 2002. This class is not noticed during other year periods. The percentage of area under low (500-750 mm) occupies more than 60% percent during 2009 (92%-highest), followed by 2002 (87%) and 2016 (63%). It is less than 60% during other year periods (2004, 2006, 2008, 2011, 2012, 2013, 2014, 2015, 2018) and this class is unseen during other year periods (2005, 2007, 2010, 2017, 2020). The lowest percentage (<1%) is noticed during 2001, 2003, 2019. The percentage of area under moderate (750-1000 mm) covers more than 60 % percent during 2008 (95%-highest), followed by 2014 (83%), 2006 (79%), 2019 (75%), 2013 (69%), 2004 (68%), 2003 (64%), 2011 (61%), and less than 60% during other year periods. This is the only class that is noticed in all the year periods in the study area. The percentage of area under high (1000-1250 mm) occupies more than 60 % percent during 2017 (80%-highest), followed by 2010 (64%) 2020 (63%) 2005 (60%) and less than 60% during other year periods (2018, 2007, 2012, 2015, 2011, 2013, 2014, 2004, 2006, 2001, 2003, 2019, 2008) and this class is unseen during other year periods (2002, 2009, 2016). The lowest (3%) is noticed during 2008. The percentage of area under very high (>1250 mm) annual distribution of rainfall to total geographical area, is noticed to be more than 60% in 2007 (42%-highest), followed by 2005 (35%), 2012 (23%), 2020 (20%), less than 60% during 2017 and 2015 and this class is not seen in other year periods. The lowest (12%) is noticed during 2015.

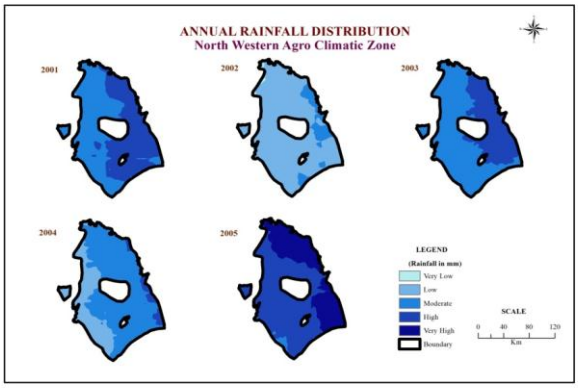

Fig.2. Annual Rainfall Distribution in North Western Agro Climatic Zone of Tamil Nadu (2001-2005)

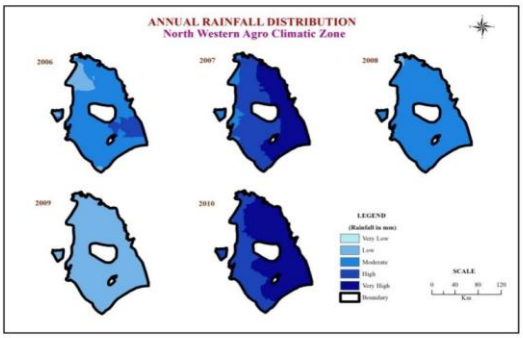

Fig.3. Annual Rainfall Distribution in North Western Agro Climatic Zone of Tamil Nadu (2006-2010)

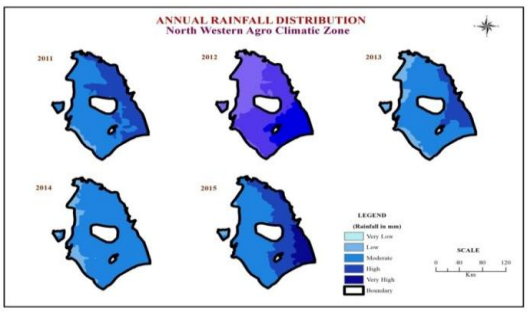

Fig.4. Annual Rainfall Distribution in North Western Agro Climatic Zone of Tamil Nadu (2011-2015)

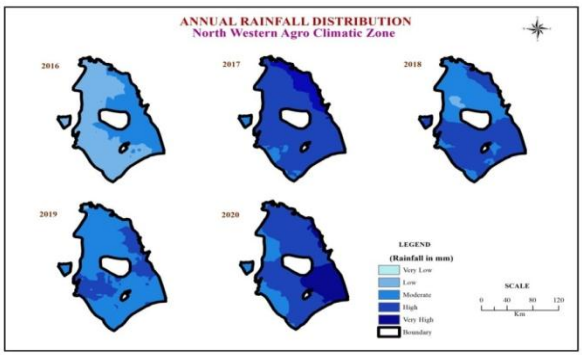

Fig.5. Annual Rainfall Distribution in North Western Agro Climatic Zone of Tamil Nadu (2016-2020)

Precipitation

Concentration Index

A data set called TerraClimate, uses climatically aided interpolation, combining high spatial resolution climatological normal from WorldClim dataset (Abatzoglou et al., 2018). TRMM 3B43 and MODIS data provide an estimation of monthly precipitation and from which the meteorological drought information can be derived, using the formula-

PCI = 100 * (TRMM - TRMM min) / (TRMM max - TRMM min) (Lingtong Du et al., 2013).

In the present study, the above formula is used to estimate the Precipitation Concentration Index (PCI) in North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. The precipitation concentration index is calculated in the North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. The resulted values are grouped into five classes - as strongly irregular (>80), irregular (60-80), moderate (40-60), uniform (20-40) and strongly uniform (<20). The area covered by each PCI classes in the study area are shown in the figure 6,7,8 and 9. The area covered by each class of precipitation concentration index in the study area are calculated and listed in the table 3.

Table 3. Area covered by each classes of precipitation concentration index in North Western Agro Climatic Zone of Tamil Nadu, 2001-2020 (Area in sq.km)

Year	Strongly uniform	Uniform	Moderate	Irregular	Strongly irregular
2001	-	3261.3	11810.7	2418.4	-
2002	17354.7	135.7	-	-	-
2003	-	4314.7	12827.9	347.8	-
2004	3445.9	14044.5	-	-	-
2005	-	-	1276.6	8986.2	7227.6
2006	2721	12524.6	2244.8	-	-
2007	-	-	38.6	9116.1	8335.7
2008	77.5	13629.9	3783	-	-
2009	17248.3	242.1	-	-	-
2010	-	-	-	288.8	17201.6
2011	19.4	7763.4	9090.9	616.7	
2012	-	-	8430.3	5729.8	3330.3
2013	522.5	14719.5	2248.4	-	-
2014	310.1	16742.4	437.9	-	-
2015	-	2282.2	11524.7	3470.3	213.2
2016	14680.8	2809.6	-	-	-
2017	-	38.7	3630.5	10452.1	3369.1
2018	173.8	5446.3	6494.5	4141	1234.8
2019	19.4	7654.5	6505.2	3079.3	232
2020	-	-	2973.3	11791.4	2725.7

From the table, it could be observed that, the area under each class of precipitation concentration index varies during different year periods. The percentage of area covered by each class of precipitation concentration index to the total geographical area (17490.4 sq.km) of the study area are calculated and the following inferences are drawn. The percentage of area under strongly uniform precipitation concentration index (<20) to total geographical area, is noticed to be more than 60% during 2002 and 2009 (each 99%-highest) and 2016 (84%), and less than 60% during other year periods (2004, 2006, 2013, 2014, 2008, 2011, 2018, 2019). The lowest (<1%) is noticed during 2008, 2011, 2018 and 2019. This class is not noticed during other year periods (2001, 2003, 2005, 2007, 2010, 2012, 2015, 2017, 2020). The percentage of area under uniform precipitation concentration index (20-40) occupies more than 60% percent during 2014 (96%-highest), followed by 2013 (84%) 2004 (80%), 2008 (78%), 2006 (72%), and less than 60% during other year periods (2011, 2019, 2018, 2003, 2001, 2016, 2015, 2002, 2009 and 2017. The lowest (<1%) is noticed during 2002, 2009 and 2017. This class is not noticed during other year periods (2005, 2007, 2010, 2012, 2020). The percentage of area under moderate precipitation concentration index (40-60) covers more than 60 % percent during 2003 (73%-highest), followed by 2001 (68%), and 2015 (66%) and less than 60% during other year periods (2011, 2012, 2018, 2019, 2008, 2017, 2020, 2006, 2013, 2005 and 2014. The lowest (<1%) is noticed only during 2007. This class is not noticed during other year periods (2002, 2004, 2009, 2010, 2016). The percentage of area under irregular precipitation concentration index (60-80) occupies more than 60 % percent during 2020 (67%-highest), and 2017 (60%), and less than 60%

during other year periods (2007, 2005, 2012, 2018, 2015, 2019, 2001, 2011, 2003, and 2010. The lowest (1.6%) is noticed only during 2010. This class is not noticed during other year periods (2002, 2004, 2006, 2008, 2009, 2013, 2014, 2016). The percentage of area under strongly irregular precipitation concentration index (>80) is noticed to be more than 60% only in 2010 (98%-highest), and less than 60% during other year periods (2007, 2005, 2012, 2017, 2012, 2020, 2018, 2019 and 2015. The lowest (1.2%) is noticed only during 2015. This class is not noticed during other year periods (2001, 2002, 2003, 2004, 2006, 2008, 2009, 2011, 2013, 2014, 2016).

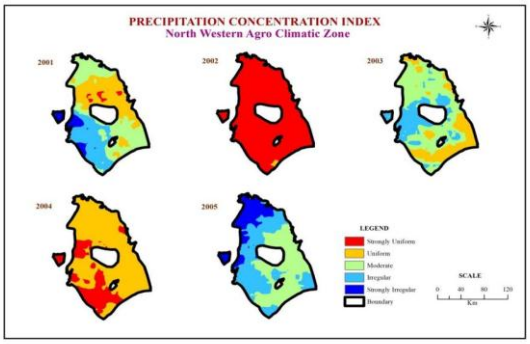

Fig.6. Precipitation Concentration Index in North Western Agro Climatic Zone of Tamil Nadu (2001-2005)

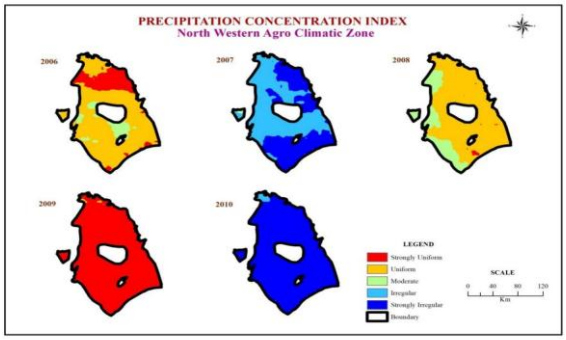

Fig.7. Precipitation Concentration Index in North Western Agro Climatic Zone of Tamil Nadu (2006-2010)

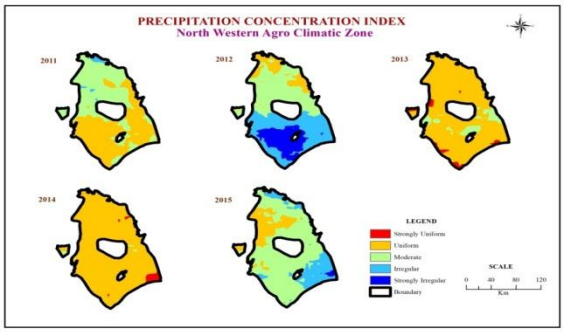

Fig.8. Precipitation Concentration Index in North Western Agro Climatic Zone of Tamil Nadu (2011-2015)

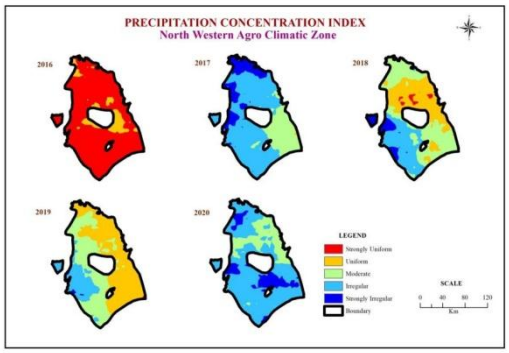

Fig. 9. Precipitation Concentration Index in North Western Agro Climatic Zone of Tamil Nadu (2016-2020)

Mean Annual Rainfall Distribution and Mean Precipitation Concentration Index

The mean annual rainfall distribution and mean precipitation concentration index is calculated in the North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020. Their resulted values are grouped into five classes respectively and is shown in the figure 10. from the figure, the following observations are made. The mean annual rainfall distribution reveals that the classes under Moderate (750-1000 mm) and High (1000-1250 mm) are visualized in the study area between 2001-2010. The mean precipitation concentration index exhibit that the classes under Uniform (20-40) and Moderate (40-60) are identified in the study area between 2001-2010. The percentage of area covered by both the classes of mean annual rainfall distribution and mean precipitation concentration index to the total geographical area (17490.4 sq.km) of the study area are calculated and the following inferences are drawn. The study of mean annual rainfall distribution, in the study area, shows that the class under Moderate (750-1000 mm) covers the major area (11011 sq.km) (62.90%), followed by the class under High (1000-1250 mm) (37.10%). The study of precipitation concentration index in the study area shows that the class under Moderate (40-60) covers the major area (16219.4 sq.km) (92.73%), followed by the class under Uniform (20-40) (1255.5 sq.km) (7.27%).

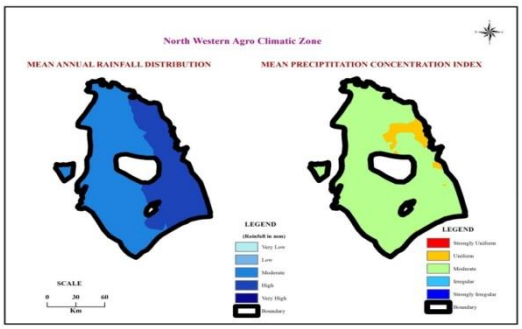

Fig.10. Mean Annual Rainfall Distribution and Mean Precipitation Concentration Index in North Western Agro Climatic Zone of Tamil Nadu (2001-2020)

The annual Precipitation Concentration Index is inversely proportional to the annual rainfall distribution (Sudip Saha, 2020). The comparison of the trends of the precipitation and the concentration index showed an increase in precipitation at some stations with an associated decrease in the concentration index. On the other hand, decreases in precipitation at other stations were accompanied by increases in the concentration index (Gerardo Nunez‐Gonzalez, 2020).Similar to the above research statement, in the present study, wherever the area under moderate class of mean annual rainfall distribution is observed, the moderate class of precipitation concentration index is noticed in the same area. At the same time, the area covered by high class of annual rainfall distribution has recorded a uniform class of precipitation concentration index. Hence in the North Western Agro Climatic Zone of Tamil Nadu, the analysis of the precipitation concentration index has undergone variation between moderate and uniform class, between 2001 and 2020. This is due to the uneven distribution of annual rainfall distribution, that had fluctuated between moderate to high class, during the same year periods.

Standardized Anomaly Index

Standardized Anomaly Index (SAI) was used as a descriptor of precipitation variability and the formula used to calculate SAI is given as:

$Z = (x-\mu)/\delta$

Where, Z is standardized rainfall anomaly; x is the annual rainfall total of a particular year; μ is mean annual rainfall over a period of observation and is the standard deviation of annual rainfall over the period of observation. Standardized anomaly index value was categorized according to McKee (1993) classification (Table 4).

Table 4. Standard Anomaly Index Value and Class

SI.No	Standard Anomaly Index Value	Class
1	+2.0 and more	Extremely wet
2	+1.5 to +1.99	Very wet
3	+1.0 to +1.49	Moderately wet

SI.No	Standard Anomaly Index Value	Class
4	-0.99 to +.99	Near normal
5	-1.0 to -1.49	Moderately dry
6	-1.5 to -1.99	Severely dry
7	-2.0 and more	Extremely dry

Source: McKee (1993).

The analysis of Standardized Anomaly Index for the study area is shown in the figure11.

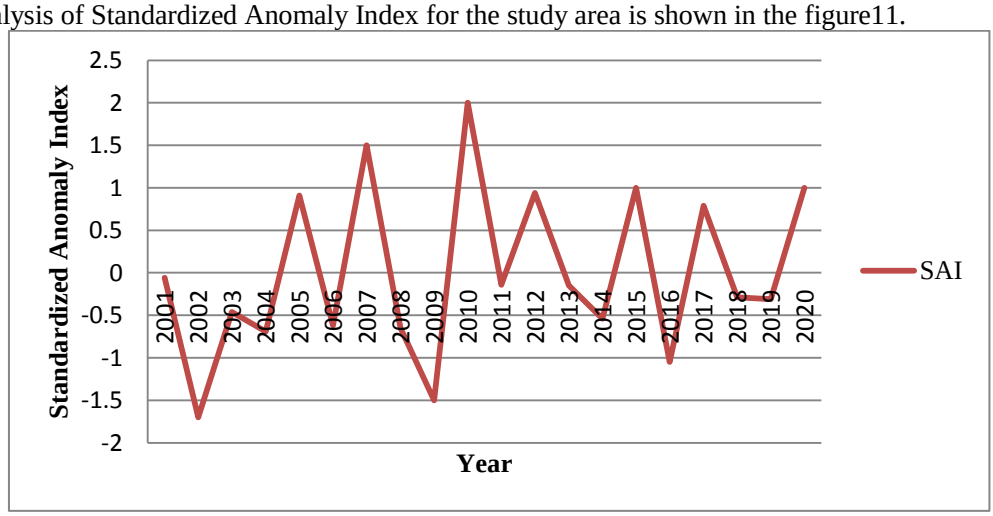

Fig.11. Standardized Anomaly Index of North Western Agro Climatic Zone of Tamil Nadu (2001-2020)

The figure reveals that the negative anomalies are observed during the year periods- 2001, 2002, 2003, 2004, 2006, 2008, 2009, 2011, 2013, 2014, 2016, 2018 and 2019. And the positive anomalies are noticed during the year periods 2005, 2007, 2010, 2012, 2015, 2017 and 2020. The negative values represent the period of dry and the positive values reflect the wet years (Muthoni et.al., 2019). The class under extremely wet (+2.0 and more) is found during 2010, Very wet (+1.5 to +1.99) in 2007, Moderately wet (+1.0 to +1.49) in 2015 and 2020, Near Normal (-0.99 to +.99) in 2001, 2003, 2004, 2005, 2006, 2008, 2011, 2012, 2013, 2014, 2017, 2018, and 2019), Moderately dry (-1.0 to -1.49) in 2016, and Severely dry (-1.5 to -1.99) in 2002 and 2009. The class under Extremely dry (-2 and less) is not noticed in the study area. The analysis of Standardized Anomaly Index in the study area shows that only three years -2002, 2009 and 2016 are noticed to be dry years, between 2001 and 2020.

Coefficient of Correlation

The Coefficient of Correlation measures the strength and direction of a linear relationship between two variables. In the present study, Coefficient of Correlation is used to analyse the relationship between Rainfall and Standardized Anomaly Index, using the following formula, and the results are shown in the figure 12.

$$r = \frac{\sum_i (x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum_i (x_i - \overline{x})^2} \sqrt{\sum_i (y_i - \overline{y})^2}}$$

r = correlation of coefficient
x_i = values of the X variables in a sample
$\overline{x}$ = mean of the values of the X variable
y_i = values of the Y variables in a sample
$\overline{y}$ = mean of the values of the y variable

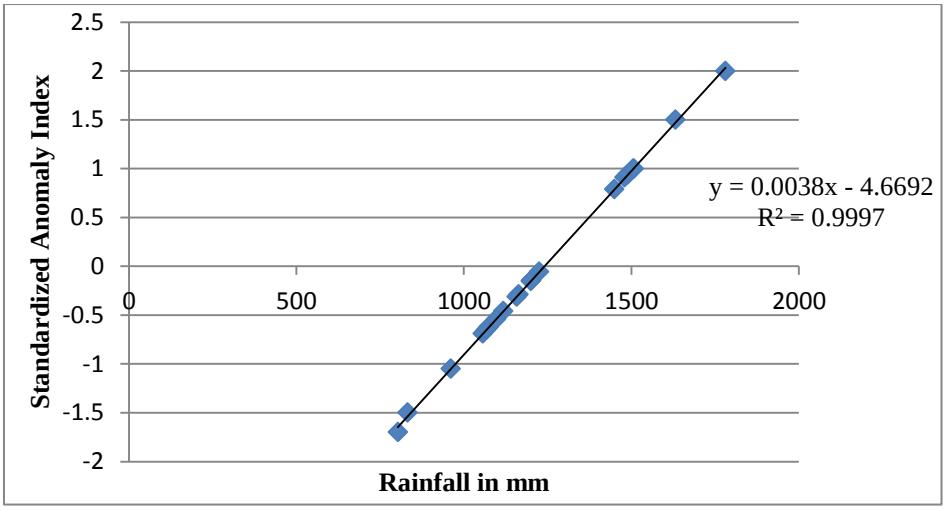

Fig.12. Coefficient of Correlation between Rainfall and Standardized Anomaly Index in North Western Agro Climatic Zone in Tamil Nadu

From the figure, it could be observed that the value of the r reflects the degree and direction of the relationship between the two variables. In this study, r is used to test the association between Rainfall and Standard Anomaly Index. In the present study, r is almost equal to the value of +1 which depicts the positive correlation, as both the variables move in the same direction. It confirms that the two variables have a perfect positive relationship, which interprets that the rainfall and standardized anomaly index are strongly related. Therefore, the r value shows the stronger linear relationship. The positive values exhibit increasing rainfall and increasing standardized anomaly index. As the correlation value is close to +1, it could be said that the correlation of both variables are good. The data points representing the rainfall and standardized anomaly index fits best over the regression line.

Recommendation

The future projections clearly indicates that the occurrence of rainfall variability is expected to be detrimental for human. It may cause severe damage to the agriculture sector with respect to crop productions, water insecurities, species extinctions, etc. Hence a review of water needs/obligations priorities seems crucial. In this aspect, government agencies from various sectors have paid attention to the expected impacts of decreasing rainfall over the Tamil Nadu state. The recommendations to overcome these issues, in the study area, are as follows. The Government of Tamil Nadu has framed strategic initiatives to overcome these challenges. The Tamil Nadu Agricultural University Research Agenda (2014-18), had put forth the following initiatives.

Developing agro climatic zone wise moisture conservation techniques will certainly assist in having a better utilization of available moisture as the annual rainfall received over the different climatic zones varies widely from each other. Monitoring and modelling climate change impacts on water resources in relation to major agricultural crops and developing location specific adaptation options in the agro climatic zones of Tamil Nadu. Capturing the benefits of integrated climate/weather forecast information for farm decision making in the agro climatic zones of Tamil Nadu. According to the Tamil Nadu State Action Plan for Climate Change (2017), the broad strategies for climate change adaptation in agriculture and horticulture sector in Tamil Nadu includes-: Undertaking capacity building through training on Alternate cropping strategies for "agro climatic zone-based cropping pattern". To ensure maximum utilization of available land and water with an ultimate aim to increase cropping intensity. And this strategy is envisioned for achieving the Second green revolution in Tamil Nadu.

Conclusion

Rainfall variations are observed in most regions at the global and regional level. Similarly, the present analysis of rainfall variability in the North Western Agro Climatic Zone of Tamil Nadu from 2001 to 2020, shows that the annual distribution of rainfall has undergone changes over 20 years. The analysis of the Standardized Anomaly Index proves that few years have experienced moderate and extreme dry recently. The future projections clearly indicates that the decrease in rainfall is expected to be detrimental for human. To overcome these situations, policymakers and stakeholders should design, plan, formulate and adapt strategies for different sectors such as agriculture, water resources, forest and biodiversity, health and habitat. The proposed management schemes by the Government are based on a new conscious and adaptive environmental which will make it possible to develop procedures for a sustainable management, in the study area, in future.

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A study of parent's opinion on online teaching in Mumbai's schools.

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Abstract

To explore the challenges parents face when their children study online their views and opinions on the efficiency of the online learning program and the attributes of virtual classes are sought. In the study a survey study was conducted with an online questionnaire administered to 75 parents of secondary classes from private schools of Mumbai. More that 55% of the parents surveyed are satisfied with the online classes taking place and believe that it is working for them. 31% off of the parents are of the opinion that teaching methodology is the most important factor enhancing the teaching learning process in virtual mode for the parents.12% of the parents believe that the personalized attention given to the children can improve the system. These findings help in strengthening the process of online teaching in the recent month a lot of research has been happening in India on the visibility and efficiency of the online classes opening to the closure of the school after the outbreak of pandemic where most of the Caesar does not take into account the digital divide and parents face. The current study addresses this gap and looks at the online teaching learning process from the parent's point of view which can assist the policy makers.

Keywords*: Online teaching, parent's opinion, parent's intervention, secondary classes*

Introduction

Education has been badly hit due to the outbreak of corona pandemic millions of to stranded at home starting at the screen and receiving instruction passively. Covid-19 has caused huge disruption with tough challenges for the entire education system across the world. Since Indian teachers and students are habituated to everyday meetings and interactions carrying out the teaching and learning activities in the classroom. It is particularly difficult to engage young children's parents of secondary classes try to drag the toddlers and the young back to the computer screen trying to get them interested in what happening. Many feel exasperated thinking that when it don't even understand half of the activities in real classroom how will computer speak screen make any sense of day they continue to get the kids to sit for the virtual classes to get value for the fee paid .Some parents believe that what happened during their classes is potentially more destructive done constructing .Conditions in the government run school ,even in cities are like to be worse where neither the school nor the student can afford the luxury of e-learning. Across the board parents are of the opinion that online classes can never make up for the real classroom experience. Young students' engagement particularly depends on their willingness, need and desire to participate in the learning process. school leaders think that there is possibility is to take class to every student sitting at home to work device but even they attend that the classes all round holistic development of the students cannot be achieved .A typical report card generated from such cases does not include assessment of communications vocabulary critical thinking and scientific attitude in all of this was not be moralising in a parent also are not on the side of the schools they have numerous grievances about online teaching both structure and methodology many refused to pay the fees at all and most in that they do not received enough value for money they are of the opinion that online classes in terms of number of hours of screen time each day to give balance to study and play many studies have been conducted recently by schools and NGOs but there is a lack of favourable opinion from parents side who are an important stakeholders in the learning system more so when it is happening from the home the current study focuses on the views of parents of secondary classes taking place in virtual mode since they control the learning environment at home and support setting up of physical space intended for learning to encourage the children to study seamlessly. One of the biggest challenge faced by parents today is how to maximize the benefits and minimise the risk of internet use among young children and teenagers effective parental mediation is one of the important action for promoting children safe and responsible use of internet which affects the online education prevailing today research has found that indiscriminate use of computers leads to this distance in between family members adolescence is a period when social relationship for of the children expand to build during enduring relationship parental mediation plays an important role in this process at this stage since they may limit the child's amount of time spent on digital devices or set some rules regarding the time spent on internet as well as placing some websites under ban for the children it is not surprising them that many student complain of noise distraction in the studying environment does parents on attitude knowledge and experience of internet use affect their perceptions of the virtual classes which are now de - rigueur, knowledge the availability of technology for the vulnerable section of the society is limited.

Objectives:

1)To study challenges facing by students in online Education
2) To study parent's opinion on online teaching in Mumbai's School

Hypothesis: What challenges were faced by students during online education and parent's opinion on online teaching in the present pandemic situation?

Methodology:

Method

This research falls under descriptive research. The data was collected online through the google form using a questionnaire developed by the investigators.

Research Design: A self-design online questionnaire was used to find out the parent's opinion on online teaching.

Sampling: Purposive sampling technique was used to select as those parents were required who were involved in online learning of their children. A sample of 105 parents of school going children who were experiencing online learning were selected from Mumbai.

Tool used: A self-developed questionnaire having 25questions eliciting information regarding challenge faced by school going children during online education and parents opinion on online teaching was used to collect data. The questionnaire was sent through google form to the selected sample.

Data analysis:

The survey was conducted for schools of Mumbai region, focusing only on secondary classes. The total number of parents in this category was 105.The survey questionnaire was sent to all the parents, requesting them to feel it for the purpose of assisting the schools to improve online education system. It was done on voluntary basis and out of approximately 96 parents, 2032 responded. It was administered through google classroom on which the students were taking online classes. As it was a voluntary survey, only those parents responded who wanted to participate in the study. To keep up with the ethics of taking survey study, it remained anonymous and parents were neither asked to write their names nor email id. They also didn't have to write the child's name and class since the teachers collected the responses which came on their google classroom platform. Utmost care was taken neither to send a reminder to the parents nor were they coaxed through the child studying in the respective class. Data was collected on google form and then analysed through graphical representation with the help of percentage for each category/question asked. Around76 %believe that the online program is working for them, showing their satisfaction with the current educational setting. However, 55% of the respondents opine that the duration of the classes should only be one hour with about 36.5%saying that they prefer a duration of two hours for the class. Clearly, parents are willing to send their children for three to four hours in the regular school where they also spend time playing in open spaces and interacting with peers in the class. However, they prefer to limit the screen time for their children. Teaching method is the most important factor to 41.7% of the parents for enhancing the teaching-learning process, with around 30% saying that personalised attention can improve the process. Personalised learning experience and experiential learning go a long way in making learning effective for such young students. since they lead to a deeper level of understanding. So far as the ill-effects of online classes on children's health, more than 74% do not think this to be true and 76% agree or strongly agree with the need of online classes.

Conclusion:

An effective online engagement between school, students and parents can work only with the confluence of relationships among them. School and parents have to work together for building a learning environment for their children, particularly when they are dependent on them for resources and learning ambience. Schools should share a part of this responsibility for educating parents on the use of digital tools since young children depend on their parents for facilitating online learning for them. Virtual classes are here to stay, much longer than the school authorities and parents had ever anticipated. Teachers got adequate opportunities for training themselves on the use of virtual platforms but it's time we start looking at the issue from parents' perspective. When parents have to fill children's time in a closed space of the home, without contact with peers and teachers, it generates many tensions and conflicts, making everyday life difficult. Parents are unable to cope with the tasks suddenly entrusted to them for academic support at home. Therefore, an extremely important task for future is to prepare the parents for emotional and technological skills to face future potential events. It's time the government also noticed this to take steps for encouraging them to learn.

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New Records Of Beetles (Coleoptera : Insecta : Histeridae : Histerid) Infesting Stored Products : A Case Study

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***Key words** : Histeridae, stored product, habitat, new records, india, infestation*

Introduction

Histeridae family is a large and divers contains about 4,800 species belonging to 410 genera (Gyllenhal, 1808) of mostly predaceous beetles, that occur in diverse habitats. (Hinton 1945) reorded 15 species of histerid beetles infesting various stored products in diferent parts of the globe. Excluding India (Aitken 1975). The scrutiny of literature reveals that there is no publishad information of any histerid species infesting stored products in india. Acordingly, the present communication deals with four species, namely pactolinus (santalus) parallelus Redtenbacher, Baccanius rombobhoru (Aube), cancinops troglodytes (paykull), Hypocacculus metallescens (Erichson) as new records from stored products.These species hare been collected from different stored products from Kinwat, Degloor and Bhokar of Nanded district and its vicinity during 2018 – 2021

Description:

1. pactolinus (santalus) parallelus Redtenbacher : The species, under reternce, is recorded from stored dry fish and also heaps of bark of Acacia Sp. Kept for tanning purposes. Material examined : ex. India, Mahorashtra, Kinwat, Bhokar, Mahur, Dharmabad Sheds, ex. Dry fish, 8 – X - 2019, 2 ex.; Himayatnagar, ex. Leather 6 – VII - 2019. 2 ex.; maisa, ex. Bark of Acacia Sp., 6 – VII - 2019, 1 ex.; Barad, ex. Cattle feed, 2 – II - 2020. 2. Baccanius rombophorus (Aube) : It has been collected from tamarind seed meal and poultry feed. Material examined : 4 ex. India, Maharashtra, nanded, Shitakhandi, Bhoker, ex. Tamarind seed meal and poultry feed, 2 – II - 2019, 2 ex.; ex poultry feed, 2 – II - 2019. 2 ex.3. Carcinops troglodytes (paykull) Therond (1959) reported this species from carrion, dung and decaying vegetable matter predation on other insects. Halstead (1969) reported it from flour spillage of Senegal and soya beans of Nigeria. Presently, it has been found from oli cakes (mustard, mahua, coconut), fodder (maise starch, cattle and poultry feed) leather and tanneries. It has also been intercepted from tamarind seed meal, flour and saw dust. Material examined : 12 ex. India, Maharashtra, Nanded, Himaytnagar, ex. Tamarind seed meal, 2 – II - 2019, 2 ex.; ex. Coconut oilcake; 20 – IV - 2018, 2. ex, coconut oicake; 20 – IV - 2018 4. ex.; Himayatnagar, ex. Cattle feed, 2 – II - 2019, 2. ex.; ex. Himayatnagar, Railway yard, ex, saw dust, 8 – II - 2019, 1 ex.; Nanded, ex. Toonarind seed meal, 2 – II - 2019, 1 ex.

4. Hypocacculus metallescens (Erichson) :

This species was also intercepted from poultry feed and tamarind seed meal in fodder processing industries Elsewhere, this species has been collected mostly from such animal products as mouldy leather and raw hide from within tanneries. Material examined : 4 ex. India : Maharashtra, Nanded, Wajegaon, ex. Raw hide. 6 – VI - 2020, 2 ex.; Nanded, ex. Tamarind seed meal, 10 – X - 2020, 1 ex.; ex. Poultry feed, 10 – X - 2020, 1 ex.

Table 1. Infestation pattern at Histeride in stored products

Species	Habitat record												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Pactolinus (santalus)													
Paralellus redtenbacher =	+	+	-	+	+	+	+	+	-	+	+	+	+
Baccanius rombophorus =		-	+	+	+	-	-	-	-	+	-	+	-	-
(Aube)													
Carcinops troglodytes =	-	-	-	-	+	-	+	-	-	-	-	-	-
(paykull)													
Hypocacculus metallescens =	+	+	-	-	+	-	+	-	-	-	-	-	-
(Erichson)													
Larvel population of =	L	VL	VL	VL	-	L	M	-	-	-	-	L	M
Insects													

No of Non-histerid beetles =	2	6	3	11	4	3	1	4	-	5	2	4	4	

Habitats : A-Raw hide, B-Leather, C-Dry fish, D-Cattle feed, E-Poultry feeds, F-Maize starch, G-Tamarind seed meal, H-Saw dust, I-Bark of Acacia sp., J-Mahua oil cake, K-Mustard oil cake, L-Coconut oil cake, M-Flour. Population levels : VL-Very low, L-Low, M-Moderate.

Habitats :

The range at products infested by each species at Histeridae, associate other beetles and larval population of insects, assessed on the modalities suggested by freeman (1948) are presented in above Table 1.

Remarks :

Comparison of the infestation pattern sows carcinops troglodytes (paykull) to be the most common stored product histerid of the various categories of products inspected, Various animal feeds and fodder exhibited the highest incidence of infestation followed by animal products and oil cakes. Unhygienic storage conditions of animal feeds, harbouring several types of insects, including dead roaches serve hot only to attract the predatory histerids and carabids but also the scavenger staphylinid that are common in this habitat. These seem to be a correlation between the abundance of different larvae and the occurrence of histerids. In fodder, where other beetles and larvae were seen in large numbers, histerids occurred more frequently. It is, however, observed that the population sizes at histerids in stores are generally, low. They do not damage directly nor deteriorate stored commodities. Necrophagy, teimitophily, myrmecophyly and even symbiosis. Both the larvae and adults are well known predators on seft bodied insects and maggots. In stored products habitas, their target preys, nature and magnitude of predation are as yet partially known. The number of histerid species, associated organisms and predator prey relationship in stored material need to be studied extensively so as to ascertain the efficacy of different histerid beetles as potential biological agents of destructive organisms to stored products.

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A Study of ABC Analysis for Inventory Control in Cooperative Sugar Factory

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Abstract:

ABC analysis is a method in which inventory is divided into three categoriesi.e. A.B. and C in descending values. The items in the A category have the highest value, B category items are of lower value than category A and C category items have the lowest value. **ABC analysis** of **inventory** helps to sugar factory to keep working capital costs at under control because it clearly identifies which items you should reorder more frequently and which items don't need to be stocked often reducing obsolete inventory and optimizing the rate of inventory turnover of sugar factory

Introduction:

ABC analysis divides an overall inventory into three categories "A items" with very tight control and accurate records, "B items" with less tightly controlled and good records, and "C items" with the simplest controls possible and minimal records. The ABC analysis provides a mechanism for identifying items that will have a significant impact on overall inventory cost, while also providing a mechanism for identifying different categories of stock that will require different management and controls. The ABC analysis suggests that inventories of an organization are not of equal value. Thus, the inventory is grouped into three categories (**A**, **B**, and **C**) in order of their estimated importance. 'A' items are very important for an organization. Because of the high value of these 'A' items, frequent value analysis is required. In addition to that, an organization needs to choose an appropriate order pattern (e.g. 'just-in-time') to avoid excess capacity. 'B' items are important, but of course less important than 'A' items and more important than 'C' items. Therefore, 'B' items are intergroup items. 'C' items are marginally important. Sugar industry is the process industry where ABC analysis for inventory control is very much essential for the purpose of effective material management, control of available various materials. Minimization of inventory cost and maximization of productivity is required in cooperative sugar factories, where ABC is useful for sugar industry. The proper choice of costing and calculation of accurate inventory cost in processing industries have been widely discussed by academics and practitioners. At present the cooperative sugar factories have been facing the problems of qualitative raw material, sufficient raw material, harvesters, transporters, cost of material transport, skilled manpower, pricing of material, cost, performance etc. To solve the problems of inventory control sugar industry problems, routine checking of material, various stock levels, is not suitable is competitive era, where as ABC analysis is useful. In this research paper the researcher has tried to explain the concept of ABC analysis and steps to be taken for implementation of ABC in cooperative sugar factories in study area. The concept of ABC analysis has been considered a classy method of inventory cost calculation since the first 1980s. The ABC method was designed as a solution to overcome the problems in the traditional inventory valuation methods. This research paper has no ambitions to judge the concept of ABC but to apply in cooperative sugar factories. In fact, the aim of this paper is to explain the necessary steps to apply ABC, as well as to explain the procedures for identifying different categories of stock that will require different management and controls. Sugarcane is the main raw material for the producing of sugar in the sugar manufacturing process. Sugarcane is refined with various chemicals such as sulphur dioxide, phosphoric acid, calcium hydroxide etc. subordinate raw materials used in sugar production. All this material processes certain value and it should be kept in well structured store department under the supervision of store manager. Store department covers all aspect of materials, handling, storage, stock control and issue to concern department as per requisition.

Objective of the study:

1. To Study the existing material planning to secure economy in cooperative sugarfactories
2. To check the feasibility of implementation of ABC Analysis for inventory control incooperative sugar factories.

Hypothesis of the study:

1. ABC Analysis is useful for inventory management in cooperative sugar factory
2. ABC Analysis is not useful for inventory management in cooperative sugar factory

Research Methodology:

This is conceptual based paper and the researcher has collected secondary data with necessary primary data for this paper. The researcher has selected Pushphadanta Cooperative Sugar Factories from Nashik district where sugar factory have been workingin loss. The researcher has discussed with a few sugar factory experts, industrial people, financial experts and cost accounting practitioners for practicability of implementation of ABC Analysis for inventory control in cooperative sugar factories.

Implementation of ABC Analysis for Inventory Control in Factory:

In ABC Analysis, annual consumption of various items is worked out in terms of rupee value, and it is divided in to three board categories i.e. A, B, and C category at descending value. The items in the A category have the highest value, B category items are lower value then A category value and C category items have the lowest value. Based on ABC analysis, an average percentage of items and percentage of their respective values may work out as follows. ABC analysis for inventory control in the store department can be explained at allocation of total items in percentage and its value. A category items - 10% of the itemsaccounts for 70% of the annual consumption value of the items. B category items - 20%of the items accounts for 20% of the annual consumption value of the items. C category items - 70% of the items accounts for 10% of the annual consumption value of the items.

	Percentage of items	Percentage of rupee value
A	10% of the total inventory	70% of total inventory value
B	20% of the total inventory	20% of total inventory value
C	70% of the total inventory	10% of total inventory value

It is observed that A category items which are in large value but in small portion of total consumption in terms of value, these items are more important from the point of inventory control and focus for higher degree of control. C category items compare to Acategory items which are large in numbers but small value of the total consumption in terms of value. These are termed as C category items and there is no need for strict control. In between A and C the B items are of medium importance.

Policies for 'A' items

1. Items account for 70% of the value, they should be ordered frequently to reducethe capital locked up in inventories.
2. Such items should be estimated in advance and they should be procured on aplanned basis.
3. Purchase of A items should be looked up by the purchase manager to ensuredelivery.
4. Stock and issue records should be maintained carefully in the inventory control,so as to get the up to date position of stocks at any time.

Policies for 'B' items

1. The policies for B items in general are intermediate between those for A and Ccategory items
2. Order quantities, reorder points and safety stocks should be fixed for B categoryitems and revision once in a year is adequate for this items
3. Annual or six monthly contracts with scheduled deliveries can be used to anadvantage for B category items.
4. Stock and issue records must be maintained properlyPolicies for C category items
5. Annual or six monthly orders should be placed to reduce paper work in the purchase section and also to get the advantage of large purchase quantity discount.
6. Authority for the purchase of C category items could be delegated to the store keeper.
7. Stocks and issue records can be minimised to the extent that is possible.

Conclusion of the study:

Inventories constitute the significant part of current assets, and it involved major portion of working capital out of total capital invested in assets. Inventory management can effectively and efficiently avoid unnecessary investment. Inventory control is the

process of deciding what and how much of various items are to be kept in the store department. It is also determines quantity of finished goods, quantity of work in progress, quantity of closing stock of all raw materials specially in chemical material, spare parts and equipments. The basic aim of inventory control is to minimise cost in investment in inventories and ensure the continuous production process. For better inventory control there is need to undertake systematic analysis of all items in store rooms stored. On an average 1250 to 2500 TCD sugar factories carries items in inventory between 5000 to 6000 items. A high degree control on each item is possible only by applying the ABC Analysis Method for inventory control in selected sugar factories.

Recommendation/ Suggestions:

The **ABC analysis** is widely used in supply chain management and stock checking and inventory system and is implemented as a cycle counting system. It is most important to sugar factory seek to bring down their working capital and carrying costs. Hence Researcher strongly recommend to the sugar factory to introduce or implement **ABC analysis in his store department for better inventory control.**

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Assessment of *Terminalia catappa* varieties using RAPD and SSR Markers

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Abstract

DNA marker study was used to evaluate the genetic diversity in two varieties of Terminalia catappa sample collected from different places of Bangalore city. It is a large tropical tree found in tropical regions of Asia, Africa, Australia belongs to the family Combretraceae. The parts of the plant have a wide spectrum of medicinal uses, commonly fruits are used as a medicine for urinary tract infection and the seeds are a rich source of protein.The leaves are antibacterial, antifungal, preventing ageing, imparts longevity, immunity, and body resistance against diseases.The leaf samples were subjected to DNA isolation by using CTAB method and further PCR amplification was done to molecular markers study by RAPD and SSR analysis. The amplification accomplished by using 4 primers (OPA-11, OPC-5, OPA-9 and OPD-5). The dendrogram was constructed based on the binary data generated from the RAPD markers. The clustering of Terminalia genotypes was carried out using Jaccards coefficient, which resulted in the formation of two clusters. Cluster one consisting of genotypes 1 and 2 where as cluster 2 consists of genotypes 3 and 4. A dendrogram was also constructed by using the binary data generated from scoring the gels of SSR amplified bands. Three main clusters were formed genotypes 1 and 3 formed the first cluster with more genetic similarity values.Whereas the genotypes 2 and 4 formed the second cluster with higher dissimilarity values than the first cluster indicating the presence of variation and genotypes 2 and 4 clustered with genotypes 1 and 3. In conclusion, the study of molecular characterization of PCR based RAPDand SSR markers by using primers for the two varieties of Terminalia catappa showed difference in genetic diversity, which provides the information for the study as diagnostic markersin herbal drug preparation.

Key words*: Terminalia catappa, RAPD, SSR, CTAB, Genetic diversity.*

Introduction:

Terminalia catappa is an ornamental tropical tree belonging to the family Combretaceae, native to the tropical regions of Asia, Africa, and Australia.It is known by thecommon names*Bengal almond, country almond, false kamani, Indian almond, Malabar almond, sea almond, and tropical almond.* It is a large deciduous perennial tree reaching a height of between 15-25 m and about 9 m in width with symmetrical canopy and characteristic pagoda shape **(Edward and Dennis, 1964 and Mitchell, 1964).** It is cultivated in Nigeria as a shade tree and for its fruits. The seeds are eaten as fruit as well as for medicinal uses **(Oni and Bada, 1982**). The greenish yellow leaves are clustered in axillaryspikes, small and inconspicuous and usually commences flowering within 2-3 years of out planting but this may vary with site and genotype .*Terminalia* species showed the clustering of species for morphological studies (**Vishal .P et.al.,2009).** Different factors contributed to genetic structure of *Terminalia catappa* on geographical scales **(Arjuna ratnayaka 2015).** Characterization of molecular markers is highly sensitive and effective technology therefore molecular markers can be employed to characterize the present genetic markers **(Tharachand C et.al., 2012**). Plants produces DNA of good quality and quantity which can be used as PCR based studies **(B.O.Oboh et.al., 2009)**. RAPD-PCR is means of creating a biochemical fingerprint of an organism and is used to analyze the genetic diversity of an individual by using random primers. RAPD successfully discriminates among all species therefore providing an easy and rapid tool for investigation **(Ranade 2001).** Microsatellite is a track of repetitive DNA in which certain DNA motifs ranging from 2-13 base pairs are repeated typically 5-50times.Microsatellites occur at thousands of locations withinorganisms genome leading to high genetic diversity **(Maryam sarawath et.al., 2005 and Shasikala 2015).**

The review states the various methods used for plant genomic DNA. The renaissance in herbal medicine to detect morphology of DNA **(Chen et.al., 2014).** Modified CTAB technique for Isolation of DNA from some medicinal plants this method gives the purity range. Research Techniques made simple Polymerase Chain Reaction (PCR) it is used in forensic medicine to identify criminals and it provides information for sophisticated analysis of genes and the genome**. (Lilit Garibyan et.al., 2013).** Review mainly focuses on authentication of ayurvedic herbal medicines by DNA based fingerprinting methods to prevent Intentional and adulteration or substitution of targeted ayurvedic medicinal herbs **(Santosh Kumar .P 2014).** Due to the use of RAPD as Molecular markers for Taxonomic and systemic analysis of plants. Phytochemical and Antimicrobial Studies on *Terminalia catappa* by using RAPD Technique and (SSR) markers **(Salim Khan et.al., 2009)**. DNA profiling role of DNA and the database in forensic investigation **(S. Pannerchelvam et.al.,. 2003).** DNA-based simultaneous identification of three *Terminalia* species Targeting Adulteration and to identify approaches are advancing the conventional (**Sonalsharma, and Neeta Shrivastava 2016).**

The set of newly developed microsatellite markers helps in demographic history and Development of cross amplification in species **(Boris B 2015).** The elite biotype is Qualitative and Quantitatively used for silk industry **(Gandhi nemali et.al.,2015).** Diagnostic markers use to study in herbal drug preparation for authentication pourpose **(Maryam sarawat 2011)**. Measures of genetic distance and phylograms revealed all locations **(Pramod kumar 2017).** Finger printing analysis of crude drugs and its formulation is fast, cost effective and reproducible approach **(AekhalukhIntharuksa 2016)**

Materials and methods:

Plant material: The different varieties of *Terminalia* leaf samples were collected from different places of Bangalore. The total genomic DNA was extracted from young leaves following the standard CTAB method **(Sarwat et al., 2010).** The genomic DNA was quantified spectrophotometrically both at 260 nm and 280 nm wavelengths. The absorbance at 260 nm allows the calculation of DNA concentration in the sample. The extraction method yielded a good amount of DNA. The ratio of DNA to proteins ranged from 1.70 to 1.80.

RAPD amplification: PCR amplification was carried out in 15 µl reaction mixer containing 1.0 µl of template DNA (30µg/ml), 2.0 µl primer, 2.5 µl 1 mM dNTPs, 2.5 µl 10 X Taq buffer with $MgCl_2$ and 6.7 µl of sterile water. PCR reaction were performed in thermal cycler with an initial denaturation at 94^0 C for 4 min followed by 35 cycles at 94^0C for 1 min, 37^0C for 1 min and 72^oC for 2 min with a final extension at 72^oC for 7 min. Amplified products were separated on 1.5% agarose gel in 1X TBE buffer by electrophoresis at 100 V and visualized with ethidium bromide staining in GelDoc System.

SSR Markers: The PCR reactions were performed using 1.5 µl buffer (10×), 0.6 µl $MgCl_2$ (25 mM), 0.45 µl dNTPs (10 mM each), 0.3 µl of each primer (0.2 µM), 0.08 µl *Taq* DNA Polymerase (5 U/µl; Merck) 1.5 µl of template DNA (10–50 ng/µl), and H_2O.

The PCR reactions were performed for RAPD and SSR markers using 1.5 µl buffer (10×), 0.6 µl $MgCl_2$ (25 mM), 0.45 µl dNTPs (10 mM each), 0.3 µl of each primer (0.2 µM), 0.08 µl *Taq* DNA Polymerase (5 U/µl; Merck) 1.5 µl of template DNA (10–50 ng/µl), and H_2O. PCR conditions were: 94°C (4 min); 30 cycles of 94°C (30 s), 55°C (45 s), and 72°C (1 min); and a final extension at 72°C (10 min). PCR products were visualized on a 3% agarose gel and stained with ethidium bromide.

Data Entry: RAPD produces a large number of DNA bands of various sizes from each of the different samples which are prepared. These bands migrate according to size during electrophoresis. To analyze RAPD data, one must first count the total number of unique bands thus if several lanes share a band, that band is only counted once toward the total for each primer used.

Result:

Phylogenetic relationships between the *Terminalia* genotypes: The genetic relationship was found out using the RAPD markers. Dendrogram was constructed based using the binary data generated from the RAPD markers. The clustering of *Terminalia* genotypes was carried out using Jaccards coefiecient which resulted in formation of two clusters. Cluster one consisting of genotypes 1 and 2 where as cluster 2 consists of genotypes 3 and 4 Shown in figure 2. A dendrogram was constructed using the binary data generated from scoring the gels of SSR amplified bands. Three main clusters were formed genotypes 1 and 3 formed the first cluster with more genetic similarity values where as the genotypes 2 and 4 formed the second cluster with higher dissimilarity values than the first cluster indicating the presence of variation and genotypes 2 and 4 clustered with genotypes 1 and 3.

Table1: Sequence information of RAPD Oligo nucleotide primers used for amplification and polymorphism

Sl. No	Oligo primers	Sequence
1	OPA-11	CAATCGCCGT
2	OPC-5	GATAACCGCC
3	OPA-9	GGGTTAACGC
4	OPD-5	TGAGCGGACA

SL.No.	Primer	Sequence	Repeat	Product size
1	TS-30	F: CACTGCTTAGAGCGATGCAGATCACCCGAGATCACCC	$(GT)_{17}$	202–302
		R: TTCTCTTCCAACTGGTCCTCTT		
2	TS-37	F: CTAGTTATTGCTCAGCGGTGTGGTGGGTGCTTGAATTG	$(GA)_{15}$	177–250
		R: TAGCAGCTAAGGAAGCTGGG		
3	TS-08	F: TGTAAAACGACGGCCAGTTTGACAAGTGTTGCAGGAGA	$(CT)_{36}$	179–248
		R: GTTTGACTGGGATGGCTGAG		
4	TS-28	F: CACTGCTTAGAGCGATGCTAACGAGCAGCAACCATGTC	$(AT)_{10}$	181–197
		R: TGCACATCAAAGACCCATCT		

Table 2: Primer used for the SSR study

Genetic similarity among the 4 genotypes of Terminalia using SSR markers

	1	2	3	4
1	**0**			
2	**0.03**	**0**		
3	**0.01**	**0.03**	**0**	
4	**0.04**	**0.02**	**0.04**	**0**

Table 3: Representing the Genotypes of SSR markers

Statistical analysis: The RAPD bands were scored for its presence as '1' and absence as'0' at each position are converted to binary matrix for analysis using numerical taxonomy and multivariate analysis system (NTSYS pc, ver. 2.02). The data were used to generate genetic similarity coefficient similarity matrix on the basis of Jaccard's coefficient with SIMQUAL option.

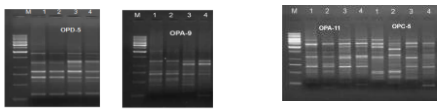

Figure 1: Representing the primers used for RAPD Markers

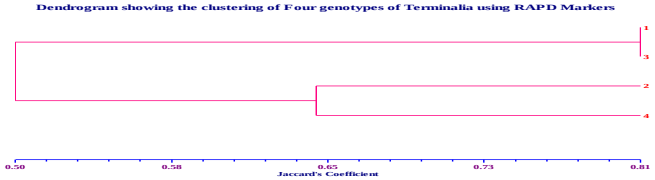

Figure :2 Representing the Dendrogram for RAPD Markers

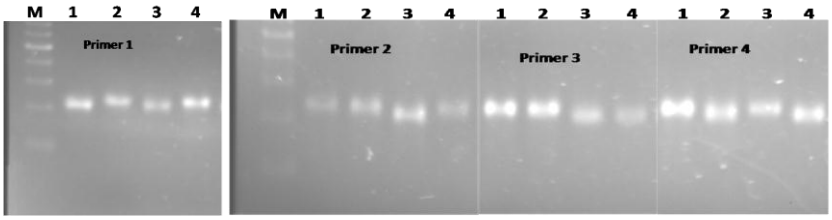

Figure 3: Representing the primers used for SSR Marker

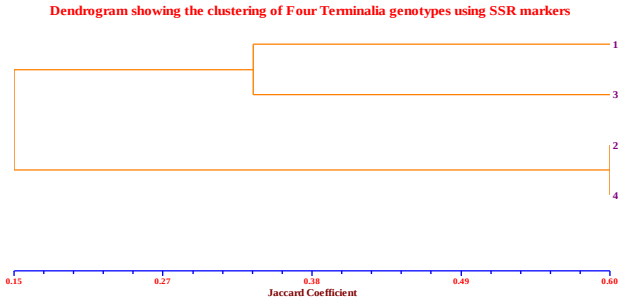

Figure 4: Representing Dendrogram for SSR markers

1	8	5		
	1	**2**	**3**	**4**
M1	0	1	0	1
M2	1	0	1	0
M3	1	1	0	1
M4	0	0	1	0
M5	1	1	0	0
M6	0	0	1	1
M7	1	0	1	0
M8	0	1	0	1

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Analysis on Nature in J.M. Hopkins's Poetry

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Abstract:

J. M. Hopkins delighted in the observation and grasping of Nature. With greatest delicacy, strength and intelligence he possessed his environment. He was a keen observer of Nature, and tried to depict in its various famous and beauties. His natural depictions are often accurate. Nature plays important role in his different poems. Through his nature poetry, Hopkins, by expressing his concept of beauty of nature allows the reader to share his vision of beauty with him. For this reason, he wrote different poem upon the nature. In Hopkins's poetry, man's communication with God is established through Nature. He considered that the essence of the object is to be found in his individual distinctiveness.

Keywords: Nature, Environment, observation, God, individual distinctiveness, etc.

Every human being is a part of nature. At least once in life time, everyone usually sits under a tree and smells the fragrance of the flower and feel the fresh rain and feel the greenery of the field. Many poets include these sort of description are there in the poem. Most of the Romantic and sensuous poets are in the seam. Realistically, they inflated the nature but sensually they portrayal their inner consciousness of their sensuousness. They try to bond the nature with life. But in J.M. Hopkins case he tries to unite the nature with god. Hopkins sees nature as it is and believe nature is the demonstration of god present in nature. Nature plays important role in his different poems. Through his nature poetry, Hopkins, by expressing his concept of beauty of nature allows the reader to share his vision of beauty with him. For this reason, he wrote different poem upon the nature whether it is happy poem or terrible sonnet, nature is the predominate depiction in his poem.

J. M. Hopkins delighted in the observation and grasping of Nature. With greatest delicacy, strength and intelligence he possessed his environment. There is nothing strange about it, for other poets and painters of his age were also doing the same. But his strong naturalism comes out so vividly in his poetry that it might be called a "passionate science" (Grigron 5). As a passionate love of nature, his enquiring mind his taught him much about the nature that is surrounded by him, he loved nature because he extract some delight from nature he knows how to enjoy the ordinary things in nature. The immense quality of Hopkins was that he was a sensuous as Keats in his early poems. In his first poem "Escorial" as an attempt to combines nature and art. In "God's Grandeur" he exclaims with happiness.

And for all this, nature is never spent;
Their lives the dearest freshness deep down things: (9-10)

The poet is filled with delight as in his poetry "Spring" he says:

Nothing is so beautiful as spring. (1)

Through his Ignatius discipline he developed a sacramental view of nature was sacred thing and consecrated one.

Once he remarked , 'All world is full of inscape and chance left free to act falls into an order as well as purpose: looking at my window I caught in the random clods and broken heaps of snow made by the cast of the broom. The same of the path trenched by footsteps in ankle-deep snow across the fields leading to Hodder wood through which we went to the river' (Iyengar 26). Hopkins's training as a Jesuit would incline him to see nature in this way. He had a penetrating eye to reach out for and grasp of the laws of the trees, the clouds, the light and the water. These subjects obsessed Hopkins and he insisted on the link between man and God through nature. All created things were aspects of Incarnation, and could show forth God's purpose.

Hopkins was a keen observer of Nature, and tried to depict it in its various famous and beauties. His natural depictions are often accurate. This kind of accuracy noticed in many of his poems. In his poem 'The Sea and the Skylark' found accuracy of nature:

Left hand, off-land, I hear the lark ascend,
His rash-fresher-winded new-skinned score
In crisps of curl off wild which whirl, and pour
And pelt music, till none's to neither spill nor spend. (19)

Herein the sweet music of the ascending lark is to be felt by the reader.

In Hopkins's poetry, man's communication with God is established through Nature. Though the God of Hopkins is not inside Nature, it is through the latter that man passes the voltage of the current of his love, his grandeur. In his famous sonnet 'God's Grandeur' he exclaim:

The world is charged with the grandeur of God.
It will flame out, like shining from shook foil;
It gathers to greatness, like the ooze of oil. Crushed….(63)

This current of love runs through Hopkins as creature, through the stocks barbarous in beauty, through skies, clouds, stars and he hoped that the great voltage of love and grandeur ran through the best of his poems 'The Starlight Night':

Look at the stars! Look, look up at the skies!
O' look at the all the fir-folk sitting in the air!
The bright boroughs, the circle-citadels there!
Down in dim woods the diamond delves! The elves eyes! (65)

The poet is full of delight at the sight of natural beauties.

In his poem 'Spring', Hopkins describing Nature with delight:

Nothing is so beautiful as Spring
When needs, in wheels, shoot long and lovely and lush;
Thrush's eggs look little low heavens, and thrush
Through the echoing timber does so rinse and wring
The ear, it strikes like lightening to hear him sing;
The glassy pear tree leaves and blooms, they brush. (1)

In the face of the spring season, he grows ecstatically, and then all things- the weeds, the thrush's egg's, the thrush itself, the timber, the pear tree, leaves and blooms, bear a different look, a splendid appearance. He used to peer into natural objects with curious insight and read their in nature.

In the poem, 'In the Valley of the Elway' also brings out his sense of softness and appreciation of natural beauties:

Lovely the woods, waters, meadows, combs, vales;
All the air things wear that build this world of Wales….(19)

It is not that soft aspects of Nature alone captured the poet's imagination, even its barbarous aspects to appeal to it. This is obvious when we read the following lines from, 'Hurrahing in Harvest':

Summer ends now; now, barbarous in beauty, the stokes rise
Around; up above, what wind walks! What lovely behaviour
Of silk-sack clouds! Has wilder, willful wavier
Meal-drift molded ever any melted across skies? (20)

It is the close of summer and nature is seen here as 'barbarous in beauty' and 'wilder' in mood.

Most of his nature poem has sacramental quality in which sensuous appeal of natural beauty becomes the beginning and further moves look deeper into its being to realize the inscape and in stress of it. Intensity of thought and feeling make him most accurate in the technical aspects of his writing so that his work recognized a form perfectly suited to his thought. Thomas Merton, in his work 'Seeds of Contemplation', summed up the whole theory of Hopkins, inscape and in stress: together with his sacramental vision of nature. He proceeds by explaining even a tree has its own individuality. It has its own in stress and inscape. It is created by God it derived both its life and form from its creator. Therefore it may be said to partake of the nature of God.

Thus, from the foregoing observation and illustrations it is clear that Hopkins was a keen observer of Nature and he portrayed it in its entire splendor minutely.

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