

ISSN 2395-4396 (Online)
www.ijariie.com

NATIONAL CONFERENCE
on
Technology Transfer, Environmental Change & Sustainable
Development: Issues and Challenges for India and Developing
Countries

Publication Partner: IJARIIIE

ORGANISED BY: AISHWARYA COLLEGE OF EDUCATION

(Affiliated to Jai Narain Vyas University, Jodhpur)

Recognized by UGC Under Section 2(f)&12(B) of UGC Act 1956

Conference Date: 31st January 2019

Volume-3, Issue-1, 2019

***International Journal of Advance Research and Innovative
Ideas in Education***

	Title	Author	Page No
1	ARE WE DOING ENOUGH? – CONSERVATION EFFORTS OF BIODIVERSITY IN INDIA	JUNEJA, A.	1-3
2	Challenges for the growth of E-Commerce in rural India	Anand Harsha and Roochi Harsha	4-7
3	SWACH BHARAT ABHIYAAN: PERCEPTION, KNOWLEDGE AND ATTITUDE OF PEOPLE; IMPLEMENTATION SUGGESTIONS	Kackar A	8-10
4	Comparative Study : Cloud Service Providers	Pratibha Bissa, Dr. Ajay Mathur, Dr. Saurabh Khatri	11-17
5	Global Warming Depletion of Ozone Layer	Dr. Naveen Kumar	18-25
6	SUSTAINABILITY AND CREDIT RISK FOR POWER SECTOR: A ROAD AHEAD	Dr. Pravesh Bhandari	26-29
7	SCOPE OF FUTURE GADGETS IN EDUCATION	Dr. Sushma Rani	30-36
8	GENDER DISPARITY AMONG SENIOR SECONDARY SCHOOL STUDENTS TOWARDS ENVIRONMENTAL POLLUTION: AN ATTITUDINAL STUDY	Mr. Harish Mittu	37-40
9	Incredible Role of SSO in eGovernance Services in Rajasthan	Rajendra Singh Thapa	41-45
10	Involvement of Customer Relationship Management (CRM) in E-Commerce	Sumit Purohit, harish	46-49
11	E – AGRICULTURE	Manjeet Kour Arora, Umesh Dhurwe	50-55
12	“Protection of grains from stored grain pests using irradiation during prolonged storage”	Mohita Mathur, Yogita Chhangani, Ranjeeta Mathur, Abhishek Rajpurohit , Aashu Upadhyay	56-57
13	IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN SOCIETY	Naveen Dutt Joshi	58-62
14	TECHNOLOGY TRANSFER IN CONTEXT WITH INDIA	Ms. Navrang Rathi	63-67
15	IMPACT OF CLIMATE CHANGE ON HEALTH	Sweta Jain , Ranjeeta Mathu , Prabhat Mathur	68-72
16	ROLE OF FACULTY DEVELOPMENT PROGRAMME ON THE OVERALL DEVELOPMENT OF EDUCATORS OF COMMERCE AND BUSINESS ADMINISTRATION INSTITUTIONS IN JODHPUR CITY, RAJASTHAN	Ranjeeta Pathak	73-79
17	SWACHH BHARAT ABHIYAN: A STEP TOWARDS HEALTHY INDIA	Reena Jain	80-82
18	Influence of Information Technology and Role of Management Education of Developing Countries for Creating Sustainable and Global Citizens	Mansi Kakkad	83-88

19	SCREENING OF DIFFERENT GROWTH MEDIA FOR MASS MULTIPLICATION OF <i>Trichoderma</i> sp.	Dr.SaritaPurohit	89-92
20	“WOMEN EMPOWERMENT AND CSR AS A TOOL FOR SUSTAINABLE DEVELOPMENT”	DR. SUMITRA CHOUDHARY	93-96
21	DIGITAL INDIA INFORMATION SYSTEM :AN INITIATIVE TO TRANSFORM ATTITUDE THROUGH COMPLETE DIGITIZATION FOR SUSTAINABLE DEVELOPMENT	Upasana Nasa Chaudhary	97-101
22	TECHNOLOGY TRANSFER AND SUSTAINABLE DEVELOPMENT EMERGING ECONOMIES: THE PROBLEM OF TECHNOLOGY LOCK IN	Dr.Veena Soni	102-112
23	POST HARVEST LOSSES DUE TO STORED GRAIN BEETLES DURING PROLONGED STORAGE OF CEREALS	Yogita Chhangani, Ranjeeta Mathur, Mohita Mathur, Abhishek Rajpurohit, Garima Modi	113-115
24	चुनाव में जातिवाद की भूमिका / Role of racism in elections	Dr. RAJESH CHOUDHARY	116-119
25	वेदों में पर्यावरण संरक्षण / Environmental protection in scripture	GirishKumar Bairwa	120-124
26	SSO ID & Other Components of Information Literacy	SURENDRA SINGH	125-128
27	INDIAN FOLK MUSIC AND LANGA-MANGNIYAR	KIRAN BHATI	129-137

ARE WE DOING ENOUGH? – CONSERVATION EFFORTS OF BIODIVERSITY IN INDIA

JUNEJA, A.*

**Child Psychologist and Counselor (A58619), Jodhpur, Rajasthan, India*

ABSTRACT

India is the first country in Asia, and among the only five countries in the world; to submit an annual report on biodiversity conservation. This is an effort on our part is a landmark towards realizing the need of the hour. Although the national report for the year 2018 states India is on the right track to achieve its biodiversity goals, there are various news reports and surveys flooding the market which are in direct conflict with it- string of dams blocking rivers, the exceeding list of endangered fauna and flora, atrocious poaching and animal cruelty incidences to name a few. Down To Earth is an independent and credible think tank which has been publishing an annual STATE OF OUR ENVIRONMENT magazine which states in no uncertain terms that while we have made progress in individual facets of biodiversity conservation, our overall performance compared to previous years' is overwhelmingly worse. However, some effort is always better than none. This is a study discussing how far India has come, effort wise, and if it is enough for the protection of our natural environment.

Keywords:-*Biodiversity, India, National report, Conservation*

1. INTRODUCTION

While there is not a shred of doubt that India has been on the road to living upto its full potential, irrespective of the past and present regimes; there are certain hits and misses when it comes to overall progress of the country in the past year or so. Where foreign trade is the talk of the town, agriculture and farming is suffering; while Rupee took a hit, GDP broke expectations. Demonetization had an impact on the economy and is yet to be given a concrete thumbs up or down.

In terms of the conservation of the environment, as is the concern of this paper; the progress report shows a similar pattern.

1.1 Initiatives taken towards biodiversity preservation

As per the Annual report of the Ministry of Environment, Forest and Climate change for the year 2017-18, the following achievements are under the government's belt.

- Doha Amendment comes under the KYOTO protocol, which is an International agreement to reduce greenhouse gas emission. A Second round of this particular amendment has been made tangible for the years 2013-2020.
- Human wildlife conflict mitigation project was initiated in 2018 to support states such as Karnataka, west Bengal and Uttarakhand in conflict mitigation.
- Centre for Biodiversity Policy and Law has been established to gain insight and know-how regarding biodiversity preservation and laying down policies as well as laws to further the cause.
- Implementation and usage a DecisionSupport System to analyze data of forest and wildlife area both qualitatively and quantitatively
- Restructuring of Intensification of Forest Management Scheme to focus on forest fires.

- Launch of an e-Green watch, an online portal supplying information and providing transparency with respect to the funds of Compensatory Afforestation Fund Management and Planning Authority.
- India was a party to the 12th Convention of Migratory Species in 2017,
- Launch of Swachhta hi sevahai, Clean air for Delhi campaign, HarGharJalYojna andUjjwalayojna.
- Launch of SWACHH BHARAT Abhiyan is a big move in areas of cleanliness as well as conservation.
- Swachh Bharat endeavor virtually constructed 72 million toilets.
- National Green Tribunal's birth led to a decrease in police cases pertaining to the environment.

In compliance with the Convention of Biological Diversity (an international treaty), India submitted its sixth national report (NR6) proudly stating being on track to achieve its targets of 2020.

- Among the 12 biodiversity targets, India has exceeded in achieving one.
- The report said 115 million (approx.) saplings have been planted in 57-58 thousand hectares of land previously used for mining.
- An increase in protected area under the Wildlife Protection act (1972) has increased from 690 (2014) to 770 (2017).
- Tiger counts have gone from 177 to 520 between 1968-2015
- Elephant count is risen from 12000 to 30000 between 1970 to 2015
- The one horned rhino is at 2400 and has survived endangerment.
- Out of 0.3 percent of endangered species in the world, India has only a percent of 0.08 of them.
- The Botanical and Zoological surveys have revealed a lot more species of flora and fauna.

2.SHORTCOMINGS OF BIODIVERSITY PRESERVATION

There are several areas, according to State of India's environment 2018 (published by Down To Earth); which have suffered immensely.

- India slipped from 141 to 177 in the Environmental Performance Index. These figures are grim when the total, 180, is considered.
- India stands on 116 out 157 with respects to achieving Sustainable Development goals.
- Where countries have scored a 90(for instance, Japan and Switzerland), India has scored a 5.75 out of 100.
- Despite efforts made for water pipe availability in every household, 82 percent populace remains without a connection.
- Toilets built under SwachhBharat remain unused in a large percentage due to lack of popularization of the idea.
- The efforts of providing LPG to all, stood significant only in 15 states; even there, a huge portion of the rural masses cannot benefit from it and rely on unhealthy firewood.
- Increase in forest cover is limited to open forest category; this included commercial plantations, making the entire point moot.
- A 146 percent increase in forest land diversion to and for non-forest activities in the past year itself.
- An increase in forest fires of 125 percent. The NR6 estimates a whopping 5500 million loss of vegetation from forest fires.
- Environment related cases in court have gone up significantly.
- Instead of a required 1,09,000 Crores of investment for biodiversity [reservation, only 70,000 Crores have been invested.
- Modification of Draft National Forest Policy in 2016 incorporates climate change at the cost of Mountainous region.

In addition, news reports are flooding the market with loss of forest cover in the Western ghats. It is primarily a result of blockages of river Kali and forest fires [1]; 190 species of fauna and 325 species of flora face threat of extinction as a direct consequence. Moreover, NR6 states that the RED list endangered species have gone up from 413 (2009) to 646 (2014) to 683 (2018)[2].

3. CONCLUSION

In conclusion, whether India is putting proper efforts wholeheartedly or not; neither can be said with absolute certainty. One cannot completely commend or blame the efforts of the community or government as the fact remains- India is a host of approximately 17 percent of the world's population. The demand of ever growing need for land, agriculture, sanitation, clean water, etc. stands in direct conflict with other goals.

4. REFERENCES

- [1] Verma, S. & Jayakumar, S. (2018) Effect of recurrent fires on soil nutrient dynamics in a tropical dry deciduous forest of Western Ghats, India. *Journal of Sustainable Forestry*, Vol37(7), 678-690.
- [2] Jagadish, M., Ravikanth, Gudalamani, Vasudeva, R., Shaanker, U, & Aravind, N. (2018) Recovery of critically endangered plant species in India: Need for a comprehensive approach. *Current Science*, Vol 114, 504-511.



Challenges for the growth of E-Commerce in rural India

Anand Harsha¹ and Roochi Harsha²

¹ Assistant Professor, Computer Science, Aishwarya College of Education, Jodhpur, Rajasthan, India.

² Former Electrical Instructor, Maulana Abul Kalam Azad Muslim Pvt. ITI Jodhpur, Rajasthan, India

ABSTRACT

E-Commerce means Electronic commerce. The Business or services provided using electronic medium is termed as Electronic commerce. The enlightened volume of people in India is attracting the E-commerce participators in India from the last few years as the internet and social media become more popular. From statistical point of view we have 462.1 million active internet users where as 442.7 million active mobile users these statistics let the digital India more successful and provide efficient and managerial environment to the E-Commerce Companies. Payment gateways are very limited and holding the market of payment electronically, they allow users for safe and easy transacting but somehow we can't ignore they can also steal users private information. When we are talking about Internet Neutrality We are talking far complex subject than internet services in India because there is still internet crisis exists here and proper connectivity is not available at every region of India this paper concentrate on E-commerce growth and the factors who are pulling the leg and why E-Commerce not successful in rural India.

Keyword : - E-Commerce, Electronic payment, Logistics Companies, Challenges of E-commerce, Rural v/s urban E-Commerce, Risk factors, Digital India, Employment, LFPR, WPR, Rural, Area, Population, Ration, Urban, Worker

1. INTRODUCTION

E-Commerce means Electronic commerce. The Business or services provided using electronic medium is termed as Electronic commerce. Flipkart, Amazon, E-bay, Mynta and Alibaba are the big fishes of E-Commerce. The enlightened volume of people in India is attracting the E-commerce participators in India from the last few years as the internet and social media become more popular. In India every second person has a mobile and does texting, video chatting, ordering pizza, placing orders from online shopping in cod mode, booking gas cylinders and pay online or swipe the card at petrol filling stations. From statistical point of view we have 462.1 million active internet users where as 442.7 million active mobile users these statistics let the digital India more successful and provide efficient and managerial environment to the E-Commerce Companies.

The Growth of internet take 20 years to introduce to 100 million users and the second 100 million will likely to be reached within three years and third in less than a year. These Statics shows the changing face of India and uplifting the economy. The rural area population that uses internet is 29% of the population in 2013 which is expected 40 to 50 percentages which will touches 210 million by the year 2018. This shows that the internet become more predominant. After this snapshot we can say India is a great place to deal with E-Commerce but after all we can say there are certain facts which are stopping its growth or trying to affect E-commerce in India. In this paper we not only consider the challenges of E-Commerce but also consider the facts why rural India is not yet actively available for the growing E-Commerce Companies look at the retail sales record in India by E-Commerce from 2016 to 2022 in million U.S. Dollars.



2. TECHNICAL ISSUES

E-Commerce can provide services based on internet thus service provider and their high data rates and low bandwidth, privacy and security issues will directly affect the growth of E-Commerce.

3. PAYMENT GATEWAYS ARE LIMITED AND LESS RELIABLE

Third party payment gateways and E payment methods provide secure & timely transactions for paying bills, Flight Reservation, Ticket booking in cinema hall recharge mobile or DTH recharge online or transfer money from one user to another using mobile. Although they are not enough according to user of India but they tend to provide secure and timely services but they are changing their policies for consumers and compromise with user data. Asia time reports that 10K debit and credit cards are being compromised. Reliance Jio data breach leaked on Magicapk is another reason for not using payment gateways. Payment gateways fail multiple times and without any acknowledgement they change their policies this will let customers think twice before using these applications. ICICI payment gateways, HDFC Payment gateway, PayTM, Mobikwik, oxygen wallet, Citrus pay, PayUbiz, EBS, InstaMojo are some example which are limited and holding the market of payment electronically.

4. MODE OF PAYMENT ISSUE

Competition is natural in the E-commerce market. When firstly Jack Ma introduce Alibaba he doesn't think that E-commerce will reach this stage. Participator companies day by day promoting their product with new policies to increase the purchasing power, for this Easy Emi, Cash on delivery, exchange scheme, debit card, replacement policies are introduced, there are more options available like net banking, mobile wallet, reward points, prepaid cards, gift card, for payment methods, but in India most of the users uses Cod when Flipkart introduces it in India. Flipkart starts COD facility in India in 2010 that follows user to buy product online and when product reaches to the customers then the payment is given in, but this mode doesn't extend the growth in terms economical because most the users who uses COD mode for payment replacing the order which bare extra cost of posting and handling charges.

5. INTERNET

When we are talking about Internet Neutrality We are talking far complex subject than internet services in India because there is still internet crisis exists here and proper connectivity is not available at every region of India. It is seen that when law and order is not maintained properly after protests and riots, India faces internet cut for stopping the rumors on social media to spread out. These kinds of examples are sufficient to say that internet is big issue for

E-commerce growth. In Maharashtra world heritage site Elepanta caves are situated about 10-km from Mumbai and electricity reaches there after seventy years of independence through the undersea cable, although this is a good news for the tourism of India and the living persons there. But if it is possible to reach electricity after 70 years it may also be possible for internet services to be abandon for rural areas. Take a look at the comparison chart for the available ISP's providing internet in India.

6.POSTAL ADDRESS IS NOT STANDARD

when an order is being placed in India then a logistics company mostly call to the customers for actual address recognition this incurred additional cost the business, because postal address are not in standard form in India.

7.LOGISTICS PROBLEM IN INDIAN TOWN

There are thousands of town that can't be accessible easily for the delivery of the products so you can't order pizza online or a mobile is not delivered to a village. Metro and Urban areas are having well infrastructure for logistics whereas Rural areas are facing this biggest issue of logistics.

8.LITERACY AND UNAWARENESS TO TECHNOLOGY

Literacy Rates (in percentage)			
Census year	Persons	Males	Females
1951	18.3	27.2	8.9
1961	28.3	40.4	15.4
1971	34.5	46	22
1981	43.6	56.4	29.8
1991	52.2	64.1	39.3
2001	64.8	75.3	53.7
2011	73	80.9	64.6

Source : Office of the registrar General & Census Commissioner, India (website: <http://censusindia.gov.in/>)

It is nature of literacy that the more the literacy level the more the awareness is. As the above chart depicts only 73 percent of persons in India are literate, and we can't say all are aware of the technology and there is a big difference between male and female literacy level. So literacy plays a big role in E-Commerce in India.

9.ECONOMIC FACTOR

The BSE has launched India's first index that will determine the country's unemployment rate. As per the Index, launched in collaboration with The Centre for Monitoring Indian Economy (CMIE) an independent economic think-tank headquartered in Mumbai, India's rural unemployment rate stood at 7.15% and the Urban rate stood at 9.62%. The overall rate of unemployment rate in the country stood at 7.97%.

10. CONCLUSIONS

According to the figures and fact available in this paper we conclude that E-Commerce in India have a great potential towards job opportunities and will be effective to Economical growth but there are some factors which breaks down it's growth. If we can overcome these obstacles in near future the E-commerce definitely grow all over India. Besides all the economical growth the safety is very important to us. So there should no compromise in safety

feature this is be possible in making changes in IT-Act 2000. The Internet availability, infrastructure of the resources, literacy level including women literacy are bigger challenges for us to work on.

11. REFERENCES

- [1]. <https://www.statista.com/statistics/309866/india-digital-population/>
- [2]. <http://blogs.pb.com/ecommerce/2013/12/23/8-challenges-ecommerce-india/>
- [3]. <https://www.census2011.co.in/literacy.php>
- [4]. <http://www.iamwire.com/2015/01/rise-internet-penetration-changing-face-digital-india/108808>
- [5]. <https://entrackr.com/2018/02/pnb-reports-massive-data-breach/>
- [6]. <https://entrackr.com/2017/07/largest-data-breach-reliance-jio-users-data-leaked-on-magicapk/>
- [7]. <http://ndcommerce.in/modes-of-payments-for-ecommerce-in-india/>
- [8]. <https://www.quora.com/How-many-villages-in-India-has-no-internet-access>
- [9]. <http://www.firstpost.com/india/elephanta-island-gets-electricity-70-years-after-independence-with-laying-of-indias-longest-undersea-power-cable-4363427.html>
- [10]. <https://labour.gov.in/annual-reports>
- [11]. <http://pib.nic.in/newsite/PrintRelease.aspx?relid=136875>
- [12]. <https://data.gov.in/catalog/labour-force-participation-rate-work-force-participation-rate-and-unemployment-rate>
- [13]. <https://economictimes.indiatimes.com/news/economy/indicators/indias-rural-unemployment-rate-7-15-and-urban-stood-at-9-62-bse-index-shows/articleshow/51726860.cms>

BIOGRAPHIES (Not Essential)

	<p>Anand Harsha, (anandharsha@yahoo.com) received the MCA degree in Computer Science & Applications from Lucky Institute of Professional Studies affiliated with Jai Narain Vyas University, Jodhpur Rajasthan in 2007 and M.A. degree in Political Science from S.B.K Govt. PG. College, Jaisalmer, Affiliated with MDSU, Ajmer in 2004. During 2015-2019, he stayed in Aiswarya college of Education as an Assistant professor in Department of Computer Science.</p>
	<p>Roochi Harsha, (harsharoochi@gmail.com) received the MSC(CS) degree from Govt. Bangur PG College Pali affiliated with M.D.S.U, Ajmer, Rajasthan in 2010 and BCA degree from sajjan international college Pali affiliated with M.D.S.U, Ajmer, Rajasthan, in 2007. During 2012-2017, she stayed in Maulana Abul Kalam Azad Muslim Pvt. ITI as an Instructor in Department of Electric Trade.</p>

SWACH BHARAT ABHIYAAN: PERCEPTION, KNOWLEDGE AND ATTITUDE OF PEOPLE; IMPLEMENTATION SUGGESTIONS.

Kackar,A*

*Assistant Professor, Department of Psychology, J.N.V. University, Jodhpur, India

ABSTRACT

Cleanliness has become one of the prominent issues in the country, which actually led to the start of a National flagship programme called Swachh Bharat Abhiyaan . (SBA). The campaign was officially launched on 2nd October 2014 , with a belief that cleaning up a nation was everybody's business . One of its objectives is to create awareness. and to change people's attitude towards sanitation and This Abhiyaan is about both ' Vyawastha ' (system) and ' Vichar ' (thought process and mindset). Indian people have been involved in several unhygienic practices like throwing garbage dirt or waste material on roads, urinating in open, spitting on walls and streets etc. The purpose of this study is to assess the knowledge, perception, attitude and practices of people towards cleanliness. The study tends to analyse the psychosocial obstacles in the implementation of SBA and to suggest measures based on psychological principles of reinforcement and attitudinal change theories for increasing participation of public and for the effective execution of SBA.

Key words: -Swachh Bharat Abhiyaan, Perception, Attitude.

1.INTRODUCTION

“ Civilization is the distance that man has placed between himself and his own excreta”. Brian W.Aldiss.

Sanitation is a basic necessity that affects everyone's life. Sanitation and hygiene is critical to health, survival and development. Many countries are challenged in providing adequate sanitation for their entire populations, leaving people at risk for water sanitation and hygiene (WASH) related diseases.

To accelerate the efforts, to achieve universal sanitation coverage and to put focus on sanitation, the Prime Minister of India launched the Swachh Bharat Abhiyaan on 2nd October 2014. SBA aims to achieve Swachh Bharat by 2019, a fitting tribute to the 150th birth anniversary of Mahatma Gandhi. The mission was started by Prime Minister Narendra Modi who believes that cleaning up a nation is everybody's business. One of its objectives is to change people's attitude to sanitation and create awareness. This Abhiyaan is about both ' Vyawastha ' (system) as well as 'Vichar '(thought process and mindset) as stated by Prime Minister Narendra Modi.

This mission represents the collective desire of a nation to transform progress beyond mind and mindset. It seeks to bring a behavioural change in India. While behavioural change is essential for India's Swachh dream, it is not easy to cease behaviour that is in-built and cultivated over generations.

1.1 Attitude perception and knowledge of Indians regarding cleanliness

‘ Cleanliness is an Attitude ‘

Indian society, traditionally, has a certain negative attitude towards cleanliness and manual labour. Many Indian houses are meticulously cleaned and a spotless, yet right outside rows of these clean houses, there are filthy streets

with mounds of garbage. This shows that the public sphere is a concept in Indian society that has traditionally been absent. People in India have stuck to their family communities and caste groups. These groups and communities were the mediums through which most people conducted their social interaction. Thus, the concept of shared public space, used by everyone and kept clean by everyone was in absentia in Indian society.

Related to the concept of class and caste are Indian attitudes towards cleaning and manual labour. When the concept of cleaning and doing physical work in order to make spaces clean is associated with lower classes and castes, there is little incentive for anyone to work hard at keeping public spaces clean.

This has created a destructive cycle in Indian society. People reflect their attitude by saying “ humara desh nahi badalne wala aur na hi logo ki soch itni jaldi badalegi “ (Our country is not going to change and the thinking of people will not change). A 16 year old student mocked at our attitude toward cleanliness by saying “ ye log bharat ko kya swach banayenge inko to gandgi ki aadat si ho gayi hai “. Another interesting thing is that even the domestic workers refrain from cleaning and washing houses as they find the job degrading and physically harassing. It seems for Indians, activities pertaining to cleanliness, derogate the reputation and status among peers and other community members. It seems that Indians have not realised the importance of having clean surroundings. We are not habituated to cleanliness and yet, we pretend to be change makers. We are restraining from actively participating in Swach bharat Abhiyaan.

Any significant attitude has three components- Affective, Behavioural and Cognitive (ABC). SBA is still present only in the cognition and does not possess affective and behavioural component.

We can clearly state that we are disinterested in embracing positive changes. Even wider reach of SBA has not made any significant changes in the mind set. People still openly defecate to show their manliness and it seems SBA is blasphemous. There is need to understand the requirement of cohabitation for bringing a positive change. We need a clean mind campaign too so that we are able to contribute toward our desired outcomes without giving excuses for not being responsible enough.

1.2 Instilling cleanliness habits using psychological techniques:

At very early age, we learn our toilet habits from our parents. The way we use and experience our sanitation solutions are almost as old as we are. The rituals surrounding relieving ourselves are tied up with our parents' views and habits plus our broader cultural and economic context. What we learn from these sources becomes a 'personal construct'. According to Kelly, a Personal construct is an Attitude we acquire through experience. It is bundle of habits, views, attitudes and preferences about any issue. Kelly maintains that changing our core personal construct create anxiety and even fear. The object of change presents a threat. It may even produce aggression.

Sanitation habits of Indians can be explained and analysed by the Personal construct theory. The construct of sanitation and cleanliness should be developed by parents in early childhood so that it automatically becomes part of the self.

Motivation and Reinforcement techniques can also be used to develop cleanliness habits in Indians. Sometimes improved access to sanitation is better achieved through monetary subsidies or shaming techniques (i.e., emotional motivators). Subsidy proponents contend that the poor face severe income constraints and need economic incentives to supply public goods that benefit everyone (e.g. a microbiologically safe environment). Shaming proponents believe that last behavioural change requires strong intrinsic motivation and that people are more likely to use and value things they have had to pay for.

Similar techniques can be used to make SBA more successful. Success can be achieved by unique combination of shame and subsidy. Another psychological technique which can be used in the successful implementation of SBA is the adoption and integration of a theory of Self Assembly. Self-Assembly in behaviour change is a process in which a pre-existing structured behaviour pattern or a set of social or individual behaviour traits forms new organised behaviour pattern as a consequence of specific local inter actions among the components themselves, without external force or direction. So we can say encouraging cleanliness and ending open defecation by disrupting sticky behaviours through leveraging self-assembly behavioural principles has enormous potential.

Another incentive technique could be a reward based competition. As juvenile as the idea may sound, nothing brings the country together like some healthy competing. The premise could be as simple as this, at the gramin level for instance; an incentive based award could be handed to the best kept house or groups of houses or the entire pocket of

settlement. The key to motivation is to not to micromanage but delegate the work freely. The panchayats have to be held responsible as should every lower unit of government.

In another twist, although the government has provided over 70 million toilets all over the country, only a very small portion of it is operable [1]. Meaning, the groundwork is set without the actual implementation. For this, in addition to the reward principle, sudden checks on the use of these facilities should be carried out. In case of defaulting, the local authority should be reprimanded. A fine or some similar form of punishment should be imparted so as to inculcate a sense of responsibility. While these methods may seem challenging and intangible; these actually form the basis of deconstructing and reconstructing virtually every crude behaviour and cognition.

While the blue prints are impressive, most facilities are worse off than open sewage plants. A lack of potable water, proper sanitation and regular cleaning is the most common problem. It is ironic that the toilets made for swachh bharat are horrifically dirty themselves. This sort of issue leads to people developing a sense of negativity towards the whole PUBLIC TOILET system and the government itself. The theory of Classical Conditioning comes to mind; once the populace is conditioned to think using public facilities is bad, it takes a great effort to undo it. It is a basic human folly to believe in “well begun is half done” and consider the second half to unfold and implement by itself like an automaton. However, in this case especially, the construction of toilets was the EASY half of the endeavour; MAINTAINENCE is the actual test of the campaign [2].

Lastly, use of media, more than it has been used. Since the advertisements and slogans seem not to be helping as much; up-gradation in its quality and quantity is required. A common man, an Indian common man; is moved by only people of certain industries. First is Cinema; where famous personalities have led to eradication of diseases such as polio and tuberculosis. A person is usually moved by observable behaviour of someone he or she looks up to or considers his or her idol; as is the crux of Albert Bandura’s theory of Modelling [3]. It is something that can be done on a larger scale, involving multiple celebrities can be one example.

Second is a Sports person, especially Cricketers can help, as they have in the NO-SMOKING campaign. Third are politicians; which may help at the gram level; where celebrities have not reached the people. Any local hero for the grams can be and should be roped in for the SBA.

Thus by using the principles of reinforcement, attitudinal change theories, Conditioning and modelling; SBA which is far away from its real success can reach common man. We can instil the habit of cleanliness in Indians.

2.CONCLUSION

In conclusion, it is evident that a revamping of the ideas is required. It is common knowledge that a country with such a huge landmass and population brings hurdles of its own; hurdles no other country is facing regarding cleanliness. What is required is to keep changing strategies until one hits the mark and to watch it through till the very end.

3.REFERENCES

- [1] Jangra, B., Majra,, J., & Singh, M. (2016) Swachh bharat abhiyan (clean India mission): SWOT analysis. *International Journal of Community Medicine and Public Health*, 3285-3290.
- [2] Wilke, I. (2003) *Psychology and sanitation - A personal perspective*. Retrieved from <https://www.susana.org>
- [3] Goyal., R (2015, September 8) *Clean India - Attitude change is more important than the movement*. Retrieved from <https://www.careerride.com>

Comparative Study : Cloud Service Providers

Pratibha Bissa¹, Dr. Ajay Mathur², Dr. Saurabh Khatri³

¹ Phd Scholar, Computer Application, Career Point University, Rajasthan, India

² HoD, CSE, Govt. Polytechnic College, Rajasthan, India

³ HoD, IT Dept., Lucky Institute Of Professional Studies, Rajasthan, India

ABSTRACT

Cloud computing is a new emerging technology that is expected to significantly change the field of IT in the next few years. Cloud computing is a technical and social reality and one of the rapidly growing technology in computer science. Cloud computing makes its greatest impact on the IT field . It refers to the delivery of services like hardware, software, storage and infrastructure over the internet. The main advantage of cloud computing is that user do not have to pay for infrastructure, its installation, required man. Today, numerous cloud services are provided by leading enterprise companies such as Amazon, Microsoft, and Google in the form of customized, reliable and cost –effective web applications. In this paper we aim to introduce the most popular Cloud Service Providers (CSPs) to cloud customers.

Keyword : Cloud computing, Cloud Service Providers, SaaS, PaaS, IaaS.

1. Introduction

Cloud computing provides internet based platform which are widely used for computer technology. Cloud computing is a new concept of traditional distributed computing and grid computing. Cloud computing is nearly tied to parallel and distributed computing. Cloud computing is a type of internet-based computing that provides computer processing resources and data to computers and other devices on demand. . Scientific and engineering applications, data mining, computational financing, gaming, and social networking as well as many other computational and data-intensive activities can benefit from cloud computing[1]. Cloud computing had become a highly demanded service due to the advantages of high computing power, cheap cost of services, high performance, scalability, accessibility as well as availability.

The National Institute of Standards and Technology (NIST) defines cloud computing as: "Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" . Cloud Service Providers (CSPs) (e.g., Google, Microsoft, Amazon) are vendors who lease to their cloud customers and CSPs is organized according to a certain contract called Service Level Agreements(SLA).

They also offer three main categories of cloud services as Infrastructure as a Service (IaaS): Platform as a Service (PaaS) and Software as a Service (SaaS).

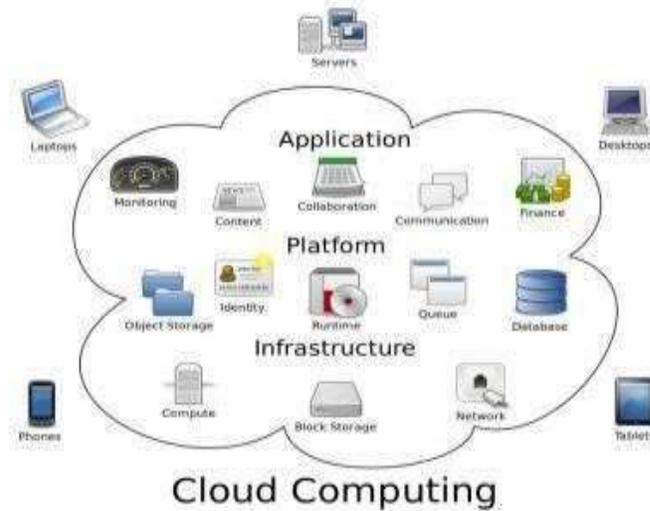


Fig 1- Cloud Computing

2. Software-As-A Service

Software-as-a-service is the service where the original development of software and applications takes place on the platforms provided by the PAAS layer. SAAS is mainly concerned with end users platform because end users can use and access these applications which were developed by cloud providers. In SaaS model a software provider license a software application to be used and purchased on demand and applications can be accessed via network from various users (browser, mobile etc) by application use. It is the application that provides business value for users. SaaS moves the task of managing software and its deployment to third-party services. The application can be customized to the degree it was designed for based on a set of already available configuration options.

3. Platform-As-A-Service

Platform-as-a-service provides the platform or the environment in which the developers can write and develop the software and applications. The developers can write the codes according to the particular platform's specifications. PAAS layer is a type of abstraction layer which is present in between the IAAS and SAAS layers. The latest examples of PAAS are GOOGLE APPLICATION ENGINE and MICROSOFT AZURE. The consumer also manages software deployment and configuration settings.[1] The service provider provides the networks, servers, storage, and many services that are needed to host the consumer's application. PaaS offerings facilitate the deployment of applications without the cost and complexity of purchasing and managing the underlying hardware and software and provisioning hosting capabilities. There are various kind of PaaS vendors; however, all provide application deployment and hosting, environment, along with various integrated services.

4. Infrastructure-As-A-Service

Infrastructure-as-a-service provides computing resources like storage, server and other peripherals which can be acquired as a service. Now a day's customers prefers to buy the resources, rather than having set's up servers, software, and data centres space themselves, and get billed based on resources consumed. Basically it provides the raw hardware and virtualized infrastructures.[1] Today IAAS services are provided by AMAZON EC2 and SIMPLE STORAGE SERVICE (S3). IaaS model offer a service to get a virtual server in few seconds and pay only for the resources that they use. Example is Amazon EC2) provides consumers with physical or virtual resources including

CPU, memory, OS and storage, sever, to meet the requirements of the customers. IaaS as a service provider offer virtual server with one or more central processing unit running several choices of operating (IaaS) is a standardized, highly automated offering, where compute resources, complemented by storage and networking capabilities are owned and hosted by a service provider and offered to customers on-demand.

5. Comparative Study Of Saas, Paas and Iaas

Attributes	SaaS	PaaS	IaaS
Service providers	Google apps, office live.	Azure, Netsuite	IBM, Amazon.
Runtime management	By the customers	By the vendor	By the vendor
Data management	By the customers	By the developer	By the vendor
Application management	By the customers	By the developer	By the vendor
Used by	Business Users	Developers and deployers	System Manager
Visibility	End users	Application developers	Network architects
Type of services	Dynamic infrastructure service	Integration as a service	Dynamic application services
No of providers	Large numbers of application in the cloud	Few cloud platforms	Elite group of providers
Server management	By the vendor	By the vendor	Small

Fig-2 : Comparative Study Of Saas,Paas,Iaas

6. Cloud-Service-Providers (CSP)

In this paper, we focus on the most famous cloud service providers in the IT market. We have chosen seven companies that provide extensive cloud services to compare between them from different perspectives. These companies are described below:

6.1 Amazon

Amazon.com is one of the most popular CSPs, it offers a lot of cloud services including:

- Amazon EC2 (Amazon Elastic Compute Cloud): provides computing capacity on the cloud.
- Amazon S3 (Amazon Simple Storage Service): is dedicated for high reliable storage on the cloud.
- Amazon RDS (Amazon Rational Database Services); provides powerful tools for managing databases on the cloud[2].
- Amazon Simple DB: provides the core database functions.
- Amazon Cloud Front: is dedicated for managing and distributing contents over the Internet with high speed.

□□□ Google

Google joint the cloud market in 2007 by simple services such as email, calendars, online documentation. Now, google has various cloud services such as:

- Compute Engine : an IaaS where customers can run large-scale work load in virtual servers hosted in Google's Infrastructure.
- App Engine : a PaaS where customers can develop applications using built-in high performance platforms .
- Cloud Storage : where customers can store any type of files with any size using secure, reliable, storage service from Google[3].
- Cloud SQL: dealing with relational databases with different DBMS.

6.2 Microsoft

In late of 2009, Microsoft starts the cloud services by introducing Microsoft Windows Azure . Microsoft Windows Azure is a platform on cloud that offers various types of services such as[4]:

- Infrastructure: on-demand, scalable infrastructure with full support and high performance.
- Web Development: provides very powerful platform that allows developers to build and deploy web applications.
- Storage : a cloud storage solution to manage and process data even if they are regular or large-scale data .
- Big Data Cloud: a big data solution supported by Apache Hadoop.

6.3 Salesforce

Salesforce mainly focuses on specific cloud applications related to sales and customer relationship management[7]. It provides some cloud products such as:

- Sales Cloud: a platform dedicated for Sales application on the cloud.
- Service Cloud : a platform dedicated for customer service management system on cloud.
- Platform : as a majority of cloud providers they also provide platform as a service.

6.4 HP

HP is one of famous hardware company in the world with excellent market share in servers and data centers[6]. In last years, HP started to offer cloud services such as:

- HP Cloud Compute : scalable processing power that customers can control and pay as we use.
- HP Cloud Storage : offers range of storage options for individual and business sectors.
- HP Cloud DNS : a user can manage his/her DNS zones securely and efficiently.

6.5 Rackspace

Unlike previous providers, Rackspace Company focuses on cloud computing as main core business[5]. They have various cloud services as follows:

- Cloud Servers: on-demand servers featuring local.
- Block Storage : fast , reliable storage for I/O intensive apps.
- Cloud Monitoring : allows users to stay on top of their infrastructure by receiving alerts anytime their URLs, ports, or protocols need attention.

7. Comparing CSP

We compare CSPs described above based on different criteria as shown in table [8]. The criteria we used for comparison are listed below:

- Types of service provided by the CSPs,
- Key features,
- Average price of service,
- Payment plan offered, either monthly based, annual or pay per use,
- Number of operating system that the cloud services support,
- For how long this provider offered cloud computing service, this reflects the experience of the provider in the field
- Service usability which means how easy can the end users configure and deploy the services and how much help and training the need.
- Security and privacy protection, based on security certification, we have classified the security levels of the providers into three levels high, medium and low
- Quality of service according to SLA

Criteria	Cloud Service Providers						
	Amazon	Google	Microsoft	HP	AT&T	Salesforce	Rackspace
Types of cloud services provided	Iaas, Paas, Storage, Database	Iaas, Paas, Storage, mobile, database, Big Data	Iaas, paas, mobile, Media, Database, Big Data	Iaas, Paas, Storage, Database, DNS	Iaas, Paas, Storage, Network	Saas, Paas, Storage, business application	Iaas, Paas, Storage, Database, big Data, Network
Key features	A various cloud services	Including big data and mobile development platform	Including media and mobile development.	Including storage and cloud load balancer, Openstack software	Providing a private network for enterprise	Focusing on sales and CRM application	Provide about 11 different CC products, Openstack software.
Average Monthly price	66 \$	42.2 \$	65.7 \$	87.60\$	121\$	195\$	116\$
Payment Plan	Pay per use, monthly	Pay per use	Pay per use, yearly, Monthly	Pay per use	Pay per use	Pay per use, Monthly	Pay per use
Number of OS Supported	9	2	6	4	2	3	4
Service Age	5+ years	1-2 years	1-2 years	1-2 years	4-5 years	4-5 years	5+ years
Easy to use	Good	Good	Good	Medium	Medium	Good	Good
Security level	High	High	High	medium	High	High	High
Security Certification	yes	yes	yes	no	yes	yes	yes

Fig-3 : Comparison CSP

8. Application of Cloud Computing for Rural Development

The concept of cloud computing with internet must be infused into the rural areas through PCs, laptops, notebooks, tablets or mobile phones etc. connected to cloud so that the information is available to the poorest of the poor giving them a better life.

8.1 Education

Rural education in CG is facing problems like lack of qualified teachers, lack of IT Institutes with proper infrastructure and teaching facilities, lack of involvement in and control of educational matters and difficulties of students in higher education [10]. Lack of IT study institutes in rural areas because of the huge

amount of money spent on buying software licenses, setting up proper infrastructure is required for computation, storage etc. To get benefitted by cloud computing model a Web based education system can be developed and deployed on the Cloud. The application should be interesting and challenging representation of free education material, so that it holds the attention of the students.

8.2 Aadhaar (Unique Identification of People)

Aadhaar is the single source of identity verification to access services such as obtaining a bank account, passport, driving license and so on [9]. Cloud-computing infrastructure for Aadhaar: A Cloud Based Management Information System (CBMIS) can be developed for authenticating the identity of an individual. The use of Aadhaar-based authentication linked to a cloud-based system management information (MIS) would enable the Public distribution system (PDS) to address broader procurement, mass storage and monitoring challenges online in real-time. An SMS alert containing information such as time the truck left, quantity of grain it is carrying, and grain prices can be sent to the resident's Aadhaar-linked mobile number, when the truck leaves from the warehouse for the FPS depot.

8.3 Health care

The National Rural Health Mission (NRHM) is a government scheme that aims at providing valuable healthcare services to rural households all over the country [10]. NRHM can be deployed on cloud infrastructure which will enable people in rural areas:

- To access Hospitals' Database to check the location of hospitals nearby.
- To get advised by the specialists in metro cities advice through Audio/video/web conferencing, without going there personally.
- To get cost effective consultation, prescription online.
- With shortage of medical resources in the country, it may be useful to have medical expertise of good doctors wherever needed through internet.

9. Conclusion

Cloud will continue to evolve as the foundation for the future internet where we will be interconnected in a web of content and services. The paper briefly explains the deployment of web based application on the cloud and knowledge of internet to improve education, agriculture and healthcare in rural areas. The introduction of information technology in rural areas will not only benefit the people there but also the software providers by changing the role of IT people from technical support to project manager, business analyst, quality analyst, software developer. We have also made some comparison between most famous cloud computing service providers. This comparison will help individuals and organizations make critical decisions on benefits and cost of cloud technology before they move their business to this new environment. Hence, it needs more effort to explore from researchers and technical specialists. Comparative studies between cloud models, cloud methodologies, and specific cloud techniques are still needed. In addition, innovative solutions to cloud computing security challenges need more investigation.

10. REFERENCES

- [1]. National Institute of Standards and Technology - Computer Security Resource Center - www.csrc.nist.gov.
- [2]. Amazon Web services, aws.amazon.com
- [3]. Google cloud, cloud.google.com
- [4]. Windows Azure, www.windowsazure.com
- [5]. Rackspace, www.rackspace.com,
- [6]. HP cloud, www.hpcloud.com

[7].Salesfore, www.salesforce.com

[8].Shivani goyal university school of information technology- a comparative study of cloud computing service providers.

[9].Shaily Malik et al., “Cloud Computing - A Hope For The RuralIndia”,International Journal of Computer Applications (0975 - 8887) Volume 1 – No. 20,2010

[10].Neelam Swarnkar,Asst. Professor ,Dept. of Computer Science Engineering, Yugantar Institute of technology & Manament,Rajnandgaon,CG – “Application of cloudcomputing technology for rural development”.



Global Warming Depletion of Ozone Layer

Dr. Naveen Kumar

Associate Professor, Dept. of Geology, Aishwarya College of Education, Jodhpur, Rajasthan India

ABSTRACT

Earth is only a planet where life is found. And there are many elements that protect life on earth, ozone layer is one of that element. The ozone layer is a layer in Earth's atmosphere which contains relatively high concentrations of ozone (O₃). This layer absorbs 93-99% of the sun's high frequency ultraviolet light, which is potentially damaging to life on earth. Over 91% of the ozone in Earth's atmosphere is present here. It is mainly located in the lower portion of the stratosphere from approximately 10 km to 50 km above Earth. The ozone layer was discovered in 1913 by the French physicists Charles Fabry and Henri Buisson. Its properties were explored in detail by the British meteorologist G. M. B. Dobson, who developed a simple spectrophotometer (the Dobson meter) that could be used to measure stratospheric ozone from the ground. Between 1928 and 1958 Dobson established a worldwide network of ozone monitoring stations which continues to operate today. The "Dobson unit", a convenient measure of the total amount of ozone in a column overhead.

1. OZONE LAYER DEPLETION:

A. Ozone

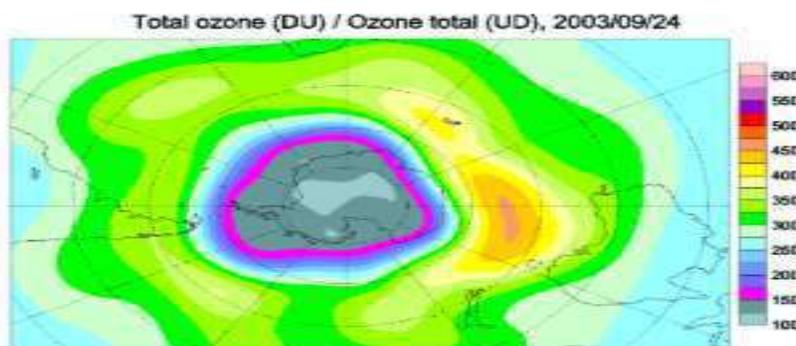
Ozone is a form of oxygen. Ozone consists of three atoms of oxygen bound together (O₃). Most of the atmosphere's ozone occurs in the upper atmosphere or the region called the stratosphere. Ozone is colourless and has a very harsh odour. While ozone can be found through the entire atmosphere, the greatest concentration occurs at altitudes between 19 and 30 km above the Earth's surface. This band of ozone-rich air is known as the "ozone layer". Ozone also occurs in very small amounts in the lowest few kilometers of the atmosphere, a region known as the troposphere. It is produced at ground level through a reaction between sunlight and volatile organic compounds (VOCs) and nitrogen oxides (NO_x), some of which are produced by human activities such as driving cars. Ground-level ozone is a component of urban smog and can be harmful to human health. Stratospheric ozone blocks harmful solar radiation - all life on Earth has adapted to this filtered solar radiation. Ground-level ozone, in contrast, is simply a pollutant. It will absorb some incoming solar radiation, but it cannot make up for ozone losses in the stratosphere.

B. Ozone Hole

The term Ozone Hole is employed to describe any form of ozone depletion. Technically, the term "ozone hole" should be applied to regions where stratospheric ozone depletion is so severe that levels fall below 200 Dobson Units (D.U.). Normal ozone concentration is about 300 to 350 D.U. Such ozone loss now occurs every springtime above Antarctica, and to a lesser extent the Arctic, where special meteorological conditions and very low air temperatures accelerate and enhance the destruction of ozone loss by man-made ozone depleting chemicals (ODCs).

C. Ozone Layer

The ozone layer is not really a layer at all, but has become known as such because most ozone particles are scattered between 19 and 30 kilometers (12 to 30 miles) up in the Earth's atmosphere, in a region called the stratosphere. The concentration of ozone in the ozone layer is usually under 10 parts ozone per million. Without the ozone layer, a lot of ultraviolet (UV) radiation from the Sun would not be stopped reaching the Earth's surface, causing a lot of damage to most living species. In the 1970s, scientists discovered that chlorofluorocarbons (CFCs) could destroy ozone in the stratosphere. Ozone is created in the stratosphere when UV radiation from the Sun strikes molecules of oxygen (O₂) and causes the two oxygen atoms to split apart. If a freed atom bumps into another O₂, it joins up, forming ozone (O₃). This process is known as photolysis. Ozone is also naturally broken down in the stratosphere by sunlight and by a chemical reaction with various compounds containing nitrogen, hydrogen and chlorine. Ozone concentrations are highest between 19 and 23 km. Most of the ozone in the stratosphere is formed over the equator where the level of sunshine striking the Earth is greatest. It is transported by winds towards higher latitudes. Consequently, the amount of stratospheric ozone above a location on the Earth varies naturally with latitude, season, and from day-to-day. Under normal circumstances highest ozone values are found over the Canadian Arctic and Siberia, whilst the lowest values are found around the equator. The ozone layer over Canada is normally thicker in winter and early spring, varying naturally by about 25% between January and July. Weather conditions can also cause considerable daily variations.



Ozone layer depletion over Antarctica

D. Ozone depletion over India

With so much worry about the rapid ozone depletion taking place in various parts of the earth, Indian scientists are closely monitoring the ozone layer over India for possible depletion trends.. Since India already receives high doses of ultraviolet (UV-B) radiation, and is at the threshold to go to speak, effects of ozone layer depletion could be far more disastrous in India. A P Mitra, former director general of the Council of Scientific and Industrial Research, clarifies that while there is no trend in the total ozone value, there is some evidence of ozone depletion at higher altitudes - at about 30 to 40 km - even over the tropics. Total column ozone data has been recorded over India for a long time. A network of stations using Dobson spectrophotometers to measure total ozone, some six times a day, covers Srinagar, New Delhi, Varanasi, Ahmedabad, Pune and Kodaikanal. Ozone profiles are also regularly recorded using balloons. Ozone levels are the lowest during November and December and the highest in summer. Across the country, variations do exist. In Kodaikanal, the total ozone is 240 to 280 Dobson units (DU), in New Delhi 270 to 320 DU and in Srinagar 290 to 360 DU. One Dobson unit is the equivalent of 0.01 mm of compressed gas at a pressure of 760 rare mercury and 0°C.

E. Measuring Ozone Depletion

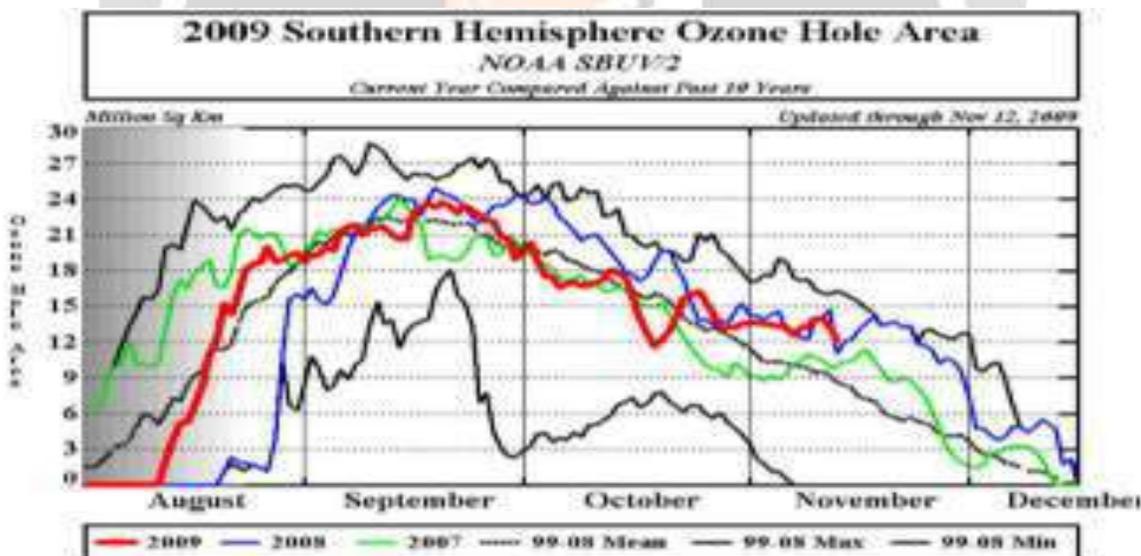
The most common stratospheric ozone measurement unit is the Dobson Unit (DU). The Dobson Unit is named after the atmospheric ozone pioneer G.M.B. Dobson who carried out the earliest studies on ozone in the atmosphere from the 1920s to the 1970s. A Dobson Unit measures the total amount of ozone in an overhead column of the atmosphere. Dobson Units are measured by how thick the layer of ozone would be if it were compressed into one layer at 0 degrees Celsius and with a pressure of one atmosphere above it. Every 0.01 millimeter thickness of the layer is equal to one Dobson Unit. The average amount of ozone in the stratosphere

across the globe is about 300 DU (or a thickness of only 3mm at 0°C and 1 atmospheric pressure). Highest levels of ozone are usually found in the mid to high latitudes, in Canada and Siberia (360DU). When stratospheric ozone falls below 200 DU this is considered low enough to represent the beginnings of an ozone hole. Ozone holes of course commonly form during springtime above Antarctica, and to a lesser extent the Arctic.

F. The Ozone Hole 2009

I. Situation at 2009

November the 2009 ozone hole is now waning, with much of the continent experiencing a stratospheric spring warming. The residual vortex is over the Weddell Sea and Antarctic Peninsula and here minimum values are around 160 DU and depletion exceeds 50%. Ozone values outside the polar vortex have dropped to near 400 DU, and inside the vortex ozone values are increasing as the atmosphere warms. The temperature of the ozone layer over Antarctica is now rising, though a small area is still cold enough for polar stratospheric clouds (PSCs) to exist. During the early winter, the polar vortex was often rather more elliptical than it was in 2008, and this led to some early depletion in circumpolar regions as stratospheric clouds became exposed to sunlight. It reverted to a more circular circulation as winter progressed and this led to another relatively slow start to the growth of the ozone hole (as measured by NASA/SBUV2), with the "hole" not beginning until mid August. The vortex became more elliptical again in late August, with South Georgia being affected by the fringes of the ozone hole between September 2 and 6. The hole grew to reach an area of around 24 million square kilometers by mid September, but had declined to 12 million square kilometres by mid November. It is now a little larger than the average for the past decade. The tip of South America and South Georgia were affected by the fringes of the ozone hole from September 24 to September 30 and again from October 3 to October 7.

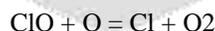




Ozone hole area variation over different continent

CAUSES OF OZONE DEPLETION:

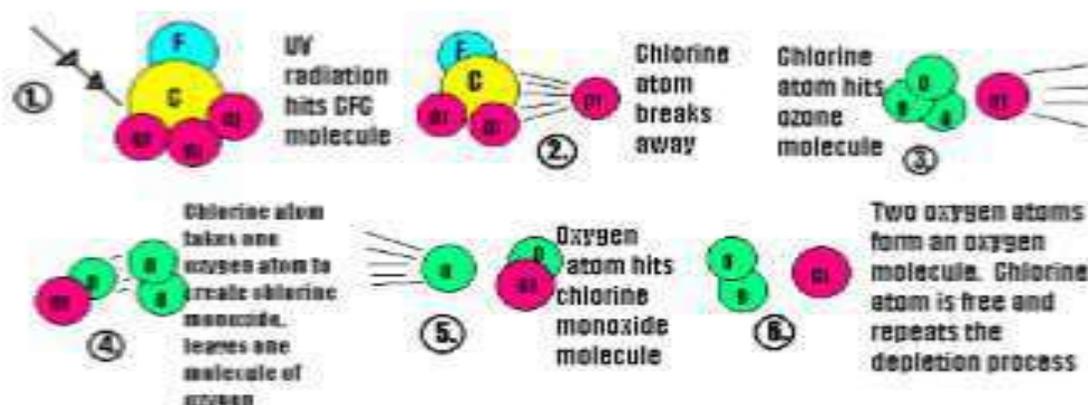
Ozone depletion occurs when the natural balance between the production and destruction of stratospheric ozone is tipped in favour of destruction. Although natural phenomena can cause temporary ozone loss, chlorine and bromine released from man-made compounds such as CFCs are now accepted as the main cause of this depletion. It was first suggested by Drs. M. Molina and S. Rowland in 1974 that a man-made group of compounds known as the chlorofluorocarbons (CFCs) were likely to be the main source of ozone depletion. However, this idea was not taken seriously until the discovery of the ozone hole over Antarctica in 1985 by the Survey. Chlorofluorocarbons are not "washed" back to Earth by rain or destroyed in reactions with other chemicals. They simply do not break down in the lower atmosphere and they can remain in the atmosphere from 20 to 120 years or more. As a consequence of their relative stability, CFCs are instead transported into the stratosphere where they are eventually broken down by ultraviolet (UV) rays from the Sun, releasing free chlorine. The chlorine becomes actively involved in the process of destruction of ozone. The net result is that two molecules of ozone are replaced by three of molecular oxygen, leaving the chlorine free to repeat the process:



Ozone is converted to oxygen, leaving the chlorine atom free to repeat the process up to 100,000 times, resulting in a reduced level of ozone. Bromine compounds, or halons, can also destroy stratospheric ozone. Compounds containing chlorine and bromine from man-made compounds are known as industrial halocarbons. Emissions of CFCs have accounted for roughly 80% of total stratospheric ozone depletion. Thankfully, the developed world has phased out the use of CFCs in response to international agreements to protect the ozone layer. However, because CFCs remain in the atmosphere so long, the ozone layer will not fully repair itself. Naturally occurring chlorine has the same effect on the ozone layer, but has a shorter life span in the atmosphere.

A. Chlorofluorocarbons

Chlorofluorocarbons or CFCs (also known as Freon) are non-toxic, non-flammable and non-carcinogenic. They contain fluorine atoms, carbon atoms and chlorine atoms. The 5 main CFCs include CFC-11 (trichlorofluoromethane - CFCl_3), CFC-12 (dichloro-difluoromethane - CF_2Cl_2), CFC-113 (trichlorotrifluoroethane - $\text{C}_2\text{F}_3\text{Cl}_3$), CFC-114 (dichloro-tetrafluoroethane - $\text{C}_2\text{F}_4\text{Cl}_2$), and CFC-115 (chloropentafluoroethane - $\text{C}_2\text{F}_5\text{Cl}$). CFCs are widely used as coolants in refrigeration and air conditioners, as solvents in cleaners, particularly for electronic circuit boards, as a blowing agents in the production of foam (for example fire extinguishers), and as propellants in aerosols. Indeed, much of the modern lifestyle of the second half of the 20th century had been made possible by the use of CFCs. Man-made CFCs however, are the main cause of stratospheric ozone depletion. CFCs have a lifetime in the atmosphere of about 20 to 100 years, and consequently one free chlorine atom from a CFC molecule can do a lot of damage, destroying ozone molecules for a long time. Although emissions of CFCs around the developed world have largely ceased due to international control agreements, the damage to the stratospheric ozone layer will continue well into the 21st century.



B. Rocket Launches

The global market for rocket launches may require more stringent regulation in order to prevent significant damage to Earth's stratospheric ozone layer in the decades to come, according to a new study by researchers in California and Colorado. The study, which includes the University of Colorado at Boulder and Embry-Riddle Aeronautical University, provides a market analysis for estimating future ozone layer depletion based on the expected growth of the space industry and known impacts of rocket launches." As the rocket launch market grows, so will ozone-destroying rocket emissions," said Professor Darin Toohey of CU-Boulder's atmospheric and oceanic sciences department. "If left unregulated, rocket launches by the year 2050 could result in more ozone destruction than was ever realized by CFCs." Current global rocket launches deplete the ozone layer by no more than a few hundredths of 1 percent annually. But as the space industry grows and other ozone-depleting chemicals decline in the Earth's stratosphere, the issue of ozone depletion from rocket launches is expected to move to the forefront. Highly reactive trace-gas molecules known as radicals dominate stratospheric ozone destruction, and a single radical in the stratosphere can destroy up to 10,000 ozone molecules before being deactivated and removed from the stratosphere.

EFFECT OF OZONE LAYER DEPLETION:

A. Effects on Human and Animal Health

Increased penetration of solar UV-B radiation is likely to have profound impact on human health with potential risks of eye diseases, skin cancer and infectious diseases [6]. UV radiation is known to damage the cornea and lens of the eye. Chronic exposure to UV-B could lead to cataract of the cortical and posterior subcapsular forms. UV-B radiation can adversely affect the immune system causing a number of infectious diseases. In light skinned human populations, it is likely to develop nonmelanoma skin cancer (NMSC). Experiments on animals show that UV exposure decreases the immune response to skin cancers, infectious agents and other antigens

B. Effects on Terrestrial Plants

It is a known fact that the physiological and developmental processes of plants are affected by UV-B radiation. Scientists believe that an increase in UV-B levels would necessitate using more UV-B tolerant cultivar and breeding new tolerant ones in agriculture. In forests and grasslands increased UV-B radiation is likely to result in changes in species composition (mutation) thus altering the bio-diversity in different ecosystems [9]. UV-B could also affect the plant community indirectly resulting in changes in plant form, secondary metabolism, etc. These changes can have important implications for plant competitive balance, plant pathogens and bio-geochemical cycles.

C. Effects on Aquatic Ecosystems

While more than 30 percent of the world's animal protein for human consumption comes from the sea alone, it is feared that increased levels of UV exposure can have adverse impacts on the productivity of aquatic systems. High levels of exposure in tropics and subtropics may affect the distribution of phytoplanktons which form the foundation of aquatic food webs. Reportedly a recent study has indicated 6-12 percent reduction in phytoplankton production in the marginal ice zone due to increases in UV-B. UV-B can also cause damage to early development stages of fish, shrimp, crab, amphibians and other animals, the most severe effects being decreased reproductive capacity and impaired larval development.

D. Effects on Bio-geo-chemical Cycles

Increased solar UV radiation could affect terrestrial and aquatic bio-geo-chemical cycles thus altering both sources and sinks of greenhouse and important trace gases, e.g. carbon dioxide (CO₂), carbon monoxide (CO), carbonyl sulphide (COS), etc. These changes would contribute to biosphere-atmosphere feedbacks responsible for the atmosphere build-up of these gases. Other effects of increased UV-B radiation include: changes in the production and decomposition of plant matter; reduction of primary production changes in the uptake and release of important atmospheric gases; reduction of bacterioplankton growth in the upper ocean; increased degradation of aquatic dissolved organic matter (DOM), etc. Aquatic nitrogen cycling can be affected by enhanced UV-B through inhibition of nitrifying bacteria and photodecomposition of simple inorganic species such as nitrate. The marine sulphur cycle may also be affected resulting in possible changes in the sea-to-air emissions of COS and dimethylsulphide (DMS), two gases that are degraded to sulphate aerosols in the stratosphere and troposphere, respectively.

E. Effects on Air Quality

Reduction of stratospheric ozone and increased penetration of UV-B radiation result in higher photo dissociation rates of key trace gases that control the chemical reactivity of the troposphere. This can increase both production and destruction of ozone and related oxidants such as hydrogen peroxide which are known to have adverse effects on human health, terrestrial plants and outdoor materials. Changes in the atmospheric concentrations of the hydroxyl radical (OH) may change the atmospheric lifetimes of important gases such as methane and substitutes of chlorofluoro carbons (CFCs). Increased troposphere reactivity could also lead to increased production of particulates such as cloud condensation nuclei from the oxidation and subsequent nucleation of sulphur of both anthropogenic and natural origin (e.g. COS and DMS).

F. Effects on Materials

An increased level of solar UV radiation is known to have adverse effects on synthetic polymers, naturally occurring biopolymers and some other materials of commercial interest. UV-B radiation accelerates the photo degradation rates of these materials thus limiting their lifetimes. Typical damages range from discoloration to loss of mechanical integrity. Such a situation would eventually demand substitution of the affected materials by more photo stable plastics and other materials in future.

G. Effects on Climate Change

Ozone depletion and climate change are linked in a number of ways. Atmospheric ozone has two effects on the temperature balance of the Earth. It absorbs solar ultraviolet radiation, which heats the stratosphere. It also absorbs infrared radiation emitted by the Earth's surface, effectively trapping heat in the troposphere. Therefore, the climate impact of changes in ozone concentrations varies with the altitude at which these ozone changes occur. The major

ozone losses that have been observed in the lower stratosphere due to the human-produced chlorine- and bromine-containing gases have a cooling effect on the Earth's surface. On the other hand, the ozone increases that are estimated to have occurred in the troposphere because of surface-pollution gases have a warming effect on the Earth's surface, thereby contributing to the "greenhouse" effect. In comparison to the effects of changes in other atmospheric gases, the effects of both of these ozone changes are difficult to calculate accurately. In the figure below, the upper ranges of possible effects for the ozone changes are indicated by the open bars, and the lower ranges are indicated by the solid bars.

INTERNATIONAL ACTIONS

The following protocols are established to control ozone layer depletion and for its recovery:

A. Montreal Protocol

In 1985 the Vienna Convention established mechanisms for international co-operation in research into the ozone layer and the effects of ozone depleting chemicals (ODCs). 1985 also marked the first discovery of the Antarctic ozone hole. On the basis of the Vienna Convention, the Montreal Protocol on Substances that Deplete the Ozone Layer was negotiated and signed by 24 countries and by the European Economic Community in September 1987. The Protocol called for the Parties to phase down the use of CFCs, halons and other man-made ODCs. The Montreal Protocol represented a landmark in the international environmentalist movement. The original Protocol aimed to decrease the use of chemical compounds destructive to ozone in the stratosphere by 50% by the year 1999. In order to deal with the special difficulties experienced by developing countries it was agreed that they would be given an extended period of grace, so long as their use of CFCs did not grow significantly. China and India, for example, are strongly increasing the use of air conditioning and cooling devices. Using CFC compounds in these devices would be cheaper than using replacement compounds harmless to ozone. An international fund was therefore established to help these countries introduce new and more environmentally friendly technologies and chemicals.

B. Australian Chlorofluorocarbon Management Strategy

It provides a framework for the responsible management and use of CFCs in Australia. The strategy recognizes some continuing need for these chemicals in pharmaceutical and laboratory uses, but commits to their gradual phasing out.

C. Environmental Protection (Ozone Protection) Policy 2000

This policy aims to minimize the discharge of ozone-depleting substances into the environment, and has been extended to cover use of alternative refrigerants (where relevant). This has been done to prevent current stocks of ozone-depleting substances from being released to the atmosphere by trade's people that are not accredited, or with inadequate training and/or equipment working on systems that contain these substances.

D. United Nations Environment Program has published several assessments of the environmental effects of ozone depletion (United Nations Environment Program, 1998; World Meteorological Organization, 2002).

E. Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (and associated regulations and amendments) was implemented by the Commonwealth Government to meet its commitments under the Montreal Protocol.

F. Ultraviolet index forecast , The Bureau of Meteorology has developed a model to predict the amount of ultraviolet exposure and the times of day at which it will occur for 45 WA locations. It is designed to help people minimize their exposure to dangerous levels of ultraviolet radiation.

WHAT WE SHOULD DO?

- ▶ Make sure that technicians working on your car air conditioner, home air conditioner, or refrigerator are certified by an EPA approved program to recover the refrigerant (this is required by law).
- ▶ Have your car and home air conditioner units and refrigerator checked for leaks. When possible, repair leaky air conditioning units before refilling them.
- ▶ Contact local authorities to properly dispose of refrigeration or air conditioning equipment.

- ▶ Protect yourself against sunburn. Minimize sun exposure during midday hours (10 am to 4 pm). Wear sunglasses, a hat with a wide brim, and protective clothing with a tight weave. Use a broad spectrum sunscreen with a sun protection factor (SPF) of at least 15 and 30 is better.

CONCLUSION:

Scientists are concerned that continued global warming will accelerate ozone depletion. Ozone depletion gets worse when the stratosphere (where the ozone layer is), becomes colder. Because global warming traps heat in the troposphere, less heat reaches the stratosphere which will make it colder. Greenhouse gases act like a blanket for the troposphere and make the stratosphere colder. Maintain programs to ensure that ozone-depleting substances are not released and ongoing vigilance is required to this effect. In fact, global warming, acid rain, ozone layer depletion, and ground-level ozone pollution all pose a serious threat to the quality of life on Earth. They are separate problems, but, as has been seen, there are links between each. The use of CFCs not only destroys the ozone layer but also leads to global warming.

REFERENCES :

1. Albritton, Daniel, "What Should Be Done in a Science Assessment In Protecting the Ozone Layer: Lessons, Models, and Prospects" .
2. Allied Signal Corporation. "Remarks," International CFC and Halon Alternatives Conference. Alternative Fluorocarbons Environmental Acceptability Study (AFEAS).
3. "Production, Sales, and Atmospheric Release of Fluorocarbons," Alternative Fluorocarbons Environmental Acceptability Study (AFEAS).
4. Andelin and John, "Analysis of the Montreal Protocol," Staff report, U. S. Congress, Office of Technology Assessment.
5. Morrisette, Peter M. "The Evolution of Policy Responses to Stratospheric Ozone Depletion".
6. Stephen O., E. Thomas Morehouse, Jr., and Alan Miller, "The Military's Role in Protection of the Ozone Layer." Environmental Science and Technology.
7. J. J. Margitan. "HO 2 in the Stratosphere: 3 In-situ Observations," Geophysical Research Letters.

SUSTAINABILITY AND CREDIT RISK FOR POWER SECTOR: A ROAD AHEAD

Dr. Pravesh Bhandari

Assistant Professor

Department of Management

Aishwarya College of Education, Jodhpur

ABSTRACT

Energy Sector is a critical infrastructure for the developmental process. An efficient energy supply system is a key ingredient for the cities for economics productivity and quality of life. In India power sector due to its dominated thermal generation is responsible for appreciable share pollution both at local and global levels. Problems due to the emissions of GHG are causing global warming managing the electric power sector by minimizing externalities such as emission of carbon dioxide and pollutants is a major challenge.

INTRODUCTION

Energy Sector is a critical infrastructure for the developmental process. An efficient energy supply system is a key ingredient for the cities for economics productivity and quality of life. In India power sector due to its dominated thermal generation is responsible for appreciable share pollution both at local and global levels. Problems due to the emissions of GHG are causing global warming managing the electric power sector by minimizing externalities such as emission of carbon dioxide and pollutants is a major challenge.

ENERGY AND CARBON INTENSITY

In 2001 India's energy intensity (energy consumption per dollar of GDP) stood at 25,307 Btu per \$1995. Carbon intensity (carbon emissions per dollar of GDP) in India also is relatively high, in 2001 ; it measured 0.5 metric tons of carbon per thousand. India's heavy reliance on coal, much of it low-quality goes a long way towards explaining the country relatively high carbon intensity level. The introduction and adoption of technologies to reduce coal consumption and improve the efficiency of the coal that's combusted is an important government priority given that the majority of India power generation is coal fired.

ENVIRONMENT OUTLOOK

India faces significant challengers in balancing its increased demand for energy with the need to protect its environment from further damage putting pressure on the power sector to add new capacity to the system. Already, shortage of electricity has hampered India industrial growth.

RENEWABLE ENERGY

Despite a trend toward urbanization, more than 70% of India's population still lives in rural areas. As the Indian economy develops, one of the greatest challenges that India's local and regional governments face is providing people in rural areas with access to energy. Renewable energy projects in the form of solar-wind and hydropower-generated electricity-are the key to providing rural areas with emery where power is in short supply. In addition,

replacing coal- and other fossil fuel- generated pollution and help to meet the growing energy need of the country's large metropolises as well.

MODEL FOR POWER SECTOR SUSTAINABILITY

A comprehensive Blueprint for power sector development has been prepared encompassing an integrated strategy for the sector development with following objectives: -

- Sufficient power to achieve GDP growth rate of 9.5%
- availability of reliable power
- quality power
- optimum power cost
- commercial viability of power industry

FRAMEWORK TO POWER SECTOR TO SET A GOAL FOR SUSTAINABILITY

MISSION 2022: POWER FOR ALL

POWER GENERATION STRATEGY

- Low cost generation
- Optimization of capacity utilization
- Controlling the input cost
- Optimization fuel mix
- Technology up gradation
- Utilization non conventional energy sources

TRANSMISSION STRATEGY

- Development of national grid including interstate connection
- Technology up gradation
- Optimization of transmission cost
- Promotion of standalone renewable energy and hybrid system
- Distribution strategy
- Distribution reforms with focus on System up gradation
- Loss reeducation
- Theft control
- Consumer service orientation
- Quality power supply commercialization
- Decentralized distributed

REGULATION STRATEGY

- Protecting consumer interests
- Making the sector commercially viable
- Financing strategy to generate resources Growth of the power sector

CONSERVATION STRATEGY

- Optimize the utilization of electricity with focus on
- Demand side management

- Load management
- Technology up gradation
- Provide energy efficient equipment /gadgets

COMMUNICATION STRATEGY

- Political consensus with media a support to enhance the general public awareness

CREDIT RISK AND THEIR IMPACT

Risk

When a borrower conducts a financial risk, he is evaluating credit risk involved into. The analysis determines the ability to repay loan to the creditor. Both the borrower and creditor benefit from analyzing financial risks, a risk assessment protects each party from wither losing money or being responsible for paying debts that they can't afford. Additionally financial risk analysis includes examining cash flow risk and employment risk.

CREDIT RISK

Lenders are at risk for loss when a borrower fails to repay a loan or meet terms in a contract. Credit risk is evaluated to find out if a borrower can be expected to pay off existing debt with future income. The higher the credit risk, the higher the return.

CASH FLOW RISK

Financial experts create both cash flow and net worth statements to analyze cash flow risk. A cash flow statement calculates all the income and expenses to determine if they have a positive or negative cash flow. A net worth statement looks at liabilities and resources and assigns a representative number of their financial situation. If they have a strong flow of cash as energy fund this decreases the financial risk.

EMPLOYMENT RISK

Lenders review your current state of employment to again determine if you have a steady form of cash to pay current and future debts. As a borrower, you should honestly assess your employment situation.

SCORECARD SYSTEM

A scorecard system uses key performance indicators to evaluate credit risk and measure gross debt capital adequacy and credit quality. Gross debt is comprised of annual loans plus property taxes divided by gross income and multiplied by 100. Capital adequacy is cash divided by economics capital and multiplied by 100. Credit quality is found by analyzing your credit reports and history.

Financial risk analysis and its management techniques anyone with an investment portfolios should have a basic understanding of financial risk. The basic relationship between financial risk and financial return is that the former compensates for the latter. For example, an investor in penny stocks has a higher rate of potential return than an investor in U.S. treasury bonds; however most penny stocks are likely to fail; whereas the treasury bonds can only fail if the U.S government does. Thus, an understanding of financial of financial risk is at the core of managing your financial portfolio.

EARNINGSREPORTS

Earnings reports are an essential tool that any investor must use when reviewing potential investment. For example when investing in a company you want to literally read the earnings reports of the company which will details the company total assets, liability revenue stream monument decisions,etc

Having better information about an investment particularly about its wealth appreciation rate and total debt load will helps us for a better feel for the risks associated with that investment. The earnings reports of a company is usually available at the company website the in the investor relation section.

SCHEME FOR DEVELOPMENT OF GRID CONNECTED SOLAR PV POWER PLANTS ON CANAL BANKS AND CANAL TOPS:

MNRE launched a Scheme for Development of Grid Connected Solar PV Power Plants on Canal Banks and Canal Tops in the country during the 12th Plan period at an estimated cost of Rs.975 crore and with Central Financial Assistance (CFA) of Rs.228 crore. The Solar PV Power Plants on Canal Banks and Canal Tops with 50 MW capacities under each category have been approved to 8 States (Gujarat, Andhra Pradesh, Karnataka, Kerala, Uttar Pradesh, Punjab, Uttarakhand and West Bengal).

- ❖ A new loan scheme to promote rooftop solar power projects was launched by IREDA in July 2015. The scheme will provide loans at interest rates between 9.9 and 10.75 percent to system aggregators and developers.
- ❖ Surya Mitra Scheme launched for creating 50,000 trained personnel within a period of 3 years (2015-16 to 2017-18). The course content has been approved by the National Council of Vocational Training as per the National Skill, Qualification Framework. As on 30.9.2015, a total of 27 programmes involving Rs 17 crore have been sanctioned to SNAs by NISE. In 2015-16, 70 programmes will be conducted against which 27 programmes have started.

RENEWABLE ENERGY FOR RURAL APPLICATIONS

- ❖ With financial support and help of the Ministry More than 37,000 biogas plants of the approved models were installed across the country.
- ❖ Several pilot projects have been taken up during the year for deployment of improved biomass cook stoves for cooking in Anganwadis, Mid-day meal schemes in schools, Tribal Hostels etc.taken up under Unnat Chulha Abhiyan are now eligible for Carbon Credits under the CDM mechanism collaboration with Sardar Swaran Singh National Institute of Renewable Energy (SSS-NIRE), an autonomous institute of MNRE, located at Jalandhar.

REFERENCES

1. "Physical Progress (Achievements)". Ministry of New and Renewable Energy, Govt. of India. Retrieved 18 July 2018.
2. "All India Installed Capacity of Utility Power Stations" (PDF). Retrieved 13 April 2016.
3. "Press Information Bureau". Pib.nic.in. Retrieved 2017-12-27.
4. "Solar and wind now the cheapest power source says Bloomberg NEF". Retrieved 19 November 2018.
5. "Here are India's INDC objectives and how much it will cost". The Indian Express. 2015-10-02. Retrieved 2017-12-27.

SCOPE OF FUTURE GADGETS IN EDUCATION

Dr. Sushma Rani
HOD & Associate Professor,
School of Education, Lingaya's Vidyapeeth, Fardiabad

ABSTRACT

In this technotronic era where in each and everyday one innovation took place in the almost all the spheres of life whether social, commercial, political, transportation or educational sector. New technologies that arrived play an important role in the execution and implementation of various programs.

Since during 18th & 19th centuries, technologies were not so prominent they did not have a major impact on the education system. During developing period, with the adoption and innovation of hardware and software approach, the emerging technologies have played a significant role in the present system. As from the examples of developed countries such as USA, UK and Canada, the education system has reached to the significant heights. The students enjoyed classroom i-pods and digital learning from their respective gadgets. On the other hand, in the developing countries like India we are still in the process of utilizing computers, smart-boards and laptops in the classroom. Thus there is strict need to incorporate the latest technologies and future gadgets on the classroom.

With the advent of future technologies we can support various educational activities like e-learning, digital learning, blended learning, virtual reality etc. In this paper the word future gadgets means that all those gadgets or future technology which hope to come in future with some specialty in the areas related to educational sector. In recent years we had various technology-based gadgets such as – Google glasses, smart dust, scan mouse, e-papers & e-pencils, Bluetooth devices, 3-D smart boards and televisions, virtual reality, finger-printing technology, screen-mirroring technology, X-Ray mobile phones, smart android phones, window-based phones, and some educational technologies devices such as smart globe, text-to-speech convertor, screen projection keyboards, reading pen, e-book reader, tablets, slit-360 degree rotated laptop etc. Day by day some new gadgets are being invented and innovated with some good/specific features in the area of educational field, this paper will best describe some of the innovative gadgets.

Keywords: *Future Gadgets, Educational Revolution, Educational Technology, Scope of Future Gadgets in Education*

INTRODUCTION

“Research takes the advantage of the knowledge that has accumulated in the past as a result of endeavour”.¹ A collected body of works done by earlier educationists is called the literature. Review of literature is one of the major steps in any research study. A critical examination and review of the related field of research sharpens one's understanding of the existing knowledge, provides a background and status of the issues relating to the research problem. It makes the researcher to familiarize about the current knowledge related to the field of research study about which s/he is going to conduct his/her research.

John. W. Best (1995) has pointed out that review of related literature is “A brief summary of previous research and writing of recognized experts provide the researchers familiar with what is already known and with what is still unknown and untested. Since effective research must be based on past knowledge this step helps to eliminate the duplication of what has been done already provides useful hypothesis and helpful suggestions for significant investigations”.

Review of related literature implies locating reading and evaluating report of research as well as report of casual observation and option that are related to individual planned research project. Thus keeping in view, the above mentioned advantages, the researcher has reviewed the literature related to the researcher's study conducted in India and Abroad.

¹ Retrieved on September 15, 2014 from <http://www.international.abhinavjournal.com>.

From the review of literature it has been found that innovations are a key concept for the modern world. Innovative aspect of education is a trend of everyday the new concepts, research outcomes, ideas, improved teaching-learning process, advanced technology that emerge worldwide which are to be explored and exposed for updating the knowledge.

The researcher would like to add the following comment starting with the futurology and innovative trends in teaching-learning process. After the critical evaluation of the studies related to innovations and technology-based learning, the investigator has made the following conclusions.

STUDIES RELATED TO LEARNING STYLES-MULTIPLE INTELLIGENCE

Efforts have been done in India to study the multiple intelligence and self-efficacy of the secondary teacher education students on their teaching competencies. "The study included various variables based on the components of multiple intelligence-verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, inter/intra-personal, naturalistic intelligence and self-efficacy teaching competencies for technology-based education process." This has been found in research of Anisha, Gopalakrishnan. V. (2014).

Andrew, P. Jaciw., Megan, Toby., and Boya, Ma. (2012) explored the relationship between the variables, dependent variables as the student's achievements in algebra as dependent variables and the usage of tablet-based applications such as to manipulate variables, note-taking features, type in notes, color code for organization, record messages, vocabulary word, pre-programmed quizzes test, test specific skills before begins a chapter, calculations, writing notes, view-in motion explanations or videos that address concepts from a different approach as dependent variables and the levels of motivation for learning as independent variables. Arumugam, Raman. (2011) made use of technology acceptance model (TAM) to explore real and extended technology-rich outcomes-focused technology usage at university level. The researcher used three independent variables as "undergraduate degree (qualifications), TAM learning, computer based technology learning; a dependent variable as perceived ease to use, perceived usefulness; and subjective norm and a moderator (i.e. gender) in the study".

Few studies were undertaken to promote technological, technical, and visual literacy using virtual and physical modeling among students at national level. (Jeremy. V. Emst and Aaron C. Clark, 2009), who explored the relationship between dependent variables as the attitudes of students towards visual/aural/kinesthetic/reading-writing learning styles on various 2D illustrations, 3D models, animations and 2D graphic applications; and the technology-based content as independent variables; and gender, education, subjects such as science and technology, as personal variables.

Anita, Rastogi. and Babita, Parashar. (2009) have conducted a research study on "Facilitating Teachers to be Lifelong Learners through E-Learning to provide feedback to develop effective e-content in teacher education to design suitable e-learning environment for the teacher to promote lifelong learning. Rajagopal. (2008) effectively studied the pedagogical quality of various learning tools that may be productively used in conjunction with student's preferences in effective learning using Moderator Supported Learning Approach (MLSA).

STUDIES RELATED TO FUTUROLOGY

The studies have been conducted in India with reference to future language classroom technology and learning. The study incorporated the use of various variables such as Future Language Classroom, as independent variables and technology-based instructions like to both direct instruction (traditional approach) and incidental learning (technology-based approach) for vocabulary acquisition as the dependent variable. Anuradha, Vashisth. (2014). Descriptive research method was adopted for the study. Both quantitative and qualitative methods were used for the study. The statistical techniques such as simple percentage method and pie- diagram representations were used in the study.

From the reviews conducted in western countries are based on "the future studies reflects on how today's changes become tomorrow's reality. The study attempted to analyze the sources, patterns, and causes of change and stability in order to develop foresight to map alternative futures." As in the study of Fredy Yesid Mesa Jimenez (2012), provided an overview towards the evolution and futurology concerning ICT in Colombian universities over the period from (1957-2010) using historical research method resulting persistence significant differences related to various educational services. Some of the reviews of literature were based on the futurology of higher education, such as Saima Rasul, Qadir Bukhsh and Muzamilla Akram (2010), which studied the relationship between some personal variables as gender, subject, institution, sci./social scis; dependent variables as attitudes, perceptions of

student's-teacher's regarding future perspectives of higher education; by considering the futurology of higher education and sci./social sci. degree (qualifications) as independent variables.

STUDIES RELATED TO INNOVATIONS IN EDUCATION

According to Indian context, K. Venkateshappa. (2013) made use of innovative devices and technology-enabled learning among senior secondary higher primary school students using Personalized System of Instruction (PSI), Computer Assisted Instruction (CAI) and instructional technology packages.

The researches were undertaken in the field of innovative measures including educational technology and technology of teaching-learning to teach various subjects such as Geography at secondary level of school education including Personalized System of Instruction (PSI) and Computer Assisted Instruction (CAI) using specific models of teaching. The independent variables used were CAI method of teaching Geography, PSI and conventional method, dependent variables as impact and effective towards Geography subject. G.C. Bhattacharya (2013).

Some studies related to abroad, which were conducted regarding critical success factors impacting technological innovation, adoption and diffusion in higher education using various variables such as technological innovation and diffusion in higher education as independent variables and the various critical factors impacting technological innovations as dependent variables. Dennison Terry (2014). The most of the reviews were related to technological innovations in the field of education, as shown in the research of Joshua Mutambi, Joseph K. Byaruhanga, Lena Trozer and Peter Okidi –Lating (2014) towards transferring best practices in various domains of teaching-learning.

“The technical backgrounds on eedu elements game development project whose goal is to finnish elementary/primary school into a game for about six years are widely discussed in the literature and researched extensively using various variables such as grade-education, assesments, etc.” Harri Ketamo, Timo Teimonen, Kaius Thiel and Vesa Koivisto (2014). Even if with some exceptions – in a few European countries such as Helsinki, Finland, Alicante, and Spain, the literature review conducted about social innovations revealed how innovations in social services is strictly connected with (and often encompassed within) the social innovation ‘changes or novelties of rites, techniques, and customs using futurology and participatory foresight social media platforms for evaluating future images among peoples. The PEST (Political, economic, social and technological) analysis revealed significant difference among relationship between the various variables such as gender, education, institutions (institutional and private sectors) and other variables as global, national and personal variables. Guillo Mario (2014).

Researches concerned about the technological use and innovations in educations to identify the relationship between the variables such as the perception of the students and teacher-educators about the use of technology in education have provided sufficient evidence for customized learning opportunities Bill and Melinda Gates. (2013).

Further support for matching technological innovations to self-efficacy using Technology Acceptance Model (TAM), innovativeness, and iPad2 self-efficacy (ISE) emphasized on studying the relationship between the variables about perceptions of students (as dependent variables) and Technology Acceptance Model (TAM), innovativeness, and iPad2 self-efficacy (ISE) as independent variables.

Jon-Chao, Hong., Ming-Yueh, Hwang., Tzu-Yun, Ting., Kai Hsin, Tai., and Chih-Chin, Lee. (2013). Building on the foundation established by previous researches, Jessica C.M. Li and Joseph Wu (2013) examined the benefits of using active learning approach in a criminology class in a publicly funded university in a Chinese city, HongKong , using independent variables as active learning approach in criminology subject; and perceptions of students towards criminology subject and attitude of students towards criminology subjects as dependent variables.

Kenneth, Y.T. Lim., David, Hung., and Junsong, Huang. (2010) studied the effect of student's attitudes towards learning taught through mother tongue and different learning styles based on six learning framework. The learning framework variables were categorized into six components by factor analysis. The six learning framework variables included “learning by exploring, learning by collaborating, learning by being, learning by building, learning by championing, and learning by expressing. The other variables considered were such as age-cohorts, ability-levels, geographical-cultural-spread and disciplinary understandings, subjects, grade levels as background variables; and scaling innovations in education as independent variables.”

Joe, W. Kotrlik. and Donna, H. Redmann. (2009) have considered background variables such as educational level, school and how these variables affect the adoption of technology-based education among secondary teachers. The considered in the study were the use of instructional technology such as “GPS (Global Positioning System), e-mail, videocassette, CD or DVD recorder, digital video camera, PDA (Personal digital assistant), and the ‘technology accommodation in classroom or laboratory’, ‘use of technology as a learning tool in classroom or laboratory’, ‘use of technology-based games or simulations on a regular basis in classrooms or laboratories’ as dependent variables; educational degrees (qualification) as independent variables.”

Lani Florian and John Hegarty (2004) performed a research study about the use of technology for supporting students with Special Educational Needs (SEN) by considering various variables such as the use of assistive devices like of electronic language boards, bulletin boards, voice synthesizers, voice recognition softwares as dependent variables; and the Special Education Need (SEN) as independent variables; and background variables as class, area of interest.

STUDIES RELATED TO CAI AND ICT

After analyzing the researches regarding effectiveness in comparison with conventional method, it was found that experimental, CAI group or ICT group perform better than the conventional group. Rewant Vikram. Singh (2014), “The use of ICT in improving the reach of education, the research work focus from the ‘fear of unknown technology’ and draw attention towards the benefits of ICT, such as its ability to improve quality of education, reduce administrative burden, offer 24x7 availability and access, reusability, and scalability with time. Rewant Vikram. Singh (2014).”

Sushma, Rani. (2013) effectively studied by considering status of CAI learning in Computer education, and ICT learning in Computer education as independent variables, while achievement of students in Computer Education of govt. and non-govt. schools as dependent variables. The results showed that the non-govt. school senior secondary students were better in terms of their achievement in CAI and ICT based learning in computer education.

Jagannath K. Dange. (2013) studied “the effectiveness of CAI in the development of study habits in relation to the gender, locality and socio-economic Status (SES) of Secondary School Students.” The researcher used classroom instruction such as a conventional or computer assisted instructional method of teaching as an independent variable, student’s study habits as dependent variable and gender, locality and socio- economic status (SES) as moderator variable.

Few researches were examined based on the agriculture information; and rural innovations and developments related to the use of ICT. The study variables related to agriculture and rural innovations were categorized into five components namely- community text, information sources and changes, information reliability and application, actor linkages, and information gaps and power relations.

Consolata Angello and Evans Wema (2010) conducted research about identifying the usage of ICT and electronic resources of information accessed by the livestock researcher in Tanzania in order to find out the relationship between various variables such as “Usage of electronic-information resources, and the patterns of different practices used by the researchers to retrieve the required information as a dependent variables; livestock researcher (research institutions) as independent variables.”

STUDIES RELATED TO E-LEARNING

Research concerned with identifying the relationship(s) between e-learning and its impact in Australi and Hingkong. This literature provided an overview of selected correlational and experiemntal stuides concerned with the educational organzations e-collaborative activities included “communications, information and knowledge sharing, decision-making, report writing/information pooling, monitoring, discussions and brainstorming.Deepinder, Bajwa., Floyd, Lewis., Graham, Pervan., and Vincent, Lai. (2014).”

A comparasion of (Xiangyu Wang, Peter E.D. Love, Robert Klinc, Mi Jeong Kim and Peter Rex Davis.2012) were to determine whether a difference existed in the learning styles of Deakin and Chinese universities students using web 2.0 learning and to compare the learning skills in conventional e-learning and Web 2.0 environments on different variables such as e-learning, web 2.0 learning, conventional learning as independent

variables and attitudes towards various learning styles were dependent variables. Roelien, Brink., and Geoffrey, Lautenbach. (2011) studied the effect electronic assessment in higher education by exploring the relationship between independent variables as educational qualifications, and the dependent variables as the attitude of students toward the e-assessments such as language, usability, fairness, and preparation of electronic assessment tool. Ahmad, Abu-Al-Aish., and Steve, Love. (2010) ; Chung, Kuo. (2007) have investigated a study to determine whether a difference existed in the mobile phone learning styles among high-performance expectancy students and low performance expectancy students of Brunel University through M-learning and e-learning in order to see the relationship between various variables such as M-learning method of teaching as independent variables; and attitudes, performance level (high-performance expectancy students and low performance expectancy students towards M-learning system) as dependent variables in higher education context through proposed model.

Differences do exist among the times during which students are able to learn new through different instructional materials based on to produce powerful real-time visual records of the multiple events involving writing in digital spaces by considering screen capture technology method of study as an independent variables and the perceptions of students towards processing technologies as dependent variables. Jeremie, Seror. (2013). R. Sourecha., and A. Selvan. (2013) conducted about efficacy of smart board in teaching-learning process on disaster management at high school level using interactive smartboard mediated learning that included the package included texts, pictures and animated videos of the preparedness for the various types of natural disasters. The treatment group student's knowledge in understanding the natural disaster concepts and preparedness versus that of the control group students using efficacy of students towards smart board teaching as dependent variables and smart board teaching disaster management as independent variable.

Because of the many successes experienced by all second grade students enrolled at a Taipei high school, Taiwan , when they were taught using IPAD creativity in solid geometry class using IPAD creativity in geometry subject as an independent variable; student's achievement in solid geometry teaching as dependent variable and usage of IPAD such as HD video, e-learning as personal variables. The results showed the iPad usage is positively correlated with the student's achievement gain in solid geometry teaching but it is negatively correlated with the student's achievement gain on measure of performance when experiencing the different instructional environment. (Nelson, Liu. 2013). Clarisa, Hughes., Ann, M. Roche., Petra, Bywood., and Allan Trifonof. (2012) made use of "Audience-response devices" ("Clickers") to contribute to alcohol education in schools. The learning variables were categorized into four components by factor analysis, included interactivity, peer education, obtaining student's opinion/knowledge and highlighting misperceptions using "teachable moments" and provide potential to enhance delivery of evidence-based alcohol education to the students. The perceptions of students towards alcohol education were treated as dependent variables and the audio-response clicker device method of teaching alcohol education as independent variables.

Some research studies were based on the operand condition model including 3 Avatar by creating virtual environment such as in the research of Colin, Lemmon., Siu, Man. Lul., David, Cottrell., and John, Hamilton. (2014), who conducted study for student's understanding of scientific methods to develop an interactive 3D virtual world.

The most glaring proof of the need to study and facilitate the design of teaching approaches and orientations in the field of educational research is to explore the educational perspectives of XBOX kinect based video games that supports various developmental axes evident in the review literature of Kandroudi, Marina., and Bratitsis, Tharrenos(2014). Scoot Rial, Sandra Sila and Mrozinski Jamilynn (2013) examined a research study about integrating technology plan for updating the future technological and current trends addressing the needs of students, faculty and staff, on various variables such as the IT assistive technologies-mobile computing, cloud computing, business intelligence, paperless business process, environmental scan and IT Plan and other variables as integrating technology plan. Margaret Horna and Emine M. Thompson (2007) conducted a research study on virtual reality (VR) and 3-D modelling in built environment education using various variables such as virtual reality, BIM (Building Information Modeling), 3-D modelling and VR (Virtual reality) modules of teaching as independent variables; attitudes, perceptions, opinions and concerns of academic staff in regard to use of 3D and VR technologies as dependent variables; and institution, academic experience as background variables.

A study was conducted about "the perceptions of pre-service teachers towards a new sense of learning spaces using iPads including 3G/4G-enabled iPads to learn seamlessly across formal and informal contexts and accessing the support of their personal learning networks, included various variables like perceptions of pre-service

teachers towards using iPads as dependent variables and iPad learning skills and qualification degrees of the pre-service teachers as the independent variables.” Mark, Pegrum., Christine, Howitt., and Michelle, Stripe. (2013).

Teacher’s adoption of technology and their effectiveness on achievement and technology usage were widely explored in the research study of Robert Aldunate and Miguel Nussbaum (2013), where teacher’s adoption of technology as independent variable; and effectiveness of technology teacher’s behavior as dependent variable and usage of technology such as using electronic whiteboards, digital cameras, and websites as dependent variables “to study the interplay between teacher technology adoption behavior and types of technology”.

CONCLUSION

An analysis of these prior investigations has been of use to the present research in more than one way. A review of prior researchers has helped the present researcher to determine the scope of this study in terms of important variables to be included in the study. Very few of the prior researches have included study about future gadgets and its comparison of students, teachers, administrators, gadget experts, educationists, parents and other stakeholder’s perceptions on the basis of the categorization, utilization, barriers and preparatory needs especially in the Indian context. Thus the researcher decided to include these variables in the present study.

In order to know importance and distinction of the research study, the present researcher consults various books, journals, encyclopedias, newspapers, magazines, conferences, symposiums, dissertations, doctoral thesis, internet, digital books and libraries, TVs and literature from different sources. The researcher collected near about 108 different research studies, out of which 52 studies were related to Indian literature and 56 were from abroad from various articles, conference papers, PowerPoint presentations, Ph.D. thesis/dissertations, seminars, editor’s notes, online-journal articles, research papers etc. to contribute towards the related literature. After studying the previous reviews of literature, the researcher observed that most of the studies were related to futurology, innovations and future technology, e-learning, educational technology using latest devices and technology, M-learning, B-learning, multimedia/ICT learning, innovative technology-based learning models, and students-teacher’s attitude towards ICT, CAI and conventional learning process in secondary and higher education, etc. The review has showed that a very large majority of prior studies on innovations, technology, futurology in education, CAI/ICT in student-teacher education, multimedia tools and various studies based on latest technologies were conducted in western countries and a very few prior studies have been in the Indian contexts. Thus, the researcher decided to conclude near to the specified study, as not a single literature directly related to the present study. The review has also helped the researcher to gain extensive knowledge about various tools, resources available for measuring the concepts included in the study and thereby determine the tools to be used to measure perceptions, utilizations, barriers and preparatory needs related to various stakeholders towards the use future technology.

Prior researches have also aided the researcher to determine the methodology of the study in that there is very little knowledge about existing future technology and innovative learning styles of students and other stakeholders and thus it is necessary to first study the futurology, innovations and innovative learning styles using descriptive method of research rather than the experimental method.

In overall, it is absolutely a new innovative study in the field of futurology, innovations and future perspectives towards educational technology in technotronic era.

REFERENCES

1. Auttawutikula, Siwanit., Wiwitkunkasemb, Kasemrut., & Smithc, Duncan. R. (2014). Use of Weblogs to enhance group learning and design creativity amongst students at a Thai University. *Innovations in Education and Teaching International*.Routledge, 51:4, 378-388, doi: 10.1080/14703297.2013.796723.
2. Colin, Lemmon., Siu, Man. Lul., David, Cottrell., & John, Hamilton. (2014). *Challenges to develop an Interactive 3D Virtual World for Psychological Experiments* [PowerPoint slides] Paper presented at presented at Sixth European Conference on Games-Based learning. University college Cork and Waterford institute of Technology, Iteland.
3. Janice, Waldron. (2012). Youtube, Fanvids, Vlogs and Blogs: Informal Music learning in a convergent on-offline music community. *International Journal of Music Education*, 31(1), 91-105. doi: 10.1177/0255761411434861.

4. Jeremie, Seror. (2013). *Screen Capture Technology: A Digital Window into Student's writing processes technologies*. Canadian Journal of Learning and Technology (CJLT), 39(3), 2013, 1-16. University of Ottawa. (ERIC Document Reproduction Service No. EJ1029325). Retrieved August 01, 2014 from ERIC database.
5. Jon-Chao, Hong., Ming-Yueh, Hwang., Tzu-Yun, Ting., Kai-Hsin, Tai., & Chih-Chin, Lee. (2013). *The Innovativeness and Self-Efficacy predict the Acceptance of using iPad2 as a Green behavior by the Government's Top Administrator's*. The Turkish Online Journal of Educational Technology (TOJET), 12(2), 2013. 313-320. (ERIC Document Reproduction Service No. EJ1015423). Retrieved August 01, 2014 from ERIC database.
6. Lani, Florian.(2004). Uses of Technology that support Pupils with special educational needs. Floran, Lani & Hegarty, John. (Eds.), *ICT and Special Educational Needs – A Tool for Inclusion*. (pp.1-7). Great Britain, British: Library of Congress Catalogue.
7. Manas, Ranjan. Panigrahi. (2011). Perception of Teacher's Towards Extensive Utilization of Information and Communication Technology. *Turkish Online Journal of Distance Education (TOJDE)*, 12(4), Editor's Note-5.
8. Margaret, Horna., & M, Thompson. Emine. (2007). Virtual Reality and 3-D Modelling in Built Environment Education. (pp.90-99). *Paper presented at 7th International Conference on Construction Applications of Virtual Reality (CONVR-2007)*, Penn State University, USA.
9. Sushma, Rani. (2013). Status of CAI and ICT based learning on the Academic Achievement of Govt. and Non-Govt. Schools. *International Journal of Research in Management (ACME INTELLECTS)*, 3(3), 1-13.
10. Xiangyu, W., E.D. Love, Peter., Robert, K., Jeong, Kim, Mi. & Rex, Davis. Peter. (2012). Integration of E-Learning 2.0 with WEB 2.0. *Journal of Information Technology in Construction. (IT CON)*. 17, 387-396.
11. <http://acmeintellects.org/index.php/journals-case-studies>.
12. <http://www.itcon.org/2012/26>.
13. <http://www.pelagiaresearchlibrary.com>.
14. <http://www.nrl.northumbria.ac.uk/6740>.
15. https://tojde.anadolu.edu.tr/tojde45/notes_for_editor/notes_for_editor_5.
16. <http://www.engr.psu.edu/convr/proceedings>.
17. <http://www.ijci.in>.

GENDER DISPARITY AMONG SENIOR SECONDARY SCHOOL STUDENTS TOWARDS ENVIRONMENTAL POLLUTION: AN ATTITUDINAL STUDY

Mr. Harish Mittu¹

¹ Assistant Professor, School of Education, Lovely Professional University, Punjab, India

ABSTRACT

The current research paper studies the difference in the attitude of senior secondary school students towards environmental pollution with respect to gender. To study the attitude of senior secondary school students towards environmental pollution descriptive survey method has used as research method. A sample of 200 senior secondary school students, comprised of 100 boys and 100 girls was drawn from five senior secondary schools of district Kapurthala, Punjab. The senior secondary school students were selected from different schools of district Kapurthala, Punjab through convenience sampling technique. Environmental Pollution Attitude Scale by Prof. M. Rajamanickam (1998) was used to collect the data from senior secondary school students. Z'-test was used to analysis the data. Result revealed that senior secondary school boys and girls do not differ significantly from one another with respect to their attitude towards environmental pollution i.e. both boys and girls of senior secondary schools have similar type of concerns about environmental pollution.

Keyword: - Environmental Pollution, Attitude and Senior Secondary School Students.

1. INTRODUCTION

Today the cry of pollution is heard from all the corners of the globe and pollution has become a major threat to the existence on this earth. It is the major challenge in the present time. The pollution of various resources has gone to such an extent that we are unable to breathe fresh air and drink fresh water. On one hand the advancements of the science and technology have added to the human comforts by giving us automobiles, electrical appliances, supersonic jets, better chemicals to control insects and other pests, modern gadgets etc., but on the other hand, they have given human beings a very serious problem related to environment like environmental pollution when scientific advancements used ill-logically, unwisely and humans gives more important to their greed i.e. collecting material wealth instead to protect natural wealth. When man and other animals began their life on this earth, there was absolutely no sign of pollution. There was a perfect balance in various natural processes in the early times. The air and water were pure and soil was fertile. The problem of pollution arouse with the very civilization of man. As soon as man learned to use fire, the air pollution began. The rapid unplanned urbanization and industrialization leads to problems related to environmental pollution.

Environment is the combination of all the organic and inorganic substances surrounding the man. It is the sum of all social, economical, biological, physical and chemical factors which constitute its surrounding. In short, it consists of inseparable whole system constituted by physical, chemical, biological and social elements which are inter-related in many respects.

Environmental pollution means an undesirable change in the physical, chemical and biological characteristics of air, water and soil that can harmfully affect health, survival and activities of human beings and other living organism. It leads to direct or indirect changes in the environment which are harmful and undesirable to human beings and other

living organism. Environmental pollution categorized in to different type of pollutions namely water, air, soil and noise pollution.

2. REVIEWS OF RELATED LITERATURE

Yousuf and Bhutta (2012) [1] studied the difference between male and female students' attitude towards environmental issues (pollution of air and water, overuse of resources, global changes of the climate etc.) The results of the study indicate that - there was no significance difference between male and female students' attitude towards environmental issues and there was significant insights into male and female students' attitude towards environmental issues towards discipline in both government and private secondary schools.

Grewal and Kumar (2014) [2] studied the attitude of adolescents towards the environmental pollution. The findings of the study reveal that no statistical significance difference exists in attitude of adolescents towards the environmental pollution with respect to grade (9th and 11th grade students), residence (rural and urban students) and gender (boys and girls).

Adejoke, Andile, and Murembiwa (2016) [3] compared the levels of awareness, knowledge and attitudes about environmental pollution of secondary school students from two South African provinces. The purpose was to determine the levels of AKA between students living under different environmental conditions. Results of the study reveals that there is statistically significant differences between students from the two provinces with regards to all the environmental variables tested and students from both provinces identified newspapers as the most important source of information on environmental pollution.

Katoch (2017) [4] studied the awareness and attitude of school students towards environment and related issues. The results revealed that both male and female have equal awareness towards environment and female students are having better attitude towards environment than male students.

Yalçınkaya and Çetin (2018) [5] investigated the attitude and opinions of secondary school students about environmental education. Results of the study reveal that there exists a significant difference in attitude and opinions of secondary school students about environmental education with respect to gender and school type whereas no significant difference exists with respect to class level. Researchers recommended that schools should organize the activities that will promote environmental awareness and education among secondary school students.

Introduction related your research work Introduction related your research work

3. SIGNIFICANCE OF THE STUDY

As the population is increased day by day, the problem of environmental pollution increases day by day. In present time, underground water and water from rivers is not even fit to drink or for daily use due to water and soil pollution caused by unchecked discharge of industrial wastage in water bodies; soil pollution caused by excess use of chemicals in agricultural land; and air pollution is caused by the mixing of poisonous gases in air due to burning of agricultural wastage, garbage, smoke from factories or any unwanted micro particles. So, it is the responsibility of everyone to solve the problem of environmental pollution as early as possible to save our nature or mother earth for future generations.

Therefore, the present study is an attempt to study the attitude of senior secondary school students towards environmental pollution.

4. STATEMENT OF PROBLEM

Gender disparity among Senior Secondary School Students towards Environmental Pollution: An Attitudinal Study

5. OBJECTIVE

The main objective was to compare the attitude of senior secondary school students towards environmental pollution with respect to gender.

6. HYPOTHESIS

There exists significant difference in attitude of senior secondary school boys and girls towards environmental pollution.

7. DESIGN OF THE STUDY

In the present study, descriptive survey method was used to collect the data. A sample of 200 senior secondary school students, comprised of 100 boys and 100 girls, was drawn from five senior secondary schools of district Kapurthala, Punjab through convenience sampling technique.

8. RESEARCH INSTRUMENT

Environmental Pollution Attitude Scale (EPAS) by Prof. M. Rajamanickam (1998) was used by the investigator to measure the attitude of senior secondary school students towards environmental pollution.

9. Delimitation

The present study was delimited to senior secondary school students of district Kapurthala, Punjab.

10. Statistical Technique

The objective and hypothesis of the study has been tested by using z' -test.

11. Result and Discussion

Analysis of data, result and interpretation of findings has been done keeping in view the objectives and hypothesis of the study.

11.1 Result Pertaining to Attitude of Senior Secondary School Students towards Environmental Pollution with respect to Gender

The objective was to compare the attitude of senior secondary school students towards environmental pollution with respect to gender. After administering the environment pollution attitude scale; mean, standard deviation, standard error of difference and z' -value for attitude of senior secondary school boys and girls towards environmental pollution were computed and the result have been presented in table 1.

H_0 : There exists significant difference in attitude of senior secondary school boys and girls towards environmental pollution.

Table -1: Significance of Difference between Attitude of Senior Secondary School Boys and Girls towards Environmental Pollution Name of the Table

Group	N	Mean	SD	SE _D	z' -value	Remark
Boys	100	92.73	11.84	1.83	1.03	P > 0.05
Girls	100	90.85	13.90			

Table values of t' ($df=198$) at 0.05 and 0.01 level of confidence are 1.96 and 2.57 respectively.

11.2 Interpretation

Table 1 show the mean scores, standard deviations, standard error of difference and z' -value for attitude of senior secondary school boys and girls towards environmental pollution. The table 1 reveals that the mean attitude scores of senior secondary school boys and girls towards environmental pollution are 92.73 and 90.86 respectively. It may be concluded that senior secondary school boys are more concern towards environmental pollution as compared to senior secondary school girls. The value of standard deviation in case of senior secondary school boys and girls is 11.84 and 13.90 respectively. The z' -value for attitude of senior secondary school boys and girls towards environmental pollution comes out to be 1.03 which is statistically not significant at 0.01 level of confidence. It

shows that senior secondary school boys and girls do not differ significantly from one another with respect to their attitude towards environment pollution.

Hence, the stated hypothesis that there exists no significant difference in attitude of senior secondary school boys and girls towards environment pollution is accepted at 0.05 level of confidence.

12. CONCLUSIONS

It is concluded from the result and discussion that both boys and girls of senior secondary schools have similar type of concerns about environmental pollution. The same result has been reported by Yousuf and Bhutta (2012); and Grewal and Kumar (2014) in their studies.

13. REFERENCES

- [1]. Yousuf, A. and Bhutta, S. (2012). Secondary school students' attitude towards environmental issues in Karachi Pakistan. *International Journal of Scientific & Engineering Research*, Volume 3, Issue 10. Retrieved from <https://www.ijser.org/researchpaper/Secondary-School-Students-Attitude-Towards-Environmental-Issues-In-Karachi-Pakistan.pdf>.
- [2]. Grewal, K. K. and Kumar, N. (2014). A study of attitude of adolescents towards the environmental pollution. *Scholarly Research Journal for Interdisciplinary Studies*, Vol. 2 (14). Retrieved from <https://www.academia.edu/10204476>.
- [3]. Adejoke, C. O., Andile, M. and Murembiwa, S. M. (2016). Assessment of secondary school students' awareness, knowledge and attitudes to environmental pollution issues in the mining regions of South Africa: implications for instruction and learning. *Journal of Environmental Education Research*, 22:1, 43-61. Retrieved from <https://www.tandfonline.com/doi/abs/10.1080/13504622.2014.984162?journalCode=ceer20>.
- [4]. Katoch, K. S. (2017). Awareness and attitude of school students towards environment. *Scholarly Research Journal for Interdisciplinary Studies*. Retrieved from <http://oaji.net/articles/2017/1174-1522059077.pdf>.
- [5]. Yalçınkaya, E. and Çetin, O. (2018). An investigation of secondary school students' environmental attitudes and opinions about environmental education. *Review of International Geographical Education Online*, 8 (1), 125-148. Retrieved from <http://www.rigeo.org/vol8no1/Number1Spring/RIGEO-V8-N1-7.pdf>.

Incredible Role of SSO in eGovernance Services in Rajasthan

Rajendra Singh Thapa

Informatics Assistant, Department of IT & Communication, Government of Rajasthan, India

ABSTRACT

Authentication problems are among the top issues users of cloud technology encounter. Password reset requests consist 30% of calls made to the help desk, according to Avatier's research. As the world goes widely mobile, password and identity management becomes imperative for people and organizations. Single sign-on (SSO) software is one solution that comes to mind. Whether for work or play, this capability is best for those who deal with multiple passwords and logins in a day. It allows users to streamline their passwords for improved productivity and added security. Moreover, it provides several other benefits to customers, from individuals and small businesses to large enterprises.

Keyword: - SSO, G2G, G2C, B2C, Authentication User Agency, Authentication Service Agency

ABOUT SINGLE SIGN ON (SSO)

Rajasthan SSO (or commonly known as Single Sign On) is a platform created by Department of Information Technology and Communication, Government of Rajasthan in the year 2013 to provide Government-to-Government & Government-to-Public services to citizens. After successfully registering one time, the user can avail more than 40 government services in one area using their User ID. This includes: RajMail, RajEvalt, Rajasthan Sampark, Bhamashah Yojana and more.

Single sign-on (SSO) is a session and user authentication service that permits a user to use one set of login credentials (e.g., name and password) to access multiple applications. The service authenticates the end user for all the applications the user has been given rights to and eliminates further prompts when the user switches applications during the same session. On the back end, SSO is helpful for logging user activities as well as monitoring user accounts.

In a basic web SSO service, an agent module on the application server retrieves the specific authentication credentials for an individual user from a dedicated SSO policy server, while authenticating the user against a user repository such as a lightweight directory access protocol (LDAP) directory.

BENEFITS OF USING SINGLE SIGN-ON

- Mitigate risk for access to 3rd-party sites (user passwords not stored or managed externally)
- Reduce password fatigue from different username and password combinations
- Reduce time spent re-entering passwords for the same identity
- Reduce IT costs due to lower number of IT help desk calls about passwords

VERSIONS OF SSO

Department of IT & Communication, Govt. of Rajasthan releases several version of SSO. Each higher version consists of advanced features and support of newer technologies. First version v 1.0 was released on 1 May 2005. The latest version is v12.1 which was released on 25 January 2019. Till the said date 132 versions have been released with advanced features.

APPLICATIONS INTEGRATED WITH SSO FOR VARIOUS eGOVERNANCE SERVICES

SSO provides platform to use various web application which plays integral role in eGovernance. It provides the access of Government-to-Government & Government-to-Public services to citizens. Some most popular and common applications are as following-

Rajasthan Sampark

Rajasthan Sampark aims towards providing citizens with a centralized platform where any citizen of the state can lodge his/ her grievances to the respective departments. It primarily consists of a State level Call Center with integrated web portal which will act as a single point of contact for addressing and redressing various citizen centric queries and grievances related to government services. Citizens can lodge their grievances against any government department/ office through this portal and the grievance will further be sent to the respective office/ department for redressal.

Rajdharaa

The Primary objective of establishing Rajdharaa is to develop a state-wide web based Geo Portal to acquire, process, store, distribute and improve the utilization of geospatial data based on OGC standards and develop Data Clearing House, which would be a gateway of spatial data being generated by various agencies of the Government of Rajasthan. The proposed system would consist of policies, framework, hardware, Software, application, data, modelling and methods that deals with spatially referenced and geographically tagged / linked data / information as well as non-spatial data for creating multi-dimensional decision support system. It would provide a single window services to citizens to increase the efficiency and productivity of all departmental agencies such as Medical & Health, Police, Utilities, Power, Commercial Taxes, Water Resources, Education, Forestry, Agriculture, Urban Development etc.

RTI

This is a portal to file RTI applications/first appeals online along with payment gateway. Payment can be made through internet banking of SBI & its associate banks, debit/credit cards of Master/Visa and RuPay cards. Through this portal, RTI applications/first appeals can be filed by Indian Citizens for all Ministries/Departments and few other Public Authorities of Central Government. RTI applications/first appeals should not be filed for other Public authorities under Central/State Govt. through this portal.

Litigation Information Tracking & Evaluation System (LITES)

The established Justice Department in the Secretariat is to monitor litigation to which the State is a party. Justice department identified 292 units under 50 Administrative department of the Government to create a comprehensive database and to provide information to the State Government on litigation matters. Objectives of the department are-

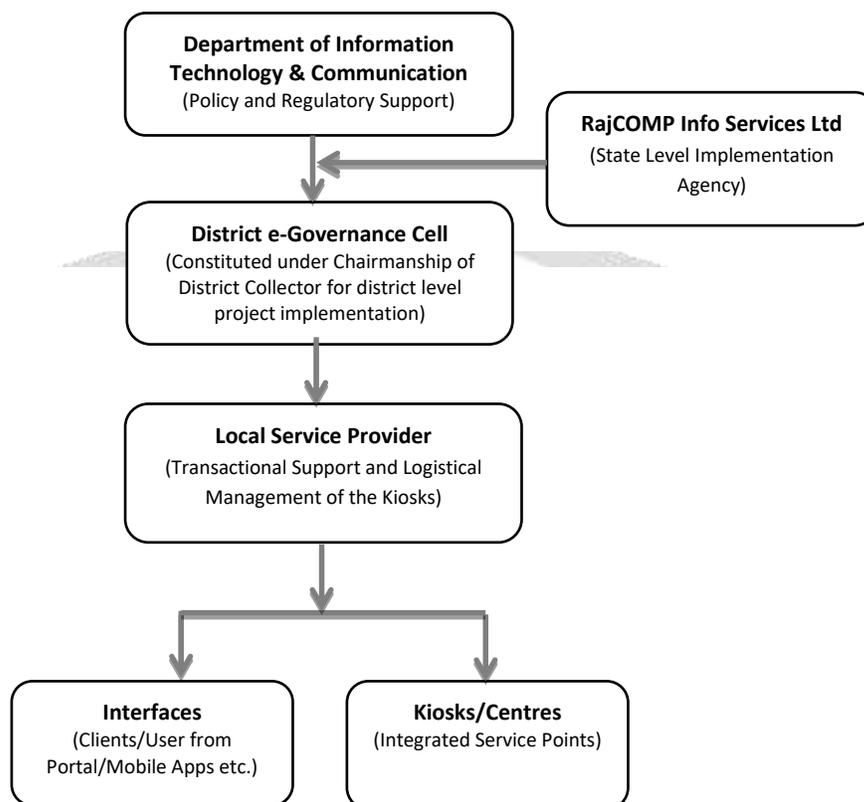
- To regularly monitor progress of litigation in which state is a party.
- To improve efficiency in handling cases.
- To diagnose flaws to improve and strengthen systems.
- To reduce unnecessary litigation and multiplicity of litigation.
- Curb litigation expenses.

Revenue Court Management System (RCMS)

Revenue Court Management System is developed by Department of Information Technology and Communication (DOIT&C), Govt. of Rajasthan for citizens to check the case details and cause list in the subordinate revenue courts online. All the officials have been trained on RCMS modules including case registration, cause list preparation, online judgment, notice generation, and feedback modules. Board of Revenue for Rajasthan had taken a "historic step" of placing its judgments online on 1st October 2017. According to the Chairman of the Board of Revenue for Rajasthan, V Srinivas on 12 October 2017 the Board of Revenue for Rajasthan is the first fully digitalised revenue board in the country

E-Mitra

Committed to quick and convenient delivery of citizen services, Government of Rajasthan set up the e-Mitra platform of e-Governance way back in the year 2004. Currently, Over 250 G2C and B2C services are being provided through this platform across all rural & urban areas in 33 districts of the State. These services include utility bill payment, application & digitally signed certificate services, banking, tele-medicine, e-commerce services, etc and new services are being added to its fold regularly.



E-Mitra : Implementation Structure (Ref. egovraj.wordpress.com)

Bhamashah

To build a better society, empowerment of every woman is imperative because empowerment of the woman is empowerment of the society and thus the State. The Bhamashah Scheme envisaged by Govt of Rajasthan in the year 2008 with this aim, even before the Aadhaar programme was thought of, is the first of its kind direct benefit transfer scheme in the country. The objective of the Scheme is financial inclusion, women empowerment and effective service delivery. Bank Account and Bhamashah Card to be made in the name of the lady of the house that empowers her to be the decision-maker for the family, for effective use of all cash and non-cash benefits under various public welfare schemes of the government.

Panchayat

Rajasthan Government developed online application for Panchayati Raj Department which includes all the details regarding Districts, Panchayat Samities, Gram Panchayats, Average Gram Panchayats per District, Average Gram Panchayat per Panchayat Samiti, Average Panchayat Samiti per District, Total Population, Rural Population, Raj E Panchayat etc. Citizen of Rajasthan can visit the app or the website to browse the details.

Raj E-Sign (Rajasthan E-Vault)

Raj eSign is an online electronic signature service which shall be integrated with every government application to facilitate all Aadhaar (U.I.D.) holders to digitally sign a document and all Government Officials to electronically authenticate, authorize and sign the deliverables and documents. The State Government authorized use of 'Raj e-Sign' as a valid digital signatures under Information Technology (IT) Act, 2000.

For residents of the State, Raj eSign is an integrated utility with Raj eVault, providing an electronic signature to each resident registered on Raj eVault. This shall provide each resident with an individual eVault with free capacity of 1GB secure space for official as well as personal account. The resident shall also get the electronic signature mapper to the account, which may be used for electronically signing any document.

Madarsa

Department of Minority Affairs and Waqf with Rajasthan Madarsa Board is providing a platform to provide various schemes of Central Government like Scheme for Providing Quality Education to Madaras (SPQEM) and Scheme for Infrastructure Development in Minority Institutes (IDMI) as well as State Govt. schemes like Chief Minister Madarsa Jan sabhagita Yojna and Aadarsh Madarsa Yojna. The applicant can download the required forms from the portal. The process of registration of madaras was started by the Board of Muslim Waqf for the purpose of catering modern education to those children who were getting only religious education in these madaras.

RajAadhaar

Department of IT & C (DOIT&C) has been registered as the state registrar by UIDAI for enrolment, monitoring and controlling the entire Aadhaar based authentication work. DOIT&C is also functioning as ASA/KSA and AUA to provide various Aadhaar authentication based services. DOIT&C is extending Authentication User Agency (AUA) and Authentication Service Agency (ASA) services to more than 20 SUB AUA (Government departments). Around 20 lakh transactions are taking place on daily basis. Major user of AUA services of DOIT&C are ePDS, Bhamshah, BSBY, SSO, Emitra. On an average around monthly 10 lakh transactions are taking place on ePDS system only. We are operating our Aadhaar enrolment permanent center across Rajasthan in all districts.

Disaster Management Information System (DMIS)

DMIS is associated with Disaster Management, Relief and Civil Defence Department. Disaster Management & Relief department is an administrative department of State Government of Rajasthan which is functioning under the Commissioner and Secretary, Relief Department. Head office of the department is of state level based at Jaipur with no subordinate offices or branch.

Disaster related relief work and activities are being carried out by different departments / organisations like P.W.D., forest, soil conservation, PHED, Panchayati Raj, Revenue, local bodies etc. District collectors and district level officers of other organisation act as an administrator, technical controller and coordinating officers in their districts and the expenditure occurred in executing the process is borne by DMRD department. It provides Early Response Teams (ERT) Registration, ERT Registration Status, Relief Assistance, Resource Registration etc.

Police (Citizen)

This app is associated with Crime and Criminal Tracking Networks & Systems (CCTNS) of Rajasthan Police. The objective of this system is to establish proper communication and procurement of data among police stations, state headquarters and central police organization. Citizens can also view and download the FIR. Rajasthan Police is also providing the facilities to citizens as E-FIR, Grievances, Employee Verification, House Renter Verification/PG Verification, Character Certification, Protest request, Event and Performance Request etc. By logging to SSO this app can be used by any citizen of Rajasthan.

CONCLUSIONS

Single sign-on, or SSO shares centralized authentication servers that all other applications and systems use for authentication purposes and combines this with techniques to ensure that users do not have to actively enter their credentials more than once. SSO is one of the best solutions for managing account access and mitigating the problems caused by the growing number of apps and logins. When applied at an enterprise level, Single Sign On has had a meaningful impact on businesses by reducing SaaS licensing costs, eliminating redundant processes, and streamlining workflows for onboarding and offboarding. It became an exclusive platform for multiple eGovernance applications which are available for govt. professionals and citizens.

REFERENCES

- [1]. E-Governance: Concepts and Case Studies, C.S.R. Prabhu
- [2]. Introductions and Concepts of E-Governance ,Vinay Yadav, Shubhendu S. Shukla
- [3]. Inclusive Growth through E-Governance, Surendra Kapoor, Prabhu Gollamudi, Nityesh Bhatt, Harish Plyer.
- [4]. Notification of Department of Information Technology and Communication, Govt. of Rajasthan No. F5(892) /DoIT/ Tech/15/I/42259/2015 Dated 07/12/2015.
- [5]. Official Web portal : <http://minority.rajasthan.gov.in>
- [6]. Official Web portal of Aadhaar: <http://aadhaar.rajasthan.gov.in>
- [7]. Official Web portal of DMIS: <http://dmis.rajasthan.gov.in>
- [8]. Web portal : <http://egovraj.wordpress.com>
- [9]. Official Web portal of SSO: <https://sso.rajasthan.gov.in>

BIOGRAPHY



Rajendra Singh Thapa born in Uttrakhand, India, in 1979. He received the B.Sc. degree from Jai Narain Vyas University Jodhpur, PGDCA from MCNUJC, Bhopal and MCA from MDU Rohtak. He has been working in position of Assistant Professor and Head in the Department of Computer Science in Aishwarya College of Education Jodhpur till 2013. Presently working as IT professional in Department of Information Technology & Communication, Govt. of Rajasthan.

Involvement of Customer Relationship Management (CRM) in E-Commerce

Sumit Purohit and Harish
Assistant Professor,
Department of Computer Science
Aishwarya College of Education, Jodhpur
Rajasthan, India

Abstract

In recent commercial environment new technologies are well effective on different aspects of commercial growth where the customer satisfaction and good will is an important check point. The branded as well as popular organization's administrators know that the organization's growth is depended upon the customer's need and satisfaction. At this perspective the customer's satisfaction is more important and sensitive issue. The emerging computing and communication technologies creating new virtual communities of customer and suppliers with new demands for products and services. For this E-Commerce with CRM plays an important role to meet the customer's need and to get positive attitude from customer's side. In this paper how the E-Commerce and CRM work together to achieve the goal of organization specific, is considered.

Keywords: E-Commerce, CRM, Customer's Satisfaction

INTRODUCTION :

In today's commercial era, where the customer is the main basis of business so that the organization's growth and success depends on the customer relationship improvements. For achieving this CRM is an important factor in growing many of the business environments. The major objective of CRM about to having closer relationships with customers and also having the idea of customer's requirements.

The management regarding to the customer attraction is the set of the processes and strategies related to customers which is supported by specific software in order to increase the customer's loyalties and organization's benefits.

Customer attraction can be done by:-

- Promising security
- Friendly guidance
- Rate comparison
- Budgetted products
- Proper product information
- Social shopping criterias
- Restricted personal information
- Transperancy regarding to product information

E-COMMERCE AND CRM:

CRM is process to learn about customers' requirements and behaviors in order to develop stronger relationships with them. A major thrust of CRM involves segmenting customer and offering appropriate, differentiated services for each of these levels. CRM comprises the acquisition and deployment of knowledge about customers to enable a company to sell more of their product or services more efficiently. It is a disciplined system that property allocated investment to maximize the value of customer. CRM ensures that channel with the right offer. The actual or potential values of individual customer relationship systematically guide the firm's marketing investment allocation decisions.

E-CRM is combination of software, hardware, application and management commitment. ECRM can be different types like Operational, Analytical. Operational E-CRM is given importance to customer touch up points, which can have contacts with customers through telephones of letters or e-mails. Thus customer touch up points is something web based e-mails, telephone, direct sales, fax etc.

E-CRM – OPPORTUNITIES

E-CRM is not here to change marketing but to enhance it by presenting opportunities to companies to improve their effectiveness and to deliver customer value. It can reduce the costs involved in communicating to customers; optimize work flows as a result of integration with other enterprise systems, facilitate better market segmentation and enable enhanced customer interactions, relationship and personalization opportunities. The goal of E-CRM systems is to improve customer service, retain valuable customers and to aid in providing analytical capabilities within an organization. CRM applications take full advantage of technology innovations with their ability to collect and analyze data on customer patterns, interpret customer behavior, develop predictive models, respond with timely and effective customized communications and deliver product and service value to individual customers. Using technology to optimize interactions with customers' companies can create a 360-degree view of customers to learn from past interactions to optimize future ones. It is also the infrastructure that enables the delineation of, and increases in, customer value and the correct means by which to motivate valuable customers to stay loyal. Through CRM the value of the relationship escalates for both parties: customers receive products and services more closely related to their needs and lifestyles and the organization cultivates a base of high-value, low-risk customers.

CHALLENGES OF E-CRM

With E-CRM customers drive the interaction deciding on the type and duration of contact permissible. The ability to create intimacy with the customer is limited and building trust can be difficult. When managing an on-line channel companies are faced with the fact that greater choice creates fickleness among customers and with the competition only one click away there are no second chances to recover mistakes in these remote channels. Data integration and IT architecture challenges also exist for organizations adopting E-CRM technologies.

CUSTOMER INTERACTIONS AND RELATIONSHIPS

The use of an E-CRM system enables traditional physical customer proximity to be substituted by digital proximity. The need for customer reassurance in the purchase decision can be exacerbated by new e-channels and needs to be addressed by the creation of, for example, on-line communities, on-line shop assistants, customer testimonials and general reassurance about buying strategies and purchase choices for customers.

CHALLENGES OF DATA INTEGRATION AND IT ARCHITECTURE

From a technology perspective an E-CRM system represents a mass of seams that need to be tightly stitched together, in essence a mass of integration. No single software application is able to fill the gap, nor is it likely to be filled internally. To implement E-CRM companies will need a variety of hardware/software applications and tools. This suggests significant resource and cost implications, which companies must incorporate into their overall strategic planning.

An E-CRM system is also highly dependent on neighboring systems to be effective, for example: traditional 'front office' CRM which has to be consistent with an E-CRM system at both data and process levels; back office systems which supply product availability and pricing information as well as previous customer transaction details; an existing data warehouse/mart consolidating customer related information; and finally Web content management and authoring tools. All of these linkages need to be effective and operational for E-CRM to successfully impact company activities and will present a host of challenges as business processes may have to be modified. This reinforces the need for companies to have well-developed business processes and information and technology infrastructures on which to build and sustain E-CRM competences.

FACILITIES FROM E-CRM

(I) E-CRM facilitates Customers

1. Interaction with Customers and Satisfaction

E-CRM customers will have any service available anytime throughout the year and can assist the customer in any way he required and pass on any information about your company's product or service, right then and there

with the prior permission when the customer is browsing through pages at your site. E-CRM maintains long term relationship with the customers with providing trust, ethics and friendship.

2. Speed of processing the transaction through e- response

E- Responses were widely used by businesses to acknowledge receipt of orders, payment and delivery of information. Many companies have changed the target time to 24 from 48 hours by the usage of E-CRM as customers are able to reach the company's website at any time. It has also been highlighted that the character of e-responses also helps build up the relationship between the provider and the customer

3. Better service quality

Delivering high quality services is a qualification for achieving customer satisfaction and only through customer satisfaction can the company gain loyal customers. Secondly, several of the quality dimensions of perceived E-CRM are new and most of them are related to technology: ease of navigation, flexibility, efficiency, site aesthetics and price knowledge

4. Convenience and trust

Conveniences and trust both plays a vital role when selecting a company or organization and if the users are not happy with the convenience, it does not take much time to change the organization.

(II) E-CRM facilitates Banking Sectors

1. Personalized services

As every contact with the customer is an opportunity to build a strong relationship with the user's. Personalization can be defined as serving the unique needs of individual customers. By providing good customer conversations the organization can improve the customer relationships. The main thing here is to identify the customer needs and providing the best possible solution makes an quality service to the customers because customers of the banks are becoming choosier and the success depends mainly on personalized services.

2. Better relationship with customers

To construct a long term dealings organizations need to be in stable touch with the regulars. Once when the organization acquires the customers and is able to have them lastingly forever, then only it implies that the customer become more loyal and making a better use of services of the organization.

3. Transaction security

Safety was the major barrier to internet banking. So it is important that companies' websites must provide sufficient privacy statements and an explanation of security measures and also to educate the customers about the unauthorized users like hackers. However it is good that banks are trying to ensure secure payments on the internet by using latest technologies like encryption and firewalls.

4. Email for business communications

As email is the inexpensive and fast source used to circulate information like sending order conformations, update on transactions, promoting new services and responding to enquiries from customers. Due to the large number of emails from customers, organizations has implemented automated emails systems .emails can also include the reviews and feedbacks and any edited contacts .by providing all these E-CRM bringing a connection between the bank and customer through email business communication.

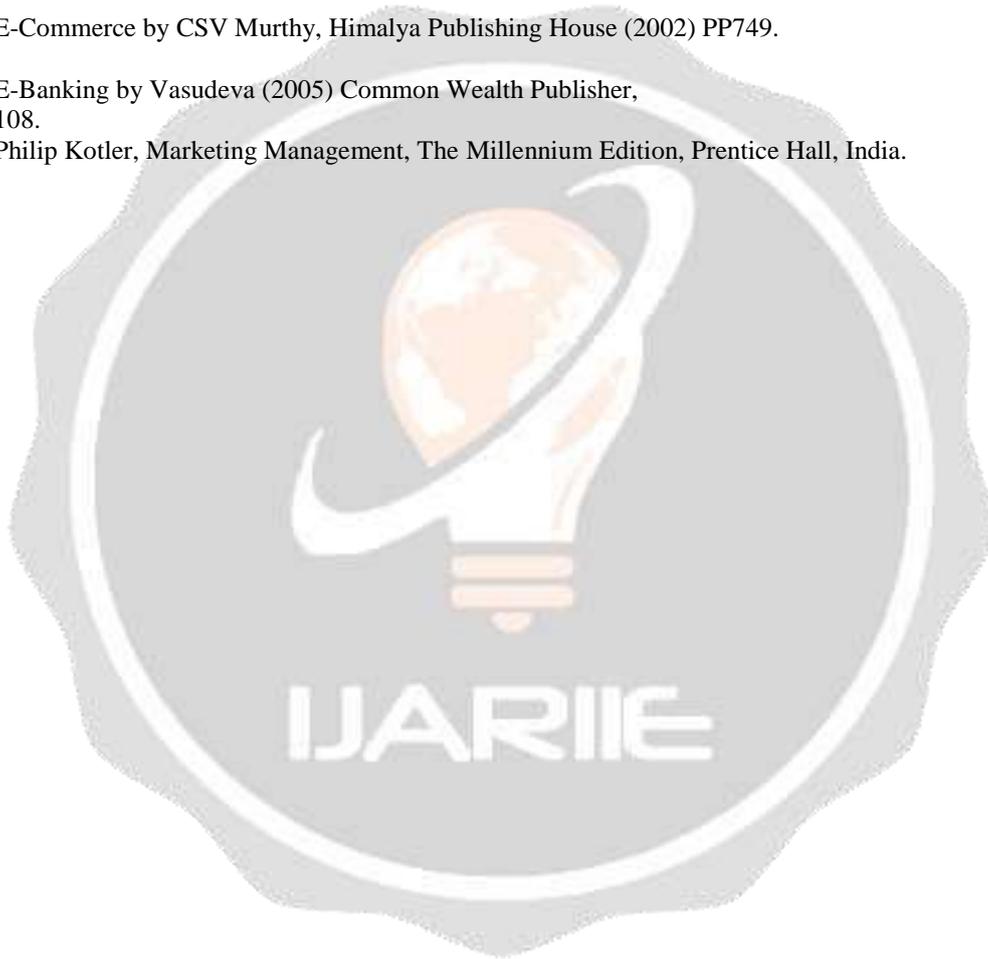
CONCLUSION

As e-technologies continue to develop into the future in tandem with the proliferation of an e-customer base, companies must attempt to harness the opportunities available to deliver sustainable competitive advantage in the digital world of E-CRM. To inform such strategies there is an ongoing need to examine how companies are translating investments in E-CRM technologies into sustainable competitive advantage in the marketplace. The role of E-CRM in the development and management of multi-channel strategies is also an issue for further research. It can be difficult for companies to put in place the correct metrics to evaluate E-CRM strategies, and

further research on gauging the effectiveness of E-CRM through performance measurements within organizations would be useful. Though the literature on self-service technologies is growing there is an ongoing need to examine the response of customers to a company's E-CRM strategies.

REFERENCES

- 1) Cho, Yooncheong;Im, Il; Hiltz, Rozanne; Fjermestad, Jerry "Causes and Outcomes of Online Customer Complaining Behavior: Implications For Customer Relationship Management (CRM).
- 2) Deitel, H.M., Deitel, P.J., Steinbuhler, K. e-Business and e-Commerce for Managers, Prentice Hall 2001.
- 3) Deck, Stewart. "CRM Made Simple", CIO Magazine, September 15, 2001.
- 4) E-Commerce by CSV Murthy, Himalya Publishing House (2002) PP749.
- 5) E-Banking by Vasudeva (2005) Common Wealth Publisher, 108.
- 6) Philip Kotler, Marketing Management, The Millennium Edition, Prentice Hall, India.



Review Article

E – AGRICULTURE

Manjeet Kour Arora¹ and Umesh Dhurwe²

PMB Gujarati Science College , Indore

NMV College Hoshangabad

Abstract

The present study analyzes the impact of e-Agriculture on farmers' basic rights and quality of life. e-Agriculture helps the farmers to increase the basic rights and improve their quality of life. The e-agricultural system provides its users and researches to get online information about, the crop, statistical details and new tendencies. The trends of the crops act so that these will be pretty important to the users who access these via the Internet. The main features of the system includes information retrieval facilities for users from anywhere in the form of obtaining statistical information about fertilizer, research institutes and researches, land availability, diseases, suitable soil concentration for the corresponding crops, statistical information about exports and etc. The positive changes were found of the e-Agriculture users. These results may assist to develop new policies that support to enhance farmers' livelihood.

INTRODUCTION

Agriculture is the cultivation of land and breeding of animals & Plants to provide food, fibers, medicinal plants and other products to sustain and enhance life. Agriculture was the key development in rise of sedentary human civilization where by forming of domesticated species created food surpluses that enabled people to live in cities. The study of agriculture is called agriculture is called agricultural science.

The major agricultural products can be broadly grouped into food, fibers, fuels and raw materials. Classes of food include cereals, vegetables, fruit oils, meat, milk and egg.

Modern agronomy plant breeding, agrochemicals such as pesticides & fertilizers and technological development such as e- agriculture have sharply increased yields from cultivation.

E- agriculture or ICT in agriculture, is about designing development and applying innovative way to use ICTs with complete focus on agriculture. It gave large number of solutions to all the agriculture challenges & will also promote sustainable agriculture while protecting the environment.

The very first step for planning for the use of ICT in agriculture is setting of strategy. It increases the business opportunity, reduced risk & improving the lives of people in rural communities so we can say that e agriculture is community knowledge sharing and networking ICT for rural development.

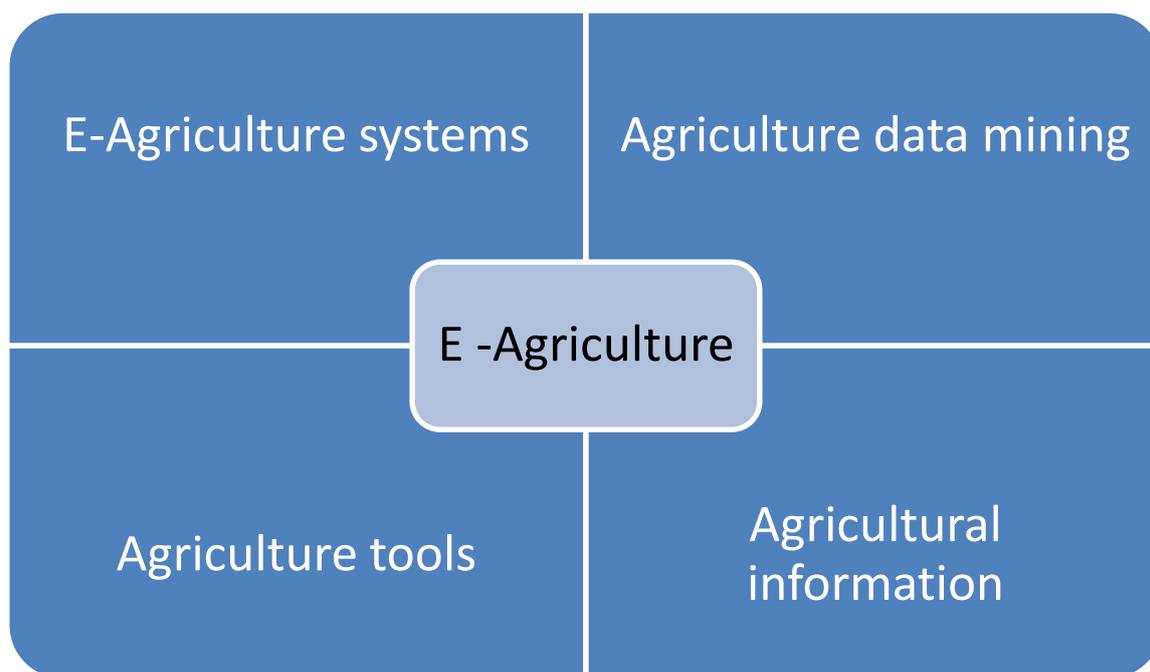


Diagram showing Frame work of E- Agriculture

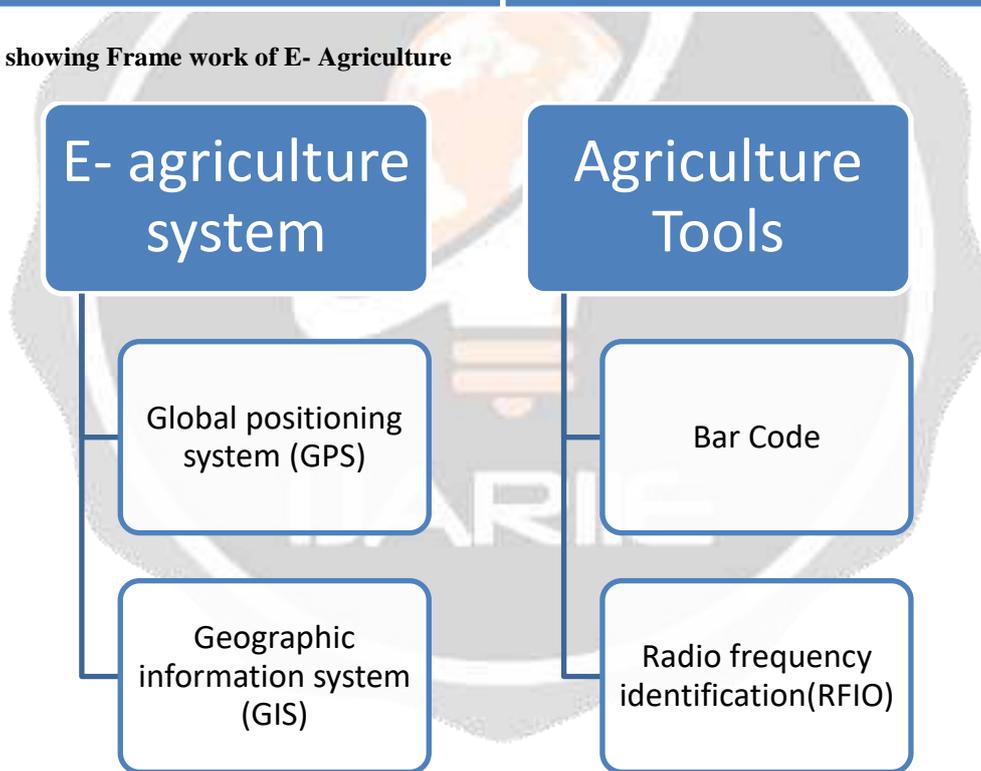


Diagram showing types of E- agriculture system and agriculture tools

E- Agriculture (sometimes written e agriculture or ICT in agriculture , survey conducted in late 2006 by the food and agriculture organization of united nation (FAO) found that half of those who replied identified e agriculture with information dissemination access and exchange, communication and participation.

In 2008 United nation referred to e agriculture as “an emerging field” with expectation that its scope would change and evolved as our understanding of area grows.

Rural development is a dynamic process which is principally worried with the rural territories. The motto of rural development is so as to achieve following four factors.

1. Raised economic growth
2. Raised income of rural masses.
3. Independence of rural mass is both political wise as well as economical.
4. To enable easy access to various resources like education medical care, job opportunities and so on.

The barriers in rural development are

1. People related .
2. Agricultural related problems.
3. Economic problems
4. Social and cultural problem.
5. Leadership problem.
6. Administrative problem.

Indian agriculture adds to 18.6 % of Indians gross domestic product and roughly 59% of Indians get their work from agrarian area. Data and information communication technology (ICT) assumes basic part in developing nations of the world .

BENEFITS OF E AGRICULTURE

Some of the benefits of ICT for the improvement and strengthen of agriculture sector in India are

1. Timely information on weather forecasts and calamities.
2. Better & spontaneous agricultural practices
3. Better marketing exposure and pricing.
4. Reduction of agricultural risk enhanced incomes.
5. Better awareness and information.
6. Improved networking and communication.
7. Facility of online trading and e commerce.

Better representation various forums authorities and platforms etc.

MORE ADVANCED USE OF ICT IN FARMING

- Irrigate via smart phone: Mobile is playing a big role in monitoring and controlling crop irrigation systems. With the right equipment a farmer can control his irrigation systems from a phone or computer instead of driving to each field.
- Moisture sensors in the ground are able to communicate information about the level of the moisture present at the certain depth of the soil. This gives more precise control of water and other inputs like fertilizer that are applied by irrigation pivot.
- GPS mapping for an input to the field using variable rate technology, which helps farmer in accessing the need i.e. where they need to put more fertilizer or less, according to the requirement of the soil. GPS enabled services are also helping in field documentation about yield, moisture, maps for field drainage, etc.
 1. Various farmer friendly applications (apps) are being launched by companies, which helps farmers in discovering prices for their products, delivering their product, getting soil report, etc.
 2. One of the best use of IT in farming is being done by one vegetable farmer outside Hyderabad using webcams to monitor the crops and to take the scientists' expertise to address problems without taking them to the field.

BENEFITS OF e- AID TO FARMERS

- IT has made its way into the agricultural sector, and with positive results. To name a few, here are some of its effects:
 - Improved decision making – By having the necessary information, farmers—big and small can make better and more informed decision concerning their agricultural activities. May it be about who to get their grains from or perhaps who to sell it to, the communication channels that information technology brings makes production up to distribution easier for the farmers. The exchange of knowledge from various countries and organization

also helps farmers be more aware of factors to consider before making their decisions.

- Better planning— IT has paved the way to come up with farming software which can keep better track of crops, predict yields, when to best plant and what to plant, to intercrop or focus on just one product, or determine the current need of the crops—just about everything needed to improve production and income.
- By adjusting to the modern farming methodologies, farmers can have better control of their crops. Gaining information from their farm is essential in sustaining its success and fuelling further growth.
- Community involvement – There are several programs which are made possible by IT applications, and community involvement in agriculture can be increased as well. When a community adopts modern methods for agriculture, the production of local goods can be increased.
- There are some places where people greatly benefit from the land and their resources for agriculture, and with IT, there can be improved union in local farmers which can lead to their community's overall improved production that may lead to better income for everyone involved.
- Agricultural breakthroughs – IT makes the spread of information concerning the latest agricultural breakthroughs more possible. When scientists develop new and improved grains or find techniques to help winter crops become stronger against the cold, farmers from all over the world may benefit from the same breakthroughs simply by being connected to the rest of the agricultural world. Sharing information to help everyone progress is made much easier through resources made available and accessible by IT.
- Agriculture for everyone – Farmers have in-depth knowledge when it comes to their trade. However, interested individuals who may be called backyard farmers may also benefit from how modern technology has changed how agriculture is seen. Growing your own sustainable garden of herbs, fruit trees, and other agricultural produce can be possible in a smaller scale. Planting is beneficial in more ways than one, and having your own produce even helps assure the freshness and quality of the food your family eats.

PRECISION AGRICULTURE (PA)

Satellite farming or site specific crop management (SSCM) is a farming management concept based on observing, measuring and responding to inter and intra-field variability in crops.

- This technique focuses on utilising resources optimally to improve the quality and quantity of crops while lowering the cost of production. It reduces fertiliser and pesticide use, prevents soil degradation, utilises water optimally and raises productivity. Globally, this is done with the aid of modern, eco-friendly farming practices and technology, including satellite imagery and information technology. “This innovation can go a long way in tackling many of our country's farm ills, including excessive use of water and other inputs, which has hurt soil quality apart from making farming unprofitable as a profession,

1. PROBLEMS IN EFFECTIVE USE OF TECHNOLOGY

- Though lots of problems like feasibility of connectivity in rural areas, cost involved in ensuring services, need for basic computer literacy and literacy hinders the fast development of e-Agriculture, it will definitely be an engine of growth in Rural India once the initial hiccups are overcome. Some of those problems are:-
- The reach of the technology is still very poor and large chunk of farmers are still ignorant about such advancements. The distribution of technologies is not uniform throughout the country. Farmers of prosperous states are at the receiving end like- Punjab, Haryana, Maharashtra and the farmers of backward states still practise their age old techniques and knowledge.
- The use of technology is being used by the already rich farmers and utilising these services they are further prospering. The small and marginal farmers are again being left out in the process of development.
- Due to low literacy rate among farmers and digital divide, there is a rise of new class of middle man, who provide ICT services to farmers. They are also believed to distort the information for their own benefit.
- The rural infrastructure for the use of ICT is also not uniform and lot of regional disparity persists.

VARIOUS ICT BASED PROGRAMS FOR RURAL DEVELOPMENT IN INDIA

E- mitra	CSC (Common Service Center)
Drishtee	KCC (Krishi call centre)
N- logue	Community information centre)
E-Sagu	Rural e- seva
Akshaya	Warna wired village Project
India development gateway (Ind g)	Gyandoot
ITC (e- chaupal)	Wwi
Krishiville	Milk coops
Remote consultation center (rcc)	Community information centre
E- Kuther	Vercon
Reifol	Kraid
Water shed project initiative (WPI)	Agora Programme
Bhoomi	Imark
Warna	Ciard
Rural bazaar	E- sewa
Suwidge	Kribho (reliance KisanLtd)
LokMitra	Nanoganesh
Mahashakti	Machine to machine (m2m)
MandiBhav	Farm management information service (FMIS)
Farm force	Progis
Reuters market Light (RML) Srvce	E- Sagu
I- Kisan	Tel- nek

SMART APPLICATIONS AND E- AGRICULTURE

SRIJAN	M- ARD
Jayalaxmiagrotech	M-AGRI
M- Kisan	M- Krishi
Life line	Nokia Ovi Life tools (OLT)
Smsone	E- Agriculture Rural development
Krishi Ville	

RESULT

From the study we come to understand that people lack awareness on E- agricultural services and ICT programmes of government and private sectors. Therefore awareness compulsorily of IT and its various services should provided to the rural masses in a speedy phased manner so as to enjoy the benefits of various IT services by rural farmers in India.

CONCLUSION

E- Agriculture services provides several benefits and can share agricultural information in speedy manner. It also facilitates timely and accurate update regarding current market price and market demand to farmers at lower cost and at lower risk by means of ICT enabled device such as mobile phones, radio and among the rural masses regarding . IT and ITC programs, play vital role for achieving rural development . If IT and ITC awareness had been created among the rural masses that may leads to social and economic wellbeing of rural masses that facilitate ruraldevelopment as well as nation development.

REFERENCES

1. Aker, J. C. (2010). Information from Markets Near and Far: Mobile Phones and Agricultural Markets in Niger. *American Economic Journal: Applied Economics*, 2(3), 46-59.
2. Aker, J. C. (2011). Dial "A" for agriculture: a review of information and communication technologies for agricultural extension in developing countries. *Agricultural Economics*, 42(6), 631-647.
3. Aker, J. C., & Mbiti, I. M. (2010). Mobile Phones and Economic Development in Africa. *The Journal of Economic Perspectives*, 24(3), 207-232.
4. Batchelor, S. J., P. Norrish, N. Scott, & M. Webb. (2003). Sustainable ICT casehistories. London, UK: Department for International Development. <http://www.sustainableicts.org/Final%20Tech%20report%20for%20Sus%20ICT%20310%2012003.pdf>.
5. Bekele, W. (2006). Analysis of farmers' preferences for development intervention - programs: A case study of subsistence farmers from East Ethiopian highlands. *African Development Review*, 18(2), 183-204.
6. Chapman, R., & Slaymaker, T., (2002). ICTs and rural development: Review of the literature, current interventions and opportunities for action. ODI Working Paper 192,
7. Farrington, J. (1979). Cotton, the economics of expansion in Sri Lanka (Report No. 30). Agrarian Research and Training Institute, Colombo, Sri Lanka. <http://www.searca.org/>
8. Fedale, S. (1987). Principles and practices of extension education: Electronic information technology for extension. Unpublished manuscript, University of Idaho, Agricultural Communications, Moscow.
9. Jensen, R. (2007). The digital divide: Information (technology), market performance, and welfare in the South Indian fisheries sector. *The quarterly journal of economics*, 122(3), 879-924.
10. Jha, D. (2000). Scope of privatising farm extension in India. NCAP: New Delhi available at http://www.ncap.res.in/upload_files/policy_paperlpp10.pdf, (Accessed on 29 ma. 2013).
11. Jones, G. E. & Garforth, C. (1996). The history, development, and fixture of agricultui extension in improving agricultural extension: A reference manual Edited by E. Swat Robert P. Bentz, and Andrew J. Sofranko.
12. Planning Commission, Agriculture (2008). The Tenth Five Year Plan. Planning Commission, Government of India, pp. 514-566.
13. , N. C., & Gillespie, J. M. (2004). The adoption of best-management practices by Louisiana dairy producers. *Journal of Agricultural and Applied Economics*, 36(1), 229-240.
14. Ramachandran, P.K. (1974). A multivariate study on information source utilization of big, medium and small farmers (Unpub). Ph. D. thesis, Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi.
15. Rao, N. H. (2007). A framework for implementing information and communication technologies in agricultural development in India. *Technological Forecasting and Social Change*, 74(4), 491-518.
16. Rao, S. S. (2005). Bridging digital divide: Efforts in India. *Teleinatics and informatics*, 22(4), 361-375.
17. Rao, S., & Malhan, I. V. (2008). Transforming Indian farmers to reach the next level of the green revolution through communication of strategic knowledge and increased use of ICTs. *The International Information & Library Review*, 40(3), 171-178.

“Protection of grains from stored grain pests using irradiation during prolonged storage”

Mohita Mathur¹, Yogita Chhangani², Ranjeeta Mathur³, Abhishek Rajpurohit⁴ and Aashu Upadhyay^{*}

*Assistant professor, Department of Zoology and Environmental Science
Lachoo Memorial College of Science & Technology (Autonomous)
Jodhpur(RAJ.).*

**Research scholar, Department of Zoology, J.N.V.U. Jodhpur (Raj)*

Key words- stored grain pests, irradiation.

Introduction

Insects seek out and utilize plants for food, shelter or egg laying sites and the plants provide these resources. Benefits of interactions can be for both, as illustrated by pollination. Insects play an important role in biodiversity like they act as pest in fields, predators in stores, parasites of crop pests or can they also act as pollinators. Insect pests cause heavy post-harvest losses to stored grain globally. It is estimated that world's large areas more than 35% of the harvested food are damaged by insects. In the various parts of the world nearly more than one thousand species of insects are associated with stored products. The majority of insect pests belongs to order Coleoptera and Lepidoptera, about 60% and 80% of the total number of species of stored product. Almost all insect pests of stored grains have a remarkably high rate of multiplication and with one season they may destroy 10-15 % of grains and contaminate the rest with undesirable odour and flavours.

Some of the major stored grain pests are *Rizoperthadominica* (lesser grain borer), *Sitophilusoryze* (rice weevil), *Trogodermagranarium* (khapra beetle), *Sitophiluszeamais* (maize weevil), *Triboliumconfusum* (confused flour beetle), *Triboliumcastaneum* (rust red flour beetle), *Corcyra cephalonica* (rice moth), *Oryzaephilusurinamensis* (sawtoothed grain beetle), *Sitotrogacerealella* (Angoumois grain moth), *Oryzaephilusmercator* (merchant grain beetle), *Sitophilus granaries* (granary weevil), *Cryptolestesferrugineus* (rusty grain beetle), *Tenebroidesmauritanicus* (Cadelle, one of the largest stored grain pests), *Cryptolestesturcicus* (flour mill beetle). From the feeding habits they are classified into two classes (a) Primary (b) secondary. Primary one are those have the ability to penetrate and infest on kernels of grain and secondary feed on the debris of broken kernels as they do not have the ability to infest grain.

Grains are very important in our dietary, serves many nutrition including carbohydrates, minerals, vitamins and proteins. Losses that caused by insects infestation in stored grain is almost equal to the cereal grain losses that occurs in the field. The motive of grain storage is to avert grains from rodents, weather, birds, moisture, microorganism and insects. Godowns do not provide 100% protection against insect infestation. The inadequacy storage is often cited in media as a major cause of food wastage. So, for the control of stored grain products necessitates for the safe biological agent that can be used as chemical pesticide. Chemicals pesticides are known to pollute the environment. Unfortunately, when pesticides are sprayed on surface, they not only gives effect on but

also enters in air and water and after entering in air, water and soil cycle they indirectly enters in the food chain and cause damage to plants and animals life cycle. Chemical pesticides are not only targeting on a particular pest but also harmful for the non-targeting insects. They are toxic in nature and exposure of these chemical pesticides not only cause a health effects, but also is linked with a range of illness and diseases in humans like respiratory problems, skin damage, skin itching and also can cause cancer. Insects in stored products results in both substantial economic damage and contamination due to the decrease of nutritional value and loss of the products. Other chemicals are very much in used for the protection of stored commodities from insect's contamination but the problem is their use leads to undesirable residues and also some of the insects developed resistant against the pesticides. So, irradiation technology as an alternative method is demonstrated for treatment and protection of the stored grains and also for food as it can extend the life of various fruits and vegetables and maintain the quality of the product over a large period of time. Worldwide, approximately tons of spices are irradiated and reason behind the irradiation is to control the microorganism and insects that causing damage and disease. Irradiated food is more acceptable to those sensitive to chemical treatments.

For controlling stored grain insects irradiation becomes an established technique because of residue free advantages. At least 33 countries have approved for the use of irradiation in stored products. Significantly in Asia food irradiation is increasing. The most recent development in food preservation is irradiation sources, infrared, x-rays, ultraviolet rays or gamma rays. Radiant energy can be used economically in many ways to kill insects. Radiation also affect mortality, arrested development, inhabited or prevented reproduction, reduced or enhanced longevity and effect physiological process of insects (Qureshi *et al.*,1970). It is possible to kill insects inside or among the grains without harming the grains (Yeomans,1952).

Conclusion :

The effect of irradiation on insect pests of cereals is a wide field of investigation in this present crisis period of heavy grain infestation and destruction. It has to be an excellent means of insect control, particularly for large volumes of commodities such as rice and other food grains. The rays are usually passed through the grains for post and prophylactic control.

References :

1. Brower, J.H. and Tilton, W. (1973a): Weight loss of wheat infested with gamma-radiated *Sitophilus oryzae* (L.) and *Rhizopertha dominica* (F.). *J. Stored Product Res.* **9**, 37–41.
2. Brower, J.H. (1973b): Inability of populations of *Callosobruchus maculatus* to develop tolerance to exposures of acute gamma irradiation. *Ann. Entomol. Soc. Am.* **67**(2), 287–91
3. Cornwell, P.B.; Crook, L.J. and Bull, J.O. (1957): Lethal and sterilizing effects of gamma radiation on insects and cereal commodities. *Nature* **179**, 670–2.
4. Cogburn, R.R.; Tilton, E.W. and Burkholder, W.E. (1966): Gross effects of radiation on the Indian-meal moth and the Angoumois grain moth in wheat. *J. Econ. Entomol.* **59**, 682–5.
5. Jefferies, D.J. (1962a): The susceptibility of the saw-toothed grain beetle, *Oryzaephilus surinamensis* (L.) to gamma radiation. Harwell: Atomic Energy Research Establishment.
6. Qureshi, Z.A.; Wilbur, D.A. and Mills, R.B. (1970): Irradiation of early instars of Angoumois grain moth. *J. Econ. Entomol.*, **63**:1241-1247.
7. Sokoloff, A. (1961): Irradiation experiments with *Tribolium castaneum* and *Tribolium confusum* *Inf. Bull.* **4**, 28–33.
8. Tilton, E.W. and Brower, J.H. (1987): Ionizing radiation for insect control in grain and grain products. *Cereal Foods World* **32**(4), 330–5.
9. Yang, T.C.H. and Ducoff, H.S. (1969): Radiosensitivity studies of irradiated *Tribolium castaneum* larvae. *Radiat. Res.* **39**(3), 643–54.
10. Yeomans, A.H.(1952): Radiant energy and insects. *Yearbook of Agric.* **411-421**.

IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN SOCIETY

Naveen Dutt Joshi

Assistant Professor (CS), Aishwarya College of Education, Jodhpur

Abstract

Artificial intelligence (AI) is kind of technology that makes the devices smart as human beings to develop the human's life by using these devices in all of the life's aspects such service robots, healthcare, education, including electronics, software, medicine, entertainment, engineering, communications and manufacturing. Artificial Intelligence (AI) is expected to transform our society, not only by substituting for routine tasks but also by supporting and enhancing human activities and decision making. There are many issues surrounding AI technologies are attracting attention internationally concerns. The study presents how intelligent technology influenced the human society by a research on key issues like Ethical Issues, Legal Issues, Economic Issues, Social Issues, and Educational Issues etc.

Keywords: Artificial Intelligence, Robots, Digital Divide, Ethical, Legal, Social Science.

1. PROBLEM FORMULATION

The main objective of this article is to answer our main question:-

- How did Artificial Intelligence influence the human society along the inception, development and innovation periods?
- What is the purpose of AI tools in society?
- What impact did robotics have on society in the different periods?
- How will advanced artificial intelligence influence the human society?

2. METHODOLOGY

In order to answer above four questions we will gather knowledge about AI tools and their impact on the human society from the available scientific facts from the three stages of their development (inception, development and innovation period).

3. ARTIFICIAL INTELLIGENCE AND HUMAN SOCIETY

3.1 What is Artificial Intelligence?

The early meaning of "artificial intelligence" was described as the ability of machines to do things that people would say require intelligence. Artificial intelligence (A.I.) research is an attempt to discover and describe aspects of human intelligence that can be simulated by machines. Over time the meaning of the word has been more precisely expressed. In modern aspect Artificial Intelligence can be defined by four approaches that are presented as "thinking humanly", "acting humanly", "thinking rationally", and "acting rationally".

4. ISSUES TO BE ADDRESSED REGARDING AI TECHNOLOGIES AND HUMAN SOCIETY

AI technologies support and augment human intellect and actions, and they execute parts of intellectual behaviours on behalf of humans. Thus, it supposes to greatly benefit and empower human society and to contribute to ensuring its sustainability if utilized safely and beneficially. However, AI researchers/engineers, governments, and business sectors as well as humanities and social scientists, education suppliers, and the

general public need to consider an appropriate relationship between AI technologies and human society and to prepare for it to realize and support a sustainable society. The following key issues must be focused:-

4.1 Ethical issues

4.1.1 The changing relationship between humans and AI technologies and the emerging new sense of ethics

Humans have utilized various tools and machines to make choices and decisions depending on circumstances. The advancement of AI technologies is increasing the cases in which they, using big data, can make accurate and quick decisions, semi-automatic operations, and statistically appropriate choices. When AI technologies support human choices and decisions, there are many benefits, such as improvement in accuracy and speed as well as independence from human cognitive bias and prejudice.⁸ However, it is important to consider the balance between human decisions and AI-based decisions depending on the situations and objects to be judged. Since relationships between humans and AI services/products/machines have gradually changed as AI technologies have advanced, it is likely that there is an emergence of a new sense of ethics based on these evolving relationships.

4.1.2 Concerns about manipulating emotion, faith, and behaviour and ranking or selecting AI technologies without awareness

AI technologies are becoming able to support and make decisions and actions that only humans have previously been able to perform. Many people have concerns about AI's potential manipulation or operation of their minds and behaviour, the evaluation or ranking of people by AI technologies, and AI influencing people's emotions, affections, people's awareness.

Revisiting the concept of humanity

The future blueprints show that AI technologies augment human beings' senses and abilities regarding space, time, and the body. According to this, changing concepts of human ability and emotion are supposed.

4.1.3 Considering the value of products and actions relating to AI technologies: The diversity in values and future prospects

The application of AI technologies has enhanced productivity quantitatively and qualitatively. AI technologies simply produce objects that otherwise either could be made only by artists/experts or would require high costs and/or a long time to generate. This indicates that everyone should have access to such high-quality items. Increasingly, new evaluation procedures have been required to observe the values (e.g., originality, utility, and virtue) of products made and actions performed by humans, AI technologies, and cooperation between both. The objective is to provide assessment results about how those values are accepted in society. Furthermore, it is also important to provide opportunities for dialogue among various people. Cooperation between humans and AI technologies can lead to the augmentation of human ability being a basis of a new sense of values. To realize these objective, continuous discussions about various choices and a diversity of values are strongly demanded based on recognition of individuals' differences in values and future prospects.

4.2 Legal issues

4.2.1 Clarifying the locus of responsibility and utilizing insurance: Considering the risks of using and not using AI technologies

Considering legal issues contributes to the acceleration of AI technology utilization and acceptance safely in society. Previously, statistical reports showed that most traffic accidents were caused by human errors and carelessness. Although autonomous cars enable users to expect traffic accidents to decrease and thus create a safer society, one may be concerned about who is responsible for accidents caused by autonomous car systems. Society's nearly implemented AI technologies require clear determination of the locus of responsibility for risks, accidents, rights infringement, benefits, and achievements. For human society to accept and benefit from AI technologies, it could be useful to clarify the locus of responsibility according to the levels of technological and to deal with uncertain, probabilistic risks.

4.3 Economic issues

AI technologies have promoted economic and industrial activities, and they generate additional employment in new jobs such as providing data for machine learning. The comparative advantage of AI technologies drastically changes the power relationships in business, just as the small number of companies that successfully exploited big data on the Internet gained extensive power in the information society. Careful awareness is effective at avoiding industrial monopoly, especially with regard to its influence on society. It is also anticipated that many

companies can reduce business costs and improve their business impetus, since AI technologies services/products require less labour power to operate. However, quick and appropriate actions are needed since an economically inefficient situation might occur at the transition phase when AI technologies are being implemented ethically, legally, and societal.

4.3.1 Changes in tasks and the way people work caused by AI technologies: Individual workers

AI technologies have increasingly become capable of doing automated jobs/tasks in place of humans. Consequently, many people are required to focus on more creative activities, for instance, changing jobs. One issue that needs to be addressed is how to harmonize an individual's abilities with a creative job/task. In the case where it is difficult to change jobs, that is, human resources do not meet with job requirements, both of unemployment and a labour shortage will occur at the same time. To avoid these problems, an individual has to acquire the ability to work creatively. As new businesses increasingly implement AI technologies, work styles also change in various ways that enable more people to work on their own account.

4.3.2 Changes in employment systems and companies due to the utilization of AI technologies

AI technologies are now crucial for industries and companies if they are to compete internationally. The change of work style can be contributed to AI technologies facilitating the reduction of tedious, prolonged, and exhausting jobs/tasks and the increase high-value work, as previously mentioned. This also requires companies to reconsider their manner of decision making and staff (re)assignment in order to take advantage of work flexibility that is unconstrained by time and space, e.g. tele-working. Companies should have impetus to make quick decisions and take action when acquisitions of human resources that can develop or utilize AI technologies or reassignment of labour are needed. For employee reassignment, it is effective for companies to provide education opportunities.

4.3.3 Industrial policies facilitating AI technology utilization, and educational and employment policies enabling labour mobility

At the government level, it is necessary to formulate policies that provide opportunities for people to learn abilities that enable labour mobility in order to facilitate economic growth through AI technologies and ensure that there are a variety of work styles suitable for individuals. The government also has to contribute to determining how to harmonize an individual's abilities with a creative job/task. Combining educational and employment policies are one of the effective procedures for enabling labour movement. In addition, the government has to appropriately put macroeconomic policies and safety nets in perspective. The procedures for the fair distribution of profits based on AI services/products, economic revitalization, and prevention of economic disparities should be proposed through consideration of the benefits. Since AI technologies are beneficial for Japan in confronting labour shortage, policies that enhance industrial competitiveness should be accelerated. Those policies will be more effective if users provide their opinions about companies' activities and the government's policies.

4.4 Educational issues

4.4.1 Cultivating individuals' ability to utilize AI technologies

AI services/products work appropriately if users understand their benefits and risks, learn how to identify responsibilities, and operate them perfectly to keep them under control. Significant issues are need to understand the advantages and limits of the current AI technologies, to perfectly utilize AI technologies, and to perform creative activities in collaboration with AI technologies.

4.4.2 Enhancing essential human abilities that AI technologies cannot perform

Education policy functions according to discussions about how to efficiently reform the curriculum based on evidence that shows the limitations of technologies. For example, a deep understanding of semantics, the utilization of experience-based imagination in novel situations, the ability to identify a problem that should be solved, the ability to communicate and collaborate, and the ability to explore novel information actively and to discuss and incorporate the opinions of others are all abilities that current machine-learning AI technologies seem unable to perform, and they are expected to become more important. Enhancing these abilities differentiates humans from AI technologies and makes humans perform creative tasks by utilizing AI technologies, which leads to the realization of a sustainable society with high productivity and less labour. Education for children is especially urgent because it takes time, and the development of AI technologies is so rapid. It is important to consider what abilities should be still learned by humans for proper brain development even though the activities enabled by said abilities can be performed instead by AI technologies.

4.5 Social issues

4.5.1 Freedom to use (or not use) AI technologies and people's dialogue on common social values

The social benefits from AI technologies are numerous, such as the realization of social security and safety, improvement of productivity to counter labour shortages, a decreasing birth-rate, an aging population, and the facilitation of participation by various people (inclusiveness) with individually optimized AI technology supports. Thus, AI technologies are crucial to the realization of Society. However, like many other tools and technologies, AI technologies' utilization cannot be socially enforced. It may be necessary to take into consideration the need to ensure the freedom to use AI technologies, based on an individual's faith, and avoiding social conflict between users and non-users of AI technologies. AI technologies work as a part of Information Technologies (IT) or software programs, so users cannot simply confirm AI services/products by their appearance. Thus, a discussion is required about whether AI technologies should be always explicit. Society demands the avoidance of social conflicts between AI services/products users and non-users. This also requires continuous dialogue among people with different visions and ideas, including experts, regarding opposing opinions in order to consider common, fundamental social values.

4.5.2 AI divide, the unbalanced burden of social costs relative to AI, and the prevention of discrimination

To maximize the benefits from AI technologies, in addition to appropriate knowledge of the AI technologies themselves, users need digital goods and services literacy and knowledge of data privacy. However, all people cannot acquire or maintain this knowledge and literacy, and it might be a causal factor in the so-called "AI divide." For example, "ONLINE CAB/ TAXI Services," backed by AI optimization technologies, could offer a new means of transport at a low cost comparative to taxis; therefore, it is supportive of socially disadvantaged people. However, access to these services requires a minimum familiarity with digital devices, so those without literacy may be excluded from the benefit of rideshare services. As ridesharing becomes popular, the traditional taxi services may become expensive or diminished. Therefore, it is necessary to take this into consideration when making policies to avoid generating an imbalanced social cost burden and a new differential caused by literacy, knowledge, and assets. Potential discrimination based on the output of personal profiling by AI technologies must be prevented.

4.5.3 New social pathology, conflict, and dependence on AI technologies

With increasing opportunities to use AI technologies in social contexts, there is a possibility of generating social pathology and new social problems, such as excessive rejection, overconfidence, and dependence on AI technologies. Recommendation and personal optimization by AI technologies may limit available information for individuals and increase the tendency for people to regard the limited information as universal. It is, therefore, necessary to provide accurate information and opportunities for dialogue and training.

4.6 Research and Development

4.6.1 Issues Ethics, accountability, and visualization

Researchers and engineers are required to engage in research in AI-related areas with a high level of professional ethics while observing the ethical codes and guidelines of their academic societies and organizations and with accountability for them. AI technologies have features that users are hardly aware of; they use the technology yet do not know how it actually works inside the products/services. Thus, exercise is recommended regarding the appearance of AI technologies and to visualize how much AI technologies are used in decisions or actions.

4.6.2 Security, privacy protection, controllability, and transparency

Scientists and engineers are required to establish environments with robust cyber-security and safety in which to use AI technologies. It is especially essential to develop technology that enables us to choose how much personal data to share, the level of individual privacy to be protected, and what kind of information can be used publicly. A study should be conducted to develop technologies that enable people to control the safety features of AI technologies.

4.6.3 Appropriate disclosure of information: Promoting the humanities, social sciences, and research collaboration

AI technologies based on machine learning produce statistically valid outputs, and they statistically benefit human society. For this paradigm to be accepted in society, scientists and engineers are required to explain it appropriately. When spreading new technologies, researchers and engineers might have to invest effort in explaining their benefits and risks fairly. To discuss the relationship between AI technologies and human society adequately and to design and realize a better future society, researchers in the humanities and social sciences should acquire up-to-date knowledge of new technologies and utilize them in their research. Scientists and

engineers should collaborate with researchers in the humanities and social sciences for pursuing socially beneficial AI technologies.

5. CONCLUSION

Recognizing that AI has tremendous potential to generate benefits for society while it also may engender safety concerns or other side effects, we can conclude that an in-depth discussion of cases of AI technologies deployed today or likely to be developed in the upcoming future with the aim of extracting key challenges to be addressed to ensure the intelligent use of AI for the benefit of human society. Recent acceleration of the advancement of AI technologies makes it difficult for institutional and social adaptation to keep pace, which leads the government to address the question of transition management. So it can be concluded that the government should enact policies relative to industrial competitiveness, employment, and education about social sciences for future design while promoting AI technologies.

6. REFERENCES

- 1) Angle C M., (2011) Earnings Call Transcript <http://seekingalpha.com/>
- 2) Arora M., (2008) Design and Development of Friction Compensator Algorithm for one Link Robot, Department of Electrical and Instrumentation Engineering Thapar University, Patiala 2008.
- 3) Ayres R. and Miller S., (1981) Hand book of industrial robot, historical perspective and role in automation, Carnegie-Mellon University, Pittsburg, Pennsylvania, 1981;
- 4) Ayres R. and Mille S., (1981) The Impacts of Industrial Robot, Carnegie-Mellon University, Pittsburg, 1981;
- 5) Simon, H.A., 1996. The sciences of the artificial. MIT press.
- 6) Nilsson, N.J., 2009. The quest for artificial intelligence. Cambridge niversity Press.
- 8) www.futureoflife.org
- 10) www.royalsociety.org/
- 12) www.forbes.com/

TECHNOLOGY TRANSFER IN CONTEXT WITH INDIA

Ms. Navrang Rathi

¹ Assistant Professor, Vyas Institute of Management

Guest faculty, Vyas College of Commerce and Business Administration

Affiliated to Jai Narain Vyas University, Jodhpur (Raj.), India

ABSTRACT

Technology transfer or transfer of technology as it is known is not a new phenomenon. It has been there since the inception of trade but lately had failed to gain the expected momentum. As per the definition from various laureates Technology transfer can be summarized as “diffusion of technology and its adaptation in the commercial format. In an elaborative sense, we can consider technology transfer as dispersion of any new innovation or technical know – how, which can be applied and be commercially viable at the production stage. It’s a combination of knowledge, skill, science, logic and market acceptance. It can take various forms and can be executed through International or domestic trade. Licensing, import of machinery, publications of books and journals, technical agreements and migration of people are some of the ways from which technology can be transferred easily.

There is a huge gap between the developed and developing nations with regards to transfer of technology. Developed nations are having an advantageous position as compared to the developing nations. India, being one of the developing countries, is also struggling to fully acclaim and absorb new scientific innovations. The major problem it is facing in the process of technology transfer is inadequacy of training awarded to fellow nationals and inappropriate absorption of technology. It needs to build upon the infrastructure to sustain the technology.

Keyword: Developing countries, Scientific Innovation, Technology transfer, Developed Countries, Licensing.

1. INTRODUCTION:

Technology Transfer is a concept/English phrase having two words with separate meaning. If we separately define these two words, in layman language, we can define “Technology” as any scientific advancement or innovation which reduces the work of mankind and is commercially viable. The second word “Transfer” can be defined as a process of handing over the complete possession or ownership of a living or non - living thing with no residual rights on the thing, may or may not for a consideration agreed upon.

The word technology has been derived from a Greek word ‘Technologia’, meaning systematic treatment. As per the definition given in the Collins’ dictionary, the word technology ‘refers to methods, systems, and devices which are the result of scientific knowledge being used for practical purposes. It’s basically the applied science which could be utilized by and large for the benefit of mankind.

Combining the aforesaid two words, we get a process. Therefore, Technology transfer or Transfer of Technology can be defined as a process where the skill sets and technical know – how i.e. basically the logical information gets channelized into large scale applications and flow\movement of those skill sets from one person to another, from one organization to another, from one country to another, from one race to another, from one generation to another, from the developed nations to developing nations over the period of time.

These skill sets and technical know – how are conceived by individuals like us, who have worked hard throughout their life to narrow down to few conclusions. These knowledge so generated should be protected via patent and due consideration should be given to the person behind the concept. Patent laws have been adopted throughout the world, including India. India had adopted patent laws way back in the year 1970's by adopting Patent Act, 1970. It has, time and again, amended this act to bring it in harmony with the international acts supported and backed by World Trade Organization. Patents as defined by the Indian patent act, 1970 means a patent for any invention granted under this act. Inventions are again described in the same act as a new product or process involving an inventive step and capable of industrial application. Here inventive steps means feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art (source: Indian Patent Act, 1970 and amendments thereto).

2. OBJECTIVE:

This paper tries to define the concept of Technology transfer with respect to Indian context and understand the whereabouts of the current situation. India being a developing country has its own bargaining drawback at the forefront of International scenario. India needs to buckle up support from all the supporting countries to emit a strong hold on issues related to technology transfer and not succumb to the needs/wishes of the powerful countries aka developed nations. India can be a super power in the coming decades, for this it's high time for India to pull up socks and speak its mind at the International foray.

This paper tries to answer the issues and challenges, review the earlier actions taken to improve the process of Technology Transfer and provides with the future course of action that India should adopt to fully utilize its resources and live upto its capabilities. This paper also tries to unleash the outlook of international as well as national organization towards India in context to Technology transfer process. It also identifies the effects of the actions of developed nation on the economic health of India.

3. METHDOLOGY:

Most of the research work, conducted for this paper is based on the secondary data which is published online and in related books. Data was also tabulated from the site of renowned organizations such as World Trade Organization, World Bank as well as from the many online journals of Government of India.

This paper tries to display almost all the essential elements of the topic but suffers from few unavoidable limitations. Scope of the following studies is restricted to certain defined factors, not covering all the aspersion of the topic.

Continuous comparison of data, rigorous study of articles, identifying the major factors affecting the technology transfer process, penning down the cause and effect relationship with respect to India etc. were some of the activities undertaken while doing the research.

It's of utmost importance that research should be conveyed in a simple and understandable manner creating *consensus ad idem* that is grasping the facts and figures in the same way, as the writer wants to portray. It's the language used, the cohesiveness in the ideas, the logics behind the points made, and the reasons supporting the points that make a research thorough and consummating.

3.1 MODES OF TECHNOLOGY TRANSFER:

Technology can be transmitted through various means. The most common ways for this are importing/exporting from/to another country, foreign direct investment by many multinational companies who along with capital bring in new techniques, with the movements of people from outside the country, joint - ventures and strategic alliances entered by our domestic companies with the international companies, as a part of contract manufacturing, by licensing, brought in by the migrants etc. Licensing being the most common one from them, it even allows medium or small scale sized (in certain cases) organizations to utilize the benefits of new advancement taking place throughout the world at minimal cost. Turnkey agreements are another common method which provides assistance

to Indian companies as well as Government to develop the needed infrastructure to support the upcoming technologies. In turnkey agreement, the contractor is responsible for all the procedures related to technology transfer, such as technology design, financing, equipment supply, construction and commissioning. This method is frequently used by Indian Government along with Equipment Acquisition. Hiring of experts via management contracts either from within the country or from other country is yet another method. Franchising is a method used by most of the commercial organization to set up an already known brand with the specification of the franchisor regarding the plant layout, qualities of the raw material, qualities of the final product, technology used etc.

Every method has its own advantages and disadvantage. The correct method should be adopted depending upon the purpose behind the purchase and various other factors such as availability of credit in hand, obsolescence rate of the technology so purchased or brought in, consideration to be paid against the technology, demand among the market, future scenario of the economy, preference given by the competitors, need of so called innovation, relation with the concerned foreign country whom we need to deal with, track record of the companies involved in technology transfer etc. Weighing all the pros and cons of a technology, it should be harbored and manifested in our country. The supreme purpose for technology transfer should be good of masses and not some individual goals. Hence, every transaction related to transfer of technology, however trivial it is, ought to be scrutinized by government. **Technology is power**, Power of knowledge and it should be used wisely. It can be a weapon of mass destruction or it can manifest a peaceful harmonious world to live in. It all depends upon the outlook and usage.

4. MAJOR CONCERNS:

If we see the International scenario, the developed countries have more control over the process of technology transfer as compared to developing. This lopsidedness affects the quality and effectiveness of the technology, providing the developed nations with the power to manipulate the market of developing countries. Although in the developing countries, the process of technology transfer has increased by many folds in comparison to the developed nations yet the gap of technology between the both is huge. This difference is mainly due to weak bargaining powers among the developing countries, India being one of them, lack of transparency among the parties to transaction, ineffective policies of international forums such as World Trade Organization and United Nations etc., improper utilization of the available resources, lack of programmes parting technical training to fellow countrymen, lack of infrastructure which is again one of the biggest problem of India, inability to retain the quality population from migrating to other countries in search of better opportunities.

Developed nations outlook and practices are sometimes not in favor with the third world countries. Activities such as dumping the technology, selling the obsolete technology, not providing assistance to the fellow countries as promised, charging high prices etc.

International forums such as World Trade Organization, mostly act in the favor of developed nations which is harmful for the interest of the developing countries. They should, *suo motto* inquire about the situations and needs of the developing country. Proper rules and policies should be laid down for protecting the interest of developing and under developed countries. Unbiased international grievance redressal platform should be provided to each and every country.

Apart from this, as per India is concerned following are some additional issues which should be answered immediately:

1. Lack of quality technical literacy which should be a must among the people. (Special mention to the fact that government is planning to add Artificial Intelligence as a subject in school learning.)
2. Poverty, which handicaps most of the people from adopting and switching upto new technology.
3. Irregular diffusion of technology within the parts of India, giving it a paradox of being technically advanced and backward at the same time.
4. High prices of the technology brought in and further even high cost of maintenance.
5. Inefficient absorption of the technology across the country. Absorption refers to the utilization of the technology for the purpose for which it was brought efficiently.
6. Improper maintenance and repair of the technology purchased due to inefficient infrastructure and organization of resources.

7. Unhealthy competitions and practices among the Indian companies, hampering growth of each other, owing to their own selfish motives of limiting growth to themselves.
8. Weak and incompetent laws, having loopholes and enforcing unnecessary formalities.
9. Unable to reproduce and match up to the level of International Standards.
10. Irresponsible nature of Indian nationals leading to misuse of the technology.
11. Presence of irrelevant trade barriers in the International trade which makes it relatively difficult in the purchase of technology.
12. Restraining policies followed by the India, limiting the scope, utilization and adaption of the technology.
13. Presence of Stringent procedural formalities in the administrative setup, which is mandatory to be followed and take over a period to complete, sometimes rendering the technology so purchased degraded.
14. Political pressures and corruption prevalent among the government authorities making it a difficult road for the transfer of technology.
15. Lack of awareness among Indians regarding the concept of "Transfer of technology" and its benefits. Indians normally resist any new change or upgradations and avoid such situations.
16. Lack of financial support from international banks.
17. Deficit Balance of trade and Balance of Payment.
18. Pressure on the foreign exchange reserves of the country, further increasing the inflation and weakening the Indian rupees in comparison to dollar.

5. SUGGESTIONS ON THE STEPS TO BE TAKEN IN THE NEAR FUTURE TO CURB THE ABOVE ISSUES:

1. Increasing the quality of technical knowledge by opening new education institutions, reviving the old ones with new concepts, increasing their level of training, coming up with fresh vocational courses.
2. Making plans for eradicating poverty so the people could afford new technologies and a better life.
3. Proper and balanced distribution of technology all over the India with maximum absorption.
4. Devising plans for spreading awareness among Indians and increasing the basic technological knowledge.
5. Updating existing laws and amending them as per the requirement of the hour.
6. Developing the infrastructure of the country may help to retain and fully utilize the new technology so brought.
7. Removing exaggerating trade barriers and further liberalizing trade to increase the movement across the border.
8. Adopting friendly policies and supporting other developing countries to voice their opinions on International platforms.
9. Improving International credit ratings so as to get easy finance from national/international banks.
10. Spreading awareness among people and locals and making them fully equipped with the peripherals needed to support the technological advancements.
11. Adopting strict Anti - dumping policies and establishing strong standards for acceptance.
12. Developing quality circles and groups to assess the quality and level of upgradations in new purchases.
13. Maintaining full transparency of purchase, giving each and every detail of how much amount is spent and on what.
14. Regulating Foreign Direct Investments, joint ventures/strategic alliance with MNCS', exports/imports.
15. Maintaining adequate Foreign exchange, bringing equilibrium to Balance of Trade and Balance of Payment.
16. Introducing required changes in the monetary, fiscal, economic policies of the country to bring it in line with the concept of "Technology Transfer".

6. CONCLUSION:

India, as one of the developing countries of the world, still has to work on the basics of the world trade. It has to keep its footing strong, so as to reach to the maximum benefits of the acquired technology at minimum cost and to efficiently absorb and diffuse that technology. It has to have strong laws as a backbone, protecting its interest in

every given situation. Also, it should have a balanced national policy on this subject. 'Technology transfer' is a dynamic field, growing at a faster pace which needs to be regulated; else the situation can also go out of hand.

7. REFERENCES:

- [1]. Mattoo, A, and R. Stern, India and the WTO. Washington, D. C.: World Bank and Oxford University Press,2003.
- [2]Mehta, R. WTO, Liberalization and the Industrial Sector: The Case of Market Access. New Delhi: Research and Information System for Non-Aligned, Other Developing Countries, 2001.
- [3] India's Patent Policy and Negotiations in TRIPS: Future options for India and other Developing Countries', Paper presented in the National Conference on TRIPS- motto for Developing Countries, Shyam prasad Institute for Social Service, Hyderabad, (2002).
- [4] Indian Patent Act, 1970
- [5]Indian Patent Act (amendment), 2005 along with the rules
- [6] Collins dictionary, 2014 edition
- [7] Websites checked in: [https://www worldbank.org](https://www.worldbank.org),
[https://www Wto.org](https://www.Wto.org),
[https://www commerce.gov.in](https://www.commerce.gov.in),
<https://www.investopedia.com>



IMPACT OF CLIMATE CHANGE ON HEALTH

Sweta Jain , Ranjeeta Mathu and Prabhat Mathur

Sweta Jain , Research scholar ,Department of zoology, Jai Narain Vyas University, Rajasthan India

Dr. Ranjeeta Mathur Assistant Professor , Department of zoology, Lachoo Memorial College of Science & Technology ,Rajasthan ,India

Dr Prabhat Mathur Associate professor ,Department of Computer Science Lachoo Memorial College of Science and technology, Rajasthan, India

ABSTRACT

Global climate change would affect human health which is varying complexity, scale and directness and with different timing. Indirect effects of climate change in mental health problems and involuntary migration are also important. The food chain are interactions between our physical and biological environments as food moves from production to consumption. Rising CO₂ and climate change will affect the quality and distribution of food, which effects on food safety and nutrition. Source. Many human diseases are linked to climate fluctuations such as cardiovascular mortality and respiratory problems, transmission of infectious diseases and malnutrition from crop failures due to large influence of socio-economic factors and changes in immunity and drug resistance. The three components of vulnerability which is exposure, sensitivity, and adaptive capacity are associated to social and demographic factors including level of wealth and education are extent of ecosystem degradation. As the changing climates interaction of pollutants may get modified too as their formation depends on many factors. Change in incubation period of pathogens in invertebrate vectors due to precipitation and temperature can cause transmission. An extreme temperature will affect people in urban areas more than rural areas. This is due to the 'heat islands'. Higher temperatures in the cities would increase in the ground-level concentration increasing water pollution problems. Indirectly, changes in weather pattern increase ecological disturbances, changes in food production levels, increase in the distribution of malaria, and other vector-borne diseases. Fluctuation in the climate especially in the temperature, precipitation, and humidity can influence biological organisms and the processes linked to the spread of infectious diseases. WHO provide information on the threats that climate change presents to human health, and opportunities to promote health while cutting carbon emissions.

Keyword:- climate change, vulnerability, water pollution .

1.IMPACT OF CLIMATE CHANGE ON HEALTH

Global climate change would affect human health which is varying complexity, scale and directness and with different timing. Indirect effect of climate change in mental health problems and involuntary migration are also important. Water is essential for life and have great quality to dissolved polluted substances. The expansion of agriculture and industrial development increased water consumption and affects water quality [1]. Due to these expansion pollutants such as industrial waste, sewage, chemicals, biological agents may also vary in nature. The various types of water pollution effects on human health and also changes climate. Climate is a main part of biotic systems. Climate affects population dynamics, distribution and abundance of species, and ecosystem structure and function. Regional variation in climatic also effects evolution of locally adapted physiologies, morphological adaptations and behavioral adaptations. [2] The most important factor of climatic changes in recent time increase in the atmospheric temperatures due to increased levels of greenhouse gases such as carbon dioxide (CO₂), methane (CH₄), ozone (O₃), nitrous oxide (N₂O) and chlorofluoro carbons (CFCs). Because of these increase concentrations of radiative or greenhouse gases changes in our climate which directly or indirectly effect on agriculture [2][3]. Due to rising temperatures and carbon dioxide impurity in rainfall associated with global warming may also cause directly and indirectly on crop production and food security. It is important to have an assessment of these consequences of global warming on different crops, especially cereals contributing to food security of the region.[4]. The impacts on water quality of resources (rivers and lakes) modifying parameters values of physicochemical parameters, micropollutants and biological parameters are considered. Then, the expected impacts on drinking water production and quality of supplied water are discussed. Many human diseases are linked to climate fluctuation such as cardiovascular mortality and respiratory problems, transmission of infectious diseases and malnutrition from crop failures due to large influence of socio-economic

factors and changes in immunity and drug resistance [5][6]. The main conclusion which can be degradation of drinking water quality due to climate change leads to increase risk situations related to potential health impact.[7]. The world's population is currently experiencing water stress and rising water demands greatly outweigh greenhouse warming in defining the state of global water systems to 2025. The human impacts on global water supply remains a poorly articulated but potentially important facet of the larger global change question.[8]. Two-thirds of the global area equipped for irrigation in 1995 will possibly suffer from increased water requirements and half of the total area depends on the measure of variability, the negative impact of climate change is more significant than that of climate variability.[9]. The global warming is nothing but increasing global atmospheric temperature over a long period of time. Such changes in surface air temperature and impact on rainfall over a long period of time are known as climate change. If these parameters show year-to-year variations is known as climate variability.[10][11].

According to the United Nations Framework Convention on Climate Change (UNFCCC) is that climate change is attributed directly or indirectly to human activity that alters the composition of the global atmosphere which is natural climate variability observed over comparable time periods.[12]

2.IMPORTANT WEATHER EXTREMES AND THEIR IMPACT AT GLOBAL LEVEL

In 1998 was the warmest and declared as the weather-related disaster year. It caused hurricane havoc in Central America and floods in China, India and Bangladesh suffered heavily due to ice storm in January while Turkey, Argentina and Paraguay suffered with floods in June 1998. The Indian economy is mostly agrarian depends on onset of monsoon and behaviour. The year 2002 was a classical example to show how Indian food grains' production depends on rainfall of July and declared as the all-India drought, as the rainfall deficiency was 19% against the long period average of the country and 29% of the area was affected due to drought.

3.EFFECTS OF CLIMATE CHANGE OF GLOBAL LEVEL

3.1 Water

Drought affected areas are more widely distributed. Heavier precipitation events are increase in frequency leading to higher flood risks.

3.2 Food

The increases in temperature and the frequency of droughts and floods are affected to crop production negatively which could increase the number of people at risk from hunger ,displacement and migration.

3.3 Industry, settlement and society

The most vulnerable industries, settlements and societies are located in coastal areas and river flood plains economically are closely linked with climate sensitive resources. The extreme weather become more intense or more frequent to the economic and social costs will increase. **Health:** The changes in climate are affect the health status of millions of people, including increased deaths, disease and injury due to heat waves, floods, storms, fires and droughts. Increased malnutrition, diarrhea disease and malaria in some areas will increase vulnerability to extreme public health, and development goals will be threatened by long term damage to health systems from disasters. Changes in climate may also distribution of important vector species for example, malarial mosquitoes and increase the spread of such diseases to new areas.

4.IMPACTS ON WATER RESOURCES

Changes in climate variables in temperature, precipitation and humidity may have significant implications for the quality and quantity of water. River systems of the Brahmaputra, the Ganga, and the Indus benefit from melting snow in the season particularly affected by the decrease in snow cover. A decline in all river basins except Narmada and Tapti is projected in India's NATCOM I. Due to sea level rise in the fresh water near the coastal regions will suffer salt intrusion.

5. IMPACTS ON AGRICULTURE AND FOOD PRODUCTION

The effect of climate change on Food production in India is sensitive to monsoon rainfall and temperature changes within a season. Indian Agricultural Research Institute (IARI) indicate greater expected loss in the Rabi crop.

Small changes effects the quality of fruits, vegetables, tea, coffee, aromatic and medicinal plants, and basmati rice. Pathogens and insect populations dynamics are depend upon temperature and humidity. The vulnerability of agricultural production depends not only physiological response affected plant but also ability of affected socio-economic systems of production to cope which changes in the frequency of droughts or floods.

6. IMPACTSON PEST

The climate change on pests and diseases spread in insects like mosquitoes, midges, ticks, fleas and sand flies, and the viruses they carry. In changes in temperature and humidity level the populations of these insects may expand their geographic range and expose diseases which have no natural immunity. Controlling pests requires pesticides which have serious side effects on human health and the environment. Climate changes play important role in food safety. Rising temperature affect insect survival, development, geographic range and population size. It may also affect insect physiology. Heavy rainfall causes pest epizootics by fungal pathogens. It is participate in cutworm infestation will be more in future because they are sensitive to flooding and summer rainfall. The increase in temperature reduces crop duration, increase crop respiration rates, evapotranspiration, decrease fertilizer use efficiency.

7. IMPACT OF CLIMATE CHANGE ON DISEASE

Due to increase CO₂ or climate change causes in phytophagous insects, plant pathogens and weeds. In climate change it is important to consider biotic constraints on crop yields.

7.1 Impacts on Plant Patho- systems

Climate change are modify in host physiology and resistance and rates of development of the pathogen. The impacts would be shifts in the geographical distribution, physiology interactions of host and pathogen, changes in crop loss.

7.2 Geographical Distribution of Host and Pathogen

The mechanism of pathogen dispersal, suitability of the environment for dispersal, survival between seasons, and any change in host physiology and ecology in the new environment will largely determine how quickly pathogens become established in a new region. Warming and other changes make vulnerable to damage from pathogens that are currently not important because of unfavorable climate

7.3 Physiology of Host-Pathogen Interactions

In the initial establishment of the pathogen may be delayed because of modifications in pathogen aggressiveness and host susceptibility. The second important increase in the fecundity of pathogens under elevated CO₂.

7.4 Elevated Temperature

Increases in temperature can modify host physiology and resistance. Host stress is an especially important factor in decline of various forest species.

7.5 Crop Loss

To increase carbon stored in roots, losses from soil borne diseases of root crops reduces under climate change. In foliar diseases favored by high temperature and humidity, increases in temperature and precipitation under climate change may result in increased crop loss.

8.PROGRAMMES

According eight National Missions form the National Action Plan representing multi-pronged, long-term and integrated strategies for achieving goals in the context of climate change:

- i. National Solar Mission
- ii. National Mission for Enhanced Energy Efficiency
- iii. National Mission on Sustainable Habitat 23
- iv. National Water Mission
- v. National Mission for Sustaining the Himalayan Ecosystem
- vi. National Mission for a "Green India"
- vii. National Mission for Sustainable Agriculture
- viii. National Mission on Strategic Knowledge for Climate Change.

9.CONCLUSION

The whole climate change associated which increases greenhouse gases and human induced aerosols and the imbalance in year-to-year monsoon behaviour over the world. Our economy is more dependent on Agriculture. Inawareness programmes on climate change effects on various sectors which is in agriculture, health, infrastructure, water, forestry, fisheries, land and ocean biodiversity and sea level and the role played by human interventions in climate change need to be taken up on priority basis. There is need to guide farmers on projected impact climate change and sensitise them for adaptation options to minimize the risk in Agriculture.

10.REFERENCE

- [1].Camille Parmesan, Terry L. Root, and Michael R. Willig . Impacts of Extreme Weather and Climate on Terrestrial Biota. Bulletin of the American Meteorological Society March 2000, Vol. 81, No. 3 Published online on 1 Mar 2000.
- [2].Garg, A., shukla, P. R., Bhattacharya, S. and Dadhwal, V. K.: 2001, 'Sub-region (district) and sector level SO₂ and NO_x emissions for India: assessment of inventories and mitigation flexibility', Atmospheric Environment 35, 703–713.
- [3].IPCC (Intergovernmental Panel for Climate Change): 2001, Climate Change 2001 — The Scientific Basis, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Houghton, J. T., Y. Ding, D. J. Griggs, M. Noguer, P. J. van der Linden, X Dai, K. Maskell and C. A. Johnson (eds.)], Cambridge University Press, Cambridge, UK, 881 pp.
- [4].Krupa, S.: 2003, 'Atmosphere and agriculture in the new millennium', Environmental Pollution 126, 293–300.
- [5].Aggarwal, P. K. and Mall, R. K.: 2002, 'Climate change and rice yields in diverse agro-environments of India. II. Effect of uncertainties in scenarios and crop models on impact assessment'. Climatic Change 52(3), 331–343.
- [6].Climate Change And Rice Yields In Diverse Agro-Environments Of India. II. Effect of Uncertainties in Scenarios and crop model on impact Assessment P.K.Agrawal and R.K.Mall Centre for Applications of Systems Simulation, NRL Building, Indian Agricultural Research Institute, New Delhi-110012, India February 2002, Volume 52, Issue 3, pp 331–343
- [7].Impacts of climate change on surface water quality in relation to drinking water production. Delpla A. V. Jung E. Baures M. Clement O. Thomas <https://doi.org/10.1016/j.envint.2009.07.001> Environment International Volume 35, Issue 8, November 2009, Pages 1225-1233 Global Water Resources: Vulnerability from Climate Change and Population Growth
- [8].Charles J. Vörösmarty^{1,2,4,5}, Pamela Green^{1,2,4}, Joseph Salisbury^{1,3,4}, Richard B. Lammers^{1,2,4} Science 14 Jul 2000: Vol. 289, Issue 5477, pp. 284-288 DOI: 10.1126/science.289.5477.284

[9].Petra Doll Impact of climate change and variability on irrigation requirements: A globalperspectivepetra doll Center for Environmental Systems Research, University of Kassel, Kurt-Wolters-Str. 3,D-34109 Kassel, Germany August 2002, Volume 54, Issue 3, pp 269–293.

[10].Briefing Note (1), 2008, International Strategy for Disaster Reduction, Geneva, September, 2008 International Food Policy Research Institute, 2009. Climate Change: Impact on Agriculture and Costs of Adaptation, 2009 Jamil Ahmad, Dastgir Alam and Ms. Shaukat Haseen. 2011.

[11].IPCC (Intergovernmental Panel on Climatic Change) 2006. The Economics of Climate Change: Stern Review. The Summary of conclusions. Survey of the Environment 2007, The Hindu, pp141-145.

[12].Ramakrishna, Y.S., Rao, G.G.S.N., Rao, S.G. and Vijayakumar, P. 2006. Impact of climate change in Agriculture. In: Environment and Agriculture (eds. Chadha, K.L. and Swaminathan, M.S.). Malhotra Publishing House, New Delhi, pp. 1-30



ROLE OF FACULTY DEVELOPMENT PROGRAMME ON THE OVERALL DEVELOPMENT OF EDUCATORS OF COMMERCE AND BUSINESS ADMINISTRATION INSTITUTIONS IN JODHPUR CITY, RAJASTHAN

Ranjeeta Pathak

PhD Scholar

Department Of Business Finance And Economics

Jodhpur (Raj)

INTRODUCTION

It is a changing world and so are the minds of the students. With the information overload and easy access to technology, students are getting smarter with a teach each passing hour. In this scenario where the only thing is constant is “NEW THING OR NEW CONCEPT” THE TEACHERS role, competitive and teaching style needs to change as per the needs of the s students. A teacher needs to be very smart and dynamic in his/her teaching methodology and also need to update by new things and fact n figure.

Hence, Training is the necessity for today teaching process .The teacher should not only upgrade in knowledge but also master in the art of delivering the lecture and also understand the youth psychology .it can also be assessed from the point of view of the organization wherein the institution /organization can address the weakness of the employees, improve his/her performance, ensure employee satisfaction and eventually align the organization’s goal with the individual goals. Hence we need to study the importance of faculty development programme for overall development of faculty members.

AIM OF PAPER

The agenda of this study is to overall development of Teachers so that they can improve the standard of students learning power. And understand the topic practically not theoretically...The paper concludes with some suggestions to improve the scenario of faculty development programmes.

MEANING OF FACULTY DEVELOPMENT PROGRAMME

The term “Faculty Development Programme” generally brings to our mind a scenario of classroom training imparted to the faculty members to improve the content or instruction. It is generally understood {or rather misunderstood to be a programme designed to improve the instructional capabilities of the faculty}.However, it is not so. The gambit of faculty development programme is much wider than ordinarily perceived by most of us.Centra (1989) has proposed four possible type of development ; personal (interpersonal skills, career development, and life planning issues), instructional(course design and development, instructional technology),organizational(ways to improve the institutional environment to better support teaching),and professional (ways to support faculty members so that they fulfill their multiple roles of teaching, research, and services.

The role of a faculty member is primarily that of a teacher, even though his role as a researcher or administrator or counselor cannot be negated or undermined. Hence, Faculty Development Program are also intended to equip the faculty members to be able to perform all his responsibilities directly or indirectly. For instance, FDP on content management and classroom delivery/management would directly improve his academic performance an FDP workshop on how to start a research project would directly help the faculty in pursuing research work.

But an FDP session on time management or anger management would indirectly improve the performance of the faculty member in and out of the classroom. This will not only enhance the individual capabilities (in several ways) but also enhance the organizational capabilities to change with the changing scenario and system. So, we can say FDPS are designed to address multiple issues apart from the fundamental academic issues that they face on a daily basis. Hence an FDP is aims at improving instructional capabilities and better learning outcomes for students.

IMPORTANCE OF FDP: FOR LECTURERS

1. Betterment for delivery of Lectures:

There are some lecturers who may be very good with the concept, but very poor in delivering the thoughts and expression. They might not be able to translate their views in words or how they express or delivery the content may not be in proper manner with the way the students would understood it.

FDP program play very important role in delivering the lectures in proper manner because in class they are versatile students are there some students understand through lectures while other understand by digital presentation due to FDP lecturer can understand the better way of psychology of students learning skills.

The faculty member after going through development programme may thus be able to understand the needs of his audience and able to deliver the content in a manner that it b becomes much easier for them to understand .Having developed such capabilities, the faculty member feels an increased sense of confidence and is able to manage the students and class in a better fashion.

2. Improvement in subject knowledge

The basic requirement for a teacher is to be a master of his subject, i.e. know the subject matter very well. Both the early career faculty member an old Faculty member face challenges with relation to the content at some point in time.

Anew faculty member or a fresher faculty member may face challenges with respect to content like: he may not know the topic in discussion or he may not have studied the topic himself. The older faculty members face issues like not having knowledge of recent trends and technology in their field or not able to recall in detail about the topic. Participating in programmes which are designed to improve the subject knowledge thus directly benefits both the fresher and older faculty members.

3. Interest for self confidence and development

While everyone knows the importance of self development, they may not be motivated enough to do the same/ or they may not know how to pursue self development which may translate into professional development also. Sometimes it becomes important to connect self development with career development. Also, it becomes important to stress on the need to research and guide on the process and ways to take up research.

4. To increase motivation level:

The FDP have been found to be directly related to the motivation of the faculty memebbers.with the assumption that the faculty member learns something new be it personal or interpersonal skills it can be said that he/she would like to internalize the same and implement it their actions faculty member may also feel that he is the focus of the institution.

Is development does matter to all and hence feels highly motivated and may also lead to higher commitments from the faculty members.

5. Mature competencies and practices:

The FDPs help the faculty members to mature in their roles as academicians and guide to the students. These programmes also help them to mature in their teaching practice as well. The faculty members are enabled to use technology wisely and be able to modify teaching styles as per the need, interest and motivation of the students.

6. Instills and enhances leadership skills:

A faculty member has many roles to play. He may need to step up as a leader or an administrator. Thus he needs to be prepared to take up such roles where he is not just a teacher in the classroom, but also a leader, an administrator. FDPs are thus designed to develop faculty members who are identified as those who may be capable to take up such roles. With such programmes, the faculty member is groomed to the next level wherein he is equipped with in the right information, skill or knowledge to be able to perform such tasks. The focus remains on his inter personal and intra personal skills, some of the FDPs are thus aimed at improving some of the following skills:

- Inter personal and intra personal skill development. The significance for the faculty members is immense as he is able to enhance his listening skills.
- Nonverbal communication like gesture, facial expressions, use of body language.
- Effective hand writingskills, to be able to communicate professionally with others within or outside the organization.
- Developing Effective Questioning Techniques: it's very important to ask the right question in order to direct the thinking process of the student in the right direction. Hence, some programmes are also designed to develop effective questioning techniques.
- Time Management: since the faculty members are involved in various activities in a day, it becomes very important for them to be able to manage their work in the given time. The FDPs thus can help the faculty members to be able to manage their work well.
- Stress Management: the biggest issue these days is "stress as more and more people have been reporting stress related issues. Hence FDPs aim at addressing such stress related issues and how matters can be resolved without leading to anxiety.

ROLE OF FDP PROGRAM FOR STUDENTS:

Students are the biggest Shareholder in an institution because the educational/professional establishments are "for" the students, if there are no students, there will be no institution. Also students learning and career would depend on the quality of education that they receive in professional institution. Hence "students" are undoubtedly the biggest shareholders of any institution.

The quality would in turn depend on the level of faculty development. If the faculty itself is not fully aware of the latest trends or does not have good understanding or good communication skills of the subject matter and even worse, he/she is not able to deliver what he knows very well, it will not be able to bring about the desired change in the students. Whereas, as well informed, well trained faculty can respond quickly to the changes in the environment and quickly adapt to it thus having a better impact on its students. Hence, faculty member become a "shareholder" in an institution.

The FDPs are directed towards the development of faculty members. However, the impact of their development can be seen in the performance of their students.

FDPs are directly proportionate to the performance of the students. The better quality of faculty members, the better the understanding and learning of the students as the faculty members can well equipped with the requisite knowledge and skills to instruct the students. The importance of FDPs is immense for the students as they are the

ones who gain from the programmes in a way they reap the benefits of improved teacher behavior and learning experience provided by the faculty members of them.

- **Improved learning of subject content**

The FDPs focus on increasing the knowledge of the subject and the pedagogy. This directly helps the students in their learning and understanding as the faculty members are well equipped to take their queries and use improved and appropriate ways of teaching and learning.

- **Helps to improve relations with the faculty members:**

A faculty member who has good knowledge of content and who is more confident and in control of the classroom situation such a faculty member earns the respect and trust of his students. Hence the student - teacher relationship improves and this leads to openness and acceptance of each other's ideas.

- **Consistent faculty leading to better student learning:**

As mentioned one of the importance of FDPs is retention of faculty members, this leads to a consistent teaching staff in the institution. It becomes easier for the students to relate to and establish relationships with consistent faculty members rather than trying to establish relationship over and over again with new faculty members.

- **Student engagement and motivation:**

It is very challenging to engage and motivate students especially in professional institution as every student has a "mind of his own". He may not be convinced even with the faculty's logical arguments faculty member who has undergone FDP will be able to engage the students in logical arguments and also motivate them to think logically and practically. Student who has reasoned with such class of faculty members will be able to himself discover logic and will be highly motivated to learn more.

ROLE OF FDP: FOR INSTITUTION

While the institutions focus on its students and development of its faculty members, all such activities and programmes are indispensable for the very existence of any institution.

For if the institution fails to build a trusted group of faculty members and is not able to influence its students in the right direction, it would cease to exist. Hence, to be looked up to as an institution of repute and trust, designing and implementing the FDPs becomes mandatory. While the faculty member has many things to gain like increased confidence level clear about subject content, etc the organization stands to get the unseen benefit of highly motivated faculty members who are keen and well equipped to deliver high quality of instructions and perceived as an organization of repute.

- 1. Connect the organizational culture with faculty development culture.**

It is very important for the organization to ensure that all the faculty members are oriented about the functions of the organization and they believe in the ideologies of the institutions i.e, Their thinking goals are aligned with that of the organization. For this very purpose the institution conducts FDPs so that all the faculty members believe in the institution, believe in themselves and believe that what they are doing is for the benefit for the students and for the society at large. It not only orients them about the functioning of the institution but also the basic purpose for which it is setup.

2. Set benchmarks for faculty learning:

In the FDPs the institutions can clearly state their intent of conducting such programmes and setting benchmarks or standards for the faculty members. The expectations from the faculty member as a “teacher” and his own levels of learning can be set.

3. Improving departmental relations:

Any institution or organization can be successful if all the departments are in coordination with each other. The biggest challenge an organization/institution face is trying to get the coordination between its several departments. This majority happens due to lack of communication and interest which creates a lacuna which becomes very difficult to fill if not addressed in time. As a part of FDPs the department can listen and respond to each other’s concerns. which would ultimately improve the coordination and relation between the departments and contribute to the success of the organization.

4. Groom New Leaders:

Another challenge faced by the institutions is succession planning. Who would fit in the chair once the current head of the department moves out of the role? Whether it is a planned move or a sudden move, the institution should be prepared so that there is a smooth functioning and work doesn’t not come to a standstill if one person decides to leave. No one faculty member should be indispensable in the organization. Hence FDPs groom new leaders who are equipped to take up new roles.

5. Motivated faculty:

An organization which exhibits faith in its faculty members and provides for their development is generally preferred by employess.Such members who participate in the FDPs are motivated employees and seek to deliver higher standards of instructions. They are not only keen to practice what they learnt but also are motivated to improve and develop themselves.

6. Improved brand value of the institution:

An organization focusing on the development of its faculty members has a better brand image. It is believed that the institution is making constant efforts to develop its faculty members and these members will be better equipped to teach/instruct higher quality of education. With this assumption the institution is looked at as an institution of repute which believes in improving the faculty members and hence ensures that the students are benefited.

7. Retention of faculty:

With FDPs an institution provides opportunities of learning to its faculty members. Not just learning but self development and some key skills which go a long way in the lives of the faculty members. Since faculty members feel that the institution is channelizing its resource in terms of finance and time for their development, the faculty members would like to continue to work in such institutions.

8. Creating communities of learning

FDPs generally create a learning environment for both students and faculty members.The faculty members develop strong relationships and bonding while the programme and continue to share knowledge and experience even after the programme is completed .Hence creating communicating of learning.

ISSUES IN FACULTY DEVELOPMENT PROGRAMMES

There has been resistance from the faculty members especially from the experience faculty members who feel that they have very little to take away from such programmes. They feel that it is not justified to treat them at par with the early career faculty members who need more attention with regards to subject matter and pedagogy. The institution also faces several challenges in terms of arranging resources, time and work load of the faculty members.

1. Approaches to teaching:

Faculty member differ with the kind of and number of years of experience that they have gained. While the early career faculty members require training on content and pedagogy, the mid career faculty member may need programmes to integrate technology into teaching and faculty members in the far end of their careers may need programmes to guide them about after career prospects etc.

2. Time management

Since development occurs over a period of time and ideally such programmes should also be for a relatively longer duration. Also, a lot of thinking and planning goes behind conducting such activities. Since the faculty members are involved in various activities with teaching being the primary role, arranging for such programmes may become difficult.

3. Conflicting stands over perceived benefits

The importance or role of faculty development programmes in any institution cannot be contended. However some faculty members and administrative staff may have a conflicting stand on the benefits of such programmes. They also feel that they must not be treated at par with the early career faculty members who need and may benefit from such programmes.

4. Financial constraints

Faculty development programmes any involve inviting external specialist to share their knowledge and experience with the participants. There is might be instances where internally there is a need to discuss some topics in details. Hiring services of external experts thus is a cost factor.

5. Teachers are not good listeners:

The very fact the teachers are not good listeners becomes one of the biggest challenges in the development programmes. While teachers are responsible for the development of their students and need to ensure that they are able to communicate effectively with the students, they generally themselves are not good listeners, hindering their capability to develop themselves.

6. Lack of motivation to attend the programmes:

There are various reasons why faculty members are not motivated enough to participate in the faculty development programmes. Reasons like attending faculty development programmes at the cost of other completing other tasks may discourage the faculty members.

7. Some programmes cannot be flexible:

Most of the faculty development programmes are in the form of classroom training or discussions. These are generally planned much in advance and cannot be suited or adjusted as per the requirements of an individual faculty member.

8. Lack of measurable feedback:

Another challenges is that while the Faculty member may accept that the changes has occurred in him because of the faculty development programme, but he himself may not be able to give a feedback that can be measured.

SUGGESTIONS

1. Need based FDP: It can be said that the development needs of faculty members are different and hence to be dealt with separately. While some faculty members need training on content and pedagogy, most would need training on inter personal or intra personal skills or life skills as such. Hence, the development programmes should be devised as per the training or development needs of different set of faculty members separately, instead of training them all equally in the same class room situation.
2. Time management: The FDPs must be planned and delivered at that time of the year when the faculty members are relatively available for a longer time.
3. Design and content to be very lucrative and attractive: The FDP should be designed in a manner that it becomes very attractive to the participant so that he is motivated completely.
4. Flexible programmes: The online FDP have been much appreciated as they provide flexibility. Any programme which offers flexibility is much appreciated and should be encouraged.

CONCLUSION

It can be concluded that while the focus of any educational/professional institution is “student”, to effectively be able to bring about the right change in attitude, thinking ,perspective and knowledge of on the students, it has to undoubtedly focus on the development of its faculty members who are solely responsible in bringing about ”that” necessary change in them .Hence, ensuring that the teaching faculty members that it already has or that it attracts or creates, it becomes imperative for any institution to focus on its faculty members as well. This focus would not just benefit the students or faculty members themselves ,but the also the institution in the long run as it would be able to give back to the society, students of class and intellect and teaching faculties who are competitive and with the ability to motivate, influence and guide in the right direction.

REFERENCES

1. Global Development Foundation (2015, Feb).Global Development Foundation. Retrieved April13,2015,from<http://www.gdf.org.in/>
2. ISTE (2015, April 10). Retrieved from Indian society of Technical Education :<http://isteonline.in/topics.aspx?mid=60>
3. Kabakci,H.F(2008).The organization of the faculty Development Programs foe Anadolu University, Faculty of Education, Department of Computer Education and Instructional Technologies. Turkey; The Turkish online Journal of Educational Technology.
4. Kavita Bhatnagar, K.S (2010). IS faculty development critical to enhance teaching effectiveness? Industry Psychiatry Journal, 138-141
5. Debora Kwan, K.B (2009) .Interprofessional. Effectiveness of FDP in fostering inter professional education competencies,1.2
6. C.Amudsen, P.A. (2005).The what and Why of Faculty Development in Higher Education: An In-depth Review of Montreal: ERA.
7. Ulpian JA, S.F. (1997).Types of Faculty Development Programs .Fam Med, 237-241.
8. Veronica Diaz, P.B. (2009). Faculty development for the 21st Century.EDUCASE review, 44 (3), 46 to 55.
9. Whitworth, B.A., &Chiu, J.L. (2015).Professional Development and Teacher change: The Missing Leadership Link. Journal of Science Teacher Education, 26.
10. Phuong, T.T., Duong, H.B., & Mclean, G.N. (2015). Faculty Development in Southeast professor’s lives and satisfaction. Collection for Fordham University.

SWACHH BHARAT ABHIYAN: A STEP TOWARDS HEALTHY INDIA

Reena Jain

*Research Scholar, Jai Narain Vyas University, Jodhpur, Rajasthan
Mobile No: +91-9414141749, Email ID: reenatatia23690@gmail.com*

ABSTRACT

“Sanitation is more important than independence.”

Swachh Bharat Abhiyan was launched by Prime Minister of India, Narendra Modi on the 145th birth anniversary of Mahatma Gandhi on October 2, 2014; at Rajghat in New Delhi. This national campaign, initiated by the Government of India, covers 4041 statutory towns across the country and aims to make the streets, roads and infrastructure clean by October 2, 2019, i.e. by Mahatma Gandhi 150th birth anniversary of the nation. It is India's biggest ever cleanliness drive and 3 million government employees, school and college students of India participated in this event. The mission was started by Prime Minister Narendra Modi, where Prime Minister Modi himself cleaned the road, who nominated nine famous personalities for the campaign, and they took up the challenge and nominated nine more people and so on (like the branching of a tree). It has been carried forward since then with people from all walks of life joining it. Swachh Bharat Abhiyan is not a new programme. Launched in 1986 as the Central Rural Sanitation Programme, the scheme later became the Total Sanitation Campaign (1999) and Nirmal Bharat Abhiyan (2012). Some regard it as merely a renaming. Swachh Bharat Mission aims to achieve the elimination of open defecation in the country. Among its other objectives are conversion of insanitary toilets to pour flush toilets, putting an end to the inhuman practice of manual scavenging and carrying out Municipal Solid Waste Management. The primary data was used like direct interview and questionnaire with secondary data. The observations were including different parameters like garbage management, government support, drainage system, different diseases causing due to unhygienic surroundings, unavailability of washroom facilities. A conceptual study is used in a research to outline possible causes of action or to present a preferred approach to an idea or thought.

Keywords: *Swachh Bharat Abhiyan, Campaign, Central Rural Sanitation Programme, Garbage Management & Government Support*

1. INTRODUCTION

Swachh Bharat (Clean India) Mission was launched by our Hon. Prime Minister, Shri Narendra Modi on October 2, 2014, with Mahatma Gandhi as the inspiration, to create a clean India of his dream by 2019, on his 150th birth anniversary. He quoted the words of M.K Gandhi “Sanitation is more important than independence.” Government of India launched this movement to solve the sanitation and waste management problem and make India a clean country. The basic objective behind the Swachh Bharat Abhiyan is to create sanitation facilities for all and eliminate completely the unhealthy practice of open defecation. It aims to provide every rural family with a toilet by 2019. Prime Minister started this “Clean India Campaign” from the Valmiki Basti in New Delhi. Millions of people across the country also joined the cleanliness initiatives of government departments, NGOs and local community centers to make India completely clean by 2019. Our PM emphasized that work of cleaning India cannot be done by one person or by government functionaries alone it has to be done by 125 crore people. He urged people to devote 100 hours every year towards the cause of cleanliness. Swachh Bharat Abhiyan would make a significant impact on public health and in safeguarding the income of the poor, ultimately contributing to the national economy. Modi ji invited nine public figures: Goa Governor Mridula Sinha, Cricket Legend Sachin Tendulkar, Yoga guru Baba Ramdev, Congress Law maker and former union minister Shashi Tharoor, Actor Kamal Hasan, Priyanka Chopra, Salman Khan, Industrialist Anil Ambani, Team of popular TV serial Tarak Mehta Ka Oolta Chashma. Union Ministry of Rural Development and Drinking Water and sanitation announced that Rs. 20 lakh will be given to every village in the country per annum to achieve the goal of clean India by 2nd October, 2019 and the money will remain deposited in every Gram Panchayat for cleaning purpose. The Ministry had already announced 1,34,000 crore rupee for construction of about 11 crore 11 lakh toilets in the country in five years, besides taking other cleanliness measures. The tagline of this mission is “Ek Kadam Swachhta Ki Aur”.

2. REVIEW OF LITERATURE

Tiwari (2014) studied the objective of Swachh Bharat Abhiyan. The study also focused on awareness level of this National Abhiyan on Swachh Bharat. Swachh Vidyalaya in the middle school students of public and private schools.

3. OBJECTIVES

- To understand about Swachh Bharat Campaign.
- To find the current level of respondent participation and awareness in the cleanliness.
- To suggest way that increase participation & effectiveness of Swachh Bharat.
- To lay water pipelines in all villages, ensuring water supply to all households by 2019.
- To keep villages clean, solid and liquid waste management through gram panchayats.
- To eliminate or reduce open defecation. Open defecation is one of the main causes of deaths of thousands of children each year.
- To construct toilets separately for girls and boys in all Indian schools.
- To provide the toilet facility to all Aanganwadis.
- 100 percent collection and scientific processing/disposal reuse/ recycle of Municipal Solid Waste.

This abhiyan will help to make clean India's tourist destination which will bring more people and will also bring a paradigm shift in the country's global perception.

4. METHODOLOGY

The study based on both primary and secondary data. The primary data collected through interview scheduled from 100 respondents. Secondary data collected through various questionnaire, books, journals and websites.

5. NEED OF SWACHH BHARAT ABHIYAN

Swachh Bharat Abhiyan is very necessary to run continuously in India until it gets its goal. It is very essential for the people in India to really get the feeling of physical, mental, social and intellectual well-being. It is to make living status advance in India in real means which can be started by bringing all over cleanliness. Below I have mentioned some points proving the urgent need of Swachh Bharat Abhiyan in India.

- It is really very essential to eliminate the open defecation in India as well as making available toilets facility to everyone.
- It is needed in India to convert the insanitary toilets into flushing toilets.
- It is necessary in order to eradicate the manual scavenging system.
- It is to implement the proper waste management through the scientific processes, hygienic and practice of healthy sanitation methods.
- It is to create global awareness among common public living in rural areas and link it to the public health.
- It is to support working bodies to design, execute and operate the waste disposal systems locally.
- It is to bring private-sector participation to develop sanitary facilities all through the India.
- It is to make India a clean and green India.
- It is necessary to improve the quality of life of people in rural areas.
- It is to bring sustainable sanitation practices by motivating communities and Panchayati Raj Institutions through the awareness programmes like health education.
- It is to bring the dream of Bapu to really come true.

6. IMPACT OF SWACHH BHARAT ABHIYAN

Even after several decades after independence, India has failed to achieve the requisite cleanliness levels. We use to see open garbage dumps, overflowing drains and open defecation taking place at numerous places. To solve this

problem Government of India rolled its flagship scheme Swachh Bharat Campaign has been dubbed as the country's biggest cleanliness drive ever. Even the president of India, Mr. Pranab Mukherjee also requested every Indian citizen to participate in the campaign spend a minimum of 100 hours in this drive annually Swachh Bharat Abhiyan has positive impacts on tourism, health, individual productivity, clean technology, foreign direct investment, environment and others.

6.1 Tourism

India is a land of cultural heritage and rich history. Tourism generates around 6.6 percent of India's GDP and 39.5 million Indians are directly employed in this sector. The biggest limitation for India to promote tourism is cleanliness. Foreign tourists are very particular about hygiene and cleanliness. Swachh Bharat Abhiyan will help in generating employment through tourism and boost India's GDP.

6.2 Foreign Direct Investment

As per current economic conditions, India urgently need Foreign Direct Investment (FDI). India inspired from Singapore which undertook similar cleanliness drive from 1977 to 1987. It helped Singapore to attract FDI. Hope Swachh Bharat Abhiyan will do the same wonder for India.

6.3 Individual Productivity

Healthy Body results in Healthy mind which is directly proportional to productivity of an individuals. Swachh Bharat Abhiyan will leads to Healthy India which in turn increase productivity of Indians. Developed countries are live example of how healthy citizen can help in increasing per capita GDP of the country. (Bammi, 2015).

6.4 Health

Poor hygienic and cleanliness are two major causes of illness. Swachh Bharat Abhiyan will have positive impact on India's health care sector. According to recent study by WHO, due to lack of hygienic conditions and lack of cleanliness. There is a loss of Rs. 26000 every year for a family of four people. Swachh Bharat Abhiyan will plug this loss and will help to ease burden on existing health care facilities.

Overall impact of Swachh Bharat Abhiyan on Indian states is marginal. But some states have shown visible improvement like Gujrat, Himachal Pradesh, Punjab, Karnataka, Andhra Pradesh and Chattisgarh.

7. CONCLUSION

We can say Swachh Bharat Abhiyan, a nice welcome step to the clean and green India till 2019. As we all heard about the most famous proverd that "Cleanliness is Next to Godliness", We can say surely that clean India campaign (Swachh Bharat Abhiyan) will really bring godliness all over the country in few years if it is followed by the people of India in effective manner so, the cleanliness activities to warm welcome the godliness have been started but do not need to be ended if we really want godliness in our lives forever. A healthy country and a healthy society need its citizens to be healthy and clean in every walk of life.

8. REFERENCES

- [1]. Badra and Sharma (2015). "MANAGEMENT LESSONS FROM SWACHH BHARAT MISSION." International Journal of Advance Research in Science And Engineering. Vol.No.4, Special Issue (01). March 2015.
- [2]. Jadhav, H.V., Advanced Environmental Management, Himalaya Publishing House, and Page 1-18.
- [3]. Kotler, Philip (2013), Marketing Management, Pearson Publication, 13 Editions, Page 77-78.
- [4]. Evne (2014). "SWACHH BHARAT MISSION AND DALIT COMMUNITY DEVELOPMENT IN INDIA", International Journal of Creative Research Thoughts, Volume 2, Issue 9, September 2014.
- [5]. Tiwari (2014). " To study awareness of A National Mission; Swachh Bharat: Swachh Vidyalaya in the Middle School Student of Private and Public Schools", INDIAN JOURNAL OF RESEARCH, Volume: 3 (Issue: 12) Dec 2014.
- [6]. <http://swachhbharat.mygov.in>
- [7]. <http://sbm.gov.in/sbm/>.
- [8]. <http://en.m.wikipedia.org/wiki/swachhbharatabhiyan>.

Influence of Information Technology and Role of Management Education of Developing Countries for Creating Sustainable and Global Citizens

Mansi Kakkad

Assistant Professor, Department of Management, Christ Institute of Management, Rajkot, Gujarat, India

ABSTRACT

Since the early days of Information Technology (IT) in education, attitudes and competencies of students (and later teachers) have been in the domain of interest of researchers, because they seem to be a crucial aspect in the decision to use IT in educational practice. With increasing ethnic, racial, cultural, and languages diversity on global sphere among the nations worldwide is forcing management education providers to rethink on existing notion to create global citizens. This paper focuses on comprehending use of Information Technology which has already established itself as an important force in education provided globally in accordance to create global citizens. The paper reviews to realize that creation of global citizens starts at schooling level and prolongs till learning of subjects like International Business and Commerce / Management Education. In every Management Education providing Institution, global citizenship education is spreading world-wide and becoming pivotal part of present core curriculum and growing as emerging trend. For successful survival for students in globalized world, educators must inculcate apposite skills, knowledge; broaden outlook and latest technological advances. Management education is indeed a strong pillar to rely on for imparting this knowledge.

Keywords: *Global Citizens, Information Technology, Management Education, Information Society, Competent Educational Technologist*

INTRODUCTION

In today's global economy and information society, knowledge and information are the keys to social inclusion and productivity, and connectivity is the key to global competitiveness. Information technology is the catalyst for global integration in this age of globalization. Globalization has become ingrained in all fields: education, business, government, economic, and social.

Similarly, Management education is the foundation and essential driving force of economic, social, and human development. Beyond the foundational skills of literacy and numeracy, transferrable skills—such as problem solving and leadership skills—and technical and vocational skills that impart specific technical know-how are needed. To be relevant, education be required to provide this generation with the essential knowledge and skills to become responsible global residing citizens who can take joint actions.

- What is understood as Global Citizenship?

“It is a way of living that recognizes our world is an increasingly complex web of connections and interdependencies. One in which our choices and actions may have repercussions for people and communities locally, nationally or internationally. Global citizenship nurtures personal respect and respect for others, wherever they live. It encourages individuals to think deeply and critically about what is equitable and just, and what will minimize harm to our planet. Exploring global citizenship themes help learners grow more confident in standing up for their beliefs and more skilled in evaluating the ethics and impact of their decisions”.

- Concept of Global Citizen

Though the term Global Citizen is debatable and discussions as it revolve around entire concept of Globalization. However, a useful definition as quoted by Oxfam states few features stated below –

“A Global Citizen is someone who –

- ✓ is aware of the wider world and has a sense of their own role as a world citizen respects and values diversity
- ✓ has an understanding of how the world works
- ✓ is outraged by social injustice
- ✓ participates in the community at a range of levels, from the local to the global
- ✓ is willing to act to make the world a more equitable and sustainable place
- ✓ Takes responsibility for their actions”.

"Education must be not only a transmission of culture but also a provider of alternative views of the world and a strengthener of skills to explore them" - Jerome S Bruner

For becoming effective Global Citizens, younger ones need the skills of being proactive, flexibility, and be a critical thinker. The ability to solve problems, taking quick decision, communicate thoughts generated effectively and also been team player are traits of being a global citizens. These skills and attributes are rapidly being recognized worldwide as essentials to be global ready for the employment as well as skills empowerment opportunities. The active learning methods which can enable students' learning attitude by doing practice as well as collaborating with all others from the lot to be technologically advance and skill upgraded.

- Why is Global Citizenship Education Needed?

With the interconnected and interdependent nature of our world, the global is not ‘out there’; it is element of everyone’s daily lives, as humans are linked to each other in every continent: electronic media and telecommunications connect people socially and culturally, economically through trade and travel as well as migration. International relations and systems regulation connect citizens of every country as residents of one planet politically.

Young generation gets enormous opportunities offers from rapidly changing ‘globalised’ world. But it comes with benefits of fighting the challenges. This generation is entitled to be educated that prepare this lot with skills, values as well as knowledge which they require in order to hold close the chances and overcome the challenges they come across. This will create the type of globe they desire to dwell in.

The vigorous, participatory techniques of “Education for Global Citizenship and Sustainable Development”, which guide young aspirants to learn how decisions made by people in other parts of the world affect our lives, just as our decisions affect the lives of others. Education for Global Citizenship and Sustainable Development - also promotes pupil participation in the learning process and in decision-making.

- Connecting Information Technology and Management Education for creating the Global Citizens

Global citizenship is an increasingly common idea: Universities use the term to promote global awareness and international education, and businesses use it to highlight their commitment to corporate social responsibility and sustainability around the world. It’s also a movement that uses online activism and social media worldwide to work toward ending global poverty. Management education is indeed the game changer and tool is the information technology as widely used for providing the platform.

Specifically, after inculcation of Global Skills and Knowledge during studies, global citizenship can benefit personal and company brand, increase the growth and scope of work profile, and help management students connect with future colleagues and build partnerships around the world.

Global Citizenship through Management Education is a framing model which summarizes how Management education with help of Information Technology can develop the knowledge, skills, values and attitudes learners need for securing a world which is more just, peaceful, tolerant, inclusive, secure and sustainable. It corresponds to a conceptual shift in which it recognizes the significance of education in considerate about resolving global issues in their social, political, cultural, economic and environmental dimensions. It also recognizes the role of education in moving beyond the development of knowledge and cognitive skills to build values, soft skills and attitudes among learners that can facilitate international cooperation and promote social transformation.

Fabrice Henard and Soleine Leprince-Ringuet (2008) has conducted research on "The Path to Quality Teaching in Modern Education" This review of the literature is organized in three main parts as to address three major questions: 1) “What is Quality Teaching? Why is it important in higher education?” 2) “How can teaching concretely be enhanced?” 3) “How can one make sure quality teaching is effective?” Quality teaching initiatives

are very diverse both in nature and in function. Some of these initiatives are undertaken at teachers' level, others at departmental, institutional or country level. Some quality initiatives aim to improve pedagogical methods while others address the global environment of student learning. Some are top-down process, other induce grass-root changes. The most currently used quality initiatives seem to aim to enhance teamwork between teachers, goal-setting and course plans in accordance to Information Technology Uses.

J. Michael Spector, Robin Mayes, and Gloria Natividad (2015) in Article - "Challenges for Educational Technologists in the 21st Century" stated that how in 1972, Edsger Dijkstra stated that computers have only introduced the new problem of learning which is usage and application of this technology effectively. This statement is true in 2015 with regards to powerful new educational technologies. This article discusses the challenges that are faced by 21st century educational technologists, and will be, addressing as they undertake the effective integration of new technologies into higher level educational systems and learning environments. The ever expanding Internet, even more powerful mobile devices, and other innovations that makes the task of designing effective formal and informal learning challenging, especially in light of the high rate of change in these new technologies. While these technologies introduce many advantages and benefits, they also come causing serious threats to system security and personal privacy. Furthermore, as these technologies continue to evolve, ethical issues such as equal access to resources become imperative. Educational technologists must expand their forward-thinking leadership and planning competencies so as to ensure effective use of new technologies.

Dr Wei-Chen Hung (2012) researched on "Factors Influencing Future Educational Technologists' Intentions to Participate in Online Teaching" and stated Education through the Internet is being shaped by the next wave of Web technology where productivity, collaborative tools and the ubiquity of computers play a major role in changing methods of peer interaction and collaboration. Because future educational technologists will play vital roles in navigating through this technical complexity and exploring potential learning opportunities, it is imperative to understand their intentions to participate in online teaching. This study adopted Ajzen's Theory of Planned Behavior (TpB) as a theoretical framework, and used its four constructs (attitude, subjective norm, perceived control and intention) to survey 119 educational technology doctoral students' intentions to participate in online teaching. Hierarchical multiple regression analysis and content analysis were used to analyze the data collected. Results showed that the attitudinal and subjective norm constructs of TpB had significant impacts on prediction of participants' intentions to participate in online teaching. Results also indicated that age and online teaching experience played a significant mediating role in affecting participants' attitude toward online teaching. Implications of the findings were discussed.

Shazia Mumtaz (2006) in article "Factors Affecting Teachers' Use of Information And Communications Technology: A Review of The Literature" reported that a number of factors which influence teachers' decisions to use information and communications technology (ICT) in the classroom: access to resources, quality of software and hardware, ease of use, incentives to change, support and collegiality in their school, school and national policies, commitment to professional learning and background in formal computer training. The review highlights the role of pedagogy and suggests that teachers' beliefs about teaching and learning with information and communications technology (ICT) are central to integration. It is suggested that successful implementation of information and communications technology (ICT) needs to address three interlocking frameworks for change: the teacher, the school and policy makers.

Moursund, David; Bielefeldt, Talbot (1999) in their Survey Research on "Will New Teachers Be Prepared To Teach in a Digital Age? A National Survey on Information Technology in Teacher Education" reported that Faculty IT skills were comparable to student IT skills, but most faculty did not model IT skills in teaching. Distance education and computer-assisted instruction only affected small proportions of pre-service teachers. Most programs did not have written, funded, current technology plans. Most institutions had IT available in K-12 classrooms for student teaching, but IT was not used routinely during field experiences. The number of hours of IT instruction integrated into other courses had a moderate correlation with other survey scores, but the number of hours of formal IT instruction did not. The integration factor (items that addressed graduates' classroom skills and actual use of IT during college training) was the best predictor of other survey scores.

Thomas C. Powell and Anne Dent-Micallef (1997) who conducted research on "Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources" and found on investigating association between information technology (IT) and firm performance confirmed that Information Technology alone has not produced any sustainable performance which is advantageous in the retail industry, but that some firms who gained advantages by using Information Technologies to leverage intangible, complementary human and business resources such as flexible culture, strategic planning-IT integration, and supplier relationships. The

results support the resource-based approach, and help to explain why some firms outperform others using the same ITs, and why successful IT users often fail to sustain IT-based competitive advantages.

Birol Bulut, Zafer Cakmak and Cihan Kara (2013) in "Global Citizenship in Technology Age from the Perspective of Social Sciences" stated that Technological changes are considered as a significant factor for the development of societies. This change has led to society's going beyond in addition to pervasion of value judgments pertaining to cultural, political and especially economic aspects and formation of internationally shared and valid structures. The development of technology, world's being smaller and increasing of its population rises the mutual dependency of us with the people whom we may never see in life. In this process, which also affects the educational systems, "Global Citizenship" comes to the fore in accordance with these developments as a model-dealing with the problems of not only his own nation but also those of the whole humanity.

S.Strijbosab (2001) in issue of "Technology in Society" while describing Global citizenship and the real world of technology opposes a naive conception of technology with the emphasis on material artifacts and supports the view that the "real world of technology" and its problems have to be understood in terms of systems. Technology forms a new environment, a shared house in which we all dwell today. From this viewpoint the paper argues about new moral and political responsibilities with which citizens are confronted in the emerging global technical system. It is pointed out that the same processes underlying the technological integration of the world and the globalization of society also seem to awaken new modes of citizenship in a global civil society.

Dr Eunhee Jung (2017) at UNAI on "Technology and Global Citizenship Education" explained in her paper an epiphany she had regarding the nexus of educational training, intercultural communication and technology. "I saw a Korean man who was practicing English using his cell phone. In a flash, I had an image of students ere sitting on a playground here and there in groups and working together on school tasks using mobile devices." communicating and collaborating appropriately and effectively with people in both local and far-flung communities. Interacting with people from different backgrounds brings with it a powerful potential to reflect on the relationship between global dynamics and individual choices. "Global citizenship also means being able to solve problems creatively through compassion and respect for cultural diversity", Dr. Jung says. Whether virtually or in situ, the interconnectedness of phenomena that lies at the core of global citizenship, she believes, can best be tangibly grasped through face-to-face interaction and collaboration with people in diverse cultures and countries.

Nigel Dower (2003) in paper "Does Global Citizenship Require Modern Technology?" gave double answer to the question: 'does global citizenship require modern technology?' First, it does not because the idea of global citizenship as membership of a universal moral community goes back to the ancient stories. Second, it does, because the adequate expression of global responsibility in the modern world requires the development of global culture and global institutions for which modern technologies of communication and transportation are crucial: modern technology furthermore gives us both knowledge of the world and the capacity to act at a distance. The discussion provides a peg on which to defend the idea of global citizenship in both its ethical and its institutional aspects against the criticisms made of it for instance from relativist or communitarian perspectives.

DISCUSSION

- Concept of Global Village and Role of Information Technology in creating it –
- ✓ The definition of networking according to Merriam-Webster's Dictionary is:

1: the exchange of information or services among individuals, groups, or institutions; specifically: the cultivation of productive relationships for employment or business

2: the establishment or use of a computer

The term is thought to be used starting in 1967

The term "global village" was mentioned in Marshall McLuhan's 1962 book - "The Gutenberg Galaxy: The Making of Typographic Man". It is now used more as a metaphor to describe the World Wide Web and the Internet.

- New technology enables students and teachers to unite and exchange ideas through an education channel. Technological advances have facilitated worldwide traing in classrooms to communicate instantly. This has become significant when considering the implications for Global Citizenship education. As students find themselves in an interconnected world, it is important "to recognize the fundamental inter connections among disparate people, places, and process, and the ways in which these influence and constrain even apparently local and individual choices". It is not enough to merely recognize the connection that already exists with technology, but students need to understand the implications of the technological connection, and that is done through Global Citizenship education. The intercultural exchanges via technology have educated and continue to educate students around the world into becoming culturally-sensitive, global citizens. The Internet is the modern form of instantaneous correspondence, enabling classrooms to engage in instant dialogue and work on service learning projects together with the click of a mouse.
- Management Educators with help of Information Technology will have to work on Redefining and Refining their role. Technology-based tutorship and knowledge imparting ways like the flipped classroom and blended learning requires latest and updated forms of interactions which can be termed new between teachers and students which will definitely give an edge to create Global Citizen. In spite of educators' ability to direct computerized classrooms, supercomputers workshop, or even online sessions, they will need guidance along with executive support for ongoing professional development. Management Educators will require good amount of time to use these advanced technology forms to decrease hesitation and lift up their self-efficacy levels. The challenge of educational content reform appears to be a global phenomenon. Organizations like UNESCO and their Education for All (EFA) initiative and OECD (Organization for Economic Co-operation and Development) Program for International Student Assessment (PISA) have keystone goals and objectives for improving the quality of education to create Global Citizen. Learning Content to accelerate Global Citizen Creation is now should be important criteria for emerging trend for Management Education.
- It can be understood fairly that with access to Internet facilities and active involvement in social networking websites, we as social living being are no longer restricted to our localities in the present scenario of globalization. Rather, we the people have become an active part of global existence. Though, there is no doubt about the fact that originality in terms of uniqueness and creativity has become a grey area because of technological advancement and how social media connectivity has made every thought from the any corner of the world be heard. This media connectivity has become a larger part of how students of all the education streams learn and become aware of global issues irrespective of the accuracy and feasibility of the issue. It is imperative that in the age of globalization and swift technological advances students need to be made aware and educated about all happenings around the globe and trends of Globalization as well. It is vital to value being part of educational and social network.

REFERENCES

1. Scheurman, William, (Summer 2010 Edition), Globalization, The Stanford Encyclopedia of Philosophy Edward N. Zalta (ed.)
2. Zhao, Y. (2010). Preparing globally competent teachers: a new imperative for teacher education. *Journal of Teacher Education*, 61(5)
3. Burbules, N. (2009). "Meanings of ubiquitous learning." *Ubiquitous Learning*, Bill Cope and Mary Kalantzis, eds. (Urbana, IL: University of Illinois Press), pp. 15-20.
4. Birol Bulut, Zafer Çakmak, Cihan Kara. "Global Citizenship in Technology Age from the Perspective of Social Sciences *Procedia - Social and Behavioral Sciences*", Volume 103, 2013, pp. 442-448
5. Mehmet Takkac, Ahmet Selcuk Akdemir. "Training Future Members of the World with an Understanding of Global Citizenship *Procedia - Social and Behavioral Sciences*", Volume 47, 2012, pp. 881-885
6. Oxfam - What is global citizenship? E.(2008).

7. Skelton, A. (2005), *Understanding Teaching Excellence in Higher Education, Towards a critical approach*, Routledge, Oxon
8. Yorke, M. (2000), "Developing a quality culture in Higher Education", *Tertiary Education management*, Vol.6, No.1, pp.19-36
9. Aasen,P. & Stensaker, B. (2007), "Balancing trust and technocracy?: leadership training in higher education"; *International Journal of Educational Management*; Vol. 21, No. 5, pp. 331 -83
10. Fabrice Henard and Soleine Leprince-Ringuet - "The Path To Quality Teaching In Higher Education"
11. Rogers, E.M. *Diffusion of Innovations*, 5th ed.; Free Press: New York, NY, USA, 2003.
12. Cuban, L. *Oversold and Underused: Computers in the Classroom*; Harvard University Press: Cambridge, MA, USA, 2001.



SCREENING OF DIFFERENT GROWTH MEDIA FOR MASS MULTIPLICATION OF *Trichoderma sp.*

Dr.SaritaPurohit

Department of Botany,Aishwarya college of education Pali,Rajasthan,India

ABSTRACT

For screening of different media and mass multiplication of *Trichodermasp.* total 13 different media were used. Out of that three were prescribed viz., PDA, SDA, and CDA and other were prepared from pulses, wheat, starch, suji, and Isabgol. PDA, SDA, MDA and WDA showed best result for *Trichodermamass* production.

Keyword:Media, Mass multiplication, *Trichoderma sp.*

INTRODUCTION

Lodha et al (1999) working with different fungal growing media by replacing chemicals or other source of sugar and compared to PDA and Richard's agar media. The fastest growth of *Trichoderma harzianum* and *Macrophominaphaseolina* observed on PPA (Prosopis Pod- Potato agar), whereas PDA as best growth media supported by Suriachandra et al (2003). In present study PDA> SDA> MDA>WDA>GDA. Out of four species of *Trichoderma*, *T. harzianum* showed more luxuriant growth on all media.

Present study deals with mass production of *Trichoderma harzianum* on different growth media viz., PDA, MDA and WDA. Out of these media PDA and WDA are carbohydrates source, whereas MDA is protein source. Similar work has done by Monga (2001) showed effect of C & N sources on spore germination baroness production and anti fungal metabolites by *T. harzianum*.

Tewari et al (2003) working with mass multiplication of *T. harzianum* on agro industrial cellulosic wastes (wheat straw, paddy straw, maize cob, paper waste, sugarcane baggase), organic manure (Farm yard manure, Button mushroom, Oyster mushroom) and cereals (wheat, rice). Zaidi et al (2004) worked on mass multiplication of *T. harzianum* on cow-dung, whereas malt extract as growing media showed by Sailaja et al (2004).

MATERIAL AND METHOD

Different fungal growth media: -

For mass production of different *Trichoderma sp.* like *Trichoderma harzianum*, *T. virens*, *T. viride* and *T. koningii* and other fungi, various media were used. Colony characteristic, fungal growth was studied.

Potato Dextrose Agar Medium: -(As per MTCC catalogue)

Potato (peeled, sliced)	200 gm
Dextrose	20 gm
Agar-Agar	20 gm
Distilled Water	1.00 lit.
PH	7.0

Carrot Dextrose Agar Medium

Carrot	200 gm
Dextrose	20 gm
Agar-Agar	20 gm
Distilled water	1.0 lit.
PH	7.0

Starch Dextrose Agar Medium

Starch	200 gm
Dextrose	20gm
Agar-Agar	20gm
Distilled water	1.0 lit.
PH	7.0

Bajara Meal Agar Medium

Bajara	200 gm
Dextrose	20 gm
Agar-Agar	20 gm
Distilled water	1.0 lit.
PH	7.0

Wheat Agar Medium

Wheat	20 gm
Dextrose	20 gm
Agar-Agar	15 gm
Distilled water	1.0 lit.
PH	7.0

Pulses Agar Media (Arhar, Gram, Moong, Urd&Masur)

Pulses	20 gm
Dextrose	20 gm
Agar-Agar	15 gm
Distilled water	1.0 lit.
PH	7.0

Potato Dextrose Suji Medium

Potato	200 gm
Dextrose	20 gm
Suji	40 gm
Distilled water	1.0 lit.
PH	7.0

Potato Dextrose Isabgol Medium

Potato	200 gm
Dextrose	20 gm
Isabgol	0.8 gm
Distilled water	1.0 lit.
PH	7.0

Table 1. Showing multiplication of different species of *Trichoderma* on different growth media.

In present investigation four different sp. of *Trichoderma* viz., *Trichodermaharizianum*, *T. koningii*, *T. virens* and *T. viridewere* grown on thirteen growth media viz., PDA (Potato Dextrose Agar), S*DA (Starch Dextrose Agar), SDA. (Saurbound Dextrose Agar) CDA (Carrot Dextrose Agar) BMA (Bajara Meal Agar), WDA.(Wheat Dextrose Agar), ADA (Arhar Dextrose Agar), MDA.(Moong Dextrose Agar), M*DA (Masur Dextrose Agar), GDA (Gram Dextrose Agar), UDA.(Urad Dextrose Agar), PDS (Patato Dextrose Suji) and PDI (Potato Dextrose Isabgol). Out of that some media were prescribed for the production of fungi viz., PDA, SDA and CDA which already prescribed taken for comparison. In present investigation new combination of media were developed to compare the prescribed media. These were S*DA, BMA, ADA, MDA, M*DA, GDA, UDA, WDA, PDS and PDI.

Production of *Trichoderma harzianum*- When this fungus was grown on 13 media. It was found that it grows very well and luxuriant on PDA, SDA, WDA, GDA and MDA, whereas moderate growth was observed on CDA, ADA, M*DA, UDA, PDS but media like S*DA and PDI did not favor the growth of *T. harzianum*.

Production of *Trichoderma koningii*- When this fungus was grown on 13 media luxuriant growth was observed on PDA, SDA and MDA, while moderate growth was observed on CDA, WDA, ADA, M*DA, GDA, UDA. S*DA, BMA and PDS did not give much for the growth, whereas growth was completely checked on PDI.

Production of *Trichoderma virens*- When this fungus was developed on different source of media luxuriant growth was observed on only two media that was PDA and SDA, moderate growth was observed on WDA and MDA, whereas CDA, S*DA, M*DA, BMA, ADA, GDA, UDA, and PDS did not favor much growth for this fungus, while PDI did not show any result.

Production of *Trichoderma viride*: - PDA, SDA, and MDA favored the growth of this fungus and it grows luxuriantly, while on WDA, ADA, M*DA, GDA and UDA fungus grows moderately, while fungus growth was very less observed on CDA, S*DA, BMA, PDS, and PDI.

table 1. Mass multiplication of *Trichoderma* sp. on different growth media

Media	<i>Trichoderma harzianum</i>	<i>Trichoderma koningii</i>	<i>Trichoderma virens</i>	<i>Trichoderma viride</i>
Potato Dextrose Agar	+++	+++	+++	+++
Carrot Dextrose Agar	++	++	+	+
Starch Dextrose Agar	+	+	+	+
Saurbourd Dextrose Agar	+++	+++	+++	+++
Bajara Meal Agar	++	+	+*	+
Wheat Dextrose Agar	+++	++	++	++
Arhar Dextrose Agar	++	++	+	++
Moong Dextrose Agar	+++	+++	++	+++
Masur Dextrose Agar	++	++	+	++
Gram Dextrose Agar	+++	++	+	++
Urd Dextrose Agar	++	++	+	++
Potato Dextrose Suji	++	+	+	+
Potato Dextrose Isabgol	+	-	-	+*

- No growth
- +* Growth after seven days
- +
- ++ Moderate Growth
- +++ Maximum Growth

CONCLUSIONS

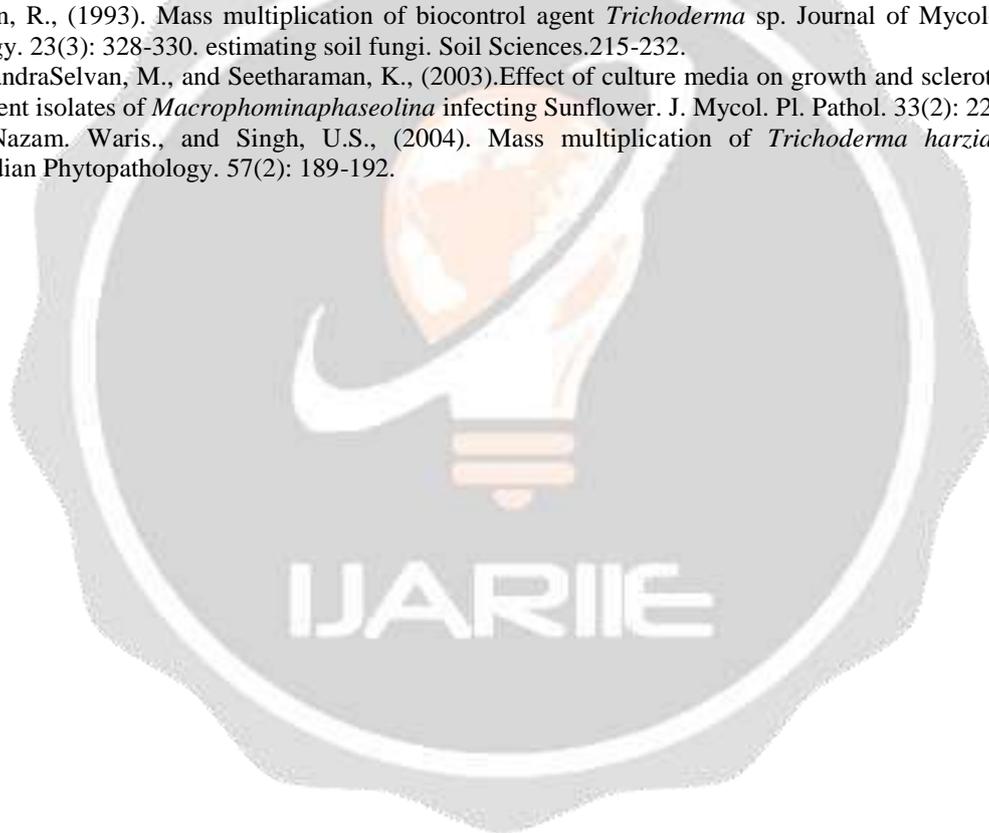
Thus during present investigation different growth media were used for multiplying of different species of *Trichoderma* viz. *T. harzianum*, *T. koningii*, *T. virens* and *T. viride*. Total 13 growth media were used. These media were prepared from broken grains of pulses (Arhar, Gram Masur, Moong, Urd), cereals (wheat) the performance of the above

media, three prescribed media PDA, SDA, CDA were used, out of all media PDA, SDA, MDA, GDA and WDA showed best result for fungal growth.

In present study PDA> SDA> MDA>WDA>GDA. Out of four species of *Trichoderma*, *T. harzianum* showed more luxuriant growth on all media.

REFERENCES

1. Atlas, M.R., (1993). Handbook of microbiology media. CRC press, INC., Boca Raton, Florida.1-3.
2. Gandhi Kumar, N., and Rangnathan, K., (2001). Evaluation of different substrates on the survival of *Trichoderma viride* and *Trichoderma harzianum*. Proc. Indian Phytopathological Society, Golden Jubilee. 1: 37.
3. Jayarajan, R., and Ramakrishana, G.M., (1995). Mass production of *Trichoderma viride* for biological control. Indian J. Mycol. Pl. Pathol. 25(1&2): 125.
4. Jones, F.G., (1943). A complete culture medium prepared from human red cells. J. Bacteriol. 45:575-576.
5. Lodha, S., Bohra, M.D., and Harsh, L.N., (1999). Evaluation of *Prosopis pods* as source of carbohydrate for enhancing the growth of soil born fungi. Indian Phytopathology. 52(1): 24-27.
6. Martin, J.P., (1950). Use of acid, rose bengal and streptomycin in the plate method for Panicker, Sangeetha., and Jeyarajan, R., (1993). Mass multiplication of biocontrol agent *Trichoderma* sp. Journal of Mycology and Plant Pathology. 23(3): 328-330. estimating soil fungi. Soil Sciences. 215-232.
7. Suriachandra Selvan, M., and Seetharaman, K., (2003). Effect of culture media on growth and sclerotial production of different isolates of *Macrophomina phaseolina* infecting Sunflower. J. Mycol. Pl. Pathol. 33(2): 226-229
8. Zaidi, Nazam. Waris., and Singh, U.S., (2004). Mass multiplication of *Trichoderma harzianum* on cow dung. Indian Phytopathology. 57(2): 189-192.



“WOMEN EMPOWERMENT AND CSR AS A TOOL FOR SUSTAINABLE DEVELOPMENT”

DR. SUMITRA CHOUDHARY, ASSISTANT PROFESSOR
Vyas College of Commerce and Business Administration, Jodhpur (Raj.)
(Affiliated to Jai Narain Vyas University, Jodhpur)

E Mail ID: - drsumitrachoudhary2015@gmail.com, Mobile: +918947900222

ABSTRACT

Sustainable development is distant broader than just the environment. It's also about ensuring a strong, healthy and just society. This means meeting the diverse requirements of all people in existing and future communities, promoting personal safety, social cohesion and inclusion, and creating equal opportunity. The main Goals of Sustainability development are- end of poverty and hunger, better standards of education and healthcare, particularly as it pertains to water quality and better sanitation, to achieve gender equality, sustainable economic growth while promoting jobs and stronger economies, actually sustainability means health of the land, air and water for all country.

Sustainable development recognizes that growth must be both inclusive and environmentally sound to reduce poverty and build shared prosperity for today's population and to continue to meet the needs of future generations. It is efficient with resources and carefully planned to deliver both immediate and long-term benefits for people, the planet, and prosperity. The three pillars of sustainable development—economic growth, environmental stewardship and social inclusion carry across all sectors of development, from cities facing rapid urbanization to agriculture, infrastructure, energy development, water availability and transportation. The significant tool for sustainable development is women empowerment and corporate social responsibility. By use of these tools any country completes the target of sustainable development and fulfills requirements of economic planning. For Development of any country it is necessary to improve status of women. For this Women and girls, everywhere, must have equal rights and opportunity, and be able to live free of violence and discrimination. Women's equality and empowerment is one of the Sustainable Development Goals. The study is all about women empowerment and corporate social responsibility as a tool for achieve goal of sustainable development.

Keywords: - sustainable development, corporate social responsibility, country, women empowerment, gender equality, environment.

1. Introduction

The expression sustainable development becomes fashionable in the 1980 century in both the world conservation strategy. Sustainable development can be defined as maintenance and sustainable utilization of the goods and services provided by natural ecosystems and biosphere processes. Every country needs to protect natural environment and social environment and fulfill their requirement by sustainable development. It is necessary to maximize the biological system goals for sustainable development like genetic diversity, elasticity, biological productivity and economic system goals like meeting basic minimum needs, equity etc and social system goals like social justice, people's participation, and for improving the quality of human life by supporting ecosystems. According to "The World Conservation Union and Worldwide Fund for Nature, 1991" sustainable development classically portrayed as the interface between environmental, economic and social sustainability and the ideas inherent in sustainable development are often presented in visual terms. In present scenario the need of sustainable development is for improving quality of life for the present and future purpose .in present time period the whole world, particularly the developing countries, face a near-crisis situation, both economic and environmental. Every countries government find it difficult to formulate programmes that would work under the present situation of escalating population on the one hand and diminishing resources on the other. So this situation is causes to the environmental dissolution certainly weaken economy and this leads to social collapse. Human history is full up with such instance and the remains of past civilizations in the archaeological sites of the world bear evidence to this. A rising quantity of agencies has seen that sustainable development appears to be a significant example for the twenty first century. Sustainable development is possible for every country,

when all countries are aware for improving status of women in present scenario; efforts to reduce the poverty, balance development of rural area and proper utilization of natural resources as well as human resources.

Women empowerment means the increase in assets and capabilities of women in any societies here assets mean financially strong and self dependent and capabilities mean to spend their income by their own desire and capable for take good decision regarding them and their family. Fundamentally empowerment means give power to poor person for survive in community and give equal right as others. Women empowerment is a current issue for every country, women empowerment is a tool which provide power to entrenched social barriers. Even in lots of formal democracies women are often unable to take benefits of opportunities provided by government particularly in rural area. Over the past few years women empowerment as a concept has been the focus of many reflections and research. It has grown in importance both academically and socially sense. It captures a spectrum of values and criteria for measuring contribution of government and society for improve status of women in their country. It is a good thing that many countries take strict steps about women empowerment. Some countries either beginning to think about or some are engaging with in one way or another way. It is duty or responsibility of society as well as government to improve position of women in present scenario and provide facilities according to their requirements mainly in rural area. Fundamentally the work done by the government has benefited many women live in India but also requires more development in position of women live in rural area of India.

2. Objectives and research methodology:

2.1 Objective of study – To study the role of CSR and women empowerment for achieve the goals of sustainable development and by these equipment every country complete the target for progress of country and to review the approach regarding efforts of government for sustainable development in India. This literature explores the lacunae and loopholes which are acting as hindrances in the implementation of the CSR initiatives and empowering women.

2.2 Research methodology- The methodology adopted in this study is general review and falls under the category of exploratory study based on the secondary sources of data and verbal interviews. Most of the data is collected from the research conducted online.

2.2.1 Limitations- Main limitations of this study are that only small sample of company and small area of women empowerment is selected. The collection of information of the written literature is from the various websites and secondary data collected from the internet, business journal and additional reading material available.

2.2.2 Research Gap- Sustainable development is major requirement of whole world because every country done effort for increase in national income and for this they promote industrialization. By the increase in number of industries and motive of earn maximum profit, these industries increase pollution. To the control pollution release by these industries, it is necessary for every country to use renewable resources of energy. Renewable energy is the more effective tool to save electricity and to keep the environment safe and clean. Only a few studies are carried out which have examined the CSR practices and women empowerment as tool for sustainable development. This study attempts to have a closure look at the work of such companies which are dedicated to provide electricity to those backward areas where power or light is still a luxury and steps taken by government for improvement in status of women.

3. Review of Literature

3.1 For sustainable development corporate social responsibility is an important tool- Historically, CSR practices in category of renewable energy have been seen as events for developed countries. Having a large body of literature has amalgamated the practices of CSR under renewable energy in the contexts of developed countries. However, the literature on practice of CSR in developing countries like India remains low (Belal, 2001). Only a few studies are carried out which have examine the CSR practice in category of renewable energy. Renewable energy is that energy which is collected from renewable resources. Which are naturally replenished on a human timescale such as Hydrogen and fuel cells, geothermal power, solar energy, wind energy, biomass and pollution control from all these leads and all of these are recharged. Given, importance of renewable energy it is a good initiative for the cleanliness of the environment that is spend by public and private companies on CSR in India. Some of the companies working in Rajasthan under category of renewable energy were chosen for research and they are doing a great job in this area.

3.2 Companies project and result regarding CSR under renewable energy- Selected companies in renewable energy category had run a total of four project in Rajasthan on the subject of CSR in financial

year 2017-18 and two of these four companies were projected by corporate project and two were government's project.

3.2.1 Government department project regarding renewable energy category of CSR in Rajasthan.

- a) Indian oil SURYA PRAKASH YOJANA installation of solar street light in village Hatoondi (Ajmer):- owner of this project is Indian oil corporation LTD Marketing Division Rajasthan. The project was resolved by the government to put solar street light under Indian oil "Surya Prakash Yojana" in the village Hatoondi (Ajmer).

This village dwells about six thousand population but the street light was not available. So the Indian oil corporation limited market division projected the street light planting here under CSR activities. This is clear that government scheme found the rural people to have street light as well as power saving.

- b) Indian oil SURYA PRAKASH YOJANA installation of solar street light at village Ordi (Chittorghar) :- there are about one hundred sixty families in this village and the government installed street light under "Surya Prakash Yojana"

3.2.2 Corporate project regarding renewable energy category of CSR in Rajasthan.

- a) Renewable energy project under CSR by Hindustan Zinc Limited :- Owner of this project is HZL and objective of this project of company is

- Encouraging the use of renewable resources of energy.
- E – Learning, clean water, sanitation, electricity etc.
- Installation of solar street light in village of Ajmer and Chittorghar.
- The main objectives of company are to support efforts of the government of India's Swachh Bharat Abhiyan.

- b) Solar water heater project under CSR by Intech Pharma Private Limited: - The owner this project is "Intech Pharma Private Limited" and objective of this project is to install a Solar Water Heater of Two Hundred Liters capacity at the Kasturba Residential School to facilitated girls students and staff members in winter season.

The school is home to a one hundred five girls and ten staff members who used to earlier heat water on Chulhas using wood and this is harmful for environment. Keeping this in Mind Company installed water heater for current and future use.

3.3 For sustainable development women empowerment is a significant tool- In sustainable development one more thing is significant tool as well as corporate social responsibility and that is the women empowerment. Women are the foundations of any society and the entire society is firmly on its strength. A beautiful building from outside look very strong but strength of this building is depending upon its cornerstone. If foundations are weak then building also become weak and fall down. Similarly women are cornerstone of progressive India and the balance development of India is possible when condition of women in India become strong. For this government take strict steps for improvement in status of women and make many policies and programme for improve the condition of women. At present scenario women empowerment is an important tool to improve the condition of women and create awareness about women right for Indian women. So this subject is current issue in overall world and even developed countries also make strategy regarding women empowerment where mostly women are educated but in India lots of women live in villages, they are still uneducated. By this they have no any knowledge regarding their rights and they deprived of schemes created by the government. To take advantage of the schemes made by the government, its knowledge must be. Education is significant equipment for increase the knowledge. When primary and secondary data are collected for the purpose of literature then it found that lack of education and knowledge about women right and policy made by government for improve their condition in society specially women live in backward area and rural area of Rajasthan. If condition of women in any country is weak then the dream of rapid development of that country is not become true.

Women empowerment means entail increasing the economic, social and political strength of women and requirement of gender equality, women empowerment can be divided into three levels, first is educational empowerment, second is economic empowerment and third one is political empowerment. Women are empowered by education because this is an important tool to improve women status in India. An educated woman can achieve everything in life. For explain above statement the Larry summers write one line to focus the complete need of education for women, he said that "If you educate a man you educate an individual .if you educate a women, you educate a Nation "(Larry summers).

4. Conclusion

- 4.1 The results of the research clearly indicate that companies practices CSR in Rajasthan are significantly play their role towards society. It is found that there is need for creation of awareness about CSR among the public of rural area and more companies to make CSR more effective. Companies working under CSR play

an important role towards society and fulfill their responsibility towards the society but the general public also has the responsibility to properly use the services provided by company along with the support to the government for CSR activities. The work done by these selected companies has benefitted both consumers as well as preserves natural resources thereby promoting the use of renewable sources of energy and provides contribution for sustainable development.

- 4.2** Women empowerment is also necessary for every country to achieve the target of sustainable development. Fundamentally for that country who plan to rapid development of their country. Because development of any country is possible when the status of women live in that country is improved. So we conclude that for sustainable development it is necessary to increase the activities of CSR and empowering women. By the use of these two equipments every country achieves the goal of sustainable development.

5. Recommendation

- For make CSR more effective every company appear under “companies Act 2013”, must prepare an annual report on CSR, including highlight the company’s commitment to sustainable community development.
- Social audit should be conducted by an external source agency to evaluate the performance of CSR of a company and fulfills the criteria of sustainable development.
- The company must focus on implementation and evaluation of CSR initiatives for provides benefits to community.
- The government must evaluate the recommended the amount of expenditure to be incurred on the activities referred in clause and monitor the CSR policy of the company from time to time.
- A few companies in this category are working in Rajasthan at present and many more companies are required today to pursue the subject.
- To spread awareness among general public about the benefits and opportunities generated through CSR revenues and requirement of empowering women for countries sustainable development.
- To increase awareness among general public and government should take strict steps towards women empowerment for sustainable development of country.

6. References

- [1] Honey, Martha (2008). Ecotourism and Sustainable Development: Who Owns Paradise?
- [2] Washington, DC: Island Press. p. 33 Untamed Path Defining Ecotourism. Retrieved on 2009-
- [3] Sustainable Tourism and Cultural attractions:
- [4] Comparative experience. Wallingford: CAB International Singh, L. K. (2008). Fundamental of Tourism and Travel. Delhi: Isha Boo.
- [5] Clean Energy Taps Limited CSR Funding Report.
- [6] Rajasthan CSR Report 2018, Department of Industries, Government of Rajasthan.
- [7] Annual Report of Hindustan Zinc Limited, Rajasthan.
- [8] CSR Portal Government of Rajasthan.
- [9] Website: - <http://www.iisd.org/business/issues>.
http://www.chillibreeze.com/articles_various/CSR-in-India.asp

BIOGRAPHY



Dr. Sumitra Choudhary

Description about the author

- Academic Qualification: Ph.D (BFE Department), M.Com. (BFE), B.Com., M.Ed. (Commerce), B.Ed. (Commerce), RS-CIT.
- No. of Seminar and Conferences attend National and International are Fifteen.
- No. of papers polished Five.
- Worked as Assistant Professor in Vyas College of Commerce & Business Administration, Jodhpur (Affiliated to Jai Narain Vyas University, Jodhpur) (From July 2010 to Till).
- Working as a Guest faculty in Jai Narain Vyas University, Jodhpur (From 2009 to 2016).

DIGITAL INDIA INFORMATION SYSTEM :AN INITIATIVE TO TRANSFORM ATTITUDE THROUGH COMPLETE DIGITIZATION FOR SUSTAINABLE DEVELOPMENT

Upasana Nasa Chaudhary
Assistant Professor, Lingaya's Vidyapeeth
Email id: Upasananasa@gmail.com
Contact No :9811431572

ABSTRACT

Digital India Information System, Transforming India by Transforming Lives, an initiative to develop attitudes in digitization paving the way for the sustainable development.

The growth of population and mankind's quest for economic development and a better quality of life in the last two centuries has caused a lot of problems to our environment and the planet like pollution, degradation and depletion of resources. The resources that are scarce needs to be judiciously used and optimally utilized through digitization. Digitization helps to achieve the minimum wastage of resources and switching to the online platform for education, training, communication assessment and evaluation.

Sustainable development is required for the development and wellbeing of future generations. The environmental crisis we face is serious and pressing, which requires taking swift and decisive action for meeting the crisis. In sustainable development, we see the world as a whole. It is long term concept that gives equal importance to development of future generations also. Sustainable development also emphasizes that actions and measures taken in one part of the world has consequences for people in other parts of the world. For development to be sustainable we must think of development not only for our community or village or country but for the world as a whole.

Measures for sustainable development therefore focus on policies that must be adopted in the whole world. Some of these policies are implemented at the level of governments of individual countries while others require coordination at the international level. Digital India Information System is the online platform for sharing and exchange of information, skills, knowledge, communication and management by addressing the transforming the attitude of saving and optimally utilizing the shared resources

Keywords: *DIIS- Digital India Information System, Sustainable development, digitization, attitude, education and communication.*

INTRODUCTION

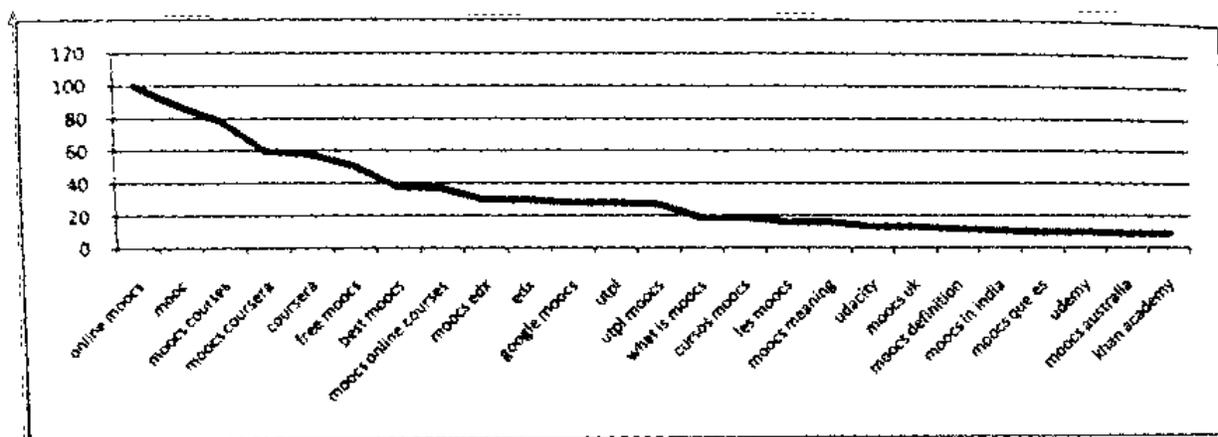
Digital India Information System is an online system to keep information and data for all important documents, files, communication in an educational institute, university or school in a digital format. This complete digital system will have knowledge information system ,management information system ,decision support system and communication system for the organization, institution, university, college in a digital mode.

Digital India Information System is a centralized unit and information pool for all kinds of data which is usually stored in the institution in the form files. It intends to replace traditional way of keeping records in the form of files. It also includes student database and teachers database having provision to store all certificates, mark sheets, degrees of students, teachers and staff in an online database for retrieval and information use. All the centralized departments like examination department ,administration ,accounts and academic which are usually operating in all the organizations, now with the advent of Digital India Information System will be existing in digital and centralized mode for access to the concerned department with the help of user id and password.

It is one platform for the use, storage, retrieval, communication of information and database which is crucial for the institution and organization.

Schools keep records like students ,teachers, laboratories and resources database. In students records, school keep the record of students details, family details, attendance and assessment. Teachers records includes, teacher details, family details, teachers salary records, lesson plan records.

Apart from infomation system, digitisation also includes online courses for students learning SWAYAM and MOOCs. Since the launch of the scheme of SWAYAM and MOOCs by the Government of India, the higher education fraternity has been bursting with possibilities in this area. The Prospects that such blended mode of learning holds for the masses and the curiosity that the term “MOOCs” has garnered recently can be determined by the number of times it has come up in Google searches in the past one year. An analysis of search patterns in the most commonly used search engine Google reveals some interesting patterns. On studying the trends of searches regarding MOOCs at the worldwide level, surprisingly the term “MOOCs in India” bagged the 21st position out of the top 25 such searches (Trends)



While many searches aimed at finding out the meaning of the term MOOCs, there was also marked interest showed in other online learning platforms like Coursera. The pattern revealed by studying the searches in the Indian context from 2/8/17 - 2/8/18 shows some interesting results:

Although this data may be very rudimentary and insufficient to derive at any concrete conclusions, it does give us an insight into the excitement that online and blended mode of learning has gathered among the masses. This, on one hand, gives us possibilities of what could turn out to be a brand new way of learning altogether, while at the same time resting huge responsibility on the hands of all stake holders to promote “access” and “equity” without compromising on “quality” — the three cardinal principles of higher education. A mere hint of excitement in potential students cannot be gauged as an effective measure of success or failure of any initiative. While this initial euphoria may be attributed to high level of anticipation amongst the youth, it would also be vital to keep in mind the dilemma in their minds. After years of traditional classroom study, most students have questions about studying online. (Vai & Sosulski, 2011).

According to Marc Prensky (2001), today’s learners are not the people our educational system was designed to teach: “It is now clear that as a result of this ubiquitous (digital) environment and the sheer volume of their interaction with it, today’s learners think and process information fundamentally differently from their predecessors ...we can say with certainty that their thinking patterns have changed . Our learners today are all “native speakers” of the digital language of computers, video games and the Internet”.

It may be prudent to keep this changing profile of our learners mind while devising policies for the future, so as to be not only fruitful but also a trendsetter towards mitigating the issues of access in higher education, and achieving the targeted GER as envisaged by the think tanks of the Indian Education System.

RATIONALE OF THE STUDY

This research paper focuses on the growing emphasis on digitization and also digital learning rather than teaching, the course curriculum in online courses designed in a manner that facilitates the students to grasp the content at his or her convenience of time and space.

With the advent of novel advancements in the field of technology, the students of today have an abundance of resources at their finger tips, The extent of possibilities is only limited by one’s own imagination. It is only a matter

of few seconds before a plethora of information can be accessed, may it be from any field or topic. It is exactly this resource, which holds within itself, a huge potential to address some of the nagging questions that have been plaguing our country, especially in the context of higher education. As online and mobile technologies open up exciting new possibilities for continuing education, the prudent use of technology has become of paramount importance to students, especially since technology continues to become a necessary part of studying. While being appreciative of the growth of education in post independence India, one realizes that in spite of the best of efforts, the target of achieving expansion of access to higher education in the remotest corners of the country, has remained an elusive one for successive governments for a long time. According to the final report document of the All India Survey on Higher Education (AISHE) 2016-17, the Gross Enrolment Ratio (GER) in Higher education in India is 25.2%, which is calculated for 18-23 years of age group (MHRD, 2017). Notwithstanding the determined and concentrated efforts of the policy makers towards achieving the goal of a high GER, it continues to remain at such a dismal low. This has been on the radar of policy makers for a long time and many recent initiatives are being undertaken towards achieving the target of a GER of 30% by the year 2020.

One such initiative of “Blended Learning” has come to the fore recently. It is a new terminology that, according to the Oxford Dictionary, is a style of education in which students learn via electronic / online media as well as traditional face-to-face teaching (Oxford University Press). In this regard, the government has also initiated the scheme of MOOCs under the SWAYAM platform. Massive Open Online Courses, or MOOCs, are online courses that allow participants free access and unrestricted participation to any course of their choice. Besides the conventional modes of teaching such as lectures, videos and reading material, MOOCs also provide a platform for interactive forums. Working on the principle of AAA, i.e., “Anytime”, “Anywhere”, “Anyone” learning; this initiative aims to have far reaching consequences towards encouraging prospective students to take up higher education, without the constraints of geographical or economic boundaries, While having its core emphasis on Against the backdrop of tenets innovation, viz. collaboration and experimentation, the field of education is opening its doors to digitization for building digital literacy amongst GenNext students.

Digitalization in education is comparatively a fresh offshoot to education emerging at a lightening pace globally. It is the process of converting information into a digital format. New technologies are being adopted quickly by private schools so as to satisfy the educational needs put forward by the GenNext students. Digital tools are extensively being used to enhance the system of education across many cities of India. The infusion of technology is encouraging, though limited to private schools of metropolitan cities, the lacuna still exists in the government schools which cannot be overlooked and certainly requires to be plugged in appropriately by way of resonant initiatives.

The initiatives to introduce technology into the realm of education have been sporadic and unrelated. The ‘Digital India’ campaign by PM Modi’s has increased the scope of technology in the country. It aims to ensure better connectivity and maximize the potential of India’s demographic dividend. Given that the majority of India’s population lives in rural and semi- urban areas, the infusion of technology into education, if done on a larger scale and at the grass- root level, would only then prove to be fruitful. One of the major pillars of Digital India is e- Kranti (revolution) under which immense emphasis has been given to digitising rural India through e-technology, especially in the domain of education. The key aspects attended to are: all schools connected with broadband, free Wi-Fi in all schools. digital literacy. MOOCs, etc (Ralhan, 2016).

Solid steps, if not giant strides, have been taken towards achieving a rural India that uses digital tools to become self-reliant and keep pace with urban counterparts. As wide-eyed village children ogle at the plethora of information opening up in front of them, the seeds of a digital India dream can be seen germinating.

CONCLUSION

Thus, with conviction, it can safely be concluded that collaboration and experimentation, as tenets of innovation, along with digitization in education can go a long way in remodeling the archaic teaching-learning process prevalent across schools, thereof entailing a cultural shift.

With the much talked about Digital India campaign envisioned by the Prime Minister Shri Narendra Modi, emphasis on digitalization looks to revitalize all sectors with technology. It aims at ensuring better connectivity by creating broadband highways which will span across the length and breadth of the country. This is supposed to change the existing educational practices as well to improve quality of education despite growing population. According to the report of Hindustan Times, August 4, 2015, with India being the third largest market by Internet user and 1.13 trillion INR Digital India initiative by government; it is expected that there will be a 17.4% annual growth rate in India’s e-Learning sector between 2013 and 2018, twice as fast as the global average. Availability of high speed broadband

services and low cost computing devices providing opportunities to maximally utilize technological advances to reinvent educational practices and bring new life to traditional forms of teaching and learning being practiced in India from ages. Digitalization of Education is surely the need of the hour as it is important to provide analytic, adaptive learning and personalized learning environments. In the report, Digitizing India: Addressing India's education challenges through the Internet of Everything (IoE); IoE is said to open up a new world of educational opportunities which will not be limited by time and place, for students to learn more and to learn in new ways which will be accomplished by connecting to resources around the globe. With use of ICT tools and collaboration over videos, digitization will help in improving learning experiences through connected campuses and provide opportunity for any time anywhere learning which will be achieved through Learning Management Systems thus ensuring a switch from e-Learning to Blended Learning.

As aptly remarked that digital learning should be more about the human touch than just machine; Digitalization of education is often criticized; thus making it imperative to see thoroughly the various challenges that come along with increasingly popular idea of digital learning. Despite many distinctive advantages, it's important to critically analyze and question: Is it the right time for India to ride the technology wave? The first problem at hand is of growing population. It was estimated to be 1.324 billion in 2016 and by 2024, India's population is expected to surpass that of China's and is projected to reach 1.5 billion in 2030, according to a report published by the United Nations Department of Economic and Social Affairs. Such a massive population puts pressure on our economic and education system as digitization will require certain investment which if done inadequately might not provide expected returns. Although digitization is proposed as a solution to reach out to higher volumes of student yet due to financial constraints, it may remain a challenge to ensure its accessibility to the masses. The cost of establishing and maintaining the physical infrastructure required for digitization serves as major limiting factor. In the Union budget 2017, the e-learning portfolio of higher education has been allocated a total of Rs.497 crore in 2017-18, as against Rs.552 crore in 2016-17. The massive open online courses (MOOC) part of the overall e-learning segment has been allocated Rs75 crore, the same as last year. Such an allocation in budget itself shows that government is trying to strengthen the education systems by utilizing the advances in the field of technology. But when these figures are contrasted against the allocation to Sarva Shiksha Abhiyan, which has been given Rs. 23,500 crore, up from Rs. 22,500 crore in last budget and the mid-day-meal programme which has been allocated Rs. 10,000 crore, up by Rs. 300 crore from the last budget; one can see that in a country which is still striving to ensure universalization of school education and retention, digitization of education appears like a pipe dream. Digital education is more confined to e-Learning that too in higher education. Thus, the scope as well as the reach of digital education is yet to be explored. Creating a secure wireless network across the campus, enabling knowledge transfer through mobile, smart, portable devices, ensuring IT security, cloud surveillance, designing educational software and ensuring adequate application and providing technological base to share the educational resources through a common database are some of the many roles digitization can perform. In any form of education a key role player is the learner, knowing the needs and motivation of the learners thus becomes imperative before experimenting with anything new. Resistance to change on the part of the learner may pose a threat to the success of digitization as they may not find it comfortable to part ways with the traditional practices. Similar resistance can come from the instructors which makes it essential to ensure that constant reforms be done in schools and teacher education. Digitization of education provides little scope for social and emotional development of the learner thereby it may fall short to accomplish the 'all-round development' goal of education. Developing life skills and social habits amongst the learner is equally important. Another major challenge is content designing and quality concerns regarding the content to be delivered digitally. Knowledge creation rather than knowledge acquisition should be the goal. The dearth of adequately skilled persons may make it a difficult task to achieve. In times where there are more of digital natives amongst the learners, digitization can be overwhelming and can create immersive learning environments. The vision of having a Digital India is indeed a prerequisite to stand tall amongst the leading countries of the world and to match our footsteps with advances in technology and utilize them in each and every sector and education being the one must devise measures to tackle the divide and to keep up with the developments taking shape globally. The need is to identify and respond to the challenges involved by employing most fit measures to minimize or remove any roadblock in the way of making the dream of 'digital education a reality.

REFERENCES

1. DIGITIZING INDIA : Addressing India's education challenges through the Internet of Everything. (2015, July 15). Retrieved February 11,2018, from <https://www.hindustantimes.com/business/digitizing-india-addressing-india-s-education-challenges-through-the-internet-of-everything/story-oByybqq0qN3j7nedVo9yqJ.html>

2. Dua, S., Wadhawan, S., & Gupta, S. (2016). Issues, trends and Challenges of digital education : An empowering innovative classroom model for learning (05th Management. http://www.ijst.com/images/short_pdf_1463159589_1593ijst.pdf
3. MHRD, G. (2017). AISHE Final Report 2016-17. All India Survey on Higher Education.
4. Oxford University Press. Oxford Dictionary.
5. Prensky, M. (2001, October). Digital Natives, Digital Immigrants. On the Horizon.
6. Trends, G. (n.d.). <https://trends.google.com>. Retrieved February 12, 2018, from www.google.com: <https://trends.google.com/trends/explore?q=Moocs>
7. Vai, M., & Sosulski, K. (2011). Essentials of Online course Design : A Standards - Based Guide. New York: Routledge.



TECHNOLOGY TRANSFER AND SUSTAINABLE DEVELOPMENT EMERGING ECONOMIES: THE PROBLEM OF TECHNOLOGY LOCK IN

Dr.Veena Soni (Post-Doctoral Fellow)

Jai Narayan Vyas University, Jodhpur (Raj)

ABSTRACT

The transfer of technology from advanced countries to emerging economies constitutes one of the fundamental ways to pursue progress towards convergence between the two economies in terms of standards of living. Nevertheless, the level of R&D expenditure that developed countries can afford gives them a clear advantage in the technological field. It therefore seems logical for emerging countries, which have a more limited investment capacity, to try to exploit technological advances with the least possible expenditure.

This paper aims to show how the process of diffusion of “clean technologies” confronts a variety of forces at the macro level that create systematic, technological and institutional barriers to their adoption. There is abundant literature on the role of technology transfer in the development of emerging economies, but this perspective is clearly new. What needs to be borne in mind is the possibility that the transferred dominant technology may be subject to a techno-institutional lock-in at its source that does not allow the diffusion of environmentally superior alternative technologies. Care therefore needs to be taken when transferring the technology patterns in force in advanced countries mimetically to emerging economies, as emerging countries still have the chance to avoid the mistakes made by developed ones.

Keywords: *Developing economies; sustainable development; technology transfer; techno institutional lock-in*

Introduction

In recent years, technology transfer from advanced economies has been put forward as one of the fundamental pillars on which to base the search for alternative routes leading to economic growth in emerging economies, including those of Latin America, through sustainable development.

Experience has shown that often the technology transferred and used by transnational companies in emerging economies has caused significant negative externalities in these countries. Nevertheless, on occasion it is these very transnational companies which, given the pressure exerted upon them by the “reputation” factor in a globalized world, aim to be pioneers in the defence of the environment. The focus of this study, however, is not on whether the current path taken by technology transfer is the most appropriate one or the best suited to the interests of emerging economies. Nor do we intend to look in depth at the implications that the globalization of technology could have for these countries.

Rather, this paper aims to draw attention to an aspect of technology transfer that can shape its potential benefits in terms of the sustainable development of the economies receiving it. It is necessary to bear in mind that some technologies with a consolidated role in the production systems of developed countries are not necessarily optimal in environmental terms. The phenomenon of technology lock-in can make it difficult to give up a dominant technology, despite its demonstrated inferiority compared with other available alternative technologies. Care therefore needs to be taken when transferring the technology patterns in force in advanced countries mimetically to emerging economies, as emerging countries still have the chance to avoid the mistakes made by developed ones.

Section 2 of this paper covers some of the basic concepts regarding technology transfer in the context of emerging economies. Section 3 covers these concepts in the environmental field. Section 4 introduces the conventional approach to the problem of the diffusion of sustainable environmental technologies that are

superior to the dominant ones, which traditionally centres on microeconomic factors relating to individual decision-making. However, there are other barriers to change, particularly forces at the macro level that create systematic, technological and institutional barriers to the diffusion and adoption of efficient and sustainable technologies. Section 5 demonstrates how in the context of the diffusion of production technologies in general, and of “clean technologies” in particular, there are *increasing returns from adoption* of technology, based on the aforementioned macro-level barriers to the diffusion of alternative solutions. Lastly, section 6 draws attention to one of the possible consequences of technological lock-in, namely the transfer of non-sustainable technologies from advanced countries to emerging economies, and covers, by way of a conclusion, some of the policy guidelines that can be deduced if the facts argued for in the previous sections are accepted.

An approach to the question of technological transfer from developed economies to emerging economies

The clear need for emerging economies to obtain new technologies enabling them to increase the yield obtained from their resources is an essential part of the search for an adequate development strategy. Nevertheless, to ensure that this development can be sustained over time, other factors need to be present in addition to the simple transfer of a technology from one place on the planet to another.

Numerous Latin American researchers in the social sciences (Caponi and Díaz, 1999; Busso, 1997) have maintained that the path emerging economies should follow in the quest for development is not necessarily the same one as that which was followed by today’s advanced economies as they developed. It does not seem to be essential to take a mimetic approach in the field of technology and production in order to achieve a more prosperous economy.

However, it seems to be clear that there are a number of key factors in these models of development that should be reproduced, among which is knowing how to exploit the opportunities that arise and above all, recognizing a country’s limitations. The level of research and development (R&D) expenditure that developed countries can afford gives them a clear advantage in the technology field. It therefore seems sensible for emerging countries, which have a more limited investment capacity, to exploit these advances with the least possible expenditure.

The technological innovation system in Latin America underwent a profound change in the nineties. Greater openness, deregulation, privatization of certain productive activities, led many state-owned companies that had set up major R&D and engineering departments during the preceding import-substitution phase in the fifties and sixties to reduce the scale of these operations after privatization (Katz, 1999). This process has led Latin American economies towards a development model that is less intensive in national R&D and is more dependent on technology “packages” from abroad.

Nevertheless, in the case of public and private companies, this technology transfer from abroad often comes up against a somewhat unfavourable environment. Among the key factors identified in various studies (Steenhuis and Bruijn, 2001; Guerin, 2001) as being able to facilitate or hinder the appropriate adoption of technologies by emerging economies, the following stand out: the availability of domestic financial resources; the degree of skills and training of the workforce; import regulations; the quality and quantity of local supplies of inputs; the delivery times of the inputs; basic infrastructure; working conditions; cultural attitudes, etc. Unfortunately, in many emerging economies the behaviour of these factors tends to limit rather than promote technological innovation.

The inefficiency of the technology transfer process is also often driven by the system of property rights over technologies, which are frequently in the hands of private companies, beyond the control of governmental or international bodies. It is difficult for such companies to share their technology unless they receive adequate financial compensation, and this price is often high for the recipient.

For this reason, in order to accelerate the process of technology transfer from its owners –mainly companies in advanced countries– to those requiring it –companies in emerging countries– the need arises to improve the current mechanisms of international trade in order to provide incentives to the private sector to take part in this transfer process. It is therefore essential to find new and flexible mechanisms of trade which make it possible to improve this flow, in which technology transfer should be seen as an important mechanism for economic globalization and international investment, and not simply from the static viewpoint of official aid to poor countries from rich ones (Forsyth, 1997)¹.

However, this defence of technological globalization should not be understood as a proposal to abolish national policies on technology, nor should it seek – in the words of Howells and Michie, 1997– to erect protectionist barriers around the base technology in each country. Instead, it demonstrates the need for sensitive policies which seek a compromise between national technological capabilities and those from abroad. The transfer of a new technology to a developing economy must therefore include an element of capacity to create technology in the recipient country, if it is to be successful (Platt and Wilson, 1999, page 396).

Moreover, the urgent need for new technologies felt by emerging economies should not lead one to think that the only valid technology is that being sold by developed countries. It is necessary to maintain and develop local technological innovation as far as possible, as it can often respond better to the reality of emerging economies. According to Da Silveira (2001, page 771), R&D in developing economies should not necessarily be based on the experience of advanced economies, rather it should be formulated taking their own contexts and specific needs into account.

Nor does it seem correct to think that the only relevant technology is that which forms part of those technologies considered to be in the vanguard or latest generation, as many such technologies are simply out of reach and cannot be implemented on an efficient scale in emerging economies. For instance, the unsuccessful attempt to transfer fermentation technologies used in the agrifoods industry to emerging economies offers a clear example of how transferring technologies for small scale installations can be much more successful than larger-scale initiatives, which are not suited to the reality, scale and needs of markets and producers in developing economies (Rolle and Satin, 2001).

Technology transfer from the environmental perspective

Technology transfer in the environmental field has sparked off one of the most intense debates between developed and less developed countries in recent years. We can find examples of the disagreements that have arisen in the negotiations that have taken place on climate change. Despite the commitment and conviction regarding the need to

transfer environmentally-friendly technology from developed countries to less developed ones, the view of many observers is that the negotiations taking place at the United Nations Climate Change Convention and Agenda 21 have not lived up to expectations (WWF, 1997; CEPAL, 2001).

The transfer of clean technologies to emerging economies can provide vital support to the overall goals of reducing greenhouse gases (Ramanathan, 2002; Forsyth, 1997). Indeed, this issue occupies a prominent place in the United Nations Framework Convention on Climate Change (UNFCCC, 1998). However, past experience indicates that, in order to be successful, the transferred technologies must consider a series of factors (Parikh and Kathuria, 1997; Sathaye and Ravindranatah, 1998; UNESCAP, 1997; TERI, 1997), namely: (i) the type of needs of a developing economy and the degree to which the process of technology transfer is in harmony with the country's other development goals; (ii) the requirement for appropriate technologies able to meet these needs; (iii) the availability of the expertise necessary to ensure the transfer is effective; (iv) the factors related to the adoption, assimilation and adaptation of the imported technology.

The United States, one of the largest exporters of technology, maintains that technology transfer to less-developed countries is a lengthy process which cannot be expected to give short-term results. For this purpose, the US Agency for International Development, in collaboration with the United Nations Development Programme and the US Department of Commerce, have set up an *Environmental Technologies Network for the Americas* (ETNA2), the mission of which is to promote trade in environmentally sustainable technologies and to publicize investment opportunities in Latin America both among US and Latin American companies (Williams, 1996). To date, however, its success in protecting the environment has been limited and often debatable.

Experience has shown that often the technology transferred and used by transnational companies in emerging economies has caused significant negative externalities for the environment in the host countries. Impacts of this kind have occurred in a diverse range of areas of production, ranging from agriculture –pest control, cattle feed, weedkillers, etc.– to the high profile disasters caused by oil companies in the seventies in Latin American oil-producing countries such as Ecuador, Colombia, and Venezuela². Obviously, this is not to say that all technology transferred or used by companies from advanced countries in emerging economies has had negative consequences for the environment in the latter.

On this point, authors such as Kiuchi and Shireman (2002), Lovins et al. (1999) or Starik (1995), postulate that it is precisely the transnational companies that are best suited to the role of pioneers in defence of the environment, given the pressure upon them to safeguard their “reputation” in a globalized world. Although it may be debatable whether this factor is given more weight in the decisions of private companies than the undiluted quest for profit, it is nonetheless the case that the need to conduct their business in a sustainable way is increasingly apparent to such companies. This is not only because they want to maintain their image or reputation in society, but also for economic reasons –reduced waste and costs– and the existence of ever stricter environmental legislation. Thus, the need to think in terms of sustainability, beyond being a fad or a publicity stunt to obtain new market segments, is becoming an imperative for transnational companies (Allen et al., 2002).

However, the focus of this paper is not on whether the current path taken by technology transfer is the most appropriate one or the one best suited to the interests of Latin American countries. Nor do we seek to analyse in depth the implications of technological globalization on these countries, a subject which has been addressed by authors such as Howells and Michie (1997), and Dunning (1998).

This paper aims to draw attention to an aspect of technology transfer that can shape its potential benefits in terms of the sustainable development of the economies receiving it. It is necessary to bear in mind that some technologies with a consolidated role in the production systems of developed countries are not necessarily optimal in environmental terms. The phenomenon of technology lock-in can make it difficult to give up a dominant technology, despite its demonstrated inferiority compared with other available alternative technologies.

Problems in the diffusion of environmentally sustainable technologies

It would seem to be clear that in order to achieve greater environmental quality without limiting productive activity, an effort needs to be made to promote innovation in sustainable technologies. There are numerous economic models which try to evaluate the impact that different environmental policies have on promoting *innovation* aimed at pollution control. Chapter 2 of Kemp (1997), contains an extensive review of these models.

However, there is a growing consensus on the potential for environmental improvement that may be achieved by the *diffusion* of existing sustainable technologies, in particular in terms of greater energy efficiency and the associated reduction in the emissions generated by the use of fossil fuels. Some of the conclusive empirical studies conducted in this field are included in the papers by DeCanio (1998), Krause (1996), and Lovins (1991); or the reports of the *Union of Concerned Scientists and Tellus Institute* (1998), *Interlaboratory Working Group* (1997), *Alliance to Save Energy et al.* (1997), and Sant (1979).

If we accept the validity of these studies, it could be asked what factors limit or hinder the rate of diffusion of these technologies. A second question is to what extent these factors are related to failures of the energy and associated equipment market (Jaffe and Stavins, 1994). To the extent that market failures are responsible, the effectiveness of traditional policies intended to promote the adoption of such technologies by means of economic incentives is placed in doubt. Instead, measures aimed at correcting market failures would appear to be more appropriate.

According to Jaffe *et al.* (2000), the main market failures that can affect the rate and direction of technological diffusion include, in particular: i) *problems of information* – information being a public good which is not always supplied by the markets. This is an important factor, in that the adoption of a technology by a number of users constitutes of itself an important source for the transfer of information to other participants, in the form of a positive externality; ii) *agency problems*, which are also related to imperfect information, may be internal or external to organizations; iii) *Other market imperfections*, such as the difficulty small businesses may experience in accessing the finance required to purchase new technologies, or the barriers to the import of foreign products which may be carriers of technology (Reppelin-Hill, 1999).

In addition to these factors, which may be attributed to market imperfections, Jaffe et al. (2000) also highlight other factors which may act as barriers to technological diffusion, related in this case to the decision to adopt the new technology: i) *uncertainty* is a factor which may limit the adoption of a new technology (Geroski, 2000). This uncertainty is present in both the evaluation of the efficiency of the technology (Mansfield, 1968), and in the evaluation of the saving of resources whose future price is unknown to the agent making the decision; ii) the *discount rate* used by the purchaser to evaluate the

investment in the new technology. Numerous studies show that purchasers apparently use high discount rates to evaluate investments related to energy efficiency (Hausman, 1979; Ruderman *et al.*, 1987; Ross, 1990).

Increasing returns from technology adoption and lock-in

The microeconomic factors described above, which are linked to possible market failures or to characteristics of the individual decision-making processes of investing agents, have been the focus of conventional explanations of the difficulties experienced in the diffusion of technologies representing an alternative to the dominant technologies in the productive system. However, there are other barriers to change, in particular, forces at the macro level that create systematic, technological and institutional barriers to the diffusion and adoption of efficient and sustainable technologies.

The main reference in the literature on this point is Arthur (1989, 1990, 1994), according to whom – following conventional economic theory built around the assumption of diminishing returns– agents participate in perfect markets with full information, and so select the optimal technology. Agents' actions in the economic sphere lead to negative feedback, which produces an equilibrium that is predictable in terms of both prices and market share. The equilibrium signals the “best” option possible given the circumstances, the most efficient use and application of resources. However, in numerous areas of the economy these stabilizing forces do not appear to operate. Instead, positive feedback magnifies the effect of small economic changes. Diminishing returns imply a single equilibrium for the economy, but positive feedback makes numerous alternative equilibria possible. Thus, there is no guarantee that a particular economic result selected from among the many alternatives is necessarily the “best”. What is more, once chance economic events have chosen a particular path, the choice may be locked in despite the advantages of the alternatives.

According to Arthur, most of those parts of the economy based on physical resources (agriculture, mining, etc.) are subject to diminishing returns. On the other hand, those parts of the economy that are knowledge based generally experience increasing returns. These areas require major investments in research, development and tools, but once sales begin, production can be increased relatively cheaply. As additional units are produced, the unit costs continue to fall and profits increase. Moreover, greater experience is acquired in their production and a better understanding is obtained as to how to produce additional units more cheaply. Furthermore, as the product gains a larger market share, people have a stronger incentive to buy the same product, insofar as they are able to exchange information with those people who are already using it. A technology that improves more quickly or is adopted by more agents has more chances of survival than its competitors (*selectional advantage*). Early superiority, however, is no guarantee of long-term suitability.

Thus we see that apparently inferior designs can be locked in to the production system in an evolutionary-dependent process (*path dependence*), in which fortuitous events can determine the winning alternative (David, 1985, 1997). One characteristic of the products or systems subject to increasing returns is that the progress of events can be critical. Whereas other markets may be explained by current supply and demand, it is not possible to fully understand markets subject to positive feedback without knowing the historical pattern of technological adoption (Jaffe *et al.*, 2000, p. 42).

In practice, the individual decision to adopt one technology rather than another is taken on the basis of the information available at the time about the respective costs and benefits of the alternatives. Only with the passing of time, once the lock-in has taken place, can all the social disutilities of having made the wrong decision become apparent in all their magnitude. As we have seen, this derives to a large extent from the increasing returns that certain technologies produce during their development and commercialization (*diffusion*) phases and which can accelerate their rate of improvement with respect to the competing alternatives (Figure 1).

These returns are not constant as adoption of the technology grows: conventional economics focuses on the upper part, the important thing is the return obtained in the long-term equilibrium position. However, an incidental advantage in the initial phase of implementation may lead to the market's being dominated by a technology which in the end turns out to be less efficient than the alternatives.

The increasing returns from adoption of technology are explained mainly by the following factors, which support the process of self-reinforcement of the dominant alternative and hinder the diffusion of the remainder of the alternatives:

- **Economies of scale**. This is the best known and most obvious of the factors of increasing returns: the unit production costs decrease as the fixed costs are diluted by a greater volume of production.
- **Learning-by-doing and learning-by-using**. The first concept, taken from Arrow (1962) and Sheshinsky (1967), refers to the greater efficiency with which a technologically complex product is produced as experience with its manufacture accumulates, due to process rationalization, reduced waste, or the training of the workforce. The concept of learning-by-use is the counterpart of the previous idea looked at from the demand side: the learning effect is reinforced as adoption grows because users gain greater experience with the product and their productivity is enhanced. Both of these factors can consolidate the dominance of a technology that has achieved greater market share as a result of initial circumstances, such as an initial advantage in terms of costs which permitted lower market prices.
- **Network externalities**. Systematic relationships arise between technologies, infrastructures, interdependent industries and users. Positive externalities are produced because the physical and informational networks are more valuable to users as they grow in size (Katz and Shapiro, 1985; Farrell and Saloner, 1986).
- **Increasing returns from information (adaptive expectations)**. As the number of people adopting a given technology grows, so the uncertainty is reduced and both the number of users and producers perceive a reduced risk. Their confidence in the quality and performance of the technology and in its likelihood of continuing to be available increases (Arthur, 1991).

In addition to these factors relating to the increasing returns from the adoption of a new technology – which are present at both industry and corporate level– formal and informal institutions can arise which are linked to the technological systems and which can have an important impact on their evolution (Nelson, 1994). Private –often non-commercial– institutions tend to arise if, as time goes on, the users of a growing technological systems recognize that they have collective needs and interests which can be met by setting up technical and professional associations. These private institutions can generate forces tending to cause technological lock-in through coalitions, voluntary associations and the emergence of social norms and customs (Unruh, 2000, 2001). Moreover, governments may create structures or lay down the “rules of the game” to which companies have to adapt their strategies (North 1981, 1990; Williamson, 1975, 1985). Once established, these governmental institutions tend to persist in their initial form over long periods of time (Williamson, 1997) and can have a powerful long-term impact on the evolution of technological systems. In the words of Nelson (1994), the institutional structures that might have been effective in one era, i.e. when they were young, can become inefficient as changes occur in the nature of the technologies and worldwide competition, and thus become rigid and antiquated.

Various authors have demonstrated empirically the phenomenon of technological lock-in in various spheres of productive activity. For example, Cowan (1990) discusses how, although it was considered inferior to other alternatives, light-water based technology dominated the nuclear reactor market, because, according to the author, of the early adoption and strong development of this technology by the US Navy as a system for the propulsion of submarines. When a civilian market emerged for this type of power, light-water technology had already achieved a considerable edge, thus blocking the diffusion of other alternative technologies that were ready to enter the market. With the same objective as the previous paper, Cowan and Gunby (1996) offer an empirical study in which they set out to explain why chemical control of agricultural pests remains the dominant technology despite the numerous claims made for the superiority of the main competing technology, namely integrated pest management.

Islas (1997) aims to show how, in a lock-in situation in the electricity generation field, a new technology can successfully overcome the lock-in and become competitive. The study seeks to demonstrate that this is possible by bringing increasing returns from adoption into play in specific production niches. Starting out from this proposition, Islas tries to draw a number of conclusions from the example of the gas turbine in comparison with Arthur’s basic model.

Menanteau (2000) shows how different technologies for manufacturing photovoltaic cells compete. The paper analyses the mechanisms whereby one of these technologies – crystalline silicon– has taken up a dominant position thanks to the fact that it shares the know-how it is based on with the electronic components industry. In the author's view, given the limited margins for improvement that this technology path presents, it is important to determine the possibilities of overcoming the lock-in so as to extend the learning process related to this system of generating electricity.

Conclusions: some policy guidelines regarding the possible transfer of non-sustainable technologies.

This paper set out to show how in the context of the diffusion of production technologies in general, and of “clean technologies” in particular, there are *increasing returns from adoption*. These are forces at the macro level that create systematic, technological and institutional barriers to the diffusion and adoption of efficient and sustainable technologies. There is abundant literature on the role of technology transfer in the development of emerging economies, but this perspective is clearly new and highlights that it is necessary to bear in mind the possibility that the dominant technology transferred is subject at source to a techno-institutional lock-in that has not allowed the diffusion of alternative technologies that are superior to it in environmental terms.

Care therefore needs to be taken when transferring the technology patterns in force in advanced countries mimetically to emerging economies, as emerging countries still have the chance to avoid the mistakes made by developed ones.

What does the foregoing analysis suggest regarding technology transfer policy? Two immediate implications emerge:

i) The first conclusion is that it is advisable to conduct *early evaluation* of the possible consequences of the adoption of a technology. From this first implication it also follows that it is necessary for the receiving country to have a system centralizing relevant information for this evaluation, and guiding the process of transfer and adoption along a sustainable path.

It is also necessary for the authorities in emerging economies to have a strategic vision of the technology, and to develop policies which include an evaluation of the technologies that is integrated with environmental policy (Davenport and Bibby, 1999, page 445). In this regard it is important to highlight that the rapid diffusion of a technology is not necessarily welfare enhancing (Stoneman and Diederer, 1994). A diffusion process can be “too fast” if the companies adopt a technology today which effectively limits the possibilities for adopting a superior technology in the future.

The adverse effects of a technology may be anticipated, avoided or mitigated (Coates 1998, p.37). As the development of the technological cycle develops, the possibilities for positive environmental management of the technology transfer are more limited. As a consequence, the focus has to be placed on the earliest stages of the project, i.e. planning, pre-development and pre-import.

According to Wicklein (1998), national and local governments, as well as private groups, make a continual effort to introduce forms of technology that are efficient and fit within their budgetary limits. This is particularly important in emerging economies. The extent of the need and the importance of choosing the most appropriate technology is magnified in these countries, where the margin of error is narrower due to the limitations on resources. Some authors (Date, 1984; Bhalla, 1979; Segal, 1992) have put forward a series of criteria on which to judge in advance whether a technology has potential for success in a developing economy –independence, image, individuality, cost, risk, multiple purpose–. In our view, sustainability should be added to this list of criteria.

Although it may look complex, this *ex ante* analysis of sustainability of the available technologies by a country's authorities is possible in practice. For example, Madu (1999) proposes a system of decision support for environmental planning in developing countries based on comparative multicriteria decision-making methods. The author illustrates the method with the case of carbon emissions. Given that environmental targets frequently conflict with these countries' social and economic development needs, it is necessary to approach the problem systematically, taking into account and prioritizing the conflicting targets and enabling the identification of all the technological options and factors that can have an impact on the alternative routes to achieving the country's goals. Along similar lines, Ramanathan (2002) outlines a way of ensuring the greater success of the process of transfer of clean technologies in an

emerging economy via a model that makes it possible to take multiple criteria into account together with the viewpoints of numerous stakeholders.

ii) Secondly, if we accept and wish to exploit this “window of opportunity” for sustainable development in emerging economies, it is clear that it is necessary to have sufficient *financial resources* to permit these countries to acquire and adopt the best possible technologies from the environmental point of view³. Various empirical studies on the adoption of new technologies by emerging economies have identified the lack of access to credit as a critical barrier (Blackman, 1999).

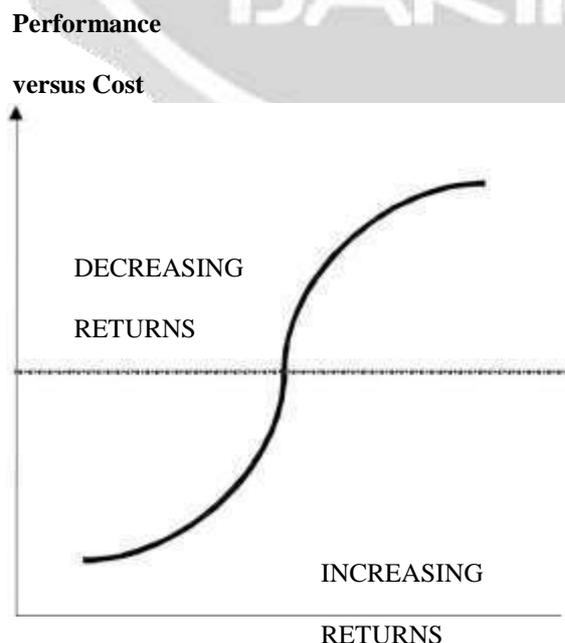
Given the inherent risk in the acquisition of a novel technology and applying it in economies of this type, these resources should probably come from official sources dedicated to financing development programmes in emerging economies. In the case of Latin American countries, we are referring here mainly to international organizations such as, in particular, the World Bank, the Inter-American Development Bank, the United Nations and CAF (Corporación Andina de Fomento). Nevertheless, it is clear that these organizations have not taken into account –at least in a clearly visible way– the need to promote the transfer of clean technologies as a path towards sustainable development for these countries⁴. Nor do they seem to have analysed in detail the environmental risks of transferring non-sustainable technologies.

Nevertheless, it is clear that these organizations have not taken into account –at least in a clearly visible way– the need to promote the transfer of clean technologies as a path towards sustainable development for these countries⁴. Nor do they seem to have analysed in detail the environmental risks of transferring non-sustainable technologies.

One of the few initiatives existing in this field is that run by the Inter-American Development Bank (2002) in the field of the development of science and technology in Latin America, which has provided finance in the form of loans and grants for pre-investment studies and technical assistance. For its part, the World Bank (2000), through its *Millennium Science Initiative*, is pursuing the enhancement of the scientific and technological capability of groups of researchers in the member countries. Nevertheless, these initiatives only tackle the technology question from a very general perspective and, of course, do not respond to the problem analysed in this article.

It is therefore necessary for international development aid organizations to set up specific instruments to support the transfer of clean technologies to emerging economies. Flexible financing routes are needed which consider the risk inherent in these operations, and which take into account the technological needs of these countries without jeopardizing their future development.

Figure 1



Installed**► base**

Source: Unruh (2000)

References

1. Allen, D., Chafra, P. and Carrillo, J. 2002. Ética, Responsabilidad Social y Sostenibilidad, Nota Técnica del Instituto de Empresa, Madrid
2. Alliance to save energy et al. 1997. Energy Innovations: A Prosperous Path to a Clean Environment, ASE, Washington, D.C.
3. Arrow, K.J. 1962. The Economic Implications of Learning by Doing, Review of Economic Studies, 29: 155-173
4. Arthur, W.B. 1989. Competing Technologies, Increasing Returns, and Lock-In by Historical Events, Economic Journal, 99: 116-131
5. Arthur, W.B. 1990. Positive Feedbacks in the Economy, Scientific American, February: 92-99
6. Arthur, W.B. 1991. Information Constriction and Information Contagion, Working Paper, 91-05-026, Santa Fe Institute, Santa Fe
7. Arthur, W.B. 1994. Increasing Returns and Path Dependence in the Economy, The University of Michigan Press, Ann Arbor
8. Banco Interamericano de desarrollo 2002. Ciencia y Tecnología, OP-744, (<http://iadb.org/cont/poli/OP-744.HMT>)
9. Banco Mundial 2000. Promoting Science and Technology for Development: The World Bank's Millennium Science Initiative, Washington D.C.
10. Bhalla, A.S. 1979. Towards global action for appropriate technology, Pergamon, Oxford
11. Blackman, A. 1999. The Economics of Technology Diffusion: Implications for Climate Policy in Developing Countries, Discussion Paper 99-42, Resources for the Future, Washington D.C.
12. Busso, C. 1997. Modelos de desarrollo, mercados de trabajo y distribución territorial de la población; algunas reflexiones a partir de la experiencia latinoamericana, Serie Reformas Económicas, CEPAL
13. Caponi, O, and Diaz, M. 1997. La globalización neoliberal y su modelo de ingobernabilidad como factor adverso al desarrollo socioeconómico en América Latina: el caso de Venezuela, Serie Reformas Económicas, CEPAL.
14. Carrillo, J. 2002, Cambio Tecnológico y Rendimientos Crecientes de la Adopción: el Papel del Lock-in Tecnológico en el Desarrollo Sostenible, Revista Interdisciplinaria de Gestión Ambiental, 42: 3-11
15. Cepal 2001. El Financiamiento para el Desarrollo Sostenible en América Latina y el Caribe
16. Coates, J.F. 1998. Technology Assessment as a Guidance to Governmental Management of New Technologies in Developing Countries, Technological Forecasting and Social Change, 58: 35-46
17. Cowan, R. 1990. Nuclear Power Reactors: A Study in Technological Lock-in, Journal of Economic History, 50: 541-567

18. Cowan, R. and Gunby, P. 1996. Sprayed to Death: Path Dependence, Lock-in and Pest Control Strategies, *The Economic Journal*, 106: 521-542
19. Da Silveira, G. 2001. Innovation diffusion: research agenda for developing countries, *Technovation*, 21: 767-773
20. Date, A. 1984. Understanding appropriate technology, in Ghosh, P.K. (ed.) *Appropriate technology in third world development*, Greenwood Press, Westport (CT)
21. Davenport, S. and Bibby, D. 1999. Rethinking a national innovating system: The small country as 'SME', *Technology Analysis & Strategic Management*, 11(3): 431-462
22. David, P.A. 1985. Clio and the Economics of QWERTY, *American Economic Review*, 75: 332-337
23. David, P.A. 1997. Path Dependence and the Quest for Historical Economics: One More Chorus in the Ballad of QWERTY, *Discussion Papers in the Economic and Social History*, 20, University of Oxford
24. Decanio, S.J. 1998. The Efficiency Paradox: Bureaucratic and Organizational Barriers to Profitable Energy-Saving Investments, *Energy Policy* 26 (5): 441-454
25. Dunning, J. (Ed.) 1998. *Globalization, Trade and Foreign Direct Investment*, Oxford: Pergamon
26. Farrell, J. and Saloner, G. 1986. Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation, *The American Economic Review*, 76: 940-955
27. Forsyth, T. 1997. Flexible Mechanisms of Climate Technology Transfer, *Journal of Environmental & Development*, 8(3): 238-257
28. Gerosky, P.A. 2000. Models of Technology Diffusion, *Research Policy*, 29: 603-626
29. Guerin, T. 2001. Why sustainable innovations are not always adopted, *Resources, Conservation and Recycling*, 3: 1-18
30. Hausman, J.A. 1979. Individual discount rates and the purchase and utilization of energy using durables, *Bell Journal of Economics*: 10-33
31. Howells, J. and Michie, J. (Eds.) 1997. *Technology, Innovation and Competitiveness*, Cheltenham: Edward Elgar
32. Interlaboratory Working Group 1997. *Scenarios of US Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond*, Lawrence Berkley National Laboratory, Berkley CA, an Oak Ridge National Laboratory, Oak Ridge, TN, LNLN-40533 and ORNL-444, September, (http://www.ornl.gov/ORNL/Energy_Eff/CON444)
33. Islas, J. 1997. Getting round the Lock.in in Electricity Generating Systems: the Example of the Gas Turbine, *Research Policy*, 26: 49-66
34. Jaffe, A.B. and Stavins, R.N. 1994. The Energy Paradox and the Difussion of Conservation Technology, *Resource and Energy Economics*, 16: 91-122
35. Jaffe, A.B., Newell, R.G. and Stavins, R.N. 2000. *Technological Change and The Environment*, Discussion Paper 00-47, Resources for the Future, Whashington D.C.
36. Katz, J. 1999. Reformas estructurales y comportamiento tecnológico: Reflexiones en torno a las fuentes y naturaleza del cambio tecnológico en América Latina en los años noventa, *Serie Reformas Económicas*, CEPAL

37. Katz, M.L. and Shapiro, C. 1985. Network Externalities, Competition and Compatibility, *The American Economic Review*, 75: 424-440
38. Kemp, R. 1997. *Environmental Policy and Technical Change*, Edward Elgar, Cheltenham, UK - Brookfield, US
39. Kiuchi, T and Shireman, B. 2002. *What We Learned in the Rainforest: Business Lessons from Nature*, Berrett-Koehler Publishers, Inc. San Francisco
40. Krause, F. 1996. The Cost of Mitigating Carbon Emissions: A Review of Methods and Findings from European Studies, *Energy Policy*, 24 (10/11): 899-915
41. Lovins, A.L. 1991. Least Cost Climate Stabilization, *Annual Review of Energy and Environment*, 16: 433-431
42. Lovins, A.B., Lovins, L.H. and Hawken, P. 1999. A Road Map for Natural Capitalism, *Harvard Business Review*, May-June: 145-158.
43. Madu, C.N. 1999. A Decision Support Framework for Environmental Planning in Developing Countries, *Journal of Environmental Planning and Management*, 42(3): 287-313
44. Mansfield, E. 1968. *Industrial Research and Technological Innovation*, Norton, NY
45. Menanteau, PH. 2000. Learning from Variety and Competition Between Technological Options for Generating Photovoltaic Electricity, *Technological Forecasting and Social Change*, 63: 63-80
46. Nelson, R.R. 1994. The Coevolution of Technologies and Institutions, in England, R.W. (ed), *Evolutionary Concepts in Contemporary Economics*, University of Michigan, Ann Arbor
47. North, D. 1981. *Structure and Change in Economic History*, Norton, NY
48. North, D. 1990. *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge
49. Parikh, J.K. and Kathuria, V.K. 1997. Technology transfer for GHG reduction: a framework and case studies for India, presented at the STAP Workshop, Amsterdam, The Netherlands, January 19-20
50. Platt, L. and Wilson, G. 1999. Technology development and the poor/marginalised: context, intervention and participation, *Technovation*, 19: 393-401
51. Ramanathan, R. 2002. Successful transfer of environmentally sound technologies for greenhouse gas mitigation: a framework for matching the needs of developing countries, *Ecological Economics* (in press)
52. Reoelin-Hill, V. 1999. Trade and Environment: An Empirical Analysis of the Technology Effect in the Steel Industry, *Journal of Environmental Economics and Management*, 38: 283-301

POST HARVEST LOSSES DUE TO STORED GRAIN BEETLES DURING PROLONGED STORAGE OF CEREALS.

Yogita Chhangani¹, Ranjeeta Mathur², Mohita Mathur³, Abhishek Rajpurohit⁴, Garima Modi^{*}

Assistant professor, Department of Zoology and Environmental Science
Lachoo Memorial College of Science & Technology (Autonomous)
Jodhpur(RAJ).

*Research scholar, Department of Zoology, J.N.V.U. Jodhpur (Raj)

Key words- Post harvest losses, stored grain pests

INTRODUCTION-

Agriculture is an important sector of the Indian economy, accounting for 14% of the nation's GDP, about 11% of its exports, about half of the population still relies on agriculture as its principal source of income and it is a source of raw material for a large number of industries. During 2011-12, India reached 259.32 million tons of food grain production. (State of Indian Agriculture, 2012-13). Population explosion, shrinkage of cultivable land along with grain losses is a major problem in a developing country like India. Losses of grain in storage due to insects are the final components of the struggle to limit insect losses in agricultural production. These losses can exceed those incurred while growing the crop.

Food grains undergo a series of operations such as harvesting, threshing, winnowing, bagging, transportation, storage, and processing before they reach the consumer, and there are appreciable losses in crop output at all these stages. India's grain production has steadily increased due to advances in technology, but post-harvest loss is constant at 10%. Losses during storage, accounts for around 6% of the total losses as proper storage facilities are not available. The post-harvest losses in India amount to 12 to 16 million metric tons of food grains each year, an amount that the World Bank stipulates could feed one-third of India's poor. The monetary value of these losses amounts to more than Rs. 50,000 crores per year (Singh, 2010). Ramesh (1999) reported that high wastage and value loss are due to lack of storage infrastructure at the farm level. The losses during storage are quantity losses and quality losses. In India, food grains are stored using traditional structures by small farmers. The surplus grains are stored with government agencies like: Food Corporation of India (FCI), Central and State warehousing Corporations. The commonly used storage method is Cover and Plinth (CAP) storage, which is economical but loss of grains is inevitable.

Quantity losses occur when insects, rodents, mites, birds and microorganisms, consume the grain. Infestation causes reduced seed germination, increase in moisture, free fatty acid levels, and decrease in pH and protein contents etc. resulting in total quality loss. Quality losses affect the economic value of the food grains fetching low prices to farmers (Ipsita et al., 2013).

Improved storage structures and modern chemical and physical control techniques are now employed for the safe storage of product. In many countries 70-90% of food grain is still stored for 6 months to a year at farmer's level in traditional storage structures made of locally available material, such as paddy straw, split bamboos, reeds, mud, bricks, etc., which are not insect-proof (Semple, 1990). In some countries, grains are sometimes mixed with sand, limestone, or ash to provide physical obstacles to movement of insects through the grain and reduce deposition of eggs. In Nigeria, both local herbs and smoke from small fires are also used as insect repellents and fumigants to deter insect establishment in stored food grain (Ezueh 1983). Gunny bag storage, as practiced widely in some countries, is not the most efficient way of storing food grains and is vulnerable to pest attacks.

Prophylactic chemical and physical treatments, such as aeration, radiation, refrigeration, heating, or hermetic storage in controlled nitrogen or carbon dioxide gaseous environments, are not only prohibitively expensive but not always feasible, because in villages the foodgrain is generally stored within the confines of human dwellings. Also, widespread resistance to insecticides, including the juvenoidmethoprene, among populations of major post-harvest insect pest species (Benezet and Helms 1994; Champ and Dyte, 1976; Muggleton, 1987) and concerns about health hazards associated with the use of chemicals are other limitations of chemical control at village levels.

Although methyl bromide is used as a fumigant for more than 70 years for controlling insect pests in durable and perishable commodities, concerns of its role in ozone depletion indicated that it will eventually be removed from the list of few remaining products capable of preventing the damage in food and other commodities (Taylor, 1994). This situation demands alternative control measures that reduce the dependence on contact insecticides. It has been an age-old practice in India to mix dried neem leaves with grains meant for storage. The practice of mixing neem materials with stored products became rooted as part of traditional wisdom and culture.

Losses caused by insects include not only the direct consumption of kernels, but also include accumulations of frass, exuviate webbing, and insect cadavers. High levels of this insect detritus may result in grain that is unfit for human consumption. Insect-induced changes in the storage environment may cause warm, moist 'hotspots' that are suitable for the development of storage fungi that cause further losses. While several procedures to manage pests are used at storage facilities before storage, those that minimize pest invasion into storage structures include: Cleaning bins, harvest and loading equipment prior to harvest and after bin emptying, Applying "empty-bin" insecticides to the inside of the structures, Sealing structures, Cleaning up grain spills on the grounds, Removing weeds close to structures.

Basic identifications of stored grain beetles infesting cereals

All living things are classified into groups known as taxonomic groups. The highest level of all taxonomic groups is the kingdom. There are five kingdoms: (1) plant, (2) fungi, (3) bacteria, (4) protists (amoebas and algae), and (5) animal. Each kingdom is then further divided into increasingly smaller groups based on similarities. Out of 31 insect orders, there are 9 that contain most of the destructive insects.

- Coleoptera – Beetles, weevils
- Diptera – Flies, mosquitoes
- Hemiptera – True bugs, assassin bugs, stink bugs, bed bugs, lygus bugs
- Homoptera – Aphids, leafhoppers
- Hymenoptera – Wasps, bees, ants, sawflies
- Lepidoptera – Butterflies and moths
- Orthoptera – Grasshoppers
- Siphonaptera – Fleas
- Thysanoptera - Thrip

In addition to obvious identifying characteristics, the feeding habits of storage insect pests are used to separate them into two classes: Primary pests and secondary pests. Primary pests- Lesser grain borer (*Rhyzopertha dominica*), Granary weevil (*Sitophilus granarius*), Rice weevil (*Sitophilus oryzae*), Angoumois grain moth (*Sitotroga cerealella*), Pulse beetle (*Callosobruchus chinensis*), are those that are capable of penetrating and infesting intact kernels of grain, and have immature stages that can readily develop within a kernel of grain.

Secondary pests- Rust-red flour beetle (*Tribolium castaneum*), Confused flour beetle (*Tribolium confusum*), Saw-toothed grain beetle (*Oryzaephilus surinamensis*), Flat grain beetle (*Cryptolestes* spp.), Indian meal moth (*Plodia interpunctella*), Warehouse beetle (*Trogoderma variable*), cannot infest sound grain but feed on broken kernels, debris, higher moisture weed seeds, and grain damaged by primary insect pests. In general, the immature stages of these species are found external to the grain. It is often thought that secondary pest cannot initiate an infestation. This is untrue as in almost any storage situation there will be adequate amounts of broken grains and debris to support an infestation by secondary invaders.

Moreover, secondary pest contribute directly to grain spoilage after establishment, just as primary pests do. However, the most damaging insect types are those that feed within the kernel itself, causing insect-damaged-kernels (IDK). Wheat is discounted based on the number of insect-damaged-kernels (IDK) as well as the presence of live insects, and other grain quality factors, when samples are graded at the time of sale.

Insects from these two groups develop by complete metamorphosis; meaning they have (1) an egg stage, (2) multiple larval stages, (3) a pupal stage and, (4) the adult stage. Insects such as grass-hoppers and aphids pass through incomplete metamorphosis with three stages: (1) egg, (2) nymph, and (3) adult. The immature stages resemble and feed on the same food as adults. By contrast, larval and adult beetles that develop using complete metamorphosis feed on grain, while only the immature forms of the moth pests feed on the grains.

It is essential that during farm storage different parameters should be taken into consideration to limit the infestation of grain from the onset of storage, to reduce damage caused by beetles and to ensure the acceptance and marketability of grain in domestic and foreign channels.

REFERENCES :

- 1) Benezet, H. and C.W. Helms. (1994): Methoprene resistance in the cigarette beetle, *Lasioderma serricorne* (F.) (Coleoptera: Anobiidae) from tobacco storages in the southeastern United States. *Resistant Pest Management* 6: 17-19.
- 2) Golob, P., (1997): Current status and future perspectives for inert dusts for control of stored product insects. *Journal of Stored Products Research* 33, 69±79.
- 3) Imms, A.D. (1964): *Outlines of Entomology*. 5th ed. pp. 224. Methuen. London, UK.
- 4) Ipsita, D., Girish, K., and Narendra, G.S. (2013): Microwave Heating as an Alternative Quarantine Method for Disinfestation of Stored Food Grains. *International Journal of Food Science*, 13.
- 5) P.D Srivastava & R.P Singh (1997): *An Introduction to Entomology* (Book) Concept publishing company New Delhi-110059.
- 6) Ramesh, A.(1999): Priorities and Constraints of Post harvest Technology in India, In: Y. Nawa, Post harvest Technology in Asia. *Japan International Research Centre for Agricultural Sciences, Tokyo*, 37p.
- 7) S.Pradhan (1983): *Agricultural Entomology & Pest control* (Book)
- 8) State of Indian Agriculture, (2012-13), Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, Directorate of Economics and Statistics, New Delhi, 15 p.
- 9) Taylor, R.W.D. (1994): Methyl bromide – Is there any future for this noteworthy fumigant *J. Stored Prod. Res.* 30: 253-260.

चुनाव में जातिवाद की भूमिका

Brief Introduction of Author

Name of Author: Dr. RAJESH CHOUDHARY

Father's Name: Sh. Ramdev Choudhary

Email ID: dr.rajeshchoudhary78@gmail.com

Working as a Assistant Professor at Aishwarya College, Jodhpur, Rajasthan (India)

शोध सारांश

भारत में राजनीति आधुनिकीकरण के प्रारंभ होने के पश्चात यह धारणा विकसित हुई कि पश्चिमी ढंग की राजनीतिक संस्थाएं और लोकतांत्रिक मूल्यों को अपनाने के बाद परम्परागत संस्था जातिवाद का अंत हो जाएगा, लेकिन स्वाधीनता के बाद की भारत की राजनीति में जाति का प्रभाव अनवरत रूप से बढ़ता ही गया। इसी पर कुछ विद्वानों की मान्यता थी कि लोकतांत्रिक एवं प्रतिनिधियात्मक संस्थाओं की स्थापना के बाद जाति व्यवस्था का भारत से लोप हो जाएगा। कोई भी सामाजिक तंत्र कभी भी पूर्णतया समाप्त नहीं हो सकता, अतः यह प्रश्न करना की क्या भारत से जाति का लोप हो रहा है, अर्थ शून्य है। स्थानीय और राज्य स्तर की राजनीति में जातीय संघ और समुदाय निर्माण प्रक्रिया को प्रभावित करने में उसी प्रकार की भूमिका अदा करते हैं जिस प्रकार पश्चिमी देशों में दबाव गुट।

संकेताक्षर – चुनाव और जातिवाद के बीच संबंध, राजनीतिक सहभागिता, राजनीति में जातिवाद का तत्व, चुनाव आयोग, चुनाव और राजनीति में जातिवाद के प्रति जागरूकता।

भारतीय संविधान में राज व्यवस्था के कुछ लक्ष्य निर्धारित किए गए हैं। लोकतांत्रिक गणतंत्रात्मक धर्म निरपेक्ष व्यवस्था, देश के सभी नागरिकों के लिए स्वंत्रता, समानता और भातृत्व, सामाजिक, आर्थिक और राजनीतिक न्याय, व्यक्ति की गरिमा, राष्ट्र की एकता तथा अखंडता। राज व्यवस्था इस दिशा में 1950 से ही आगे बढ़ रही है और इस दिशा में कुछ दुरियां भी तय की जा चुकी हैं। अब तक कई विधानसभा और लोकसभा के चुनाव हो चुके हैं। धर्म निरपेक्षता, राष्ट्र की एकता तथा अखंडता अब तक बनी हुई है। वहीं स्वंत्रता, समानता और भातृत्व, सामाजिक, आर्थिक और राजनीतिक न्याय, व्यक्ति की गरिमा अब भी हमारे आदर्श बने हुए हैं, लेकिन यह कह पाना संभव नहीं है कि लोकतांत्रिक व्यवस्था और राष्ट्र की एकता तथा अखंडता की दृष्टि से स्थिति पूर्णतया संतोषजनक है या हमने स्वतंत्रता, समानता और भातृत्व के आदर्श को प्राप्त कर लिया है। वस्तुस्थिति यह है कि राजव्यवस्था के सम्मुख अनेक चुनौतियां और समस्याएं विद्यमान हैं। ऐसी कुछ प्रमुख समस्याएं और चुनौतियां हैं जैसे जातिवाद, धर्म और साम्प्रदायिकता, भाषा का प्रश्न या भाषावाद, क्षेत्रीयतावाद और निर्धनता निवारण आदि।

भारत में राजनीति आधुनिकीकरण के प्रारंभ होने के पश्चात यह धारणा विकसित हुई कि पश्चिमी ढंग की राजनीतिक संस्थाएं और लोकतांत्रिक मूल्यों को अपनाने के बाद परम्परागत संस्था जातिवाद का अंत हो जाएगा, लेकिन स्वाधीनता के बाद की भारत की राजनीति में जाति का प्रभाव अनवरत रूप से बढ़ता ही गया। इसी पर कुछ विद्वानों की मान्यता थी कि लोकतांत्रिक एवं प्रतिनिधियात्मक संस्थाओं की स्थापना के बाद जाति व्यवस्था का भारत से लोप हो जाएगा। इस संबंध में रजनी कोठारी ने कहा कि प्रथम, कोई भी सामाजिक तंत्र कभी भी पूर्णतया समाप्त नहीं हो सकता, अतः यह प्रश्न करना की क्या भारत से जाति का लोप हो रहा है, अर्थ शून्य है। ग्रेनबिल आस्टिन ने कहा कि स्थानीय और राज्य स्तर की राजनीति में जातीय संघ और समुदाय निर्माण प्रक्रिया को प्रभावित करने में उसी प्रकार की भूमिका अदा करते हैं जिस प्रकार पश्चिमी देशों में दबाव गुट। हमारे राजनीतिज्ञ एक अजीब असमंजस की स्थिति में हैं। जहां एक ओर वे जातिगत भेदभाव मिटाने की बात करते हैं। वहीं दूसरी ओर जाति के आधार पर वोट बटोरने की कला में निपुणता हासिल करना चाहते हैं।

जाति और राजनीति में अंत क्रिया : सैद्धांतिक आधार

भारत में जाति और राजनीति में किस प्रकार का संबंध है। इस संबंध में चार प्रकार के विचार प्रस्तुत किए जाते सकते हैं—

1. यह कहा जाता है कि भारतीय सामाजिक व्यवस्था का संगठन जाति की संरचना के आधार पर हुआ है और राजनीति केवल सामाजिक संबंधों की अभिव्यक्ति मात्र है। सामाजिक संगठन राजनीतिक व्यवस्था का स्वरूप निर्धारित करता है।
2. राजनीति के प्रभाव के फलस्वरूप जाति नया रूप धारण कर रही है। लोकतांत्रिक राजनीति के अंतर्गत राजनीति की प्रक्रिया प्रचलित जातीय संरचनाओं को इस प्रकार प्रयोग में लाजी है। जिससे संबद्ध पक्ष अपने लिए समर्थन जुटा सकें तथा अपनी स्थिति को सुदृढ़ बना सकें। जिस समाज में जाति को सर्वाधिक महत्वपूर्ण संगठन माना जाता है उसमें यह अत्यंत स्वाभाविक है कि राजनीति इस संगठन के माध्यम से अपने आपको संगठित करने का प्रयास करे।
3. भारत में राजनीति जाति के इर्दगिर्द घूमती है। जाति प्रमुखतम राजनीतिक दल है। यदि मनुष्य जाति की दुनिया में ऊँचा उठना चाहता है तो उसे अपने साथ ही अपनी जाति को लेकर चलना होगा। भारत में राजनीतिज्ञ जातीय समुदायों को इसलिए संगठित करते हैं ताकि उसके समर्थन से उन्हें सत्ता तक पहुंचने में सहायता मिल सके।
4. जतियां संगठित होकर प्रत्यक्ष रूप से राजनीति में भाग लेती हैं और इस प्रकार जातिगत भारतीय समाज में जातियां ही राजनीतिक शक्तियां बन गई हैं।

भारतीय राजनीति में जाति की भूमिका

जयप्रकाश नारायण ने एक बार कहा था कि जाति भारत में अत्यधिक महत्वपूर्ण दल है। हेरल्ड गोल्ड ने कहा कि राजनीति का आधार होने के बजाय जाति उसको प्रभावित करने वाला एक तत्व है। मॉरिस जोन्स के अनुसार जाति के लिए राजनीति का महत्व और राजनीति के लिए जाति का महत्व पहले की तुलना में और अधिक बढ़ गया है।

जाति व्यवस्था भारतीय समाज का एक परम्परागत पक्ष है। स्वाधीनता प्राप्ति के बाद संविधान और राजनीतिक संस्थाओं के निर्माण से आधुनिक प्रभावों ने भारतीय समाज में धीरे-धीरे प्रवेश करना प्रारंभ कर दिया। आधुनिक प्रभावों के फलस्वरूप वयस्क मताधिकार के आधार पर निर्वाचन प्रारंभ हुए और जातिगत संस्थाएं यकायक महत्वपूर्ण बन गईं। क्यों कि उनके पास भारी संख्या में मत थे और लोकतंत्र में सत्ता प्राप्ति के लिए इन मतों का मूल्य था। जिन्हें सत्ता की आकांक्षा थी उन्हें सामान्य जनता के पास पहुंचने के लिए संपर्क सूत्र की भी आवश्यकता थी। सामान्य जनता को अपने पक्ष में मिलाने के लिए यह भी जरूरी था कि उनसे उस भाषा में बात की जाए जो उनकी समझ में आ सके। जाति व्यवस्था इस बात को प्रकट करती थी। इस पृष्ठभूमि में जाति की भूमिका में अधिकाधिक महत्वपूर्ण होती गई।

1. **निर्णय प्रक्रिया में जाति की प्रभावी भूमिका** — भारत में जातियां संगठित होकर राजनीतिक और प्रशासनिक निर्णय प्रक्रिया को प्रभावित करती हैं। जैसे संविधान में अनुसूचित जातियों और जन जातियों के लिए आरक्षण के प्रावधान रखे गए हैं। जिनके कारण ये जातियां संगठित होकर सरकार पर दबाव डालती हैं कि इन सुविधाओं को और अधिक वर्षों के लिए बढ़ा दिया जाए। वहीं अन्य जातियां चाहती हैं कि आरक्षण समाप्त किया जाए अथवा इसका आधार सामाजिक आर्थिक स्थिति हो अथवा उन्हें भी आरक्षित सूची में शामिल किया जाए ताकि वे इसके लाभ से वंचित न रह जाए।
2. **राजनीतिक दलों में जातिगत आधार पर निर्णय** — भारत में सभी राजनीतिक दल अपने प्रत्याषियों का चयन करते समय जातिगत आधार पर निर्णय लेते हैं। प्रत्येक दल किसी भी चुनाव क्षेत्र में प्रत्याषी मनोनीत करते समय जातिगत गणित का अवश्य विप्लेषण करते हैं। कोचेनेक द्वारा अपने अध्ययन के अंतर्गत आंध्र, कर्नाटक, महाराष्ट्र, राजस्थान में कांग्रेस उम्मीदवारों के चयन में जातिगत आधार के अनेक उदाहरण दिए गए हैं। वस्तुतः यही स्थिति कम व अधिक रूप में सभी राज्यों में रही है। 1962 में गुजरात के चुनाव में स्वतंत्र पार्टी की सफलता का राज उसका क्षत्रिय जाति के समर्थन में छिपा हुआ था। हरिजन-मुसलमान-ब्राह्मण शक्तिपुंज बनकर ही 1971 का आम चुनाव कांग्रेस ने जीता था। मई 2007 में संपन्न हुए उत्तर प्रदेश विधानसभा चुनाव में मायावती ने अनुसूचित जाति, ब्राह्मण और मुसलमान का शक्तिपुंज बनाकर ही जीता था।
3. **जातिगत आधार पर मतदान व्यवहार** — भारत में चुनाव अभियान में जातिवाद को साधन के रूप में अपनाया जाता है। प्रत्याषी जिस निर्वाचन क्षेत्र में चुनाव लड़ रहा है उस निर्वाचन क्षेत्र में जातिवाद की भावना को प्रायः उकसाया

जाता है ताकि संबंधित प्रत्याषी की जाति के मतदाताओं का पूर्ण समर्थन प्राप्त किया जा सके। उत्तर प्रदेश में मुलायम सिंह तथा बिहार में लालूप्रसाद यादव, राजस्थान में नाथूराम मिर्धा, षिषराम ओला, अपनी जाति के नेता के रूप में नौवें दशक की राजनीति में उभरे तथा आगे चलकर वे कुछ सीमा तक अन्य पिछड़ी जातियों का समर्थन प्राप्त करने में सफल रहे। केरल के चुनावों में साम्यवादी और मार्क्सवादी दलों ने भी वोट जुटाने के लिए हमेषा जाति का सहारा लिया।

4. **मंत्रिमंडलों के निर्माण में जातिगत प्रतिनिधित्व** – राजनीतिक जीवन में जातीयता का सिद्धांत इनता गहरा धंस गया है कि राज्यों के मंत्रिमंडलों में प्रत्येक प्रमुख जाति का मंत्री होना चाहिए। यह सिद्धांत प्रांतों की राजधानियों से ग्राम पंचायतों तक स्वीकृत हो गया है कि प्रत्येक स्तर पर प्रधान जाति को प्रतिनिधित्व मिलना ही चाहिए। यहां तक कि केन्द्रीय मंत्रिमंडल में भी हरिजनों, जनजातियों, सिखों, मुसलमानों, ब्राह्मणों, जाटों और राजपूतों को किसी न किसी रूप में स्थान अवष्य दिया जाता है।
5. **जातिगत दबाव समूह** – मेयर के अनुसार जातीय संगठन राजनीतिक महत्व के दबाव समूह के रूप में प्रवृत्त हुए हैं। प्रो. जे सी जौहरी के अनुसार जातिगत दबाव समूह अपने निहित स्वार्थों एवं हितों की पूर्ति के लिए नीति निर्माताओं को जिस ढंग से प्रभावित करने का प्रयत्न करते हैं, उससे तो उनकी तुलना यूरोप और अमरीका में पाए जाने वाले ऐच्छिक समुदायों से की जा सकती है। जातीय संगठन और समुदाय जैसे तमिलनाडु में नाडार जाति संघ, गुजरात में क्षत्रिय महासभा, बिहार में यादव सभा, राजस्थान जाट महाभा, करणी सेना, गुर्जर महासभा आदि राजनीतिक मामलों में रूचि लेने लगते हैं और अपने-अपने संगठित बल के आधार पर राजनीतिक सौदेबाजी भी करते हैं।

निष्कर्ष – जाति प्रथा किसी न किसी रूप में विष्व के हर देश में पायी जाती है। विष्व के अन्य देशों की तुलना में भारत में जाति का तत्व अधिक प्रभावशाली स्थिति रखता है। आधुनिकीकरण की प्रवृत्तियों के परिणामस्वरूप जाति जाति का तत्व लगभग पूर्णतया समाप्त हो जाएगा, यह सोचने में का कोई आधार नहीं है। कोई भी सामाजिक तंत्र पूर्णतया समाप्त नहीं हो सकता। राजनीति में जाति के तत्व का प्रभाव बना ही रहेगा, क्यों कि राजनीति में जाति के तत्व की भूमिका है और बनी रहेगी, आवष्यकता इस बात की है कि जाति का तत्व अपनी सीमाओं में रहे।

राजनीति में जाति का तत्व वरदान है या अभिषाप, इस प्रकार के प्रश्न का कोई महत्व नहीं है। जाति की भूमिका एक स्वाभिक तत्व है और जाति की भूमिका सम्पूर्ण अंशों में न तो वरदान है और नहीं अभिषाप। जाति के तत्व का प्रभाव हितकारी होगा या अहितकारी, यह तो जातिगत तत्व की मात्रा और उसके स्वरूप पर निर्भर करता है। यदि जाति का तत्व अपने उदार रूप में है और कमजोर वर्गों को विकास के मार्ग पर आगे बढ़ने की प्रेरणा देता है तो पूर्णतया वांछित स्थिति है, लेकिन यदि जाति का तत्व अपनी सीमाओं को लांघकर राजनीति का सर्वप्रमुख निर्धारक तत्व बन जाता है और अन्य जातियों के साथ टकराव की प्रेरणा देता है, तो इससे अनौचित्य के अतिरिक्त क्या षेष रहा जाता है। बुराई धर्म और जाति में नहीं है, बुराई धार्मिक कट्टरता और जातीय कट्टरता में है। यह जातीय कट्टरता जातीय हिंसा का कारण बनती है न केवल राजनीति बल्कि समस्त सामाजिक जीवन को विषाक्त कर देती है। इसलिए आवष्यकता इस बात की है कि जाति का जो रूप ऊंच नीच का भेद उत्पन्न करने वाला और टकराव के लिए प्रेरित करने वाला है, उसे समाप्त किया जाए, लेकिन राजनीति में जाति की जो स्वस्थ उदारवादी और संपर्क सूत्र प्रदान करने वाली भूमिका है, उसे न केवल बनाए रखा जाना चाहिए बल्कि विकसित किया जाना चाहिए।

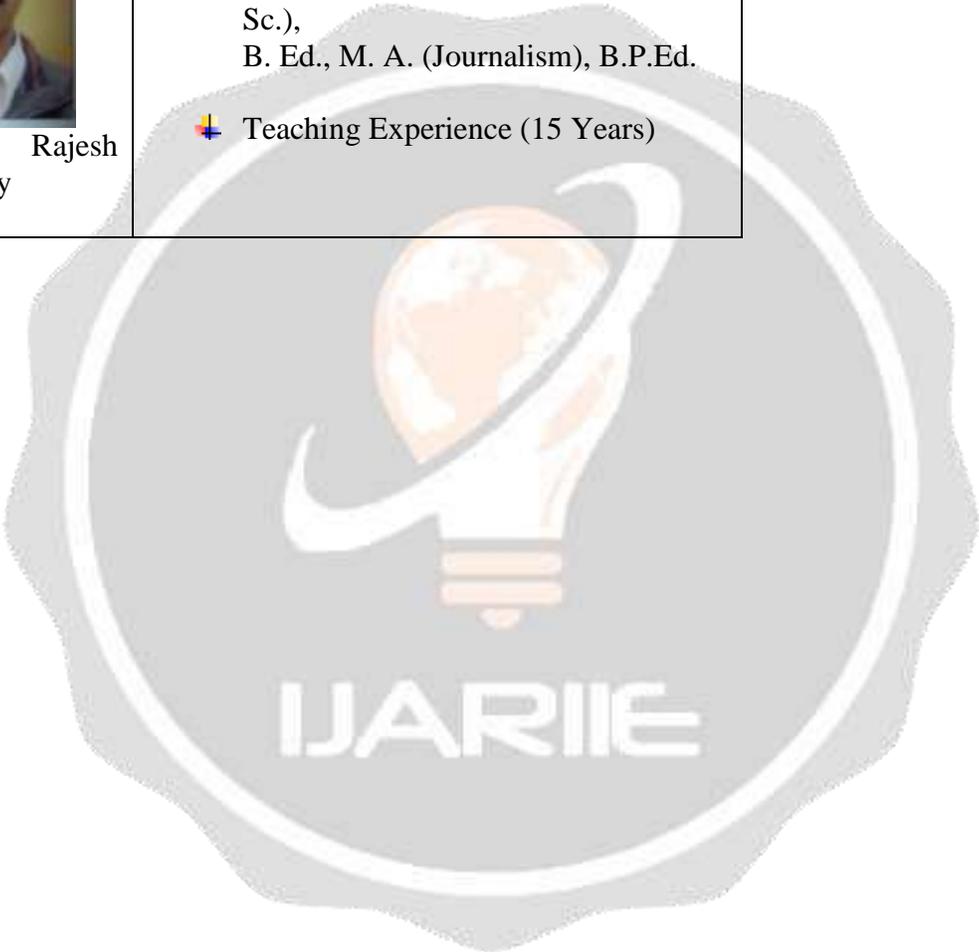
संदर्भ ग्रंथ सूची –

- 1- Rajni Kothari, Caste in Indian Politics - Page Number- 4
- 2- Rajni Kothari, Politics in Indian - Page Number- 341
- 3- Granville Austin, The Indian Constitution - Page Number- 47
- 4- V.K.N. Menon's, Caste, Politics and Leadership in India, Political Science Review, Oct., 1964
- 5- W.H. Morris Jones, The Government and Politics of India - Page Number- 65
- 6- Dr. Pukhraj Jain, Political Theory - Page Number- 247

BIOGRAPHY

	<p>Description about the author</p> <ul style="list-style-type: none">✚ Qualifications: Ph.D in Political Science, M. A. (Pol. Sc.), B. A. Honors (Pol. Sc.), B. Ed., M. A. (Journalism), B.P.Ed.✚ Teaching Experience (15 Years)
---	---

Dr. Rajesh Choudhary



वेदों में पर्यावरण संरक्षण

गिरीष कुमार बैरवा

स. आचार्य (भूगोल)

श्री वर्द्धमान कन्या महाविद्यालय, ब्यावर

ABSTRACT

भारत के सांस्कृतिक व ऐतिहासिक परिप्रेक्ष्य में देखा जाय तो पर्यावरण व प्रकृति के साथ उत्तरसहजीवितता की संकल्पना देखने को मिलती है। वैदिक कालीन शिक्षा अरण्य ने प्रकृति के समीप शिक्षा दी जाती थी। परन्तु वैदिक काल से वर्तमान तक शिक्षा के आयाम बदलते गए जिससे पर्यावरण संरक्षण मात्र सैद्धांतिक स्तर पर रह गया है। संसार में प्रकृति के आधार पर ही मनुष्य के आध्यात्मिक व धार्मिक जीवन का प्रारंभ हुआ है। ज्ञान, संस्कृति व आध्यात्म के आधार पर विष्वगुरु भारत में संसार के सभी क्षेत्रों को प्रभावित किया है। भारत में मिलने वाली पादप व जीवविविधता ही भारतीय दर्शन में पर्यावरण संरक्षण का आधार रही है। ईसाई व इस्लाम तथा अन्य धर्मों की उत्पत्ति का आधार भी प्रकृति ही है। वर्तमान संसार में व्याप्त पर्यावरणीय समस्या व प्रकृति का अवमूल्यन इस बात का द्योतक है कि भारतीय दर्शन को आधुनिक शिक्षा की आड़ में छिपाया गया है। वैदिक काल में पादप विविधता व प्रकृति के सौन्दर्य को बचाये रखने के लिये इन्हें आध्यात्म व धार्मिक संस्कारों से जोड़ा गया है। दूब/घास/डाब का धार्मिक महत्व इसका एक अनुपम उदाहरण है। अतः आज पूरे संसार में वैदिक संस्कृति में दिये गये उपायों से ही पर्यावरण का संरक्षण किया जा सकता है। इस लेख के माध्यम से यह बताना चाहता हूँ कि प्राचीन व आधुनिक शिक्षा का मेल ही जागरूकता के माध्यम से इस जीवन रूपी ग्रह को बचाया जा सकता है।

वेदों में पर्यावरण संरक्षण:-

“अतीतानागतान् सर्वान् पितृवंषास्तु तारयेत्।

कांतारे वृक्षरोपी यस्तस्माद् वृक्षांस्तु रोपते।।”

(अखण्डज्योति सूत्र 15)¹

अर्थात् जो वीरान एवं दुर्लभ स्थानों में वृक्ष लगाता है, वह अपनी बीती और आने वाली पीढ़ियों को तार देता है। इसलिए यह कहा गया है कि प्रत्येक व्यक्ति को अपने जीवन काल में वृक्ष अवष्य लगाना चाहिए।

भारत के इतिहास में हजारों वर्ष पूर्व विद्वानों ने अपनी रचनाएँ प्रकृति की गोद में बैठ कर ही लिखी थी। इसलिये उन्हें प्रकृति की षक्तियों के बारे में पता था। भारत ही एक मात्र ऐसा देश है, जहाँ विष्व की समस्त ऋतुओं, वनस्पति, प्राणी जगत व जन्तु जगत की प्रजातियाँ पाई जाती हैं। यह विविधताओं का देश है। जहाँ आदिकाल से ही प्रकृति व पर्यावरण को सदैव पूजनीय माना है। वैदिक कालीन संस्कृति की बात करे तो प्रत्येक वेद, ब्राह्मण, उपनिषद्, पुराण व अन्य श्रेष्ठ मनीशियों द्वारा रचित ग्रन्थों में पर्यावरण संरक्षण की जानकारी दी गई है। तत्कालीन समाज न केवल पर्यावरण व प्रकृति के प्रति जागरूक व सचेत था, बल्कि उसकी रक्षा करने के महत्व को भी समझता था। ऋग्वेद में प्रकृति का मनोहारी चित्रण हुआ है तथा प्रकृति को ही सुख-षान्ति व

सामर्थ्य का आधार माना गया है। ऋतुओं के अनुसार जीवनयापन, खानपान, सामाजिक सांस्कृतिक दृष्टिकोण यहाँ तक कि पहनावा व परिधान भी प्रकृति द्वारा वर्णित व वहनीय है। बसंतोत्सव, वर्षात्सव, षरद व ग्रीष्म महोत्सव आदि का वर्णन भी वेदों व पुराणों में मिलता है।

पृथ्वी के आदि ऊर्जास्रोत सूर्य की महिमा भी इन वेदों में लिखी गई है। पर्यावरण व प्रकृति में सूर्य को ऊर्जास्रोत मानते हुए स्तुतिगान किया गया है।

“सविता सर्वभूतानां सर्वभावांश्च सूयते।

सर्वनात्प्रेरणाच्चैव सविता तेन चोध्यते।।”

(अखण्डज्योति सूत्र 15)

अर्थात् समस्त तत्वों, प्राणियों और समस्त भावनाओं को प्रेरणा देने के कारण ही सविता कहते हैं और सूर्य ही इस सृष्टि के पालक-पोशक और नियंत्रणकर्ता है।

वेदों में पर्यावरण के मुख्य तत्वों वायु, मिट्टी, वनस्पति व जल आदि के संरक्षण के लिए काफी लिखा गया है। परन्तु जागरूकता का अभाव, हिन्दी व संस्कृत भाषा की उपेक्षा के कारण उन्हें काफी कम मात्रा में पढ़ा व समझा गया है।

वायु:-

“यददौ वात ते गृहेश्वमृतस्य निधिर्हितः।

ततो नो देहिजीव से।।”

(ऋग्वेद 10/186/13)

वायु में जो अमरत्व (प्राणवायु) की धरोहर स्थापित है, वह हमारे जीवन के लिए आवश्यक है। पुद्गल वायु औशधि के समान है। पुद्गल व ताजी वायु अमूल्य औशधि है, जो इसे प्राप्त करता है, वह अपनी आयु को बढ़ाता है।

“वात आ वातु भेशजं षंभुमयोभु नो हृदे।

प्रण आर्यैशि तारिशत।।”

(ऋग्वेद 10/186/1)

वायुमण्डल में पुद्गल वायु को प्राप्त करना सभी जीवों के अधिकार में है तथा इसे अपुद्गल करना प्राणियों के लिए पाप समान है।

जल:-

जल के बिना धरातल पर किसी भी सजीव प्राणधारी के जीवन की कल्पना नहीं की जा सकती है। वर्तमान में संसार में व्याप्त जल संकट का मुख्य कारण मनुष्य ही है। क्योंकि जनसंख्या वृद्धि के साथ नगरीकरण, औद्योगिकीकरण, वाहित मल व अपशिष्टों का नदियों, तालाबों, नालों आदि जलीय स्रोतों में मिलने से जल प्रदूषण

की समस्या गंभीर होती जा रही है। समुद्रों में तेल परिवहन व परमाणु विस्फोटों से जलीय वनस्पति व जीवों पर संकट गहरा रहा है।

वेदों में जल प्रदूषण की समस्या पर भी विस्तार से लिखा गया है। जल को अमृत तुल्य मानते हुए उसकी स्तुति की गई है।

“षं नो देवीरभिष्टये आपो भवन्तु पीतये।

षं योरभिस्त्रवन्तु नः॥”

(ऋग्वेद 10/9/4)²

पुद्ध जल मनुष्य को आयु प्रदान करने वाला, प्राणों का रक्षक तथा कल्याणकारी है। उपर्युक्त ऋचा में जल के प्रति यह भाव लिखा गया है।

सुखमय जल हमारे अभीष्ट की प्राप्ति तथा रक्षा के लिए कल्याणकारी हों जल हमारे सुख-समृद्धि की रक्षा करे। जल चेहरे काया का सौन्दर्य व कोमलता बढ़ाने की औशधि है। इसी प्रकार निम्न ऋचा में भी जल का महत्व बताया गया है।

आपो भद्रा धृत मिदाप आसन्नग्नीशोमौ विभ्रत्याप इताः।

तीव्रो रसो मधुपञ्चामरंगम आ मा प्राणेन सह वर्चसा गमेत॥

(अथर्ववेद 3/13/5)³

अर्थात् जल मंगलमय और घी के समान पुष्टिदाता है। जल भोजन को पचाने में तीव्र उपयोगी रस है। जल प्राण और कांति तथा पौरुश व बल देने वाला तथा अमरता की ओर ले जाने वाला मूल तत्व है।

प्राचीनकाल से ही कृषि आधारित अर्थव्यवस्था भारत की मूल विशेषता रही है। वर्तमान में भी लगभग 65 प्रतिषत जनसंख्या ग्रामीण है तथा 70 प्रतिषत जनसंख्या प्रत्यक्ष व अप्रत्यक्ष रूप से कृषि कार्यों से जुड़ी हुई है। जल का कृषि में बड़ा महत्व है। कृषि को जल के बिना भूमि की नमी व सिंचाई की कल्पना भी नहीं की जा सकती है। अतः वेदों में जल की महिमा पर लिखा गया है कि:-

तस्मा अरंगमाम वो यस्य क्षयाय जिन्वथ।

आपो जनयथा च नः॥

(ऋग्वेद 3/13/5)

अर्थात् हे जल! तुम अन्न प्राप्ति के लिए उपयोगी हो। तुम पर जीवन निर्भर है। तुम पर नाना प्रकार की औशधियाँ, वनस्पतियाँ एवं खाद्यान्न निर्भर है। अतः तुम औशधि रूप हो।

जल का महत्व दर्शाने वाली ऋचा में जल को औशघ स्वरूप दिया गया है। परन्तु जलीय प्रदूषण की समस्या वर्तमान दौर में एक गंभीर व भयावह स्तर पर पहुँच चुकी है। भारत के साथ-साथ सम्पूर्ण विश्व में पुद्ध जल संकट छाया हुआ है। यदि औशधि स्वरूप जल ही प्रदूषित होकर जहर बन जाये तो सजीव जगत पर संकट

आना अवष्यम्भावी है। औद्योगिकीकरण, अम्लवर्षा, रासायनिक खादों का प्रयोग, जल रिसाव, सेंम व सबसे बड़ी मानव अपषिष्टों का गलत विस्तारण भी इस समस्या के सबसे बड़े कारण है।

इनसे बचने के लिए वाटर ट्रीटमेंट प्लांट, जैविक खादों का प्रयोग, औद्योगिक अपषिष्टों व मानव मल-मूल का सीधे नदियों में छोड़ने की प्रक्रिया में बदलाव लाकर ही हम अमृत रूपी जल को प्रदूषित होने से बचा सकते हैं।

मिट्टी एवं वनस्पति:-

अथर्ववेद के 12वें काण्ड के प्रथम सूक्त में पृथ्वी का महत्व बताया गया है। सभी प्राणी पृथ्वी की संतान हैं।

माता भूमिः पुत्रेष्वहं पृथिव्या ।

(अथर्ववेद 12/1/10)

इसी तरह यदि हम मानव भूगोल के जनक फ्रेडरिक रेटजेल की शिष्या एलन चर्चिल सेम्पुल की बात करे तो उन्होंने अपनी पुस्तक "मानव पर पर्यावरणीय प्रभाव" में मानव मात्र को पृथ्वी की संतान बताया है कि मानव पृथ्वी पर जन्म लेता है, खेलता है, जीता है व अंत में हम पृथ्वी के पंचतत्वों में मिल जाता है।

अथर्ववेद की निम्न ऋचा में बताया गया है कि पृथ्वी का निर्माण कैसे हुआ हुआ और इस पर जीवन सम्भव रूपी तत्वों को भी बताया गया है।

षिला भूमिरष्मा पांसुः सा भूमिः संधृता धृता ।

तस्यै हिरण्यवक्षसे पृथिव्या आकरं नमः ॥

(अथर्ववेद 12/1/26)

अर्थात् जो भूमि चट्टान, पत्थर और मिट्टी से बनी है, मैं उसी हिरण्यगर्भ पृथ्वी को प्रणाम करता हूँ। जहाँ नाना प्रकार के फल, सब्जी, औशधियाँ, अनाज, पादप इसी मिट्टी रूपी धरा पर उत्पन्न होते हैं। अतः पृथ्वी को हम सभी माता के रूप में आदर दें।

अतः मृदा संरक्षण को बल देकर वर्तमान स्थिति से बचा जा सकता है। क्योंकि स्थल भाग पृथ्वी पर मात्र 21 प्रतिशत है, उसमें भी जंगल, घाटियाँ, मरुस्थल, बर्फीले प्रदेश, दलदली प्रदेश, नदियाँ, तालाब, झीलें आदि स्थित हैं। मानवीय आवास व सांस्कृतिक मूल्यार्थ हेतु जमीन की काफी कमी पायी जाती है। बढ़ती हुई जनसंख्या व घटते हुए प्राकृतिक संसाधन इस समस्या को ओर भी भयावह बनाते हैं।

यस्यामन्नं प्रीहियवौ यस्या इमाः पंच कृश्टयः ।

भूम्यै पर्जन्यपत्न्यै नमोऽस्तु वर्षमेदसे ॥

(अथर्ववेद 12/1/42)

अर्थात् भोजन ओर स्वास्थ्य देने वाली सभी वनस्पतियाँ इस भूमि पर ही उत्पन्न होती हैं। पृथ्वी सभी वनस्पतियों की माता है और मेघ पिता है। क्योंकि वर्षारूपी जल ही पृथ्वी को हरी भरी करता हो।

वर्तमान संदर्भ में यह ऋचा सही रूप में चरितार्थ होती है। क्योंकि औद्योगिकीकरण व नगरीकरण के दुष्प्रभावों से आज इस संसार में हरे-भरे जंगलों की संख्या सीमित होती जा रही है। वनस्पति के अभाव से वर्षा ऋतु अनियंत्रित हो गई है। वर्षा के दिनों की संख्या में कमी आने से धरातल पर शुद्ध जल की कमी हुई है, जिसका प्रभाव प्राणी जगत पर स्पष्ट नजर आ रहा है। प्रदूषित बाध्य सामग्री के कारण वर्तमान मानव असाध्य रोगों से जुझ रहा है।

यदि हम आप भी वैदिक कालीन सभ्यता व संस्कृति तथा वैदिक ज्ञान के आधार पर वायु, जल, मिट्टी, वनस्पति व पर्यावरणीय प्रदूषणों से संरक्षण तकनीकों को अपनाकर सजीव जगत का जीवन आनन्दमयी व स्वास्थ्यवर्धक हो सकता है।

प्रत्येक व्यक्ति को चाहिए कि अपने जीवन को अच्छी षैली से व्यतीत करे। इसके पर्यावरण व परिस्थितिकी में पोशणीय विकास व सुस्थिर विकास के सिद्धान्तों का पालन करे। सतत् पोशणीय विकास का अर्थ हो कि संसाधनों का समरूप उपयोग हो, न कम और न ज्यादा। विकास व उपयोग एक दूसरे के पूरक बनेंगे, तभी मानव पर्यावरण का विकास सम्भव है। संसार के सभी लोग भौतिकवादी न बनकर मनुश्य विकासवादी बने तभी हम सभी का सार्थक प्रयास इस जीवन रूपी ग्रह को नष्ट होने से बचा सकता है।

सन्दर्भ सूची

1. अखण्ड ज्योति पत्रिका।
2. मा. षि. बोर्ड षिक्षण पत्रिका।
3. एस. एम. अली : पौराणिक भूगोल।

IJARIE

एसएसओ आईडी और अन्य सूचना साक्षरता के घटक (SSO ID & Other Components of Information Literacy)

Brief Introduction of Author

Name of Author: SURENDRA SINGH

Father's Name: Sh. Durga Das Singh

Email ID: surendra5767@gmail.com

Working as a Librarian at Aishwarya College, Jodhpur, Rajasthan (India)

सार : आम नागरिकों के लिए एक आवश्यक जानकारी के रूप में एसएसओ और सूचना साक्षरता के विभिन्न आयाम।

सूचना साक्षरता (Information Literacy) – सूचना साक्षरता वैयक्तिक सशक्तिकरण का एक माध्यम है। यह लोगों को किसी विशेष अभिप्राय, मत या दृष्टिकोण की यथार्थता की परख करके स्वतंत्र रूप से चाही गई सही सूचना का अनुसरण कराती है। कब और क्यों सूचना की आवश्यकता होती है इसे कहीं से प्राप्त किया जा सकता है, किस प्रकार इसके गुण दोष का मूल्यांकन करके इसका उपयोग या संचार किया जाता है आदि के ज्ञान को सूचना साक्षरता कहते हैं। सूचना साक्षरता योग्यताओं और क्षमताओं को दर्शाता है, जो किसी नागरिक के लिए सूचना समाज में विवेकपूर्ण (बुद्धिमतापूर्ण) एवं क्रियात्मक कौशल रूप से सहयोग के लिए आवश्यक हैं। सूचना साक्षरता सूचना की अवस्थिति (चेपजपवद) का निर्धारण, मूल्यांकन एवं इसका उपयोग करके किसी नागरिक को जीवन-पर्यन्त बिना किसी अन्य नागरिक पर निर्भर रहते हुए, ज्ञान प्राप्त करने के योग्य बनाती है। इसके द्वारा स्वावलम्बन, स्वाध्याय, स्वमार्गदर्शन, जीवन-पर्यन्त सीखने तथा एक साक्षर समाज की नींव रखने की मुख्य भूमिका निभाता है। सूचना साक्षर वही व्यक्ति है जिसमें सही निर्णय ले सके, सूचना की आवश्यकता को समझ सके, उसे सही सूचना की अवस्थिति निर्धारण का समुचित ज्ञान हो, सभी सूचना-स्रोतों की समझ हो, प्रश्नों की सूची बना सके, कम्प्यूटर आधारित सूचना स्रोतों का एकत्रित कर सके, खोज-विधि रखता हो, सूचना की गुणवत्ता की परख हो, प्रयोगात्मक ;त्तंबजपबंससलद्ध दृष्टिकोण रखता हो, नये ज्ञान को समाकलित भी कर सके वही सूचना साक्षर होगा।

सूचना साक्षरता पर सूचना प्रौद्योगिकी (ःदवितउंजपवद ज्मबीदवसवहल) का प्रभाव – पिछले दशकों में सूचना प्रौद्योगिकी के क्षेत्र में बहुत प्रगति हुई है बहुराष्ट्रीय कम्पनियों द्वारा पूँजी निवेश, व्यवसाय प्रक्रिया, लजवेनतबपदह ;दवितउंजपवद ज्मबीदवसवहलद्ध से रोजगार के अवसर भी बढ़े और आय में वृद्धि भी हुई है और विभिन्न एप्लीकेशन वजिंतमषे भी सूचना व प्रौद्योगिकी के क्षेत्र में मानव संसाधन विकास (Human Resource Management) को भी बढ़ाया।

Rajasthan SSO ID (Website designed, developed & hosted by Department of Information Technology – Communication, Government Of Rajasthan_ DOITC) – राजस्थान सिंगल साइन ऑन (एसएसओ) आईडी – राजस्थान सिंगल साइन ऑन (एसएसओ) आईडी में रजिस्ट्रेशन करके उपयोगकर्ता इस वेब साइट को उपयोग में ले सकते हैं। उपयोगकर्ता प्रमाणीकरण के लिए एक सरल तरीका है। यह विभिन्न प्रकार के ऑनलाईन कार्या और सरकारी वेबसाइट्स के लिए एक ही नाम और पासवर्ड का उपयोग करने की सब नागरिकों को सुविधा प्रदान करता है। दूसरे षब्दों में राजस्थान एसएसओ आईडी लॉगिन करने के सभी विकल्प प्रदान करता है। जैसे कि आधार नम्बर, मेल एड्रेस, फेसबुक इत्यादि। आज के समय इस सेवा का उपयोग भारत के कई कॉलजो, विष्वविद्यालय और निजी

संस्थानों द्वारा किया जाता है और राजस्थान सरकार द्वारा भी इसका उपयोग किया जाता है जो एम्प्लॉयी (Employee) के लॉगिन से होता है। सभी सरकारी नौकरियों के लिए ऑनलाईन आवेदन और ऑनलाईन सुविधा देता है। उपयोगकर्ता खातों की निगरानी के साथ उपयोगकर्ता गतिविधियों को लॉगिन के लिए एसएसओ बहुत उपयोगी सेवा माध्यम है। इससे कई प्रकार के बिल और उनका सत्यापन कर सकते हैं जैसे की बिजली, पानी और मोबाइल इत्यादि। कई सरकारी विभाग जैसे ई मंडी, सूचना का अधिकार, ई-सखी में आवेदन कर सकते हैं। कई प्रकार की ऑनलाईन सुविधाओं जैसे ई मित्र, आधार कार्ड, छात्रवृत्ति, व्यापार पंजीकरण, भामाषाह, षस्त्र लाईसेंस आदि के लिए आवेदन कर सकते हैं। SSO (Single Sign-On) में तीन लॉगिन हैं 1- Citizen 2- Govt. 3- Administration इसमें सभी Department की Applications शामिल हैं। जो इस प्रकार हैं : Advance Analytics, Arms License, Artisan Registration, ATROCITY (PREVENTION), Authorities And UIT's Online Services Bhamashah Bhamashah Rozgar Srijan Yojana (BRSY), Bhamashah Swasthya BeemaYojana (BSBY), BILL PAYMENT VERIFICATION Bioscope BPAS (UDH), Business Registration Number (BRN), Challenge for Change Check your Application Status Chief Minister Information System (CMIS), CHILLAXCM Dashboard Department of College Education (DCE), Department of Personnel (DOP), Departmental Enquiry Devasthan Digital Visitor Register (DVR), Disaster Management & Relief Department (DMRD), DMFT Drug Control Drug Control Organization(DCO), e-Devasthan e-Learning E-Library e-Mitra e-Mitra Reports e-PDS MIS e-Sanchar e-Transaction EBazaar eHealth Record EID Electrical Inspectorate Department GST Home Portal GST Return Filing Higher & Technical Education (HTE), Hostel & Scheme Monitoring System IFMS-LTAIFMS-Raj SSP IMAGE ANALYTICS iStart ITI APPJOB FAIR Labour Department Management System (LDMS), Litigation Information Tracking and Evaluation System (LITES), Loan Waiver LSG (CHANGE OF LAND USE), MADARSA METRO LOGY Micro, Small and Medium Enterprises (MSME), MINES MINES CM SMJSA Rural MJSA URBAN Mukhyamantri Jal Swavlamban Abhiyan (MJSA), Palanhaar (SJE), RAJ MASTERS Raj Payment RAJ SHARE Raj Silicosis Raj-ERP Rajasthan Accountability Assurance System Rajasthan e-Office (Raj-Kaj), Rajasthan Investment Promotion Scheme (RIPS), Rajasthan Payment Platform (RPP), Rajasthan Public Service Commission Rajasthan Renewable Energy Corporation Limited (RRECL), Rajasthan Sampark Rajasthan Skill and Livelihoods Development Corporation (RSLDC), Rajasthan Stack Rajasthan State Archives Directorate (RSAD), Rajasthan State Commission for Women (RSCW), Rajasthan State Open School (RSOS), Rajasthan State Pollution Control Board (RSPCB), RAJCHATRAJFED (OPR), RAJVIKA Rajmail - Your Govt. Email Address RajSewa Dwaar RAJSMS (Official use only), RajVISTA RAJVISTA for SDRIREAMS Recruitment Portal Recruitment Stack2 REVENUE (CHANGE OF LAND USE), Revenue Court Management System (RCMS), Right to Information (RTI), RIICO SANSKRIT APPSCHOLARSHIP Society Registration Specially Abled Registration SSB Information Management System (SIMS), State Directorate of Revenue Intelligence (SDRI), TOURISM University Admission Unnati Raj VOICE ENROLLMENT Weaver Registration इत्यादि। इसमें प्रमुख एप्लीकेशन है Rozgar, Swasthya, Bhamashah, CM Dashboard, Education, E-Library, E-Learning, e-Sanchar 1, 2, GST return, ITI app ,CISK – Shikshak, CISK – M Power, Mera _ Aspataal इत्यादि जो अधिक कार्य में आती हैं।

अन्य सूचना के घटक – 1. भारतीय भाषाओं की तकनीकियाँ (Indian Language Technologies) – भाषायी आंकड़ों ,कंजेंड स्त्रोत सूचना सामग्री सृजन, भाषा संसाधनों उपकरणों तथा अक्षर पहचान, पाठ से वाक, वाक पहचान का कार्य करता है। सूचना व प्रौद्योगिकी विभाग ने भारतीय भाषाओं से उपकरणों तथा थ्वदज के सार्वजनिक प्रयोग के लिए चरणबद्ध रूप से उनका लोकार्पण करने की प्रक्रिया की। 2. भारतीय भाषाओं के कार्यक्रमों का तकनीकी विकास (Technology Development for Indian

Languages_ DEIT (Department of Electronics & Information technology) – भारतीय भाषाओं के लिए प्रौद्योगिकी विकास विभाग ने ज्जप्- कार्यक्रम बनाया जो प्रत्येक को ज्ञान आधारित समाज का निर्माण करने के सक्षम बनाता है। इस परियोजना का उद्देश्य 'भाषायी अवरोध के बिना संचार और ज्ञान-शृंखला' को ओर अग्रसर करना है। 3. ई-कॉमर्स और सूचना सुरक्षा (**E-Commerce and Information Security**) – 'ई-कॉमर्स और सूचना सुरक्षा' कार्यक्रम का उद्देश्य राष्ट्रीय क्षमता और कुशलता का विकास करने के लिए मान्यता प्राप्त अनुसंधान और विकास संगठन में विषिष्ट परियोजनाओं के माध्यम से महत्वपूर्ण चयनित क्षेत्रों में स्वदेशी प्रौद्योगिकी विकास और परीक्षण पटल अनुप्रयोगों को बढ़ावा देना है। 4. डिजिटल लाईब्रेरी (**Digital Library**) – सूचना प्रौद्योगिकी विभाग ने विगतवर्षों में डिजिटल लाईब्रेरी के क्षेत्र में परियोजनाओं का सहायता प्रदान की थी। पुस्तकों, पाण्डुलिपियां आदि को वृहदाकार केन्द्रों, स्केनिंग केन्द्रों के माध्यम से डिजिटल किया गया। डिजिटल लाईब्रेरी के क्षेत्र में परियोजनाओं को सहायता प्रदान की। डिजिटल लाईब्रेरी, इंटरनेट सम्पर्क के माध्यम से सूचना और ज्ञान तक पहुँच बढ़ाने में समर्थ होगी। 5. ई-लर्निंग (**E-Learning**) – ई अधिगम सूचना, सूचना प्रौद्योगिकी (**DIT**) विभाग ने सूचना और संचार प्रौद्योगिकी उपस्करों (कम्प्यूटर, मल्टी मीडिया, मूड का उपयोग करते हुए, दूरस्थ शिक्षा के माध्यम से सूचना साक्षरता में सुधार लाने के लिए विकास अनुसंधान एवं प्रौद्योगिकी विकास परियोजनाएँ एवं संकाय प्रशिक्षण की विषय-वस्तु के क्षेत्र में अनुसंधान एवं विकास परियोजनाओं के लिए अनुदान का प्रावधान किया है। 6. बहुरूपतामक डिजिटल दूरस्थ शिक्षा – इस परियोजना का मुख्य उद्देश्य कम समय में उचित लागत पर समुचित अभियांत्रिकी पाठ्यक्रम पद्धति विकसित करना था ताकि दूरस्थ शिक्षा में बाधा को हटाया जा सके और कार्यक्षेत्र प्रयोग का निष्पादन किया जा सके तथा डिजिटल दूरस्थ शिक्षा की विभिन्न पद्धतियों के साथ कार्यक्षेत्र प्रयोगों का निष्पादन किया जा सके। 7. विषयवस्तु डिजिटल साधनों का विकास – इस परियोजना का मुख्य उद्देश्य अधिक बेहतर और योग्य प्रणाली के लिए मौजूदा वेब प्रौद्योगिकी पर आधारित शिक्षा सहायता प्रणाली मौजूदा प्ज का आवर्धन है। 8. **Animation and Multimedia** के प्रचालन पर प्दजमत ।बजपअम स्मंतदपदह सामग्री – इस परियोजना का मुख्य उद्देश्य ।दपउंजपवद दक डनसजपउमकपं पर स्व-कदम की शिक्षा सामग्री के उपयोग के लिए तीव्रगति से बढ़ती माँग के प्रत्युत्तर 'एनिमेशन और मल्टिमीडिया का परिचय' पर इंटरएक्टिव डिजिटल मल्टीमीडिया विषयवस्तु का विकास करना है। 9. सूचना सुरक्षा शिक्षा और जागृति परियोजना – सूचना सुरक्षा शिक्षा और जागृति परियोजना का उद्देश्य सूचना सुरक्षा के क्षेत्र में मानव संसाधन विकास है। परियोजना उद्योग, शिक्षा संस्थानों और जनशक्ति के लिए जागृति कार्यक्रमों पर एक घटक है। इस परियोजना का उद्देश्य साइबर / सूचना प्रौद्योगिकी से संबंधित मुद्दों पर सरकारी अधिकारियों को प्रशिक्षण देना भी है। 10- **E-Governance** – ई शासन का तात्पर्य है नागरिकों, व्यवसाय के साथ तथा स्वयं के अन्दर ही सरकार द्वारा किए जाने संव्यवहारों में परिवर्तन। सभी व्यक्तियों को अपने आस-पास सभी सरकारी सेवाएँ सामान्य सेवा आपूर्ति आउटलेटों पर उपलब्ध कराई जाएँ। 11. इसके अतिरिक्त **Information Technologies** में एएक्वा सर्च / वेब से खोजा और प्राप्त किया जा सकता है। 12. श्रुति – हिन्दी व बंगला भाषा हब के रूप में। 13. संयोग – विकलांगता के लिए समर्पित। 14. वाणी – संचार यंत्र के रूप में, ध्वनि संदेश भेजना। 15. संविधा – सूचना साक्षरता हेतु। 16. श्रवण – दृष्टि विकलांग हेतु। दृष्टिहीनता अथवा कम दृष्टि के व्यक्तियों की सक्षमता निर्माण हेतु विषय सामग्री का सृजन। 17. ग्रामीण सम्पर्क – ग्रामीण इंटरनेट से सम्बंधित। 18. सामुदायिक सूचना केन्द्र (**CIC**) 19. **Ernet India** – इंटरनेट उपलब्ध कराना। 20. राष्ट्रीय सूचना-विज्ञान केन्द्र ;छंजपवदंस प्दवितउंजपवद ब्दजतमद्ध 21. भौगोलिक सूचना प्रणाली तथा सुदूर सेंसिंग 22. राष्ट्रीय आपदा

प्रबंधन सूचना प्रणाली 23. सूचना प्रौद्योगिकी 24. ई जिला 25. इंडिया पोर्टल 26. मीडिया लेब एषिया – सूचना और संचार प्रौद्योगिकी 27. AICTE 28. CBSE/BSER 29. e-Rakt (Rajasthan blood bank) 30. e-Pathshala

31- UMANG – The Sprit of New India 32- IRCTC (Online Booking Train & Airplanes) 33- mAadhar 34- EPFO (Employee Provident Fund Organization) – Centre Govt. 35- सम्पर्क पोर्टल (राजस्थान) 36- INFLIBNET (Online open sources) 37- BHIM mobile app _ for E transaction 38- Bank Websites (online banking) & bank mobile app 39- GST (Goods & Service Tax) इत्यादि ।

अतः आज इंटरनेट, सूचना-प्रौद्योगिकी (Information Technology) के आगमन से साक्षरता की परिभाषा में परिवर्तन आ गया है ।

References –

1. <http://sso.rajasthan.gov.in> (Single Sign-On) _Rajasthan Govt.
2. <http://en.wikipedia.org>
3. Library, Information and Society (VMOU)

BIOGRAPHY



Surendra Singh

Description about the author

- ✚ Qualifications: MLIS, BLIS, M.Sc. (CS), M.A. (Eco.), PGDCA
- ✚ Teaching Experience in School Level (2 Years)
- ✚ Teaching Experience in Library field (2 Years, Course Taught_ BLIS)
- ✚ National Seminar/Training/Workshop/Orientation Course /Refresher Course & other Certificates – 14
- ✚ NSS Programme Officer at Aishwarya College (from 2012 to 2016)
- ✚ Vice- President of Pustakalya Parishad, Jodhpur.
- ✚ Counselor _ BLIS (VMOU) , CLIS (IGNOU)

भारतीय लोक संगीत और लंगा-मांगणियार

(INDIAN FOLK MUSIC AND LANGA-MANGNIYAR)

Brief Introduction of Author Name of

Author: KIRAN BHATI H/N: Sh.

Surendra Singh

Email Id – kiranbhati628@gmail.com

Working as Art & Craft Teacher at ARMY Public School, Banar Road, Jodhpur (Rajasthan) Bharat

सार

लोक संगीत – वैदिक ऋचाओं की तरह लोक संगीत या लोकगीत अत्यंत प्राचीन एवं मानवीय संवेदनाओं के सहजतम उद्धार हैं। ये लेखनी द्वारा नहीं बल्कि लोक-जिह्वा का सहारा लेकर जन मानस से निःसृत होकर आज तक जीवित हैं। लोक गीत तो प्रकृति के उद्धार हैं। साहित्य की छंदबद्धता एवं अलंकार से मुक्त रहकर ये मानवीय संवेदनाओं के संवाहक के रूप में माधुर्य प्रवाहित कर हमें तन्मयता के लोक में पहुँचा देते हैं। लोकगीतों के विषय, सामान्य मानव की सहज संवेदना से जुड़े हुए हैं। इन गीतों में प्राकृतिक सौंदर्य, सुख-दुःख और विभिन्न संस्कारों और जन्म-मृत्यु को बड़े ही हृदयस्पर्शी ढंग से प्रस्तुत किया गया है। संगीतमयी प्रकृति जब गुनगुना उठती है, तो लोक संगीत का स्फुरण हो उठना स्वाभाविक ही है। भारतवर्ष अनेकताओं में एकता लिए हुए है। यहाँ हर प्रदेश में लोक संदेश में लोक संगीत (Folk Music) का अत्यधिक महत्व है। स्थानिय लोक संगीतकारों द्वारा इस धरोहर को संजोकर व परम्परागत गायकी को आगे बढ़ाया जाता रहा है।

संगीत – कला मानव की सहज अभिव्यक्ति है। प्राचीन आदि मानव के लेकर आज के आधुनिक मानव तक कला किसी न किसी रूप में विकसित होती रही है। देश, काल आदि की परिस्थिति के अनुसार मानव ने समय-समय में इसमें आवश्यक परिवर्तन भी किये हैं। मानव ने अपने मन की अभिव्यक्ति के लिए कला के अनेक माध्यमों का उपयोग किया, जिसमें से संगीत का भी एक महत्वपूर्ण स्थान है। भारतीय संगीत का प्रारम्भ वैदिक काल से भी पूर्व का है, पंडित षारंगदेव कृत “संगीत रत्नाकर” ग्रन्थ में भारतीय संगीत की परिभाषा “गीतम्, वादयम् तथा नृत्य त्रयम् संगीत मुच्यते” कहा गया है। गायन, वाद्य वादन एवम् नृत्य; तीनों कलाओं का समावेश संगीत शब्द में माना गया है। तीनों स्वतंत्र कला होत हुए भी एक दूसरे की पूरक हैं। भारतवर्ष की सारी सभ्यताओं में संगीत का बड़ा महत्व रहा है। धार्मिक एवं सामाजिक परम्पराओं में संगीत का प्रचलन प्राचीन काल से रहा है। इस रूप में, संगीत भारतीय संस्कृति की आत्मा माना जाता है। वैदिक काल में आध्यात्मिक संगीत को मार्गी तथा लोक संगीत को देशी कहा जाता था। कालांतर में यही शास्त्रीय और लोक संगीत के रूप में दिखता है।

राजस्थान का लोक संगीत अनेक सम्भावनाओं से परिपूर्ण है। लंगा-मांगणियार अपने पारम्परिक व वंशानुगत संगीत के दम पर आज जिस मुकाम पर खड़े हैं वही से इस लोक संगीत के लिए अनेक सम्भावनाओं के द्वार खुल गए हैं। पहले जहाँ वे अपनी आजीविका के लिए अपने संरक्षकों पर आश्रित थे अब वे अपनी कला के आधार पर दौलत व शौहरत पा चुके हैं। इनकी प्रस्तुति के मंच व परिवेश समय के साथ परिवर्तित हो रहे हैं। गाँव की पृष्ठभूमि से प्रारम्भ हुई इनकी सांगीतिक यात्रा अब मंच तक ही सीमित नहीं है बल्कि अब दूरदर्शन व सिनेमा जगत के रूपरेल पदों तक पहुँच चुकी है। इनके द्वारा इनके पारम्परिक लोक संगीत में किये गये प्रयोगों का भी सराहा गया है। किसी भी कला को जीवन्त रखने के लिए काल व देश के अनुसार परिवर्तन आवश्यक होता है और इसी सिद्धान्त के आधार पर इन्होंने भी अपने संगीत में प्रयोग व परिवर्तन को अपनाया जिसका प्रमुख उदाहरण है देशी धुनों में विदेशी धुनों का मिश्रण, जिस ‘पयूजन’ की संज्ञा दी गई। विदेशी कला, कलाकारों के संगीत व लोक संगीत के बीच में युगल बंदियों श्रोतों को आकर्षित कर रही हैं, जिसके कारण इनके संगीत का

और नई दिशाओं की प्राप्ति हो रही है। इस लोक धरोहर की उड़ान के लिए कला का व्यापक आकाश फैला हुआ है। इनकी नौजवान पीढ़ी के कलाकार पारम्परिक संगीत में तकनीक के मिश्रण से अपनी कला का एक नया पहलु इजात कर सकते हैं। वेबसाइट, यू ट्यूब व इंटरनेट एक ऐसा माध्यम है जिसके जरिये ये कहीं भी बैठकर अपनी कला को दुनिया के किसी भी कोने में बैठे कला के पारखी तक पहुँचा सकते हैं। सइनउप ज् टण तमंसपजल वू स्पअम बवदबमतजेआदि इनके लिए दौलत व शोहरत कम्पाने के सषक्त माध्यम साबित हुए हैं और भविष्य में भी होत रहेंगे।

लंगा-मांगणियार - लंगा व मांगणियार पश्चिमी राजस्थान के थार रेगिस्तान क्षेत्र में सदियों से निवास कर रहे हैं। यह मुस्लिम समुदाय से हैं, इनका मुख्य निवास क्षेत्र जैसलमेर, बाड़मेर तथा पाकिस्तान की सीमा के निकटवर्ती गाँव हैं। यह समुदाय उच्च जाति के लोगों व राजा-महाराजाओं के संरक्षक में रहकर अपनी गायन कला से उनका मनोरंजन करते थे। यह इनका पारम्परिक व वंशनुगत कार्य है, जिसका निर्वाह वे आज तक कर रहे हैं।

इनके मुख्य दो प्रकार हैं :- 1. मांगणियार - जो कि मुख्य रूप से हिन्दू संरक्षकों के लिए गीत है और दूसरे है 2. लंगा मांगणियार - जो कि हिन्दू संरक्षकों के साथ-साथ मुस्लिम समुदाय के लिए भी गीत है।

ऐतिहासिक-परिचय - लंगा जैसलमेर, बाड़मेर, बीकानेर, जोधपुर तथा पाकिस्तान में रहते हैं। इनका जन्म स्थान मुल्तान का लोकत नामक स्थान था। ये जैसलमेर भाटी शासकों के साथ में आये थे। ये सब हिन्दू क्षत्रिय थे। इसमें सोलंकी, भाटी, पंवार आदि खापे हैं। ये लोग आज मुसलमान हैं, मगर इनके रीति-रिवाज, वेष-भूषा, खान-पान तथा वैवाहिक रीति-रिवाज हिन्दूओं जैसे हैं। इन्होंने अपने पूर्वज देवीदास के समय से गायन वादन सीखा था। ये मुगल बादशाह औरंगजेब के समय मुसलमान बन गये। ये सिन्धियों के मांगणियार हैं। इनके संरक्षकों को सिन्धी सिपाही कहा जाता है। राजा-रजवाड़े के काल में यह समुदाय राजाओं या जागिरदारों के मनोरंजन के लिए गायन करते थे। वर्षभर में ओन वोल सभी उत्सवों के साथ जीवन के

सभी संस्कारों पर भी गायन किया करते थे। उनके द्वारा उस काल के राजाओं व जमींदारों के वंशजा व उनकी वीरता की कथाओं का मौखिक प्रस्तुति करण किया करते थे तथा प्रजा के बीच जाकर उनकी वीरता के गुणगान गायन के रूप में किया जाता था। इन सब के ऐवज में उन्हें भेंट में सोना, चांदी, मोहरें, ऊंट, गाय आदि दिये जाते थे। इस प्रकार गायन ही उनके जीवन यापन का प्रथम जरिया था। इसके अलावा वे खेती / कृषि कार्य भी किया करते थे। लंगा अपने श्रोतों को 'जजमान' कहकर सम्बोधित करते हैं। लहंगा

मांगणियार वंश परम्परा के अनुसार अपने मुख्य वाद्य साधनों के आधार पर दो उपजातियों में विभाजित हैं -

1. सुरनया लंगा - जो सुरनायी, अलगोजा या सितारा, मुरली आदि हवा के बहाव से बजने वाले वाद्य यंत्र बजाते हैं।

2. सारंगिया लंगा - यह सारंगी आदि वाद्य यंत्र बजाते हैं। यह मुस्लिम होते हुए भी हिन्दू त्यौहार मनाते हैं तथा दुर्गा को मानते हैं। इनके पूर्वज देवीदास सुरणाई बजाया करते थे। बाद में इनके वंशजों ने सारंगी बजाना प्रारम्भ कर दिया तब से ये सारंगिया लंगा कहलाने लगे। इनकी वेषभूषा हिन्दूओं के समान है इनकी सुहागन स्त्रियाँ चूड़ा पहनती हैं। यह अपने जजमानों तैवर राजपूत या सिन्धी सिपाही परिवारों में ही मांगे जाते हैं तथा वहाँ गीत बजाते हैं। इनके विवाह, बिमारी, मृत्यु भोज आदि पर होने वाला व्यय भी इनके जजमान चुकोते हैं। ये गुरु षिष्य परंपरा रूप में संगीत सिखाते हैं। पिता के अच्छे गायक होने पर पुत्र पिता को ही अपना गुरु बनाता है। षिष्य बनने के लिये समारोह आयोजित किया जाता है। जो मंत्र पढ़ा जाता है उस प्रक्रिया को "दारुद" कहते हैं। लंगा मांगणियार ढालक, मटकी, मोरचंग, खरताल आदि वाद्ययंत्र भी बजाते हैं। गायन की कला इन्हें अपने पूर्वजों के द्वारा विरासत में प्राप्त हुई है। जिसका वह आज भी परम्परागत लोक गीतों में उपयोग करते हैं। लोक गीतों के साथ ही सूफी कलामों का भी यह अपनी गायकी में शामिल करते हैं। इनके द्वारा गोय गीत इनके और श्रोतों के मध्य एक मजबूत सम्बन्ध स्थापित करते हैं। यह दिन, वर्ष व मौसम से सम्बन्धित विषिष्ट गीतों का गायन तो करते हैं साथ ही शादियों, जन्म उत्सवों, त्यौहारों आदि पर

भी गायन करते हैं। विभिन्न अवसरों के लिए यह विषिष्ट रोगों का गायन करते हैं साथ ही कबीर, सूरदास, तुलसीदास और मीराबाई के भजनों के रचनोए भी शामिल हैं जो कि भक्ति संगीत का एक संग्रह हैं।

सामाजिक स्थिति - लंगा जाति के समुदायों की सामाजिक स्थिति उस काल के अनुसार अत्यधिक सषक्त नहीं थी। यह समुदाय मुख्यतः ढाणियों या छोटे-छोट गोंवों में रहते थे। एक से दूसरी ढाणी के बीच काफी दूरी होती थी। प्रत्येक ढाणी को उसके मुखिया के नाम से जाना जाता था। यह रहने के लिए अस्थाई

घरों का निर्माण किया करते थे। इनके संरक्षक सिंधी सिपाही होने के कारण इन्हें भी सिंधी सिपाही के नाम से जाना जाता है। इस समुदाय के कुछ परिवार ऐसे भी थे जो कि मुख्य गोंव में रहते व रोजगार के रूप में सामान बेचते थे। 'ढाणी' का तात्पर्य एक ऐसा स्थान होता है जो कि कृषि के लिए उपयोग में ली जाने वाली भूमि पर बनाया जाना वाला घर होता है। उसमें रहने वाले सभी लोग या तो एक ही परिवार के सदस्य होते हैं या फिर अत्यधिक करीबी रिश्तेदार होते हैं। यह मुख्यतः पशुपालक होते थे, जिनके पास अच्छी संख्या में गाय, भेड़ व बकरियाँ होती थी। इन पशुओं को चराने के लिए ढाणी बेंड मैदानों की सुविधा प्रदान करती थी।

शुष्क जलवायु के कारण खेती द्वारा वे अपनी आर्थिक स्थिति को सुदृढ़ नहीं कर पाते थे। उनके पास खेती के लिए पर्याप्त भूमि तो होती थी परन्तु मानसून की प्रतिकूलता के कारण खेती द्वारा वे अपनी आर्थिक स्थिति सुदृढ़ नहीं कर पाते थे। सिंचाई के लिए वे मानसून पर ही आश्रित होते थे। इस क्षेत्र मानसून से तात्पर्य दो से तीन इंच वर्षा से है, जो इन मवेशियों के लिए चारा एवं इनके लिए दो से तीन वर्ष के लिए बाजरे की व्यवस्था के लिए पर्याप्त होती थी। प्रत्येक तीन साल में पड़ने वाले अकाल के कारण इन्हें अपने व मवेशियों के लिए उपयुक्त स्थान की तलाश में अपना घर छोड़ना पड़ता था।

लंगा जाति की सामाजिक परिस्थितियों उस काल में संतोषजनक नहीं थी। वे घुमक्कड़े की तरह अपना पूरा जीवन व्यतीत कर देते थे। वे समाज की वर्ग व्यवस्था के कारण निम्न वर्ग से तालुक रखते थे। ये समाज के उच्च वर्गों के लिए गाते-बजते थे और इस ऐवज में मेहनताने के रूप में इन्हें मुद्रा या वस्तुएं आदि मिलती थी। इनके संरक्षकों के द्वारा पेशेवर गायकों को मवेशी तथा ऊँट आदि भेंट स्वरूप दिये जाते थे। संरक्षकों के घरों में होने वाले आयोजन जैसे - जन्म, विवाह, मृत्यु आदि में लंगा गाते थे। इन्हें संरक्षकों द्वारा इनका सम्मान व सत्कार भी किया जाता था। इस प्रकार धीरे-धीरे ये कृषि के साथ ही गायकी को भी अपना पेशा बनाने लगे। संरक्षकों द्वारा उनके खाने-पीने, रहने व सोने की अच्छी व्यवस्थाएँ भी की जाती थी। वे रात-भर चलने वाले आयोजनों व जपों आदि में गायन करते थे। लंगा इन आयोजनों में पारम्परिक लोक कथाओं का गायन करते, ज्यादातर उत्सवों में खेड़ होकर या चलते हुए प्रस्तुतियाँ दी जाती थी। उनके गायन की संगति में सारंगी का प्रयोग किया जाता, कई बार यात्रा के दौरान भी संरक्षकों के द्वारा गायन करवाया जाता था। विवाह अवसरों पर वर व वधु पक्ष के गायकों के बीच संगीत प्रतियोगिताएँ की जाती थी एवं अधिक दक्षता तथा विभिन्नता का प्रदर्शित करने वाले गायक को विजेता घोषित किया जाता था। अपने संरक्षकों की मांग पर विविध व नई रचनाएँ, धुनें आदि भी बनाई जाती थी इसी प्रकार 'बोलोचन' गीत की रचना की गई थी। इनके संरक्षक संगीत के अच्छे जानकार थे तथा पारम्परिक गीतों का विधिवत् रूप में गाने के पक्षधर थे। रचनाओं को नियम पूर्वक नहीं गाने पर वे अपनी अप्रसन्नता भी जाहिर करते थे। इसके फलस्वरूप इन रचनाओं का अपने मूलरूप में संरक्षक तो हुआ ही साथ ही गायक भी इन परम्परागत गीतों का उनके मूल में संरक्षित करने के लिए प्रेरित हुए।

वाद्य-यंत्र - लंगा मांगणियार अपने संगीत को प्रस्तुत करते समय अनेक प्रकार के वाद्य-यंत्र का उपयोग करते हैं - कमायचा- कमायचा इनका प्रमुख वाद्ययंत्र है यह आम की लकड़ी से बनाया जाता है। इनको बकरी की त्वचा से ढक कर बनाया जाता है। इसमें 17 तार लगे होते हैं, जिनमें से तीन तार बकरी की आंत से बने होते हैं। इनको बजाने में घोंड के बाल से बने धोंग का उपयोग होता है। खरताल- खरताल शब्द हिन्दी के दो शब्द खर यानी हाथ और ताल यानी ताली से मिलकर बना है। यह लकड़ी की बनी दो

पट्टियों का जोड़ा होता है जिनको आपस में टकरा कर ध्वनी उत्पन्न की जाती है। इस टकराव से उत्पन्न ध्वनी को गायन के समय उपयोग में लिया जाता है। सारंगी- थार प्रदेश में मुख्यतः दो

प्रकार की सारंगी उपयोग में ली जाती है - 1. सिंधी सारंगी 2. गुजरातन सारंगी। लंगा-मंगणियार मुख्य रूप से सिंधी सारंगी का प्रयोग करते हैं। सारंगी का निर्माण लकड़ी द्वारा किया जाता है। इसके नीचे का भाग बकरी की त्वचा से मढ़ा जाता है। इसके पेंद के ऊपरी भाग में सींग की बनी घोड़ी होती है। घोड़ी के छेदों के अन्दर से तार निकाल कर किनोर पर लेग चौथ से उन्हे बाँध दिया जाता है। इस वाद्ययंत्र में 29 तार होते हैं, इनमें से चार मुख्य तार होते हैं, जिनमें से दो तार स्टील के तथा दो तार ताँत के होते हैं। सारंगी वाद्ययंत्र बजाने में राजस्थान की सबसे पारम्परिक जाति सारंगिया लंगा है। ढोलकी:- यह भारतीय वाद्य यंत्र है। यह हाथ से बजाया जाता है, इसका उपयोग मुख्य रूप से लोक संगीत या भक्ति संगीत के ताल देने के लिए किया जाता है। यह वाद्य

यंत्र मुख्यतः आम, बीजा, शीषम, सागौन या नीम की लकड़ी से बनाया जाता है। लकड़ी को खोखला कर

दोनों मुखों पर बकरे की त्वचा कसी जाती है, जो डारियों से कसी जाती है। डारियों में छल्ले रहते हैं, जो

ढोलकी का स्वर मिलाने के काम आता है। मंजीरा:- यह लकड़ी की बनी दो मोटी पट्टियाँ होती हैं, जिसके बीच में कटोरिया की भाँति दो छेद बने होते हैं, उनके बीच मिश्रित धातु की बनी चपटी कटोरा लगी होती है। हाथ की उंगलियों के अन्दर पकड़कर परस्पर आघात करने पर ध्वनि उत्पन्न होती है। बाँसुरी:- यह बाँस से निर्मित एक खोखली छड़ होती है। जिस पर कुछ-कुछ दूरी पर गोल छेद किये जाते हैं। मुख पर लगाकर वायु प्रवाहित करने पर इसमें से ध्वनि उत्पन्न होती है। मोरचंग :- यह वाद्य-यंत्र मुख्यतः राजस्थान के लोक कलाकारों द्वारा बजाय जाने वाला वाद्य है। यह धातु से बना छल्ले नुमा आकार का होता है, जो घोंड के पैर के नीचे लगी नाल के जैसा प्रतीत होता है। अलगोजा:- यह दो बाँसुरियों का जोड़ा है, जो बाँस से बनी होती है। इन दोनों बाँसुरियों को एक साथ मुँह से हवा प्रवाहित कर बजाया जाता है। बीन: यह बाँस की बनी दो नलियों का जोड़ा है जो परस्पर एक दूसरे से जुड़ा होता है, एक नली में सात छेद होते हैं दूसरी नली में केवल एक छेद होता है। मुख्यतः यह सपेरा जाति का वाद्य यंत्र है। मटकी:- यह मिट्टी से बना पानी भरने का बर्तन है जिसका उपयोग लंगा मंगणियार वाद्य के रूप में करते हैं। दोनों हाथों में पकड़कर इसको हवा में उछालते हुए हथेलियों से थपकाकर ध्वनि उत्पन्न की जाती है।

गीत एवं राग - राजस्थान एक ऐसा प्रदेश है जहाँ कि कोई भी धार्मिक काम गीत गीत बिना नहीं होता है। लोकगीत, लोक के मनोभावों को प्रकट करने के लिए सरलतम साधन है, इसमें मानव समाज की आदि मनोवृत्तियाँ और भावनाएँ उसके शोक-विषाद, प्रेम-ईर्ष्या, भय-आर्षका, घृणा, ग्लानि, आश्चर्य, विस्मय, भक्ति-विषाद आदि भाव अपने सरल से सरल और विषुद्ध रागात्मक रूप से प्रकाशित होते हैं। समाज में जो नर-नारी कोई विशेष कार्य करते हैं, जनता उनके गीत गाने लगती है। इनकी ध्वनियों में लोक संगीत के तत्व मौजूद होते हैं। फोकलोर के साधारण वर्गीकरण में लोक गीतों के भेद किये गये हैं - 1. बालकों के गीत 2. सगाई और विवाह के गीत 3. मृत्यु संबंधी गीत 4. आवसरिक गीत 5. नृत्य गीत 6. वैलासिक गीत। गीतों की रचना, राग, समय तथा अलग-अलग अवसरों पर निर्धारित थे। लंगा-मंगणियारों में प्रचलित राग और उनके दोह निम्न हैं - आसा, कमोद, कल्याण, काफी, कारेल, कोयारी, खंभाती अथवा खमायची, गूंद मल्हार, जोगिया, तिलंग, तोडी धानी, सोरठ, बिलावल, भैरवी, मल्हार या मल्हारी, मालकोस, मारू, विभास या बिरवास, राणौ, सामैरी, सालंग, सूब या सूहब, स्याम कल्याण आदि।

लंगा मंगणियार द्वारा गीत गाने वाले कुछ लोकगीत व रागों की सूची निम्न प्रकार है :-

लोकगीत	राग
1. कुरजौ पहाडी-	स्याम कल्याण
2. केसरिया बालम-	माँड
3. केसरियों हजारी गुल रौ फुल-	सालंग/मल्हारी

4. काच्छबियों-	भैरवी
5. चिडकलियों री चांच छूटी-	परभाती
6. होल्लियोंमें उडैर गुलाल-	मल्हारी
7. हिचकी-	भैरवी
8. हिलोेर हालरिया-	पहाडी/सांमेरी
9. मूमल-	मॉड
10. बन्नोेर बागोमें झुलाघाल्या-	मल्हारी
11. धम्मा धम्म मस्त कलंदर-	कल्याण
12. तौरणियों-	खमायची
13. करियौ काच्छी करियौ-	सूब
14. पाधडिया रा पेच-	आसा
15. पपैइया प्यारा रे-	सोरठ
16. संदेसौ म्हारा ढोलेलगा पडुचाय-	मारु

हैं:- जन्म- जन्म के समय गोय जोन वोल गीतों को हालरियों गीत कहा जाता है , जिसका एक उदाहरण

“सुवागन थारा हालरियौ

जुग जिवै तो दूध

पताषा पिवै...”

विवाह- विवाह समारोह में रीति अनुसार अनेक रस्में की जाती हैं उसमें समय के अनुसार ही गीत गोय जोत है जिसमें से कुछ प्रमुख गीत हैं विनायक (स्थापना), तोरणियां, घोडी, मायरा, बन्ना-बन्नी, जीमण , जंवाई, विदाई, पीठी, रातीजोगा आदि 25 तरहके विभिन्न गीत विवाह में गोय जोत हैं।

पीठी गीत- “म्हारी हल्दी रौ रंग सुरंग.

.. निपजै मालवै...

महंदी गीत-“मेहंदी बाई मेडते, जिणरा डाला

गया अजमेर..., मेहंदी रौ रंग
लग्यौ”

बन्ना गीत:- “केसरियौ हजारी गुल रौ फूल केसरिया नै

निजर लागणी...”

विदाई गीत:- “डब-डब भरिया, बाईसारा नैण,
कोयल बाई सिद चाल्या...”
वेषभूषा व आभूषण -

वेषभूषा - लंगा मांगणियार हिन्दुओं की तरह की लाल चून्नरी, मोठड फेटा पहनते हैं। वे सफेद धोती व कमीज व कोल लम्बे कोट व कंधों पर रंगीन शॉल तथा पैरों में चमड़े की जुतियाँ पहनते हैं। पुरुष कानों में गोखरू पहनते हैं।

पुरुष वेषभूषा : इनकी स्त्रियाँ भी हिन्दुओं की स्त्रियों के समान ही घाघरा, ओढनी, कुरती, कांचली पहनती हैं। नृत्य के दौरान महिलाएँ कालबेलियों पौषाक जो कि कोल रंग की घेरदार घाघर पर रंगीन कषोद व काँच-कौड़ियों से सुसज्जित होती है पहनती है सिर पर काला दुपट्टा ओढती है।

महिला वेषभूषा : आभूषण- स्त्रियों मुख्यतः चॉदी के आभूषण पहनती हैं, कानों की ऊपरी पट्टी में बालियाँ, नाक में विशेष प्रकार के फूल, भुजाओं में चॉदी की चूड़, हाथों में कड़ा, गले में बाड़ला तथा पोवों में कूड़िया पहनती हैं। सिर पर बोर या टीका व हाथों में सफेद चूड़ पहनती हैं।

वर्तमान स्थिति - सन् 1978 में जोधपुर के कामल कोठारी ने मांगणियारों को संस्थागत आधार प्रदान किया और साथ ही प्रदेश से बाहर प्रस्तुति का अवसर प्रदान करन का श्रेय इन्हें है। सन् 1960 में इन्होंने श्री विजयदान देथा के साथ मिलकर “रूपायन संस्थान” की स्थापना की थी। रूपायन संस्थान राजस्थानी भाषा, सभ्यता, संस्कृति, साहित्य तथा संगीत आदि लोक धरोहर के संरक्षण में प्रमुख रूप से कार्यरत हैं। राजस्थान के लंगा-मांगणियार समुदाय को अन्तराष्ट्रिय मंच पर पहचान दिलाने में महत्वपूर्ण भूमिका निभाई है। इस क्षेत्र में कार्यरत अन्य संस्थाओं “रिदम् ऑफ राजस्थान”, “राजस्थान जोष ग्रुप”, “द मांगणियार सिडक्सन्” -इल त्वलेजवद इवस और “डेजर्ट रूट्स” आदि प्रमुख हैं। गायन क्षेत्र में सफलता के बाद कुछ लंगा फिल्मी जगत में भी सक्रिय हुए है और कला के बलबूते पर स्वयं को साबित भी किया है। वहाँ इन्होंने नाम व शोहरत दोनों ही हासिल की। फिल्मों के साथ ही वे रियलिटी शो में भी अपनी प्रतिभा का लोहा मनवाया। जहाँ एक तरफ लोक कलाकार अपने मातृभूमि व मातृभाषा तक ही सीमित थे वहीं आज वे देश व दुनिया तक अपनी पहचान बनाने में सफल हो सके, जो कि इनकी कला के प्रति तपस्या का ही फल है। वर्तमान में यह लंगा मांगणियार अपनी लोक संगीत की धुनों का सम्पूर्ण विश्व तक पहुँचाने व उसका सम्पूर्ण विकास करने के लिए हर सम्भव प्रयत्न कर रहे हैं। इस कारण देश-दुनिया चारों ओर इनकी कला के कदरदान भी बढ़ते जा रहे हैं। इनके द्वारा गीत कुछ प्रसिद्ध फिल्मी गीत जैसे - 1. नीबूड़ा-नीबूड़ा... 2. दमा-दम मस्त कलदर... 3. बाओरे-बाओर... 4. ठरकी छोकरी... आज भी संगीत प्रेमियों की जुबान पर चढ़े हुए हैं।

इनके संगीत की बढ़ती छाखाओं पर वर्तमान में अनेक राग-रागिनियों के पुष्प खिल रहे हैं। जो कि इनके विकास की ओर इशारा करता है, जिसके लिए यह निरन्तर प्रयत्नरत हैं।

प्रसिद्ध लंगा गायक

पद्मश्री साकर खॉं- लंगा मांगणियार समुदाय में साकर खान का नाम अत्यंत ही सम्मान के साथ लिया जाता है। वे एक कुषल कमायचा वादक व कुषल लोक संगीतकार थे। वे एक ऐसे लोक कलाकार थे जो अपनी प्रतिभा के दम पर विश्वस्तरीय मंच पर पहुँचे। इनका जन्म 1 अगस्त, 1938 में जैसलमेर के एक छोटे से गाँव हमीरा में मांगणियार जाति में हुआ। इनके पिता भी एक कुषल कमायचा वादक थे। उन्होंने अपने पिता से ही कम उम्र में ही कमायचा सिखना प्रारम्भ कर दिया था। अन्तर्राष्ट्रिय यहूदी मेनुहीन फाउण्डेषन् द्वारा रॉयल ऑडिटोरियम ब्रुसेल्स में आयोजित समारोह में इन्होंने यहूदी मेनुहीन एवं पंडित रविषंकर जैसे संगीतकारों के साथ प्रस्तुति दी। इसके अतिरिक्त स्पेण, फ्रांस, जापान आदि देशों तथा जार्ज हेरिसन्, सुल्तान खान के साथ लंदन में प्रस्तुति दी। अन्तर्राष्ट्रिय स्तर पर राजस्थानी ‘कमायचा’ को पहचान दिलाने का श्रेय भी इन्हीं को जाता है। इन्हें कई राष्ट्रीय व अन्तराष्ट्रिय सम्मानों से नवाजा गया :-

1. 'तुलसी सम्मान'- 1990 (मध्यप्रदेश सरकार द्वारा)
2. 'संगीत नाटक अकादमी अवार्ड' - 1991 में ।
3. 'पद्मश्री' (नागरिक सम्मान -2012 में भारत-सरकार द्वारा)

इनकी अंतिम प्रस्तुति 'The Manganiyar Seduction' पुराना किला दिल्ली में दी गई थी। जिसके आयोजक Amarass Records' द्वारा इस समारोह की रिकॉर्डिंग की गई, जिसका एलबम रिलीज 2012 में किया गया। 10 अगस्त, 2013 का इस प्रसिद्ध राजस्थानी लोक संगीतकार के स्वर सदैव के लिए शांत हो गये। चनण खान (बरना)- पद्म श्री साकर खान के बाद बेहतरीत कमायचा वादकों में इनका (चनण खान) का नाम आता है। उनके पास उनका पारम्परिक कमायचा है जो कि उनके दादा ने 7 रुपये में खरीदा तथा आज तक संरक्षित करके रखा है, वे कमायचा वादन में अत्यंत ही कुशल हैं। उन्होंने देश के अलावा विदेशों (अमेरिका, स्वीजरलैण्ड, इजराइल, ब्राजील और इटली) में भी प्रस्तुतियों द चुके हैं। गॉजी खॉन- जैसलमेर (राजस्थान) के मंगणियार गाजी खॉन (बरना) ने देशी व विदेशी अनुदान दाताओं की सहायता से हिन्दी एवं मारवाडी भाषा में स्वयं का गैर - सरकारी संस्थान (छाव) 'पहचान' को स्थापित किया है। इस संस्थान का मुख्य उद्देश्य निम्न वर्ग के मंगणियार बालक - बालिकाओं को ग्रामीण परिवेश में शिक्षा उपलब्ध करवोत हुए वंषानुगत संगीत को जीवंत रखना है। यहाँ के निवासी कलाकार सैलानियों का इस ग्रामीण संगीत विद्यालय में आमन्त्रित कर अपनी प्रस्तुति देते हैं। गाजी खॉन 'बरना' के इस प्रयास से सफलता के साथ आमदनी का अच्छा साधन साबित हुआ है। स्वरूप खॉन- लंगा मांगणियार में आज एक नाम जाना पहचाना नाम है वो है स्वरूप खान जिनको पहचान मिली 'इण्डियन आइडल' शो से, जो कि एक संगीत पर आधारित ज् टणेशा है। इस शो के द्वारा उनकी आवाज का जादू और लंगा संगीत को एक नया आयाम मिला। वे इस कार्यक्रम के परिणाम में टॉप-3 तक पहुँचे। जो कि लोक कलाकारों के लिए अत्यधिक सम्मान की बात है। इनके द्वारा गाया गया पी.के. फिल्म का गाना "ठरकी छोकरो" अत्यधिक लोकप्रिय हुआ। नक मोहम्मद लंगा- यह एक कुशल खरताल वादक के साथ ही कुशल सूफी गायक हैं, वे एक असाधारण गायक है, वे अपनी शक्तिशाली आवाज से मंत्रमुग्ध कर देते हैं। उनके गीतों की स्पष्टता दर्शकों को अपनी ओर आकर्षित करती है। उन्होंने यूरोप, एशिया और अमेरिका में अनेक लोक संगीत समारोह में शिरकत की है। उन्होंने प्रसिद्ध संगीत रचयिता - ए. आर. रहमान, जाकिर हुसैन जैसे प्रसिद्ध तबलावादकों के साथ प्रस्तुतियों दी हैं। मैम खान - मैम खान ऊँची मधुर आवाज के धनी हैं। यह पारम्परिक व सूफी संगीत के महारथी हैं। इन्होंने छोटी उम्र में ही पिता से गायकी सिखना शुरू कर दिया था। इनके द्वारा गाया 'बालिका वधू' धारावाहिक का एक गीत 'लुक छिप ना जाओ जी...' अत्यधिक ही लोकप्रिय हुआ और वे आज एक जेन पहचान लंगा संगीतकारों की श्रेणी में शामिल हैं। मोती खान- मोती खान भी बाल लंगा कलाकारों में लोकप्रिय हैं। यह भी ज् टणेशा 'इण्डियन आइडल जूनियर' शो के मंच पर दिखाई दिये थे। वे भी आज अनेक मसहूर संगीतकारों के साथ काम कर रहे हैं।

तुलनात्मक विवेचना - थार के रेगिस्तान ने विष्व का जीवन्त एवम् विचोरों संगीत की सभ्यता दी है। इन दो संगीतज्ञ जातियों की भावपूर्ण व गहरी आवाजों ने थार की रीतों में बहती ठण्डी ब्यार को राजस्थानी जन-जीवन की विविध परम्पराओं एवं पहलुओं से परिचित करवाया है। लंगा एवं मांगणियार जन जाति एवं इनके लोक संगीत की प्राचीन व वर्तमान स्थिति का तुलनात्मक अध्ययन किया जाए, तो निम्न पहलु निकलकर सामने आते हैं।

1. पहले लंगा-मांगणियार कलाकारों के संरक्षक ही उनका यजमान हुआ करते थे, सीमित वर्ग के लोग ही इनके संगीत को सुनते थे, परन्तु वर्तमान में यह सीमा समाप्त हो गई, कोई भी श्रोता/दर्शक इनके संगीत का रस प्राप्त कर सकते हैं।

2. पहले जहाँ इनकी प्रस्तुति संरक्षकों के परिवारों में होन वोल जन्मोत्सव, विवाह समोराह, यात्रा व त्यौहोरों तक ही सीमित था किन्तु अब देश-विदेशों के मंचों पर इनकी कला का प्रसार हो रहा है।
3. इनकी प्रस्तुति पर इनके संरक्षकों अथवा यजमानों द्वारा भेंट, उपहार, नकद राशि आदि दी जाती थी और यही इनकी आमदनी का एकमात्र जरिया था। किन्तु वर्तमान में कला पारखी, कला मर्मगय एवं कई संस्थाएँ ये जरिया बन चुकी है जो इन्हें वित्तीय सहायताके साथ ही इनको अपनी कला के प्रचार-प्रसार के अवसर उपलब्ध करवा कर इस लोक कला को संरक्षित एवं पोषित कर रही है।
4. इन समुदाय के संगीतकारों की प्रगति तो हो रही है किन्तु संगीत की मौलिकता हटने लगी है जिसके परिणामस्वरूप इनकी मौजूदा पीढ़ी खुद का ही संगीत विस्मृत कर रही है।
5. इनकी प्रस्तुति में संगति करने वोल वोटों के दृष्टिकोण से देखा जाए तो यह अंतर लक्षित होता है कि पहले जहाँ सीमित वोटों जैसे कामायचा, करताल, अलगोजा, ढोलकी, बोंसुरी आदि का प्रयोग किया जाता था वही अब 'फ्यूजन' की अवधारणा से कहीं देशी विदेशी के साथ भी ये अपना लोक संगीत प्रस्तुत करते हैं।
6. इनके संरक्षकों (श्रोताओं) का इनके संगीत का पूर्णतया ज्ञान होता था तथा इनसे ये अपेक्षित था कि ये अपने गीतों को उनके मौलिक एवं परम्परागत रूपों में ही प्रस्तुत करें लेकिन अब इस संगीत का आकर्षण मात्र ही रह गया है।

राजस्थान का लोक संगीत अनेक सम्भावनाओं से परिपूर्ण है। लंगा-मंगणियार अपने पारम्परिक व वंशानुगत संगीत के दम पर आज जिस मुकाम पर खड़े हैं वही से इस लोक संगीत के लिए अनेक सम्भावनाओं के द्वार खुल गए हैं। पहले जहाँ वे अपनी आजीविका के लिए अपने संरक्षकों पर आश्रित थे अब वे अपनी कला के आधार पर दौलत व शौहरत पा चुके हैं। इनकी प्रस्तुति के मंच व परिवेश समय के साथ परिवर्तित हो रहे हैं। गाँव की पृष्ठभूमि से प्रारम्भ हुई इनकी सांगीतिक यात्रा अब मंच तक ही सीमित नहीं है बल्कि अब दूरदर्शन व सिनेमा जगत के रूपहल पर्दे तक पहुँच चुकी है। इनके द्वारा इनके पारम्परिक लोक संगीत में किये गये प्रयोगों का भी सराहा गया है। किसी भी कला को जीवन्त रखने के लिए काल व देश के अनुसार परिवर्तन आवश्यक होता है और इसी सिद्धान्त के आधार पर इन्होंने भी अपने संगीत में प्रयोग व परिवर्तन को अपनाया जिसका प्रमुख उदाहरण है देशी धुनों में विदेशी धुनों का मिश्रण, जिस 'फ्यूजन' की संज्ञा दी गई। विदेशी कला, कलाकारों के संगीत व लोक संगीत के बीच में युगल बंदियों श्रोताओं को आकर्षित कर रही हैं, जिसके कारण इनके संगीत का और नई दिशाओं की प्राप्ति हो रही है।

दिनांक 15 मार्च, 2016 को जयपुर स्थिति जवाहर कला केन्द्र में माननीया पूर्व मुख्यमंत्री, राजस्थान द्वारा 'द मंगणियार सिडकषन - नवरंग' कार्यक्रम का उद्घाटन किया था। कार्यक्रम 8 दिन तक चलेगा।

उपसंहार - लंगा, मंगणियार थार रगिस्थान के अत्यंत ही कुशल लोक कलाकार हैं। इनके स्वरा में

एक अद्भूत-सी क्षमता है जो हर किसी व्यक्ति को अपने स्वरा में बाँध लेती है। जब ये गीत हैं तो मानो सौर वातावरण में अद्भूत सी स्वरागिनी घूल जाती है। रेतिले धोरों के बीच ढलेत सूर्य के साथ ही इनके द्वारा बिखेरी गई स्वर लहरियों किसी अथाह षान्त समुद्र की भाँति प्रतीत होती हैं, जो वहाँ के वातावरण को अद्भूत बना देती हैं, मानो की वह स्थान इस दुनिया का सबसे खूबसूरत स्थान है "केसरिया बालम आवौ नी, पधारौ म्हारा देश" की परम्परा को राजस्थान का गौरव माना जाता है, तो मेहमान को भगवान का दर्जा दिया जाता है, तो इन लोक गायकों हम उन पावणों का यहाँ की मनोरम धोरों की धरती में एक अद्भूत अनुभूती की प्राप्ति का प्रमुख कह सकते हैं। देश ही नहीं विदेशों में भी लंगा मंगणियारों को मान व सम्मान प्राप्त हुआ। विदेशी श्रोता भी इन के सुरों में डुबने से नहीं बच सके और वे भी इनके स्वरा की लहरों में खा जोत हैं। लंगा-मंगणियारों ने अपनी अद्भूत प्रस्तुतियों द्वारा राजस्थान की

संस्कृति को देश ही नहीं, बल्कि विदेशों में भी पहचान दिलाई है और साथ ही अमूल्य भारतीय सभ्यता की भिन्नता व मौलिकता को वैश्विक मंच पर साबित किया है।

References –

- ‘Manganiyar Magic’ article by Poonam Goel.
- Manganiyar – Wikipedia, the free encyclopedia
- web site – www.rajfolkpedia.com
- Rhythm of rajasthan by google
- Monograph on langas (Komal Kothari)
- Langas – Enrichers of the western Rajasthan Heritege. Article by Dr. Renu Sharma & Ms. Kalpana Purohit
- Music of India by google search engine.

BIOGRAPHY

	<p>Description about the author</p> <ul style="list-style-type: none"> ✚ Academic Qualifications: M.A. (Fine Arts & Painting), Add. B. A. (Drawing & Painting), B.A., DLIS, RS-CIT ✚ No. of Workshops attend, Conferences, Participations, Awards & Honors/Appreciations Certificates: 18 ✚ Worked as a Drawing/Art & Craft Teacher at Mahaveer Public School, Jodhpur (Affiliated to CBSE) (From April 7, 2015 to March 31, 2018) ✚ Worked as a Drawing/ Art & Craft Teacher at ACE International School, Ratanada, Jodhpur (From June 22, 2012 to March 31, 2015) ✚ Worked as a Drawing/Art & Craft Teacher at Anant Lewis Public School, Banar Road, Jodhpur (From Nov. 8, 2011 to June 10, 2012)
<p>Kiran Bhati</p>	