

**PROCEEDINGS OF THE THIRD ANNUAL NATIONAL
MULTI-DISCIPLINARY CONFERENCE**

V-CMT 2016

**On the Theme
India 2025: A Vision for Next Decade**

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**On the Theme
India 2025: A Vision for Next Decade**

January 22 and 23, 2016

Organized by

Vidyalankar School of Information Technology Wadala (E),
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Editor

Dr. Rohini Kelkar



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"Knowledge removes the lethargy of the intellect, invests truth in the speech, enhances the greatness and casts off sin; it cleanses the mind and spreads the fame all around. Tell me, what is not provided to a man, from the company of high thinking and noble souls."

VISION

Our Vision is to establish a leading centre of imparting Quality Education in the field of Science, Commerce and Management with emphasis on :

- ❖ Ensuring that students learn the fundamental concepts in various disciplines.
- ❖ Motivating students to apply the Scientific & Technological knowledge to develop problem solving capabilities.
- ❖ Making students aware of the societal and environmental needs with specific appreciation of the emerging global context.

MISSION

Our mission is to provide:

An educational environment where students can reach their full potential in their chosen discipline and become responsible citizens without compromising in ethics.

A scholarly environment where the talents of both, the faculty members and students are nurtured and used to create knowledge and technology for the benefit of the society.

ACKNOWLEDGEMENTS

I would like to thank our keynote speaker Nitin Potdar and our expert panelists -Dr.Vivek Sawant, Sulakshna Mahajan, Anthony Lobo, Manoj Kalke - and moderator of the panel discussion, Devayani Ganpule for investing their valuable time for this conference. Similarly, I acknowledge the efforts of the college management, adjunct faculty members, the organising committee, and all the other faculty members and staff of Information Technology, Commerce and Management Departments of VSIT.

I would also like to thank our 6 session chairs – Dr. K .G. Diwani and Dr. Hanif Lakdawala for chairing Urbanization and Student tracks; Dr. Siby Abraham and Anjum Mujawar for chairing Information and Communication Tecnology (ICT) track; Dr. Gurusamy and Dr. K. Venkateswarlu for chairing both Renewable Energy and Corporate Social Responsibility (CSR) tracks and to share their critical reviews based of the paper presented. Their valuable feedback would definitely enrich authors in order to upgrade their paper.

Last but not the least, I would like to extend my gratitude to all paper presenters and delegates who have made it possible for us to organize such a Two Day National Conference VCMT 2016.

Look forward for VCMT 2017!!!

Dr. Rohini Kelkar
Editor

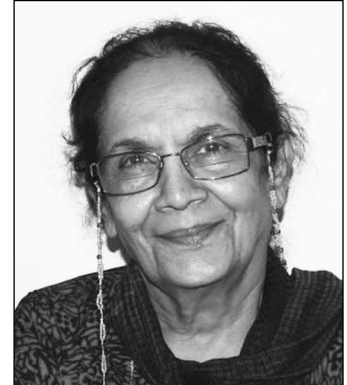
MANAGEMENT

Message from Chairperson, Vidyalankar Dnyanpeeth Trust Dr. Sanjeevani Deshpande

Zora Neale Hurston rightly says, “Research is formalized curiosity.” The faculty of thought and the eternal search for truth alone sets man apart from other life forms basically and also contributes to the tremendous development of mankind to bring more happiness to man.

We, at Vidyalankar, have always believed in assigning the highest priority to the promotion of a research culture amongst our students and faculty.

The Third National Conference on “**V-CMT 2016**” organized and hosted by Vidyalankar School of Information Technology is designed to give participants a plethora of usable content in the fields of Commerce, Management and Technology. It enables them to be tuned to the latest changes that occur within research domains and the industry - which we know take place on a very regular basis. I wish the researchers all the very best and hope to see more of such initiatives by Vidyalankar and do our bit in carrying the torch of knowledge forward.



Message from Principal, Vidyalankar School of Information Technology (VSIT) Dr. Rohini Kelkar

Inspiring keynote address by Mr. Nitin Potdar, paper presentation in four parallel tracks, followed by the expert comments by the session chairs and very interactive and lively panel discussion moderated by Ms. Devayani Ganpule with Ms. Sulakshana Mahajan – urban planner, Dr. Vivek Sawant – Director MKCL, Mr. Manoj Kalke – renewable energy expert and Mr. Anthony Lobo – CSR head, TCS, were some of the highlights of the conference.

I must admit that organising V-CMT-2016 was a great experience for VSIT. I appreciate and acknowledge great efforts by all the speakers, conference organisers, delegates, paper writers, student participants and Vidyalankar Management for their wholehearted participation and support to make the event fruitful.



Message from Convenor**Dr. Chandrahas Deshpande: Adjunct Faculty, Commerce and Management**

The VSIT arranged a Two-Day National Conference V-CMT 2016, on January 22-23, 2016. The theme chosen was “India 2025-A Vision for the Next Decade”. The Conference tracks Comprised “Urbanization”, “Renewable Energy”, “CSR” and “ICT-Applications”.

The Principal Objectives of the Conference were

- (1) to take cognizance of some of the latest developments in these four sectors through Expert-talks and Panel-Discussion.
- (2) to encourage Teacher and Students to contribute research paper on these theme.

The VCMT-2016 received overwhelming response. Several Papers were received from Faculties as well as students. This volume puts together the selected papers which have been reviewed and edited by the committee. We sincerely hope that the contents of this volume proceeding will be of use and value to the teachers as well as students of Commerce Management and information Technology.

**Message from Advisory committee member****Mr. Makarand Deshpande: Adjunct Faculty, Information Technology**

In its third year, the V-CMT conference is sharpening its focus on the current issues, challenges and application of technology as well as management perspectives for a better tomorrow. This year ICT section has seen an overwhelming response from teachers and students alike. The papers addressed various initiatives and upcoming technologies for effective application fields of health, agriculture etc. In addition, there are quite a few interesting technological innovations or applications presented in areas of Renewable Energy, Green Cities, Smart Cities. We are happy to bring this publication to wider audience. We certainly expect to see the ideas getting converted into live implementations, eventually becoming standard way of life.



EMINENT SPEAKERS

Mr. Nitin Potdar – Keynote Speaker

He has specialized in Public sector and Private sector, Mergers & Acquisitions, including De-mergers, restructuring of business, Asset & Share Purchase deals, Joint Ventures and Strategic alliances, Private Equity and general Corporate advisory. He has a vast experience with transactions related to Foreign Direct Investments and Exchange Controls Regulations. He has advised several multinational companies on financial and technical collaborations in India, and strategies / options for commencing operations and consolidations in India, in a cross section of industries. His focus has been on foreign investments from US, Germany and Japan. He also has extensive experience in Private Equity transactions including leveraged buyout transactions and exits. He has provided strategic and business oriented advice to a variety of companies receiving Private Equity investment. He is a frequent speaker at several conferences and seminars organized by leading industry, institutions, and chambers on subjects like, Takeover Code, M & A, and structuring of Joint Ventures.



Dr. Vivek Sawant – Panelist, ICT track

Managing Director (MD) and Chief Executive Officer (CEO), Maharashtra Knowledge Corporation Limited (MKCL), Soon after completing his school and college education in Nasik and Post-Graduate education in Pune, Dr. Sawant served as a teacher of Physics, Electronics and Computer Science at the Fergusson College, Pune from 1979 to 1987 and as the Deputy Director of Symbiosis Institute of Computer Studies and Research from 1987 to 1988. Dr. Sawant has served on several policy-formulation committees at state and national level including the Indian Prime Minister's IT Task Force, National Rural Road Development Committee and National Board of Apprenticeship, State eGovernance Task Force of a few State Governments, etc. In view of his pioneering contribution in eGovernance of the PWD, he was invited to be the co-author of the Pradhan Mantri Gram Sadak Yojana under which 1.2 million (12 Lac) km nation-wide rural road network has been established. Dr. Sawant has been felicitated by various awards for his distinguished contributions in the fields of education, high performance computing, entrepreneurship development, leadership development, innovations, etc. He was also nominated for World Technology Network Award at San Francisco for his work of likely long-term significance in education.



Ms. Sulakshana Mahajan – Panelist, Urbanization track

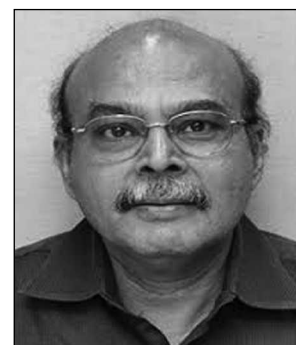
Ms. Sulakshana Mahajan is a researcher in Urban and Women's issues, with a particular focus on India. She has published several papers, articles and newspaper columns. Her writing appears in both English and Marathi language publications. She is working as consultant urban planning, housing issues at Mumbai Transformation Support Unit (MTSU) Mumbai. Conducting research and writing about Indian urban issues. Member and advisor to Stree Mukti Sanghatana for urban solid waste management projects in Mumbai. Trustee of CORO, Mumbai and Trustee of Rachna Trust, Nasik. She is also a visiting lecturer at Sir J. J. School of Art and Architecture and Rachana Sansad's Academy of Architecture in Mumbai. Guest Editor for special issue of 'Aajachaa Sudhaarak' (Marathi journal) on Urbanization Presently working with the 'Stree Mukti Sanghatana', Mumbai on waste collection and recycling projects.



Mr. Anthony Lobo – Panelist, Corporate Social Responsibility (CSR)

Anthony Lobo has a Post Graduate (PG) degree in Administrative Management from Jamnalal Bajaj Institute of Management Studies, University of Mumbai and a PG Diploma in Journalism from Xavier Institute of Communications, Mumbai. He is a certified Master Trainer in CSR by United Nations Global Compact ESCAP, Bangkok. He possesses over 30 years of experience in domain of Human Resources and Administration, Business Ethics and CSR.

Anthony Lobo is the Advisor CSR in Tata Consultancy Services (TCS), Mumbai on retainer ship with TCS since 2012. He is in TCS 1991-2012 in HR, and since 2002 with Business Ethics & CSR domain. He is a Life Member of All India Management Association, Life Member of Indian Society for Training and Development, Life Senior Member of Computer Society of India, and Active in both IEEE and ACM professional societies as Senior Member. He is an Adjunct Faculty at University level for Management and Business Ethics.



Mr. Manoj Kalke – Panelist, Renewable Energy

An engineering graduate with good academics and professional with experience at senior decision-making level as Business/Profit Centre Head. Running business for last 20 years in the commercial capital of the country. Responsible and accountable for Profit & Loss Account. Possess strategic business sense, uncompromising work ethic and natural sincerity which helped in creating consistent profits; during the entire endeavour, worked for many corporate, PSUs and in the diversified fields. He has a thorough knowledge of ISO 9001:2008, ITIL based service delivery and Information systems audit. Expertise in Non-conventional Power – worked on many solar power projects. Acquired skills of installation and commissioning of large solar plant. Certified SOLAR EXPERT by SMA, German Company.



Mrs. Devyani Ganpule- Moderator for Panel discussion

Mrs. Devyani Ganpule is highly qualified personnel holding M.A (Economics) & UGC-NET (Economics). She is an experienced Associate Professor and a very learned personality in the field of Economics. She is receipient of the a very prestigious “Sir Dorabji Tata Merit Scholarship”(1978-1982). She has total teaching experience of 28 years in esteemed institutions like Ruia college, NMIMS, ICFAI and many. She is a Research mentor in Sarla Anil Modi School of Economics, NMIMS University(From 2012)



SESSION CHAIR FOR URBANIZATION TRACK

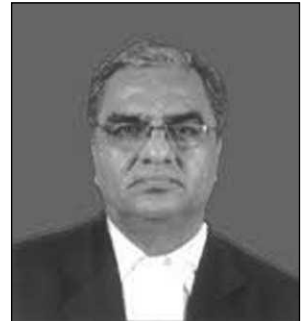
Dr. Mohammed Hanif Lakdawala

Dr Mohammed Hanif Lakdawala has rich marketing experience. To mention few is the when sir had inspected as a marketing officer with “Cadila Pharmaceuticals, District Manager with Kopran Ltd. Sir also has a vast experience of 7 years as Area manager in ‘The Pharmaceutical and Chemical industries’. Dr. Hanif has also worked for the Asian Age for one year. Adding to all these achievements Dr. Hanif has also produced and directed more than 25 socio-cultural programmes including ETC, Enadu-Urdu, Doordarshan Sayadri etc. He has also written and directed a 56 minute documentary which is absed on the subject Rise of Communalism in India. Similarly, he has also contributed to Deccan herald, Inquilab, and Occasionally Times of India. Dr. Hanif is currently associated with Akbar Peerbhoy College of commerce and economics as Assistant Director Professional courses. He is also the Director-Fountain Head Training solution where he has trained pharma corporate managers on various aspects of ethical promotions. Sir is the Visiting Faculty for Bachelor in Mass Media (BMM), Bachelor in Management studies (BMS) and for MMS.



Dr. K. G. Dawani

Dr. K.G Dawani is a highly qualified and experienced Professor and Dean Academics at Oriental Institute of Management. He is M.Com, LLM, MBA, M-Phil, DHE, and PhD. He has total 38 Years of experience which consist of 18 years of Industry experience and 20 Years of teaching experience. He has to his credit 9 International papers out of which 7 papers are honored for “Best Paper Award” He has also co-authored book on Financial Management. He is also appointed as Expert for selection of PhD students by University of Mumbai. His area of interests are Advanced financial management, Auditing, taxation etc. He has also delivered various guest lectures at different places and also chaired International Conferences.



SESSION CHAIR FOR RENEWABLE ENERGY AND CORPORATE SOCIAL RESPONSIBILITY (CSR) TRACKS

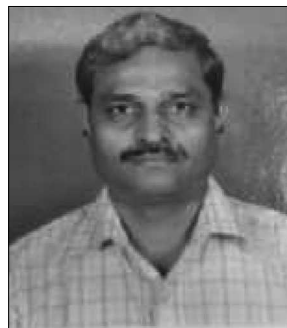
Dr. S. Guruswami

Dr. Gurusamy is the professor, Chairperson in School of Business and Management and Head in the Department of Commerce, University of Madras. He has vast experience in teaching and research with subject specialization in Banking and Finance and Operations Research. He has been a part of many conferences and seminars. One of which was “All China Economics International Conference in the University of Hong Kong”. Has been awarded teacher accreditation by the Heriot-Watt University, Edinburgh, UK to teach the subjects, Accounting and Finance for the MBA program offered by the above University. Dr. Gurusamy has done a working paper on ‘Disinvestment in the changing context of environment, at IFMR, Chennai. He has a rich experience of 36 years in the field of teaching.



Dr. K. Venkateshwarlu

Mr. K. Venkateshwarlu is Vice-Principal and an Associate Professor in L.S. Raheja College of Arts and Commerce. Sir has done his post-graduation and M.Phil. in Economics. Dr K. Venkateshwarlu has a vast experience of 27 years in the field of teaching and presently pursuing Ph.D. on “Mergers and Acquisitions in banking industry. Apart from all these achievements Sir is a visiting faculty for M.Com in the Department of Commerce. He has actively participated in organizing seminars, workshops etc. He has always motivated his students to write essays on different subjects and participating in elocution competitions. He has also guided students in completing assignments for Final Year students to pave path to success.



SESSION CHAIR FOR ICT APPLICATION TO KEY SECTOR TRACK

Anjum Mujawar

Prof. Anjum Mujawar is working as the Head of the Department Electronics & Telecommunication in Vidyalankar Polytechnic. He Completed Masters in Digital Electronics. He has around 10 years of teaching and 5 years of industry and consultancy experience. Presently his two patents are under process.



Dr. Siby Abraham

He has multi-disciplinary research background with special interests in applying Machine Intelligence techniques to problems in Computational, Mathematical, Biological and Social Sciences. He has more than twenty international publications to his credit. He received his MSc in Mathematics and PhD in Computer Science. He has two decades of teaching and research experience. He is part of organizing many international conferences and is in the editorial board of four international journals. Presently, he is the head and associate professor at the Department of Mathematics & Statistics at Guru Nanak Khalsa College, Mumbai. He is also a visiting faculty at the University Department of Computer Science, University of Mumbai, India.



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Track – 1 : Urbanization

Brief Summary	
Track-in-charge	1) Seema Vishwakarma, Assistant Professor, Department of Information Technology (IT), VSIT 2) Mithila Satam, Assistant Professor, Department of Information Technology (IT), VSIT
Session Chair(s)	1) Dr. K. G. Dawani Dean Academics, Oriental Institute of Management, Mumbai. 2) Dr. Hanif Lakdawala Assistant Director, Akbar Peerbhoy College, Mumbai.
Best Paper Awarded	Title of the paper: Shaping India's Urbanisation Dreams
	Author(s): Vivek Gupta, Assistant Professor, Department of Accountancy, VSIT

Shaping India's Urbanisation Dreams

Vivek Ramprakash Gupta

Assistant Professor

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ABSTRACT

India today stands at a point where it has been naturally presented with an opportunity to shape its Urban development. Not many countries have had this opportunity and almost all of them have grown by chance through natural expansion. India has an opportunity not only to shape its Internal but also its External urban development. The present paper tries to find out the area's that should be taken into consideration while planning India's future Urban Growth. The paper gives a brief outlay of the future India as to the how the future Indian cities shall look like and where they shall be placed keeping in mind the present Infrastructural facilities and future growth potential.

Key words : Distributed Urbanisation, Concentrated Urbanisation.

INTRODUCTION

Few economies get a chance to influence the distribution of Urban Population across different cities and within them. Almost all have seen their Urban cities take shape by chance. But today's India has an opportunity to anticipate the next 10 years of rapid Urban expansion. Today there are at least two areas where India has an opportunity to shape its Urban expansion – Overall Portfolio & Internal Shape.

Firstly the policy makers can influence the nation's overall portfolio of cities. Factors such as How many cities are to be developed, how the country's new and existing urban population be spread out among them. This can be termed as External shape of Urbanisation. These choices are mostly made by keeping in mind the location for future economic growth centres for eg Financial Hubs, Financial & Future transport networks.

Second India also has an opportunity to make a Choice as to how to shape its cities internally i.e its design for the overall look and more importantly how to use the space for living & working as productively & inclusively as possible.

Except China almost every other country has Urbanised over much longer period than India, that is the reason their portfolio of cities have evolved rather than been designed. Urbanisation has evolved around the world over a period of time.

TYPES OF URBANISATION

Concentrated Urbanisation

A concentrated pattern of Urbanisation can produce One Mega City (for eg Seoul in South Korea) or small number of Very large cities with population of 20 million to 40 million (for eg Japan)

Distributed Urbanisation

Another kind is a distributed Urbanisation where a large number of cities are developed simultaneously (For eg. United States & Germany)

It should be noted that external pattern of Urbanisation is not only about size, shape but also relates to building a proper portfolio of cities.

Apart from External, Internal shape is also important. Every major city in the world has invested substantial time and money in designing the internal shape by making choices about the distribution and density, land usage and linkages between where people live & work.

India so far has not made any conscious efforts in shaping either its Internal or External shape of its cities. India has not even at National level or State level what portfolio of cities it requires that will be most suitable for its economic growth and social objectives. It will serve best if India start to make a conscious choice about the external shape of its Urbanisation. Neither has the Internal shape of Indian cities evolved keeping in mind the social needs & economic goals. Therefore India will do well to start thinking consciously about the choices it has for the external shape of its Urbanisation and choose out of the several available alternatives it has at its disposal that will best fit its needs.

Problem Area

Shall India focus on Mega cities or on its emerging Tier 2 cities? Should India focus on Recreating its existing cities or Create New cities & Satellite town or shall India think about smaller specialist cities (such as Agra) None of these question's has been thought about leave alone finding the answers for the same. Its time India start to think about the same and take a Strategic call and decide how cities can utilise its land & what best relationship can be establish between cities Residential Commercial & Community spaces.

It has been argued that India's historical approach to shape its cities will not work given that it is on the verge of doubling its Urban population. Its time India starts a debate and start taking decision regarding both the external & Internal shape of its Urbanisation.

Recommendations & Suggestions

Rebuild Tier I cities through a substantial new Investment programme.

Its time for India to focus on its largest nine cities Mumbai , New Delhi, Kolkata, Chennai, Ahmedabad, Bangalore , Hyderabad , Pune & Surat. The need for focusing on the renewal of this cities is compelling as these large cities are essential for the growth of high value added sectors like Banking & Financial Services, Real Estate ,Transportation & Communication. All these Anchor sectors will drive India's future Growth and are most productive in largest cities

Proactively shape the trajectory of the 24 largest Tier II cities

It is a Golden opportunity for India to ensure that its Tier II cities do not emulate the Urban decay of today's Tier I cities. India can avoid repeating history by proactively acting to shape the growth of its Tier II cities by creating right policies and infusing sufficient funds as and when required. In fact Tier II cities can be used as test bed for reforms in Urban planning. This top Tier II cities are destined for growth even with the current policies but it's the need of the hour to shape this growth.

List of India's top 24 Tier II cities

Jaipur, Nagpur, Kanpur , Vadodara, Amritsar , Lucknow, Coimbatore . Madurai, Patna , Indore , Vishakhapatnam, Rajkot, Varanasi , Vijayawada, Nasik , Kochi Ludhiana, Salem, Agra , Bhopal , Meerut, Ghaziabad, Warangal, Jabajpur.

Guide & Mentor the top specialist Tier 3 & tier 4 cities ,

India today has nearly 100 cities having strong economic preposition linked to an anchor sector mainly from Manufacturing, Transportation , Tourist , Pilgrimage and the extraction of natural resources. These cities typically fall in Tier 3 & Tier 4 categories and have in fact created much higher number of Jobs and attracted much higher levels of private investments as compared to their peers and even certain bigger cities. Both the Central & State Government need to concentrate on such cities by making sure that they keep on getting the required capital infusion from time to time.

Create 25 New world class Satellite – cities near Large Metropolitan Cities

Building new cities is often more expensive than renewing the existing one's but its worth the cost if done through proper planning and selecting the best location. It is recommended that such new cities be build within 50kms of the existing Metropolitan cities, so that the growth momentum of such metro's can easily be carried to such new cities. Ideally One or

Two such Satellite cities shall be developed around each of the existing Metropolitan cities.
Lay foundation for future Urbanisation by Building Transport Corridors.

Suggested List of Transport Corridors

- 1) Hyderabad – Warangal
- 2) Vijayawada – Vishakhapatnam
- 3) Bangalore- Mangalore – Mysore
- 4) Durg – Raipur
- 5) Chennai – Pondicherry
- 6) Coimbatore – Madurai-Tiruchirapalli
- 7) Ahmedabad – Vadodara – Surat
- 8) Bhavnagar – Jamnagar – Rajkot
- 9) Kochi – Kozhikode – Thiruvananthapuram
- 10) Aurangabad – Nagpur
- 11) Bhopal – Indore
- 12) Mumbai – Nasik – Pune
- 13) Gurgaon – New Delhi – Ghaziabad – Faridabad – Meerut – Agra
- 14) Bhubaneswar – Cuttack
- 15) Amritsar – Chandigarh – Jalandhar – Ludhiana
- 16) Jaipur – Kota
- 17) Allahabad – Kanpur – Lucknow – Varanasi
- 18) Kolkata – Asansole
- 19) Jamshedpur – Ranchi

Think through its policies to create Internal Shape

Indian cities so far have developed ignoring the design or Internal shape of the cities. The same issue have been addressed by other advanced economies over the last 50 years.

India because of not having effective policies for internal shape of the cities is facing severe consequences including loss of potential fertile land, urban sprawl, and pressure on environment. So it is imperative that India starts to think about the Internal shape of its cities and act immediately.

CONCLUSION

To conclude distributed shape of Urbanisation is India's best option. The next issue is to produce this pattern. The Role of all three Governments will be crucial. State Government and to some extent Central Government have the power to influence the external shape of the cities while State & Local Government have to determine the Internal shape. Thus if the Government at all levels can fulfil its responsibilities India in the coming decade can witness a sharp increase in planned Urban development leading to sustainable economic growth.

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Bane of Urbanization? A Case Study of Chennai Flood 2015

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ABSTRACT:

Urbanisation has become a common feature of Indian society. With the increase in population, there is vast industrialization and construction which results in the depleting number of forests and greenery. In many cases, the urbanization has taken place at the cost of water bodies and also mangroves and greenery which has had a negative impact in due course of time. Growth of Industries has contributed to the growth of cities. As a result of industrialisation people have started moving towards the industrial areas in search of employment. This has resulted in the growth of towns and cities. There are numerous advantages of urbanization as well as negative outcome also. Our Government has taken several steps to reduce the concerns and problem's related to urbanization, which primarily includes the spreading of industries and reducing the density of industries in the urban areas. Many tier II and tier III cities are being developed so as to increase job opportunities in the rural areas so that the urban areas are spared phenomenal growth in population.

In spite of many steps taken by the government, cities are facing many unexpected disaster due to various reasons. One of it was 2005 Mumbai floods. Due to the heavy rains on 26th July, in addition to the high tide resulted in heavy rains and the drainage system which is supposed to be one of the best failed. Water clogging was seen everywhere in the suburban areas whereas major part of the city was spared the fury of the rains due to good drainage system. Due to the rains, the traffic was affected in most parts of the city and large numbers of people were stranded on the road, lost their homes, many walked long distances back home from work that evening and many lives were affected because rain water caused the sewage system to overflow and all water lines were contaminated. History repeated itself and the same thing happened in one of the 4 metropolitan cities, Chennai. The rain in Chennai was officially declared a natural disaster on the evening of 2nd December, 2015 due to heavy rain. More than 600 mm of rainfall in a single day, coupled with the choking up of drains due to mass urbanization, and also the releasing of Chembarapakkam dam water in the city, Chennai rains wreaked havoc across the city.

Almost 200 people died in Tamil Nadu as a result of the rains and all other issues related to it. Vast study has been done by many authors regarding the benefits and issues plaguing urbanization. But what has been noticed that the research scholars have ignored the problems of heavy rains and mass flooding which is majorly caused by the encroachment of water bodies. Through various information the researcher comes to know only heavy rain is not the reason for disaster. Therefore this study is done with the intention of finding the reasons for the reasons that caused Chennai Floods in 2015 and find out the possible solution to avoid the same problem in future and create awareness to make a regulated urbanization plan for other metro cities and also the tier II and tier III cities. For this study, the researcher has planned to use secondary data and primary data which will be collected through interview.

INTRODUCTION:

Urbanisation is taking place at a faster rate in India. Population residing in urban areas in India, according to 1901 census, was 11.4%. This count increased to 28.53% according to 2001 census, and crossing 30% as per 2011 census, standing at 31.16%. There are various positive outcome of urbanization like growth of trade and commerce, Women development, spread of modern technology, social and cultural integration etc. And it also has some negative effects, example increased cost of living, scarcity of resources (land, water etc.,) accommodation problem, pollution, psychological problems like stress, depression etc. Our Government has various schemes to tackle problem of urbanization like Shyama Prasad Mukherji urban Mission, JNNURM (Jawaharlal Nehru National Urban renewal mission) in 2005, Rajiv Awas Yojana 2011, National Urban Transport Policy, 2006, Smart city initiative 2014 etc. Still cities are facing many unexpected disaster due to various reason.

In fact, at 235 mm, the rainfall in Chennai is not even the big daddy of big rains. The Nungambakkam rain gauge recorded 270 mm on October 27, 2005; 280 mm in 1969, and 450 mm in November 1976.

Even in 1976, Adyar overflowed its banks and invaded first-floor houses. But those were the days when Chennai was derided for being an overgrown village, an underdeveloped aspirant to metropolitan status

Objectives of the study:

- To find out the reason for disaster in Chennai Flood 2015
- To find out the possible solution to avoid the same type of problem in future
- To create awareness to make a regulated urbanization planning to other metro politics cities

Research Methodology:

The nature of the study is empirical. The researcher has used both primary and secondary data for this study. Primary data was collected from Chennai people through telephone interview. Convenience sampling method was used to collect data from respondents. Respondents are Chennai people. Secondary data were collected from newspaper, articles and website.

Limitation of the study:

The study was conducted within a short period and was collected over the phone only. So there may be a chance of genuinely / bias in data.

Brief Background of Chennai:**Chennai Flood 2015:**

Deaths Tamil Nadu : At least 347 (official as of 10 December)^{11TM}
 Andhra Pradesh: 81^M
 Puducherry: 3

Property damage Over ₹ 100000 crore_(US \$ 15 billion) (unofficial estimates)¹⁵¹
 Tamil Nadu : Over ₹ 50,000 crore (US\$ 7.5 billion, unofficial estimates))¹⁵¹²¹

Chennai was officially declared a disaster area on the evening of 2 December.¹²⁴¹ At the MIOT Hospital, 14 patients died after power and oxygen supplies failed. With a letup in rainfall, floodwaters gradually began to recede in Chennai on 4 December, though 40 percent of the city's districts remained submerged and safe food and drinking water remained in short supply. Chennai Corporation officials reported at least 57,000 homes in the city had suffered structural damage,

Problems in urbanisation due to chennai floods

1. Loss of property and lives
2. Transmissions and power generators affected due to floods resulting to loss of power
3. Huge damage to infrastructure
4. Due to the floods there was an artificial price hike of about 10 times the normal price for water, vegetables, fruits, flight tickets etc.
5. Due to heavy loss of infrastructure there is a temporary decline in tourism which is an economic hardship till the rebuilding is done.
6. Chennai floods had an impact on human health as respiratory problems rose due to floods.
7. Chennai floods resulted in decline of overall economy as many major companies and manufacturing units shut there operations

Reasons for Chennai Flood

Today, Chennai has a host of expensive infrastructure aimed at ushering in a "Make in Chennai" boom - a brand-new (though leaky) airport built on the floodplains of the River Adyar, a sprawling bus terminal in flood-prone Koyambedu, a Mass Rapid Transit System constructed almost wholly over the Buckingham Canal and the Pallikaranai marshlands,

expressways and bypass roads constructed with no mind to the tendency of water to flow, an IT corridor and a Knowledge Corridor consisting of engineering colleges constructed on waterbodies, and automobile and telecom SEZs and gated residential areas built on important drainage courses and catchments. The 2015 disaster was not just avoidable; it was a direct consequence of decisions pushed for by vested interests and conceded by town planners, bureaucrats and politicians in the face of wiser counsel. The vast network of waterbodies that characterised Chennai can only be seen on revenue maps now. Of the 16 tanks belonging to the Vyasarpadi chain downstream of Retteri, none remain, according to Prof. M. Karmegam of Anna University.

Capacity reduction

Before political rivalry between the two Dravidian parties brought it to a midway halt, an ill-advised Elevated Express freight corridor from Chennai harbour to Maduravoyal had already reclaimed a substantial portion of the Cooum's southern bank drastically reducing the flood-carrying capacity of the river. Remarkably, all these causes were listed out by the government's own officials at a seminar on waterways organised by the Chennai Metropolitan Development Authority in 2010. But there seems to be many a slip between enlightened understanding and enlightened action.

The Second Masterplan prepared by the Chennai Metropolitan Development Authority glibly authorises built-up spaces with no regard to hydrology. In the Ennore region, the authority has reclassified waterbodies, intertidal zones and mangrove swamps as "Special and Hazardous Industries" and handed it over to the Kamarajar Port Ltd.

Lack of infrastructure

Water-logged roads and subways, sewerage lines mixing with the drinking water and lakes breaching their banks are just a few of the problems that Chennai faces every rainy season, and it just got worst last week.

"The magnitude of the incident was blown up by the mismanagement and lack of adequate infrastructure," said Alamu Rathinasabapathy, a research fellow at the Asian College of Journalism, Chennai.

According to Satyarupa Shekhar, director of Citizen consumer and Civic Action Group, an NGO based in Chennai, "The lack of enforcement of planning rules has resulted in rampant building violations, such as encroaching roads and pavements, illegal connections of sewerage lines to storm water drains and construction on ponds, lakes, marshes and other natural catchment areas." The city lacks an adequate drainage network. "Despite several crores being allocated (in the Chennai Corporation budget and JNNURM) to the construction of storm water drains (SWD), only a fraction of Chennai's roads are accompanied by SWD," said Satyarupa

"Every year, the monsoon clearly exposes the flaws in the city's infrastructure. But hardly have we found any difference each year. This year, it was the worst though," said a resident of Anna Nagar, situated around 7km from Jayalalithaa's RK Nagar constituency, where the chief minister reviewed the situation from her air-conditioned vehicle on Monday.

Shrinking wetland, lack of planning

Velachery, a residential area next to Pallikaranai marshland, gets flooded almost every November and was among the worst affected this year too. Wetlands are important as they help reduce the impact of storm damage and flooding, but these are fast shrinking. "Some 40 years ago, Pallikaranai was a 50 sq. km marshland and now it has been reduced to a tenth of its size. 90% of the marshland is lost to construction of IT corridors, gated community, garbage dump, sewage treatment plant, etc," said Jayaraman. Shekhar pointed out other areas, including MRC Nagar, built on the Adyar estuary, the Mass Rapid Transit System, built almost wholly on the Buckingham canal, Koyambedu Bus Terminal, the expressway and buildings on the Old Mahabalipuram Road that are examples of blatant encroachments on waterways and water bodies. "We require more than just good infrastructure. It will require good data and maps, sound planning practices and enhanced accountability of public agencies that are responsible for the way our city is shaped," concluded Shekhar.

Lack of Preparedness

Ironically, when the meteorological department warned in September of excess rainfall, the Chennai Corporation issued statements that it was prepared for the monsoon, claims that have now fallen flat. Last month, the civic body even released a statement on the quantity of silt removed from drains across the city.

In October, Chennai mayor Saida Duraisamy credited himself for the work done in the city. Presenting what he called a promise-delivery rating, Duraisamy gave a bare pass score of 41 out of 100 to his predecessor M. Subramanian, while giving himself a score of 93.55, The Times of India had reported.

Meanwhile, some voices on social media praised fire servicemen, policemen, National Disaster Response Force, Indian Air Force, Indian Army and the public transport drivers. While these men require their due respect, a proper desilting infrastructure would have reduced the impact of the retreating monsoon.

Public Ignorance is the Major Reason for Flooded Chennai

CHENNAI: Heavy rains have played havoc in Chennai and sub-urban areas and the analysis of the reasons for this deluge is going on — who is to be blamed for this? The ground level workers, the voluntary organisations have valid reasons to say that the public too have their role in avoiding such a situation.

"We have dumped all our wastes into the fresh water bodies. We have raised huge buildings destroying the water bodies and developed our city sacrificing the water resources and now we are harvesting what we have sown," says Arun Krishnamurthy, founder, Environmentalist Foundation of India (EFI), who has been involved in cleaning up lakes.

Arun further said, "The public had underestimated our water bodies like ponds, lakes and they have, in retaliation, shown that what they are capable of. The city residents never expected this kind of flood situation and they have forgotten a similar incident that occurred a decade ago. We thought Chennai is a hot place and continue to disrespect our natural resources and we continue to suffer today." Arun believes that the environment should become a key issue in the election manifestos of our political parties. "We, the people should make it clear to them that only those political parties which have environmental friendly policies would warrant respect from the voters," he added.

Unregulated urban planning and illegal construction

Union Minister for Environment and Forests Prakash Javadekar termed the Chennai floods a "natural disaster of unprecedented scale", and said it provided lessons to improve urban planning and improve city governance. "Chennai gives a lesson, and we must learn from this lesson and improve our urban planning and improve city governance, which is very essential." He also criticised the Chennai Corporation for not having done enough "to remove all encroachments. Unless you allow the drains to flow freely to the sea, water will be clogged and that is what has unfortunately happened."

Improper design and maintenance of drainage system

Media reports stated the Chennai Corporation had ignored September warnings of above-average monsoonal rains issued by the Indian Meteorological Department, and that extensive and costly projects begun in 2013 to desilt city storm drains had been ineffectively conducted. The drains themselves were reported to have been shoddily built and improperly designed. A 2014 CAG report revealed that a diversion channel from the Buckingham canal near Okkiyum Maduvu to the sea (a drain project under the JNNURM scheme) could have saved South Chennai from flooding; the government, however, dropped the ₹100 crore scheme, which, had it been completed, would have drained floodwater from southern neighbourhood at a rate of 3,500 cubic feet per second. The 2014 CAG report said the defective planning of flood control projects caused delays and increased costs, defeating the objective of the scheme. "The fact is that alleviation of inundation of flood water in Chennai city remains largely unachieved", it said.

CONCLUSION:

The 2015 disaster was not just avoidable; it was a direct consequence of decisions pushed for by vested interests and conceded by town planners, bureaucrats and politicians in the face of wiser counsel

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Green Cloud Computing: Power Matrics

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ABSTRACT

Cloud computing provides computing power and resources as a service to users across the globe. This scheme was introduced as a means to an end for customers worldwide, providing high performance at a cheaper cost when compared to dedicated high-performance computing machines. This provision requires huge data-centers to be tightly-coupled with the system, the increasing use of which yields heavy consumption of energy and huge emission of CO₂. Since energy has been a prime concern of late, this issue generated the importance of green cloud computing that provides techniques and algorithms to reduce energy wastage by incorporating its reuse. In this survey we discuss key techniques to reduce the energy consumption and CO₂ emission that can cause severe health issues. We begin with a discussion on green matrices appropriate for data-centers and then throw light on green scheduling algorithms that facilitate reduction in energy consumption and CO₂ emission levels in the existing systems. At the same time the various existing architectures related to green cloud also discussed in this paper wit their pros and cons.

INTRODUCTION

Cloud computing is a collection of a variety of computing concepts in which thousands of computers communicate in real-time to provide a seamless experience to the user, as if he/she is using a single huge resource. This system provides multiple facilities like – web data stores, huge computing resources, data processing servers etc. The concept of cloud computing is around since the early 1950s, although the term was not coined back then. Time sharing systems was how it was addressed back then.

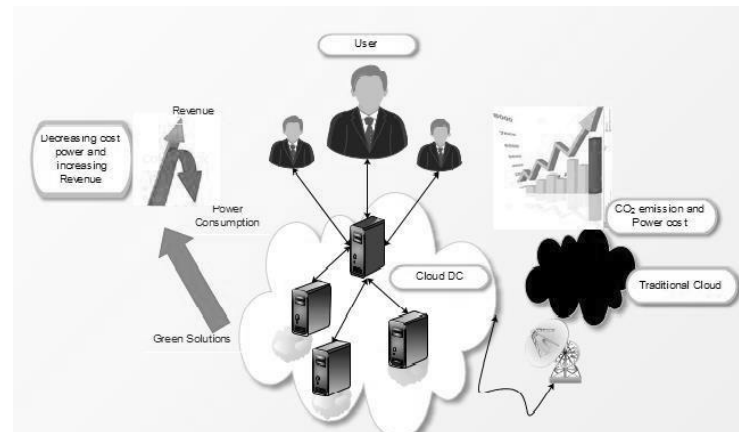


Fig.1: Cloud and Environment

The world has become highly protective about the environment with inputs from contributors such as – Greenpeace, Environmental Protection Agency (EPA) of the United States and the Climate Savers Computing Initiative to name a few. With the continuously increasing popularity and usage of cloud computing and the increasing awareness of the people across the globe towards the use of eco-friendly resources has forced the researchers to devise concepts towards an eco-friendly energy efficient flavor of cloud computing called green cloud computing. According to the previous works green cloud computing facilitates the reduction of power consumption and CO₂ emission along with the reutilization of energy in an efficient way.

Cloud uses thousands of data-centers in order to process the user queries and to run these data-centers bulk amount of power is used for cooling and other processes. Every year this power consumption is gradually increasing and green cloud computing endeavors to reduce the same thus playing a helpful role to curb these issues. There are various techniques and algorithms used to minimize this expenditure. But for the future energy management they develop an energy management System for cloud by the use of sensor management function with an optimized VM allocation tool. This system will help to reduce the energy consumption in multiple data centers and results shows that it will save 30% of energy. This system also used to reduce the energy in carbon emissions.

Existing Approach : Integrated green Cloud architecture (IGCA)

Whenever the user request for the services, it contacts with the Green Broker. The Green Broker uses these directories and chooses the green offer and energy efficiency information and allocates the services to the private cloud. And finally give the result to the users. This directory idea is beautifully used by the Hulkury et al., and Garg et al., and proposes a new architecture called as integrated green Cloud architecture (IGCA) shown in Figure 2. It smartly includes client oriented in the Cloud Middleware that verifies the cloud computing is better than the local computing with QoS and budget.

This architecture has two elements; one is the client and second is the server side. In the client side the manager and the users are present, which deals with the execution destination of the job and in the server side includes the green cloud middleware, green broker and sub servers like processing servers , storage servers etc. The directory concept is used in the green broker layer of IGCA for organizing all the information of the public cloud and provides the best green service to the user.

The green cloud middleware has two components. The manager is the main head that deals with one component and stores all the information of the middleware. The usage of the user's PC, the servers present on the private clouds all the information. The frequencies of each sever like high, medium and low. The energy usage, storage capacity and other information also exist in the component of middleware.

When the manager got request from the client. The request is dividing into jobs and distributed among the users meanwhile they also stores the information about job into the component. The carbon emission and energy used for the execution of job on the private cloud by servers, on the public cloud by using green broker or on the client's PC is calculated and show to the users. The best green offer is selected by the manager by taking into consideration the security level of the job also. When the decision is making out by the manager then this information is store in the XML file for future usage.

The second component is accessed by all the users for reading the XML file. This file stocks all the information of the execution of job. The locations of the jobs are registered in the file and according to the addresses, they will execute. If the job entry is not in the file then the job will be executed either on the PC of the client or in the private cloud. The execution of job is takes place in three places. First if the job is executed LOCALLY (on the requester side) then this information is stored in the client side so next time when the request arrives it will not get through will middleware. If the job is executed in the private cloud the location as well as the server name is fetched from the file. Or if it is in public cloud, we will take help from the green broker to know the most excellent green decision for the execution of the job. The middleware know all the information about the three places. Energy used by the workers working in the company is also calculated by the middleware for taking further decisions.

The processing speed, energy consumption, bandwidth or others factors are responsible for deciding the best location for the execution of the job. By considering all the factors the middleware will compute and judge the place from the three places. The IGCA provides the balance in the job execution and provide the security and quality of service to the clients. The manager divides the task and top quality green solution by considering all the places (public, private, local host).

In this architecture the manager plays the central coordinator work which allocates the job to the users and does all decision making. But at the same time the manager is the weakest point in this architecture as it is the central point of failure, as if the manager fails everything in the architecture collapses.

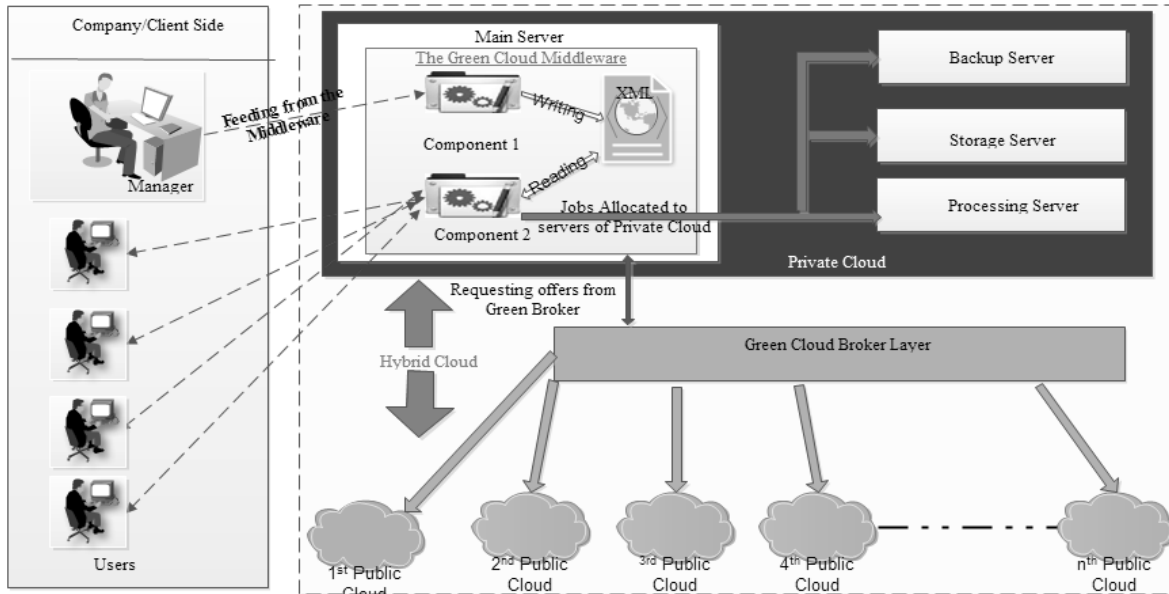


Fig. 2. Integrated green Cloud architecture (IGCA).

Green Metrics Power Measurement

Following table focus on reducing the usage of energy in data centers. But for the future energy management they develop an energy management System for cloud by the use of sensor management function with an optimized VM allocation tool. This system will help to reduce the energy consumption in multiple data centers and results shows that it will save 30% of energy. This system also used to reduce the energy in carbon emissions.

Table 1 : Green metrics power measurement

Metric	Explanation	Formula
Power usage Effectiveness (PUE)	It is the fraction of total energy consumed by the service of a data centre to the total energy consumed by IT equipments.	$PUE = \frac{\text{Total facility energy}}{\text{IT Equipment energy}}$
Carbon Usage Effectiveness (CUE)	It is a calculation of green house gases (CO ₂ , CH ₄) release in atmosphere by the data centre	$CUE = \frac{(\text{Total CO}_2\text{ emission from total energy used for service of data centre})}{\text{Total energy consumed by IT equipment}}$
Water Usage Effectiveness (WUE)	It is calculation of yearly water used by data centre like for cooling, energy Production.	$WUE = \frac{\text{Annual usage of water}}{\text{Total energy used by IT equipment}}$
Energy Reuse Factor (ERF)	It calculates the reusable energy Like hydro power, solar power etc used by data center.	$ERF = \frac{\text{used of reused energy}}{\text{Total energy used by IT equipment}}$

Energy Reuse Effectiveness (ERE)	It is a parameter for measuring the profit of reuse energy from a data centre.	$ERE = \frac{\text{Total energy - reused energy}}{\text{Total energy used IT equipment}}$
Data centre Infrastructure Efficiency (DCiE)	This factor is used to calculate The energy efficiency of a data Centre.	$DCiE = \frac{\text{Total IT equipment power}}{\text{Total facility power}} * 100\%$
Data Centre Productivity (DCP)	It calculates the amount of useful work done by data centre.	$DCP = \frac{\text{Total Useful work}}{\text{Total resource used to do this work}}$
Compute Power Efficiency (CPE)	It determines the total amount of power is truly used for computing.	$CPE = \frac{\text{IT equipment utilization energy}}{PUE}$

CONCLUSION

In this paper I addressed the problem of traditional cloud and the use of green cloud at the same time we enlighten the recent work which has been done in the field of green cloud computer for healthy and greener environment. Consequently we gave a comparative study in the field of green cloud computing. There are many possible directions of future work. While in the paper we address the problem of efficient way to fetch the results from the cloud so all the features covered in the paper can be achieved. Further we can implement the approach to automate the manager of the green cloud who makes all the decisions regarding the services.

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Co-operative Housing Society Management: A Comparative Study of the Perspective of the Common Man v/s The Provisions of the Maharashtra Co-operative Societies Act and Rules (Navi Mumbai)

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INTRODUCTION

India is a developing nation. Recently with all the technological and scientific developments we have been carving a niche in almost all the domains in the field of research. It is therefore obvious that people are migrating from one place to another in search of their jobs and livelihood. Thus migration from villages to cities has led to massive urbanisation and Mumbai being the commercial capital of India it is not an exception. Urbanisation has also led to population explosion in cities like Mumbai and so in order to share the load of this massive population explosion cities like Navi Mumbai which are developing around Mumbai are also getting overcrowded and the problem of space constraints is beginning to arise.

Another factor contributing to the growth of Navi Mumbai as a population is due to the fact of soaring real estate prices in the past eight to ten years and therefore affordability is a very important and eminent factor in the population shifting its base from Mumbai to Navi Mumbai. Another aspect that is contributing to it is that Navi Mumbai is well connected through railways and roadways with the proximities of Mumbai city. But food, shelter, clothing being the three basic necessities of life and affordability being a bigger question to answer in the days to come and to accommodate the everyday growing population the concept of Housing Societies was evolved. Housing Societies not only solve the problem of space constraints and affordability but also helped in developing community living to a greater extent. People of different communities come together to form a housing society which further helps in developing cultural diversity thereby helping people to understand diverse cultures and also reacting to a crisis situation without looking at an individual perspective and finding a solution to the problem at large. However as a human society are governed by a set of rules and regulations housing societies are formed by co-operation of people and they came to be known as “Co-operative Housing Societies” and are governed in Maharashtra as per the provisions of Maharashtra Co-operative Societies Act and Rules.

RESEARCH METHODOLOGY

During the course of study of this research paper I have based my conclusions on the basis of personal interactions with people of different strata as a professional Advocate and a faculty member of the Manager’s Training Course conducted jointly by the Navi Mumbai Co-operative Housing Society Federation as well as the Joint Registrar’s office Raigad Bhavan Navi Mumbai. During the study of this research paper I have used stratified sampling methods to classify the population among different strata based on their income and their standards of living and divided the city in three different zones viz Vashi-Airoli, Vashi-CBD, CBD-New Panvel. After segregating the city in three different zones a sample size of 100 people were selected and a survey was conducted by me on the sample population and appropriate conclusions were drawn.

LIMITATIONS OF THE STUDY

Due to time constraints and various other personal and professional commitments I had to restrict myself to the population of Navi Mumbai.

ISSUES

The first and the primary issue that arises for every Co-operative Housing Society is maintaining Records and Books of Accounts of the Society. Many Housing Societies fail to understand the different records to be maintained by the society. Primary records that are required to be maintained by Co-operative Housing Societies include Annual Balance Sheet,

books like Property Register, “I” Register, “J” Register, “O” Register, Cash Book, Bill Book, Receipt Book, Share Register, Share Certificate Register, Nomination Forms (Form No.14), Nomination Register, General Ledger, Sinking Fund Register, AGM Register, MCM Register, MCR Register, Mortgage/Lien Register. Each register has its own significance and the best way to get hold of all the registers under one roof is the Housing Federation of the concerned city and in case of Navi Mumbai it is the Navi Mumbai Co-operative Housing Society Federation situated at Vashi Navi Mumbai.

CASE-STUDY

During one of my personal interactions with a Co-operative Housing Society of Navi Mumbai which has been registered in the year 2000, I was shocked to realise that the Co-operative Housing Society was not maintaining any systematic records since the date of registration. I was invited by the members of the Co-operative Housing Society as a Consultant to guide the Society on the various records the Society required to maintain and the source to obtain the performa of maintaining such records. I had suggested the members of the Co-operative Housing Society to contact the Navi Mumbai Co-operative Housing Federation for all the necessary performa for maintaining records and had personally requested the Society to maintain the records of Audited Annual Balance Sheet since the date of registration of the Society.

The second issue that forms a major cause of concern for the members of the Co-operative Housing Societies include the formation of the Managing Committee of the Society. In order to form a Co-operative Housing Society we need to have a Chief Promoter along with other members of which sixty percent of them must necessarily agree to form a Co-operative Housing Society. Once the Society is registered with the registrar’s office (Joint Registrar in case of Navi Mumbai) it is the duty of the Chief Promoter of the registered society to form a provisional committee within three months from the date of registration of the society and in case the Chief Promoter fails to execute his/her responsibility on time it shall be the duty of the concerned registrar office registering the said society to form a provisional committee as per Rule 59 of Maharashtra Co-operative Societies Act and Rules and the term for such provisional committee shall be valid for a maximum period of one year.

However after the 97th Constitutional Amendment the provisions of Maharashtra Co-operative Societies Act and Rules were subsequently amended in the year 2014 and Elections to the Managing Committee of Co-operative Housing Societies which were being conducted by the Society members themselves earlier by conducting an AGM/SGM as the case may be are now being conducted under the supervision of State Co-operative Election Authority which is an individual authority with its main office situated in Pune and charge being segregated to various Joint Registrar office/Deputy Registrar’s office/Asst Registrar offices across various cities viz Mumbai, Navi Mumbai wherein definite procedures are to be followed by the Co-operative Housing Society and elections would be conducted by a representative of State Co-operative Election Authority which include professionals like Advocates, CA’s, CS etc who are empanelled as Election Officer’s on the panel of State Co-operative Election Authority basis their qualification and experience. Elections to the Managing Committee of Co-operative Housing Societies are being conducted as per the provisions of Section 73CB of Maharashtra Co-operative Societies Act and Rules and such elected Managing Committee shall be valid for a total term of five years from its date of formation.

CASE- STUDY-I

In one of the cases of my client the particular Housing Society was registered three years back but the Chief Promoter failed in his responsibility to form the Provisional Committee. Therefore I personally requested the Honourable Joint Registrar’s office situated at Raigad Bhavan CBD Belapur Navi Mumbai to form the Provisional Committee of the concerned Society by conducting their First Annual General Meeting as per Rule 59 of Maharashtra Co-operative Societies Act and Rules.

CASE-STUDY-II

I personally have been an Election Officer for Navi Mumbai registered under the Joint Registrar's Office at CBD Belapur Navi Mumbai and have conducted elections for several Co-operative Housing Societies as per the provisions of Section 73CB of Maharashtra Co-operative Society Act and Rules and the guidelines received from the State Co-operative Election Authority.

The third issue which forms the scope of study of this research paper is the need and importance of insurance in Co-operative Housing Societies. A Co-operative Housing Society is basically a building having people from different communities staying together. Therefore in order to save the building from natural calamities like floods and possible damages or mishaps caused due to failure of electrical gadgets, theft, burglary etc it is the responsibility of each member of the society to ensure that the Co-operative Housing Society is adequately insured by contributing towards premium payment of the insurance policies every month so that the insurance policies shall be kept in force to utilise its benefits for the Co-operative Housing Society as and when required.

The fourth issue that forms a major cause of concern for the members of the Co-operative Housing Societies is that even though the Maharashtra Co-operative Societies Act and Rules is supreme there are several other documents like Manual, Bye-Laws etc which support the Act and therefore which documents are to be followed. The simplest solution to this issue is that the Maharashtra Co-operative Societies Act is supreme and therefore all the members of the Society must compulsorily follow the provisions of the Act followed by Rules, Manuals and Bye-Laws. Bye-Laws are made by the government for members of Co-operative Housing Societies so that they can easily interpret the provisions of the Act in a simple and lucid manner. However in case any ambiguity prevails between the provisions of the Act and Bye-Laws the provisions of the Act shall prevail. The last issue concerning the scope of this research paper is that of Nomination. Nomination is the right of every member living in a Co-operative Housing Society. However nomination may or may not be disclosed by the original member. A nominee plays an important role when the original member is deceased. However nominee does not have ownership of the property though he/she can enjoy the rights of staying in the property but cannot sell the property in case of any dispute. This is because a nominee is admitted as nominee member of the Society basis his/her nomination to ensure smooth communication with the family members of the deceased member. The society has got the right to deal with Membership and not Ownership hence ownership cannot be conferred on the nominee member.

This is further supported by the provisions of Section 30 of Maharashtra Co-operative Societies Act and Rules and Bye-Law No.34 wherein according to a Bombay High Court judgement Gopal Vishnu Ghatnekar v/s Madhukar Vishnu Ghatnekar and a Supreme Court judgement Sarbatti Devi v/s Usha Rani & Others it has been clearly said that "Nominee is a Trustee Care-taker of the Property" and hence ownership rights cannot be conferred on such nominee member.

However there could be a possible situation wherein the member dies without making any nomination. In such cases as per the provisions of Bye-Law No.35 the Society Managing Committee must within six months of the death of the original deceased member inform its legal heirs by putting up a notice in writing on the Society notice board as well as advertise in two leading dailies (both should be done on the same day) thereby inviting objections from whomsoever it may concern in ascertaining the legal heir of the original deceased member. If no such objections are received within a period of one month from the date of publication of notice and public advertisement in leading dailies and if the Society Managing Committee is satisfied that no such legal heir exists it may by the process of transmission of shares transmit such shares to the next of kin as it deems fit. Besides as already said above that Society has no right to deal with Ownership and has only the right to deal with Membership such person on whom the transmission of shares have been done as per the procedures of Bye-Law No.35 may be admitted in the Society as a member only to ensure smooth communication and transactions of the Society. Hence such a member who is admitted in the Society on the basis of the procedures of Bye-Law No.35 cannot be deemed to as the owner of the property. Thus ownership to the said property still lies disputed.

However the Society Managing Committee shall inform such legal heir to obtain legal heirship certificate from competent court of law to avoid any further dispute in the future or if the property needs to be sold in case of any financial emergency that may arise in the family in the near future. A legal heirship certificate from a competent court of law would establish an ownership on the said property thereby putting an end to all speculations if any from a third person.

FINDINGS

During the scope of study of this research paper I have found out that even though Co-operative Housing Societies are on the rise in the city of Navi Mumbai a majority of these Societies either are not aware of the provisions of the Maharashtra Co-operative Societies Act and Rules or they do not want to follow the provisions of the Maharashtra Co-operative Societies Act and Rules. Therefore I feel that such Co-operative Housing Society members must be educated through various seminars and lectures at various levels beginning with the Housing Federation of the concerned city (Navi Mumbai Co-operative Housing Society Federation-Navi Mumbai) as well as various other educational and legal forums to ensure smooth functioning and peaceful living in Co-operative Housing Societies.

CONCLUSION

On the basis of my above study, on the basis of the survey conducted and various practical experiences I hereby conclude that Co-operative Housing Society Management is not a difficult task and can easily be managed by even a common man if he/she is educated about the merits and de-merits of the provisions of the Maharashtra Co-operative Societies Act Rules and Bye-Laws thereby putting an end to all the general perceptions created by people in the Society.

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Questionnaire for Members of Co-operative Housing Societies

Name:-

Age:-

Place:-

Name of CHS:-

- 1) In which year was your Co-operative Housing Society Registered?

- 2) Since how many years have you been residing in this Society?

- 3) Are you aware of Provisional Committee and its roles in a Co-operative Housing Society?

- 4) What are the documents required to be maintained in the Society Records?
-
- 5) Do you think it is necessary to Audit Annual Balance Sheet? Give reasons in support of your answer.
-
-
- 6) Do you think insurance is necessary for a Co-operative Housing Society?
-
- 7) Are you aware of the 97th Constitutional Amendment?
-
- 8) Are you aware of the procedure of Elections to the Managing Committee of Co-operative Housing Society as per the recent amendments of the MCS Act and Rules?
-
- 9) Are you aware of the Bye-Laws for Co-operative Housing Society?
-
- 10) According to you what are the advantages/disadvantages of Bye-Laws of Co-operative Housing Society?
-
-
-
-
- 11) Are you aware of the procedure of Nomination in Co-operative Housing Society?
-
- 12) “Nominee is Trustee Care-Taker of the Property.” True/False. Give Reasons in support of your answer.
-
-
-
-

Innovative Approaches to Urban Development: Through Infrastructure

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ABSTRACT

Over the next decade the number of city dwellers will soar to nearly thirty million. Virtually all of this urban growth will occur in cities of the developing world, overwhelming ecosystems and placing tremendous pressure on the capacity of local governments to provide necessary infrastructure and services. It is also noted that stage is set to experience a rapid pace of urban growth to transform India into an urban majority society sooner than expected. Urban cities in India pose many challenges for physically challenged people as well as non-physically challenged people in terms of transportation; infrastructure and facilities. Today concerns still focus on the incapacity of infrastructure systems to support growth. Issues of the equitable distribution of infrastructure systems and their impacts have complicated these issues still further. Also accident and traffic are the major concern faced by the urban people. This paper provides the innovative approaches to overcome these problems and help in urban development with respect to infrastructure. It provides the technology that will help handicap people to traverse the railway station, bus station and airport without any difficulties. Embedded sound technologies should be incorporated with the current infrastructure for helping the blind people in urban cities. The key to effective and innovative implementation lies in managing public participation for planning as well as execution. The matrix for the true innovation can best be formed by a new breed of urbanites capable of generating a vision of the future city.

Keywords: infrastructure, Urban cities, physically challenged people, handicap, Embedded technologies.

INTRODUCTION

Urban cities are growing. Our population has swelled to over 1.29 billion people. Construction and development are booming. Indian cities now face the challenges of growth and rapid change, to continue to provide the basic services to physically challenged as well as non-physically challenged and maintain the infrastructure that allowed us to thrive. To ensure that the city we have inherited and the city we are building will provide future generations with the variety and abundance of opportunities we have today. Nowhere are these challenges more acute than on the subject of transportation. Today, with a population projected to reach 9.1 million by 2025 and our transportation systems must adapt or risk strangling our cities, our region's and economic growth. We must continue to foster our urban cities economic growth by controlling the city's existing traffic, transportation and infrastructure that is friendly to physically challenged people and transit congestion while simultaneously developing our transportation networks to meet the ever growing demands of our rapidly increasing population. This paper introduces technologies that can be embedded in our existing infrastructure to aid the commutation of physically challenged as well as non-physically challenged people in urban cities of India.

URBAN INDIAN TODAY

As cities prepare to meet the challenges of the 21st century, the issue of transportation looms large. For the past hundred years, cities transportation networks have dictated our centers of population growth, guided our industries and businesses and shaped our city. Our region's railroads, subways, parkways, thruways, expressways and highways were all built to facilitate movement of people and goods into, around, and through the city.

However, until recently, underinvestment in transportation expansion and innovation, and insufficient maintenance and repair of roads, tracks, highways and bridges has meant that we have been unable to keep our transportation networks

growing to match our city’s changing demographics. Traffic and transit congestion are nothing new to urban cities. Concerns about congestion and its impacts on the city’s economic health have been ongoing. Many everyday features of the street landscape—parking meters, municipal parking lots, one-way streets, and “progressively” timed traffic signals—were introduced in attempts to reduce congestion. Today, the people in Urban India and the surrounding cities face longer commute times than much of the rest of the developed urban cities. The city’s congestion problems are exacerbated in bad weather. Road flooding slows traffic and increases the risk of accidents. Standing water on streets erodes road surfaces and can cause potholes to form. Street flooding and ponding happen when rain from storms overwhelms drainage systems, either because the volume of water is too great, or because drains are clogged by debris. The impacts of congestion, weather and delays are made worse when drivers, riders and mass transit users lack information about road conditions and mass transit services. Insufficient communications systems exacerbate service interruptions because emergency service outage and re-route information cannot be communicated to riders or employees.

Even though persons with disability form 70 million of the Indian population, their needs are seldom kept in mind while designing physical environments – whether it is buildings, roads, public transport, civic development, parks and recreational areas. Internationally cities and towns follow Universal Design approach towards creating access to places and buildings for the physically challenged people. Access Plans are available for the city to provide an easy mobility of disability people of all types including design of roads, streets pavements, crossing, signals and signs etc. These are considered as an important physical infrastructure facility for the disable people. Apart from design of vehicles, mobility – visual, walking and hearing instruments, the planning and design of spaces in the city becomes very important in terms of Physical planning. The changing social structure of urban community and the conventional approach to city planning demands a special attention towards creation of better built environment for disable people. Number of NGO s and organizations take up activities such empowerment, education, health, employment, technological supportive aids and socio-psychological aspect of the disable people. But the built environment, where they live, study, work, and recreate is created by the designers and spatial planners. However the mobility of the disabled people in cities in India towards gaining access to work and public places becomes an issue. Foot path design, access to public transport, etc. needs special attention among city governance agencies and spatial planners.

INNOVATIVE APPROACHES TO INFRASTRUCTURE ENHANCEMENT

Wheelchair-Accessible Escalators And Emergency Wheelchair Lifts

Wheelchair-Accessible Escalators and Emergency Wheelchair Lifts are two options for increasing access to public transit systems while working within limited space confines. While both have technical and operational issues that may limit their immediate applicability in cities, they are included here as technologies to watch in the future. Wheelchair-accessible escalators are found in Japan. They are manufactured by Hitachi and are in use at Kansai International Airport and railway stations. Portable Wheelchair Lifts, produced and marketed by a number of commercial vendors, are in widespread use in a variety of public and private settings throughout the developed cities. This approach will help handicap and blind people to commute railway and bus stop without difficulty.

Wheelchair Access For The Subway

This increases the wheelchair options in cities subways and can dramatically increase the accessibility of the city’s transit systems for a wide variety of people in wheelchairs or with limited mobility, passengers with strollers and those carrying heavy packages.

Audible Walk Indications

For blind and partially sighted people during crossing. At any given time, people who are blind or visually impaired can travel and cross streets using a human guide, using a long, white cane to identify and avoid obstacles, using a dog guide,

using special optical or electronic aids, or using no additional aid. Whatever aid is used, street crossing is a dangerous task. A survey of 500 blind and partially sighted individuals revealed that 91% had concerned over using shared space with non-physically challenged people. Of the 61% of respondents who had experienced a shared environment, 44% reported actively seeking alternative routes to avoid a shared space area, with a further 18% being reluctant to use the area. In terms of accident rate, 7% of those who had used a shared surface area had been involved in an accident while crossing, with a further 42% experiencing a near-miss. Worryingly, 81% felt that their independent mobility would be negatively affected by the introduction of shared space. Audible pedestrian signals are supposed to be implemented in most traffic signal projects. These audible signals are designed to assist visually impaired individuals in crossing streets.

Separate Lane for Load Carrying Vehicle And Light Motor Vehicle

Many cities have attempted to solve their congestion problems by creating dedicated right-of-ways (ROW) on existing roadways. Traffic on dedicated ROWs is limited to a single type of vehicle (e.g. buses, trucks etc.) in order to increase speed and reliability. Designated ROWs reduce travel times and increase the reliability of scheduled services like buses or deliveries. Dedicated ROWs are typically associated with buses but are also used for bicycles (usually for safety reasons). Constructing new roads is rarely an option in cities, the creation of dedicated lanes require planners and city officials to make decisions about the allocation of space on the roadway. In particular planners must weigh the public benefits gained from increased transit flow or faster goods movement against the cost of reducing space for personal cars.

INFORMATION TECHNOLOGIES USED IN URBAN DEVELOPMENT

Accessible Pedestrian Signals (APS)

The new kinds of APS are usually called pushbutton-integrated APS. They are a part of the pushbutton and are supposed to be installed near the crosswalk they signal. There are several important features that you should be aware of: pushbutton locator tones, audible and vibrotactile walk indications, tactile arrows, and automatic volume adjustment. It is important to recognize that the APS information supplements -- but does not replace -- traffic cues. APS provide information only about the status of the signal, so the APS Walk sound tells you that the Walk signal is on, NOT that it is safe to cross. Cars can still be turning across the crosswalk, or running a red light. The APS Walk signal sound can be compared to the "on your mark" instruction at the beginning of a race. It means that the signal has changed, but it is still important to "get set" (check the traffic). Then, after that, if all sounds right, you can "GO" (begin to cross).

Emergency Wheelchair Lifts

Portable wheelchair lifts offer emergency access options for subway stations. Super-Trac, manufactured by Garaventa Lift, is one example. Super-Trac is self-propelled stair climber with a platform large enough to accommodate most manual and electric wheelchairs. Its dual electric motors allow it to carry up to 440 pounds and it can climb up to 30 flights of stairs before needing to be recharged. Smaller auxiliary wheels allow the Super-Trac to roll easily on stair landings which makes the system feasible in locations with multiple landings and flights of stairs. Wheelchairs are secured on the Super-Trac by means of four adjustable straps and a seatbelt. Like all other portable lifts, Super-Trac requires a standing aide to operate the manual controls. However, unlike many other portable lifts on the market, the Super-Trac system does not require the standing aide to do any lifting. Super-Trac can bring wheelchairs upstairs at a rate of about 21 feet per minute and down stairs at a rate of around 35 feet per minute. Motion both up and down is regulated by an electromagnetic fail-safe brake.

Embedded engineering for smart cities

As cities grow and the world barrels toward urbanization, it's important to stay smart about city planning. Embedded engineering plays a key role by allowing for modernization of power systems through self-healing designs, automation,

remote monitoring and control, and the establishment of micro grids. Once these things are accomplished within a smart grid, other municipal systems benefit as well. So, embedded engineering and, for that matter, a wide span of Internet of Things (IoT) technologies are essential for smart grids to deliver resilient energy while improving efficiencies and enabling coordination between city infrastructure and operators. Energy, water, transportation, public health and safety, and other aspects of a smart city will rely to a great extent on embedded and IoT technologies to manage and support the smooth operation of critical infrastructure.

CONCLUSION

Today urban cities face the challenges of growth: housing supply and affordability, health, environmental protection and economic development. Our ability to meet the demands of our growing population depends in many ways on the state and future of our transportation systems, for our transportation infrastructure links our city. Transportation brings people, services and goods into our neighborhoods, connects workers to jobs and residences, offers residents and visitors alike access to stores, restaurants, theatres, cultural institutions, parks and public amenities. Both current and future Infrastructural development has the potential to enhance the safety and mobility of blind and partially sighted pedestrians, physically challenged people and non-physically challenged people. With the help of innovative approaches in urban development physically challenged people can live, learn, study and develop themselves like non-physically challenged people. Smart cities plan is on the top priority of Indian government but the planning and design of spaces in the city keeping physically challenged people in mind becomes very important issue. Foot path designing, Wheelchair-Accessible Escalators, Emergency Wheelchair Lifts, Wheelchair Access for the Subway. Audible Walk Indications, and friendly public transport access, etc. needs special attention among city governance agencies and spatial planners while developing smart cities in India.

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Smart Parking System using Image Processing Technology

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ABSTRACT

Due to increase in the rate of Automobiles in Mega Cities the key causes like city traffic ,congestion has become a major issues so we need to have some smart parking techniques .In this paper we authors a introduces an smart parking guidance and information system(SPGIS) with ARM9 Microcontroller using GPRS /GSM Module. In this paper we are using image Processing techniques to identify the car only if any other object is detected it won't considered that parking slot is booked. In this paper we are implementing the feature detection of car and updated the current status of parking slot to be uploaded on web. In this way the car parking system will be more easier and flexible for the person to view and book the slot from anywhere.Time is saved for the customer and other problem are solved.

Keywords –Image Processing, Embedded Linux, ARM9, GSM,Webcam, S3C2440 processor; bootloader; Linux 2.6.32; CMOS camera driver; V4L2; SCCB

INTRODUCTION

Due to increase in the rate of Automobiles they is a need of smart parking techniques and In Urban city the key causes like Congestion, city traffic ,time limit for parking is becoming a major problem due to increase in numbers of vehicles Unfortunately ,there are only a few of the parking slots have applied the PGIS whose way of transmitting information is usually based on RS-485 bus and IR sensors ..However ,it is not so convenient for the current parking slots to be equipped with the cabled-based PGIS, because the reconstruction encumbers the operation of the parking slots . The main objective of this paper is to design an intelligent parking guidance and information system with ARM9 microcontroller which can run on an embedded system. To design this parking guidance system we are using ARM9 micro controller, web cam and GSM module.In which we are using image processing feature detecting techniques and classification Algorithm. In which the information will be fetched from webcam and transmitted to ARM9 Microcontroller which checks with the saved images and passing the information to Touch screen LCD and message is displayed on user or customer smart phones .so user is much more flexible to book the slot from anywhere instead of wasting time unnecessary. This PGIS System is an effective way to improve current parking situation.

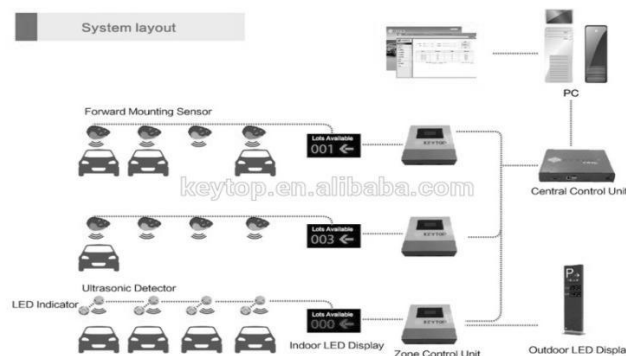


Fig1 : Running System (currently)

PROPOSED SYSTEM

The main objective is to design a parking guidance and information system using S3C2440 which is a 32-bit microcontroller. It has features of image/video processing by using various features and classification algorithms have been proposed for detecting only car at every one hour interval particular parking slot. By using image processing technique it identifies car only or if any object other than car in parking slot it doesn't consider that slot is booked. To design this car parking system we are using ARM9 microcontroller, webcam and GSM module. The webcam finds the free slots for parking. It can capture slots at a time interval and display it on Touch screen LCD. If any car is present in the slot it will display red color box on LCD. If the slot is free it will display empty slot number on the LCD. If any person wants to book the slot, send slot number through SMS. The controller receives the slot number information through GSM. After receiving the information the controller keeps the slot free for minutes time, display black color box on LCD and also sends message as slot booked to that particular person.

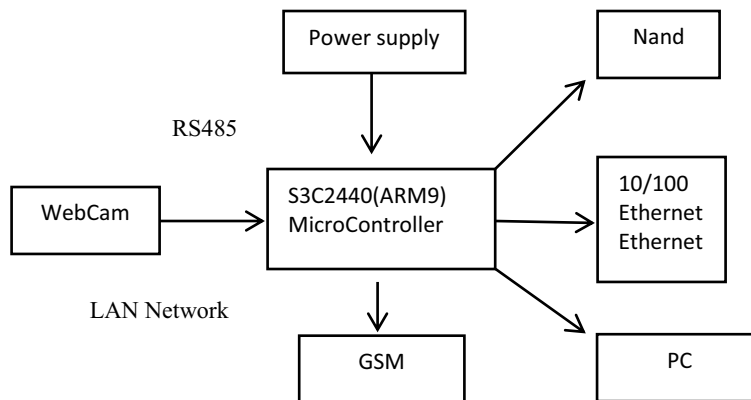


Fig 2 : Block Diagram

Literature Survey

- 1) We would like to thank Author A. RajeshwarRao through these we came up with a new modules which we have used in our paper and we got many new concepts to be implemented in our paper
- 2) We would like to thank Author Mr. S. M. Gramopadhye through him we got a more flexible idea how to use image Processing in embedded Linux.

Hardware and Software Requirements

Hardware and Software Components used:

Hardware

ARM9 S3C2440

The ARM 9 Development Board from RhydoLabz can be used to evaluate and demonstrate the capabilities of Samsung S3C2440A ARM9 processors. This board comes with 3.5" TFT LCD-Touch screen, 400 MHz Clock Frequency, 64 MB of SDRAM, 64 / 128 MB of NAND Flash and 2 MB of NOR Flash. The board measures 10 cm x 10 cm, ideal for learning about ARM systems or integrating into numerous products and porting Windows CE or Embedded Linux. The translation of Linux operating system in CMOS device driver based on S3C2440i.e(mini440) development Board.

The SCCB bus, camera interface and V4L2 structure are included in development of CMOS camera device driver for the mini 2440 board. The system uses the CMOS camera to capture video under the embedded Linux system platform which

based on S3C2440 micro controls chip. Transport the data to the development board and display the captured video/image by using Touch LCD display.



Fig 3 : ARM9 S3C2440[1]

BOARD FEATURES

CPU - Samsung S3C2440A 400MHz (Max frequency- 533Mhz)

➤ **SDRAM**

64 MB SDRAM
32-bit Data Bus width
100 MHz Clock

➤ **FLASH**

128 MB Nand Flash
2 MB Nor Flash, BIOS installed

➤ **LCD**

4 wire resistive Touch Screen Interface
Company : NEC
Panel Type : TFT
Resolution : 320 x 240 RGB
Reflectivity : 7
Illumination : 90 cd/m
Contrast 10:1
Display Mode : 80:1 Transmissive
Shape Size : 64.0 (H) 85.0 (V) 4.13 (D) (mm)
Active Area : 53.64 (H) 71.52 (V) (mm)
Dot Pitch : 74.5 x 223.5mm
Backlight Type : LED

INTERFACE AND RESOURCE

➤ 10/100M Ethernet RJ-45(DM9000)

- 3 Serial Ports (One RS232 with CTS and RTS)
- One USB Host
- One USB Slave Type B
- One SD Card Interface
- One Stereo audio output Interface, One MIC Interface
- One 10-Pin JTAG Interface
- Four USER LED's
- Six USER buttons
- One PWM Controlled Buzzer
- One POT can be used for A/D converter adjust
- One AT24C08 for I2C test
- One 20-Pin Camera Interface
- One Battery for RTC
- One Power In (5V), with switch and lamp

OSCILLATOR FREQUENCY

12 MHz

➤ **RTC**

Internal and battery backed

➤ **EXPANSION INTERFACE**

One 34-Pin 2mm GPIO Interface

One 40-Pin 2mm System Bus Interface

➤ **DIMENSIONS**

100 x 100 (mm)

➤ **OS SUPPORT**

Linux 2.6.13

Linux 2.6.29

Windows CE.Net 5.0

PACKAGE CONTENTS

x S3C2440 board (Preload with Linux)

1 x Serial cable

1 x Net cable

1 x USB cable

1 x 5V power adapter

1 x Parallel port wiggler JTAG emulator (for H-JTAG)

1 x DVD-ROM with product reference

1 x TFT LCD: 3.5", 240x320, with touch panel

DVD-ROM CONTENTS

H-JTAG Debugger

Windows Flash Programmer SJF2440
Linux Nand Flash Programmer Jflash-2440 (source code included)
Serial tool CRT, dnw
Bitmap to C Language transfer tool
USB Driver (WindowXP/2000)
Vivi source code (Linux Boot loader)
LED test program (ADS 1.20 project)
2440 test program (ADS 1.20 project) include
Key test, RTC test, ADC test, IIS Audio play (.wav), IIS Audio record,
Touch screen test, I2C test, Samsung 3.5"LCD, 640 x 480 TFT test
Windows CE 5.0 BSP and sample project files. Pre-compiled WinCE 5.0 image for evaluation
Linux tool and kernel source code
- ARM-linux-gcc-4.3.2 with EABI
- yaffs2 file system image maker -mkyaffs2 image
- Linux-2.6.29 for S3C2440 kernel source code (include DM9000, LCD driver ,
Audio, Touch screen, YAFFS Source code, SD Card, RTC, Expand serial
driver, USB Camera, USB Mouse and Keyboard, U-Disk)
Pre-compiled Linux image for evaluation
Qtopia 2.2.0 source codes, web browser source codes uCos2 source code and binary images
Schematics (Protel99SE/PDF format)
User Manual

Software Used:

Embedded Linux:

Using Linux Operating system in Embedded system has made secure ,reliable and Portable.It used because of low price , small size kernel, stable performance, versality at the same time it has the system feature of multi-tasking and multiprocess. The camera uses mainly CCD (Charge-Coupled Device) and CMOS (Complementary Metal Oxide Semiconductor) image sensors. The signal captured by the CCD requires additional circuitry to convert the analog lightdata into a readable digital signal. In a CMOS sensor, each pixel has neighbouring transistors which locally perform the analog to digital conversion. The advantages of CMOS sensor over CCD are lower complexity on the sensor leading to faster image capture and reduced power consumption. A CMOS sensor is used for multi-megapixel cameras due to its faster read out.The system uses the CMOS camera to capture video under the embedded Linux system platform which based onS3C2440 micro controls chip. Transport the data to the development board and display the captured video by using LCD display. Hardware Design of S3C2440 (ARM9)

HARDWARE DESIGN

The core of system is the high performance 16/32RISC (Reduced Instruction Set Computer) S3C2440embedded microprocessor based on ARM920T kernel. The camera which is used in this system is Omni Vision's OV9650CMOS camera. The block diagram of image acquisition system is shown as –

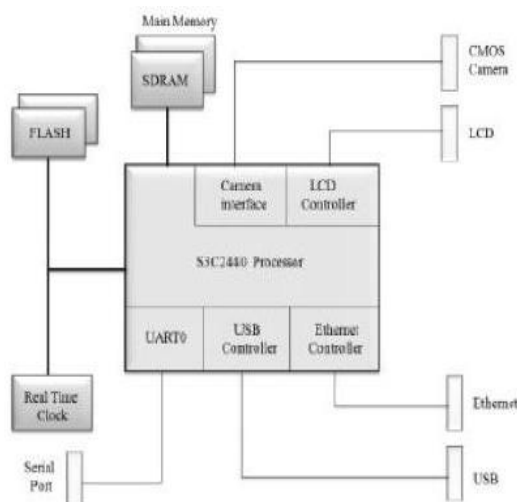


Fig 4 : Image Acquisition system

The S3C2440 provides versatility of platform design by supporting 300,400 and 533MHz core speed. 64MB. This processor has USB, SDRAM and LCD controller, camera interface. The advantage of S3C2440 processor is high performance and low power consumption. The OV9650 is a low voltage CMOS camera sensor having 1.3million pixel image capture capacity. It provides full frame, sub sampler or windowed 8bit/10bit images in a wide range of formats, controlled through the Serial Camera Control Bus (SCCB)[3]. The OV9650 is connected to the S3C2440 through the camera interface. The S3C2440 processor has no support to the SCCB. The SIO_C and SIO_D pins of OV9650 connected to the IIC_SCL and IIC_SDA pins of S3C2440 processor for clock as well as data signal. The connection between processor and image sensor is shown in-



Fig5: The interconnection of S3C2440 and OV9650

SYSTEM SOFTWARE DESIGN

The S3C2440 processor communicates with OV9650 camera through camera interface. The camera interface is having two scalars. One is preview scalar which generates smaller image like PIP(Picture In Picture) and codec scalar is dedicated to generate codec useful image like plane type YCbCr 4:2:0 or 4:2:2 which followed by two DMA paths. The preview path is used to store the RGB image data into memory for PIP.

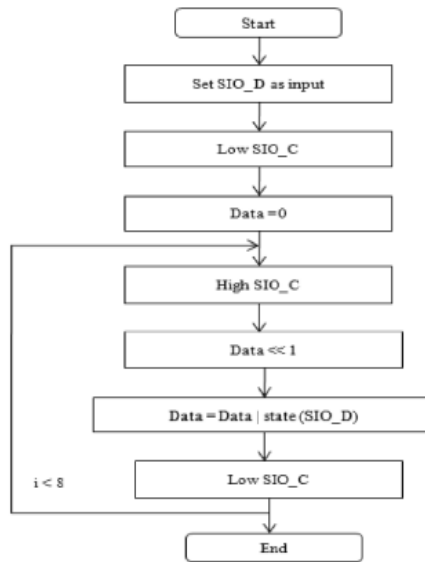


Fig 6: The flow of reading 8 bit data

Webcam : Webcam is used to capture image(object) and its easy to upload on webpages or across internet. The USB cable supplies power to the webcam from the computer and takes the digital information captured by the webcam's image sensor back to the computer from where it travels on to the Internet



Fig7:Webcam[3]

Working : The software captures an image from the cam every five minutes and copies it onto your website using a simple process called FTP (file-transfer protocol). Every time a new image is uploaded, it replaces the previous one on our website. When people look at our site, they see the latest image that your cam has uploaded. Most people design their cam pages so they "refresh" (automatically reload) every few minutes. That ensures they're always showing the latest images.

GSM Module:

GSM (Global System for Mobile communications) is an open, digital cellular technology used for transmitting mobile voice and data services. GSM (Global System for Mobile communication) is a digital mobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of Time Division Multiple Access (TDMA) and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA). It operates at either

the 900 MHz or 1,800 MHz frequency band. It supports voice calls and data transfer speeds of up to 9.6 kbit/s, together with the transmission of SMS (Short Message Service). SIM300 is a Tri-band GSM/GPRS engine that works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS1900 MHz. SIM300 provides GPRS multi-slot class 10 capability and support the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4. SIM300 can fit almost all the space requirement in your application, such as Smart phone, PDA phone and other mobile device. SIM300 provide RF antenna interface with two alternatives: antenna connector and antenna pad. The antenna connector is MURATA MM9329-2700. And customer's antenna can be soldered to the antenna pad. The SIM300 is designed with power saving technique, the current consumption to as low as 2.5mA in SLEEP mode. The SIM300 is integrated with the TCP/IP protocol , Extended TCP/IP AT commands are developed for customers to use the TCP/IP protocol easily, which is very useful for those data transfer applications. Both GPS and GSM are interfaced to the control unit using serial communication protocol .

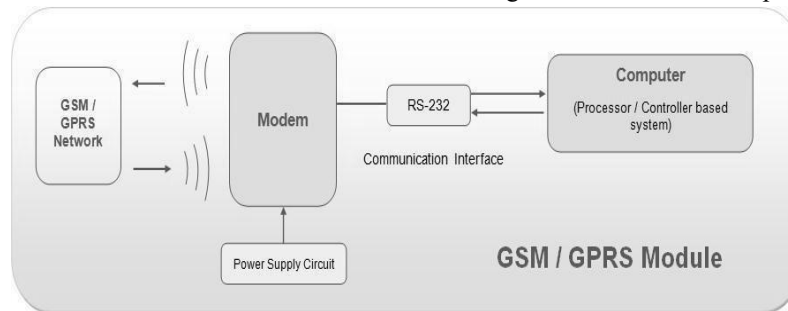


Fig 8 : GSM MODULE

Sim300

SIM300 provides a serial LCD display interface that supports serial communication with LCD device and provide the the Antenna Interface



Fig9:SIM300 with Antenna Connector used:

Power Supply

The board needs an external 5V power supply. The other required voltages are generated on the board: 3.3V, 1.8V and 1.25V

Research Methodology

Algorithm:

Step 1: Initially Power supply is switched ON in the ARM9Microcontroller & as well as GSM .

In this project four stages are there :

- a) Sample of Data is stored in Database
- b) Car capture
- c) Car Detection
- d) If Empty Slot

Step2: Sample of Data is Stored in Database

Step3: Car Detection (Morning Afternoon, Night)

1. Retrieve the image from the camera and compare with stored data after every 1 hour interval
2. Then detect cars in that image.

3. After it is detected the position of cars.
4. Store generalized eigen values in XML file.
5. If the position found free then drawn the rectangular on appropriate slot.
6. Send the image to webserver through ftp
7. If not found then go to car positon.
8. Send the image to web server through ftp.

Step 4: If empty Slot:

1. The position is found, read GSM modem will buffer.
2. If the message is found then get the message data & Phone Number.
3. If the message is not found then data will go to the GSM modem .
4. Based upon the data block the slot,if the slot is empty.
5. Acknowledge the slot number to the phone number or user

Step 5. Time Factor:After getting the details the information will be hold for 35 minutes and it goes again to step 1

Step6. If Nothing is Detected so its stop and start the process after a seconds

Result and Analysis.

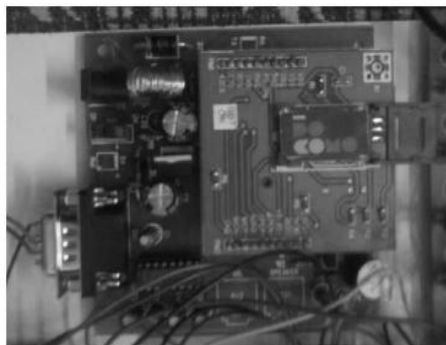
We have works with some sample of data and tested it which has given a good results for efficient way of parking a car in complex cities

Fig 10 : Some sample of images are as follows

Step1: Connect all the modules as per the requirements



Step2: Insert the SIM in the GSM Module



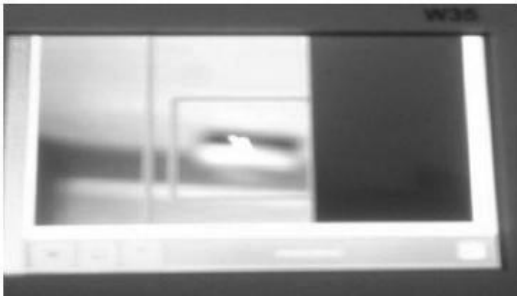
Step3Initially Power supply is switched ON to the ARM9,GSM.Using web cam retrieve the car images and ARM9



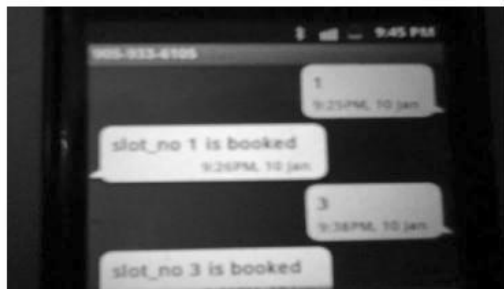
Step4:If there is empty slot,then send the message to gsm modem.



Step5: Read the GSM modem buffer ,if message is found get the message data and phone number.based upon the data the slot will be blocked.



Step6: Acknowledge the slot number to the phone number



Step7: Send the image to the web server through ftp.



Limitations and Future Scope

1. Our paper is based on only PGIS i.e Parking Guidance and Information System in future we are replacing this with GPGIS(Global Parking Guidance and Information System).
2. Time Factor and Features has small Limitation which we are going to overcome through Object Detection Sensors

CONCLUSION

We have been successful implemented the Concepts with a good Results and this system is going to bring more flexible parking techniques for a mega cities where parking has become a big challenge. parking guidance system we are using ARM9 microcontroller, webcam and GSM module., highly advanced ARM9 microcontroller and with the help of growing technology the project has been successfully implemented.

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Digital India: Unleashing Prosperity

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ABSTRACT

Digital India – the dream project of the government and a blessing for the citizens could help in connecting the dots of various projects, past and present, to bring India to a global platform. It will help in moving with the universal trends of digital innovation and create positive impact in the lives of people - rural and urban, young and old. As per the World Bank report, a 10% increase in mobile and broadband penetration increases the per capita GDP by 0.81% and 1.38% respectively in the developing countries. If Digital India project could help increasing the broadband penetration across India by 50% and mobile penetration in rural India by 30% in next 2 years, the corresponding increase in GDP could be 9% .This is just the impact of 2 out of 9 pillars of Digital India project. Adding to this growth and prosperity would be the impact of other pillars that would empower the citizens with gamut of services at their fingertips. The benefits of the Digital India initiative are beyond imagination and the opportunities to innovate in the digital world for all stakeholders are limited only by their own imagination. Digital India initiative could help in achieving the objectives of Education for all, Information for all, Healthcare for all, Broadband for all if the government focusses on strong leadership structure, enables private participation, creates detailed implementation plan with common ‘citizen centric’ framework and robust security / privacy measures, and ensures integrated efforts from all departments.

INTRODUCTION

A good governing body requires a good communication platform to communicate with the stakeholders efficiently. Communicating with the citizens has been a big challenge for the government of India with widespread geography, massive population, and enormous linguistic & cultural diversity. The way of communication has changed a lot from postal and telegraph era to print and broadcasting media to the era of Digital Communication. The efficient way to communicate with the citizens of the world’s largest democracy with a population of 1.2 billion is only possible by connecting with everyone on a digital platform. Though India is considered as the IT powerhouse of the world, there is a huge digital divide. The Digital India initiative is a dream project of the Government to transform India into a digitally empowered society and knowledge economy.

It is centred on three vision areas:

- **Digital Infrastructure as a Utility to Every Citizen:** The government is planning to provide high-speed internet connectivity to 250,000 Gram Panchayats, which will be a core utility for digital inclusion. The citizens will be provided with a digital identity which will be unique, lifelong, online, and valid. There will be easy access to Common Service Centres and a shareable private space for every citizen on a public cloud.
- **Governance and Services on Demand:** Under this vision, all the government departments will be seamlessly integrated with high-speed optical fibre, which will improve inter-operability of these organizations and will result in real-time service delivery from online or mobile platform. Apart from this, the government is planning to make all citizen entitlements portable through cloud for easy and country-wide access and to digitally transform the services for improving ease of doing business in India. The government also plans to use the power of Geographic Information Systems (GIS) for decision support systems & development.
- **Digital Empowerment of Citizens:** This vision is to empower citizens through digital literacy and universal access to digital resources. E.g. all documents/certificates to be available on cloud and in Indian languages. Government also wants to provide collaborative digital platforms for participatory governance. E.g. MyGov website for crowd sourcing ideas.

These three vision areas further encompass nine themes or ‘pillars’ of Digital India. Some of these are discussed:

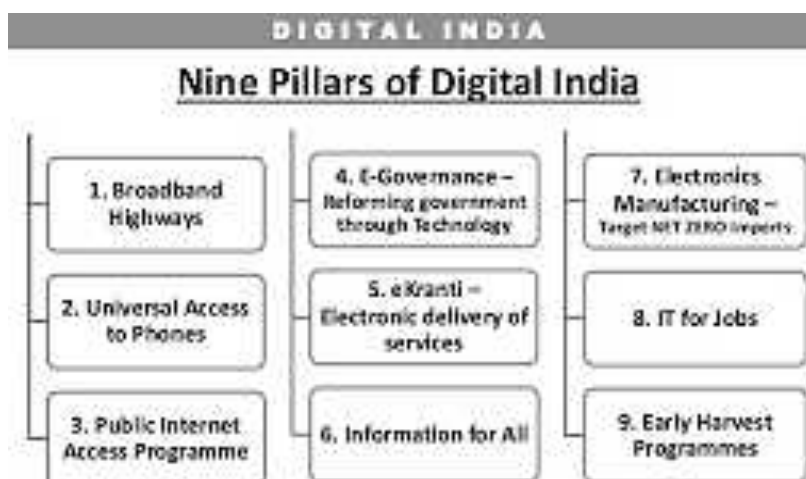


Fig. 1: 9 pillars of digital in project

Pillars of Digital India The Digital India initiative covers many important projects like National e-Governance Plan, National Knowledge Network, National Optical Fibre Network, digital cities, etc. which will help in digital inclusion in the country and empower the citizens to eradicate the digital divide. **Broadband highways** The government with the vision of “Digital India” has allocated `5 billion to build high speed broadband highways connecting all the villages, government departments, universities, R&D institutes, etc. The digital development sees broadband as a key driver in addressing the challenges in the Millennium Development Goals primarily through fibre networks. The National Optical Fibre Network (NOFN) project, funded by the Universal Service Obligation Fund, has set the stage for providing broadband access to the country’s 250,000 gram Panchayats by 2016. ¹ This `200 billion project involves laying 600,000 km of fibre across the country. BSNL, RAILTEL (telecom arm of the Indian Railways), and Power Grid Corporation are the three PSUs responsible for this mammoth task. The participation of private players is very important for faster rollout of optic fibre networks across the length and breadth of a vast country like India. The competition from private players will not only bring efficiency into the processes but also helps in bringing down the price of high speed digital services. Moreover, the innovation in marketing, operations and business process proven by private players can help in faster and greater adoption of high bandwidth services in the remote and rural areas. **e-Governance** The National e-Governance Plan (NeGP) has been formulated by the Department of Electronics and Information Technology (DeitY) and Department of Administrative Reforms and Public Grievances (DARPG). The e-governance project works in both centralized and decentralized way. The centralized way focuses on inter-operability of various e-governance applications and ensures optimal utilization of ICT infrastructure and resources while allowing for a decentralized implementation model. There are many different initiatives from central government as well as state-governments under the NeGP project to ensure government services are available to citizens electronically.

- Pensioners’ portal, a web-based portal called Pensioner's Portal has been created for the redressal of pensioners’ grievances. It also provides information to pensioners on retirement and pension-related issues.
- The Digital Chip Maker Intel along with the government unveiled a digital skills training application in 5 Indian languages, 2 which includes modules on digital literacy, financial inclusion, healthcare and cleanliness. Intel will work with the Indian government to create digital literates across 1000 Panchayats, a move that will impact five million citizens by the end of 2015.

Table 1: e-Governance State Level Initiatives

Project	State	Details
Mobile One	Karnataka	Provides access to 4500 services in the public and private domain. It helps in income tax return, railway inquiry, ticket booking, etc.
e-FIR system	Odisha	Crime and Criminal Tracking Network and System (CCTNS) were launched to make the registration of FIRs and tracking of criminals digital
e-Cabinet	Andhra Pradesh	By using e-Cabinet app the state ministers accessed all the data and the agenda for the meeting digitally
E-Registration	Maharashtra	Facility to digitally registering properties. The facility is applicable in housing societies with over 200 houses, where members can register their property ‘online’ from the office of the builder.
PRISMS	Maharashtra	e-Governance for jails in India. Prison management e-governance initiative. This initiative began in the Yerwada jail in November to store data of every prisoner from his date of entry into the prison to his date of release
RTA's SMS service	Telangana	The Road Transport Authority (RTA) began a new SMS service for both, its field staff and citizens, for easier and faster access to data.
Digital Locker	Maharashtra	In an Aadhar-linked facility, it is an online repository for important documents like certificates, degrees, etc. frequently required for job application

E-Kranti:

The E-Kranti project provides electronic delivery of services to the citizens. The government has allocated `5 billion for the e-Kranti project which includes many sub-level projects discussed below:

Table 2: e-Kranti Sub-level Projects

Sub-projects	Initiatives	Organizations
e-Health	- Online medical consultation and medicine supply - Online availability of medical records and patient information on a pan-India basis	- OncoNET, Kerala and Tamil Nadu - Medical Literature Analysis and Retrieval System (MEDLARS)
e-Education	- Broadband Connected Schools - Free Wi-Fi in all schools - Digital Literacy program - Massive Online Open Courses	- Sakshat Portal (Ministry of HRD and IGNOU) - Aakash Tablet - National Repository of Open Education Resources (NROER) - National Electronic Library (NEL)
Technology for Farmers	- Real time price information - Online ordering of inputs - Online cash, loan, relief payment with mobile banking	- Farmer's Portal - mKissan Portal - Kisaan call centre
Technology for Planning	- GIS based decision making - National GIS Mission Mode Project	Planning Atlas of states
Technology for Security	- Mobile Emergency Services - National Cyber Security Co-ordination Centre	- Mobile App ‘Himmat’ and ‘Abhayam’ for women safety - iClik (Instant Complaint login Internet Kiosk) centres
Technology for Financial	- Mobile Banking - Micro-ATM program	- Kiosk Banking – Public /Private banks - Mobile Banking – Telco's

Inclusion	• CSCs/ Post Offices	• Payment banks • Aadhar based Micro-ATM payments
Technology for Justice	• e-Courts, e-Police, e-Jails, e-Prosecution	• e-Court mission mode projects at state and central level • e-Cabinet, Andhra Pradesh • e-FIR system, Odisha • PRISMS, Maharashtra

The Digital India project provides a huge opportunity to use the latest technology to redefine the paradigms of service delivery. A digitally connected India can help in improving social and economic condition of people living in rural areas through development of non-agricultural economic activities apart from providing access to education, health and financial services. However, it is important to note that ICT alone cannot directly lead to overall development of the nation. The overall growth and development can be realized through supporting and enhancing elements such as literacy, basic infrastructure, overall business environment, regulatory environment, etc.

Economic Impact

According to analysts, the Digital India plan could boost GDP up to \$1 trillion by 2025. It can play a key role in macro-economic factors such as GDP growth, employment generation, labour productivity, growth in number of businesses and revenue leakages for the Government. As per the World Bank report, a 10% increase in mobile and broadband penetration increases the per capita GDP by 0.81% and 1.38% respectively in the developing countries. India is the 2nd largest telecom market in the world with 915 million wireless subscribers and world's 3rd largest Internet market⁸ with almost 259 million broadband users. There is still a huge economic opportunity in India as the tele-density in rural India is only 45 where more than 65% of the population lives. Future growth of telecommunication industry in terms of number of subscribers is expected to come from rural areas as urban areas are saturated with a tele-density of more than 160%. The digital platform can enable more creative and service-oriented business models that create employment opportunities. The Digital India project itself will create employment opportunities for 17 million people directly or indirectly which will help in fighting against unemployment problems in India. Government has planned to give IT training to 100 million students in smaller towns and villages as employment opportunity in IT sector is very high in India.

Social Impact

Social sectors such as education, healthcare, and banking are unable to reach out to the citizens due to obstructions and limitations such as middleman, illiteracy, ignorance, poverty, lack of funds, information and investments. These challenges have led to an imbalanced growth in the rural and urban areas with marked differences in the economic and social status of the people in these areas. Modern ICT makes it easier for people to obtain access to services and resources. The penetration of mobile devices may be highly useful as a complementary channel to public service delivery apart from creation of entirely new services which may have an enormous impact on the quality of life of the users and lead to social modernization. Mr. Himanshu Kapania, Managing Director, Idea Cellular "It is a myth that only metro and urban citizens use & need digital services. Huge traction for digital services is already being witnessed beyond cities. For, Idea Cellular, the usage of data services is growing exponentially in non-urban centres. Digital services constraints are on the supply side—not on the demand side".

The poor literacy rate in India is due to unavailability of physical infrastructure in rural and remote areas. This is where m-Education services can play an important role by reaching remote masses. According to estimates, the digital literacy in India is just 6.5%¹² and the internet penetration is 20.83 out of 100 populations. The digital India project will be helpful in providing real-time education and partly address the challenge of lack of teachers in education system through smart and virtual classrooms. Education to farmers, fisher men can be provided through mobile devices. The high speed network can provide the adequate infrastructure for online education platforms like massive open online courses (MOOCs). Mobile and

internet banking can improve the financial inclusion in the country and can create win-win situation for all parties in the value-chain by creating an interoperable ecosystem and revenue sharing business models. Telecom operators get additional revenue streams while the banks can reach new customer groups incurring lowest possible costs. Factors such as a burgeoning population, poor doctor patient ratio (1:870), high infant mortality rate, increasing life expectancy, fewer quality physicians and a majority of the population living in remote villages, support and justify the need for tele medicine in the country. M-health can promote innovation and enhance the reach of healthcare services. Digital platforms can help farmers in know-how (crop choice, seed variety), context (weather, plant protection, cultivation best practices) and market information (market prices, market demand, logistics).

Environmental Impact

The major changes in the technology space have not only brought changes to the economic system but are also contributing to the environmental changes. The next generation technologies are helping in lowering the carbon footprint by reducing fuel consumption, waste management, greener workplaces and thus leading to a greener ecosystem. The ICT sector helps in efficient management and usage of scarce and non-renewable resources. Telepresence in work environment as well as home helps in creating a virtual environment for face to face conversations and minimizes the need for travel. Similarly, the flexible work environment where work from home and bring-your-own-device (BYOD) are permitted, can significantly reduce their carbon footprint and operational costs by not only reducing the electronic waste in the form of laptops, desktops, etc. but also by reducing the need of large fixed office space for businesses. A program in the UK found that an employee can save 1,175 driving miles each year, amounting to a 364.5kg reduction in carbon emissions when he works from home 1.5 days per week. M2M enabled devices and technologies like smart meter, smart grid, smart logistics and smart building help in many different ways by efficient energy management. Cloud computing technology minimizes carbon emissions by improving mobility and flexibility. The energy consumption can be decreased from 201.8 terawatt hour (TWh) in 2010 to 139.8 TWh in 2020 by higher adoption of cloud data centres causing a 28% reduction in carbon footprint from 2010 levels. Digital media for paper intensive services such as governance, ticketing, newspaper, etc. could not only result in efficient delivery of services but at the same time would lower the use of paper, thus preventing deforestation.

The Impending Challenges

The Digital India initiative is an ambitious project of the Government and is, by far, the biggest ever conceived. There are many challenges discussed below that could come in the way of successful completion of the project.

High cost of implementation: Approximate cost of implementing this mammoth project is Rs.1.13 trillion (including on-going and new schemes).

Time overrun: The NOFN project which is the back bone of the Digital India project has been delayed several times and is suffering two years' time overrun. The delayed project may lead to delay in other dependent projects and meeting the budget limit will be difficult.

Lack of coordination among departments: It is an umbrella project involving participation of several departments and demanding commitment & effort. Hence, strong leadership and timely support of all the involved entities will play a critical role.

Poor private participation: To achieve timely completion of the projects extensive private participation is necessary. The private participation in the government projects in India is poor because of long and complex regulatory processes.

Uniform and fast adoption of Internet: About 4 billion people in the world do not have Internet connection and India comprises of 25% of them. India is the 4th largest smartphone market with almost 111 million smartphone users. Average monthly cost of 500MB mobile data plan on prepaid is \$3.4 in India against \$35.8 in Brazil, \$15.5 in China and \$17 in Russia. Despite lowest data tariffs in the world, adoption of internet in India is not encouraging. Faster adoption of Internet will be difficult due to illiteracy, affordability and availability of mobile devices and data tariffs, lack of local language content, lack of regionally relevant Apps. Still the use of Internet is low because of high data tariffs.

Infrastructure: Though the National Optic Fibre Network (NOFN) project is aiming to build a nationwide high speed broadband by the end of the year 2016, there are other supporting infrastructure deficits, such as lack of robust and large data centres to hold the data of entire country. In addition, the last mile connectivity and the physical infrastructure at customer premises are unaffordable by most of the rural Indians. Infrastructure fulfilment is necessary with the NOFN project.

Cyber security: Nation Crime Records Bureau (NCRB) report shows the rapid increase in cybercrime in India by 50% from 2012 to 2013. There have been several incidences of cybercrime on corporate and individual level in the past few years. Putting the data of 1.2 billion people on the cloud could be risky and could threaten the security of individuals and the nation. Hence, the Digital India project demands very strong network security at all levels of operation.

Global Initiatives

High Speed Optic Fibre Rollout

Japan, South Korea and the US have led the world in terms of Fibre-to-the-Home (FTTH) penetration. Comcast is the major player in the US providing high speed internet to almost 39 states with more than 145,000 miles and 125,000 optical nodes. AT&T and Verizon are leading in FTTH access networks. NTT in Japan holds most of the optical fibre networks providing Fibre-to-the-Cabinet (FTTC) and FTTH services. The National Broadband Network of Australia is using Public Private Partnership to provide 1Gbps connection to 93% of Australians. New Zealand Government is spending NZ\$1.35 billion on public-private partnerships with Chorus to rollout FTTH connections of at least 100 Mbps to all towns and cities and has awarded \$300 million contract to Vodafone and Chorus to bring broadband of at least 5Mbps to 86% of rural customers by 2016.

e-Governance

Though the e-Governance project in India was initiated back in 2006 the success rate is not much impressive in comparison to other developed and developing countries. With proper strategy, timeline, digital infrastructure and private participation, Korea, Australia and Singapore top UN E-Governance ranking of 2014. The Korean e-Governance initiative started way back in 1993 to implement 11 major e-government initiatives. The Western Australia State Government launched its e-Government Strategy in 2004 with the vision of ‘a more efficient public sector that delivers integrated services and improved opportunities for community participation.’ In 2006, the Australia Federal Government initiated a new e-government strategy “Responsive government – a new service agenda,” with a vision for 2010. Similarly, the Singapore government is successful in implementing e-governance which was initiated back in 1981 under the Civil Service Computerization Programme (CSCP) with an aim to save manpower, operational efficiency improvement, better information support for decision making and certain pioneer services for the public. The Singapore e-Government Strategic Framework was centred on three critical relationships – Government to Citizens (G2C), Government to Businesses (G2B) and Government to Employees (G2E). The Japan Government developed its e-Japan Strategy in 2001 to provide a basic IT law on the Formation of an Advanced Information and Telecommunications Network Society. In 2002-03, e-Japan Strategy II was put in place emphasizing IT usage and applications development²³. Likewise, Canada is rated highest in the provision of e-Government services.

CONCLUSION

With increased penetration of mobile, they become obvious choice for attaining inclusiveness in others sectors like financial, education, healthcare to name a few. 115 million bank accounts were opened under the Jan Dhan project in less than a year, which was first step towards inclusion in financial systems for base of the pyramid. Moreover, with several industries undergoing digitization lately, local language content would help to gain adoption and to bridge the rural-urban divide. Problem of urbanization could be tackled by enabling equivalent infrastructure in rural areas or building satellite towns through 3 types of connectivity proposed by APJ Abdul Kalam namely: physical, electronic and knowledge. The digital business models not only help in reaching to wider audience, but at the same time, make the services more

affordable, attractive and feasible for the end users. For example, entrepreneurial ventures such as Big Basket (grocery at home), Portea Medical (home healthcare), SuperProfs (online education), etc. are enabling inclusive growth by delivering high quality services to masses at low-cost. E-Commerce is bringing paradigm shift in the delivery of sale and service and slowly replacing the traditional brick and mortar sellers. As per GSMA, the global business impact of connected life could be \$4.3 trillion by 2020. India will be a big beneficiary of this. All these digital initiatives, technologies and services would together create a multiplier effect and transform individuals, governments, enterprises and societies towards greater prosperity.

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Cyber-Crimes – In The Light of Islamic Legal Systems

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ABSTRACT

An organized cyber-crime is a new issue which is gaining arising significance among the lawyers and legislatures. This sort of crime has unstable situations; so some of the jurists have major doubts about their existence. But as we will discuss, this opinion is not acceptable and we believe cyber-crime is a fact. E-crime today presents one of the major challenges to law enforcement. Information technology is facing waves of laws guarding the interest of people using the Web technology. These laws were derived from the common laws and legislations applied in general crimes. With over one billion Muslims in this world, several calls were raised in the Islamic countries to establish a law suitable to handle computer crimes which matches the Islamic Shar'iah law. In this research, we have analyzed the 'Adellah' (الأدلة) (Shar'iah Evidences of Quran, Hadith and Imams sayings) to verify the outlook of Islam in computer crime.

Keywords: *Cyberspace, organized crimes, criminal cyber micro cultures, Computer Crime; Computer Crime Law; Texas Law; Islamic Law; Cybercrime.*

INTRODUCTION

Cyber-crime is a new issue which is gaining arising significance among the lawyers and legislatures. This sort of crime has unstable situations; so some of the jurists have major doubts about their existence. But as we will discuss, this opinion is not acceptable and we believe cyber-crime is a fact. Organized cyber-crimes whether official or not official, are an expanded problem. Different legal systems provide various sanctions against these crimes, but Iranian penal law does not have a specific code for this reason, although some roles may be derived from Computer Crimes Code. This research is based on accepting cyber-crimes and cyber-terrorism. We will try to determine the cyber-crime and its boundaries, to reach an opportunity of systematic prevention of such crimes.

A. Computer Crime and Islam

Shar'iah has a very high level of proof for the most serious crimes and punishments. If proof is not as specified then the crime must be considered a lesser crime. The major myth is that judges in Islamic nations have fixed punishments for all crimes. The judge under **Shar'iah** is not bound by precedents, rules, or prior decisions as in English common law. Hadd crimes, the most serious crimes in **Shar'iah** law, are murder, apostasy, making war upon Allah and His messengers, theft, adultery, defamation, false accusation of adultery or fornication, robbery and consumption of intoxicants. These are considered crimes against Allah. **Tazir** crimes are acts which are punished because the offender disobeys Allah's law and word. Tazir crimes are crimes against society. A **Qesas** crime is one of retaliation. If you commit a Qesas crime, the victim has a right to seek retribution and retaliation. The concept of retribution was found in the first statutory "Code of Hammurabi" and in the law of Moses in the form of "an eye for an eye." Muslims add to that saying "but it is better to forgive."

Contemporary common law today still is filled with the assumptions of retribution. The American justice system has adopted a retribution model which sets fixed punishments for each crime. The American federal code contains "mandatory minimum" sentences for drug dealing. Many states have fixed punishment for drug, violence and the use

of particular weapons. Qesas crime is simple retribution: if one commits a crime he knows what the punishment will be.

Diya has its roots in Islamic law and dates to the time of the Prophet Mohammad when there were many local families, tribes and clans. The Prophet was able to convince several tribes to take a monetary payment in retribution for damage to the clan or tribe. Diya is paid by the offender to the victim if he is alive. If the victim is dead, the money is paid to the victim's family or to the victim's clan or tribe. The assumption is that victims will be compensated for their loss. Under English common law, the victim or family must sue the offender in a civil tort action for damages. Qesas law combines the process of criminal and civil hearings into one, just as the "civil law" is applied in many nations on Earth. Qesas crimes are compensated as restitution under common law and civil law. The Qesas crimes require compensation for each crime committed.

One out of every four persons on the planet is a Muslim (Hassan, 1990) and for those who believe in perfecting justice through the Islamic law, it is very important to develop the Islamic outlook to computer crime especially since we know that most Islamic countries place it at the center of their legal codes like Saudi Arabia, Sudan and Iran (Crystal, 2001; Kamali, 1994). Facts decide the importance of the Islamic law to minimize computer crimes, by providing a worldly punishment as well as that in the hereafter (Afifi, 2003). Researchers proved that computer crimes with high technology like money theft, information theft, or betrayal are not new. Computer crimes need a new Islamic theory (Alfaifi, 2001)

The questions are : What is the basis of the Islamic law for computer crime? When and where the Islamic law was established? How would the Islamic law that was established in the seventh century handle the new technology issues and provide a suitable law for computer crimes? How would the Islamic law compare with the western laws like Texas Computer Crime Law? This research attempts to answer these questions in order to establish an introduction of the Islamic computer crime law, and to prove that an Islamic computer crime law can contribute to the well-being of humanity in parallel with the western law.

B. Islamic Computer Crime Law Proposal

1. **Privacy :** "A person should have permission before having a look". It is prohibited for any person to come (physically or logically) near computers or their accessories for curiosity or to look at their contents without a prior permission of the owner and he should be aware of the limit of the given permission.
2. **Trust :** "A person should be trust worthy even with a betrayer". Any person who receives some confidential information or a password to access a computer should not give them deliberately to any person without a prior permission from the owner. Muslims and non- Moslems are equal to be trust worthy. It is interesting here that this item states that one cannot betray someone else who had betrayed them beforehand. Further, this item states that Muslims and non-Muslims are equal in trust worthiness.
3. **Theft :** "It is prohibited to get other persons properties illegally". It is not permitted to get benefits of the contents of a computer or through it without permission. Any action like this is considered a theft.
4. **Promise :** "Muslims should respect their terms". This condition states that it is prohibited to use other persons computers or get what is recorded on them of worthy programs or information without a prior permission. Muslims and non-Moslems are equal at that condition.

Table 1: Adallah for Privacy, Trust, Theft and Promise

ALLAH said: "Allah commands you to give back the trusts to their rightful owners" (An-nessa, 58).
ALLAH said: "O believers! Do not betray the trust of Allah and His Prophet, nor violate your trusts knowingly" (Al-Anfal, 27).
Prophet Mohammad (Peace be upon him) said: "The signs of a hypocrite are three: Whenever he speaks, he tells a lie. Whenever he promises, he always breaks his promise. If you trust him, he proves to be dishonest. If you keep something as a trust with him, he will not return it." (Al-Bukhari, 1987).
Prophet Mohammad (peace be upon him) said: "Give back what you have been trusted with and do not betray those who have betrayed you". (Al-Hakeem, 1990)
ALLAH said: "O believers! Do not consume one another's wealth through unlawful means; instead, do business with mutual consent." (An-nessa, 24)
ALLAH said: "Male or female, whoever is guilty of theft, cut off their hand (that was used in theft) of either of them as a punishment for their crime. This is exemplary punishment ordained by Allah." (Al-Maaeda, 38)
Prophet Mohammad (Peace be upon him) said: "It's prohibited to take the Muslim wealth without his complete permission." (Al-Baihaqi, 1994)

5. Intellectual Property Right : Intellectual Property is considered to be intangible property created by individuals or corporations that is subject to protections under trade secret, copyright, and patent law. These are any type of software, song and its lyrics, e-book, idea, and others products that are intangible. Information Technology has made it difficult to protect intellectual property because computerized information can be so easily copied or distributed. Islam encourages Muslims to learn, but it also respects the laws of ownership. Plagiarism, piracy, misquotation, taking other people's property etc. are all nothing but theft, and deception. Islam advocates for seeking of one's permission before using his or her resource or property. Allah says in the Holly Qur'an: "Oyou who believe! Do not consume your property among yourselves unjustly unless it be a trade amongst you, by mutual consent. And do not kill yourselves (nor kill one another). Surely, Alla'h is Most Merciful to you"(Qur'an 4:29). The prophet Muhammad (BUPH) said: "No thief is a believer at the time when he is stealing." (Sahih Muslim, Book 1, Hadith 104) It is not permitted to get benefits of the contents of a computer or through it without permission. Prophet Mohammad (BUPH) said: "It's prohibited to take the Muslim wealth without his complete permission" (Al-Baihaqi, 1994). Unfortunately some Muslims are also involved in various kinds of online theft forgetting the teachings of their religion, Islam.

6. Honesty and Integrity : Integrity means that data cannot be modified without authorization. Integrity is violated when an employee accidentally or with malicious intent deletes or tempers important data files, when an employee is able to modify his own salary in a payroll database, when a computer virus infects a computer, when an unauthorized user vandalizes a website, when someone is able to cast a very large number of votes in an online poll, and so on. Only the necessary amount of information should be collected and should not be fabricated or should not be used without permission of the individual. The Holy Quran says: "Woe to those who deal fraudulently, those who when they have to receive by measure from men, exact full measure. But when they have to give by measure to men, they give less than due. Don't they ever think that they will be called to account on a mighty day?" (Qur'an, 83:1-5).

A Muslim should not make a product or to provide service but cheats through false information using Internet as it is easy and less costly, Allah will without doubt see that and He will judge accordingly. Allah's Apostle Muhammad (PBUH) said: "The honest Muslim trustee who spends what he is commanded to do and he gives that

in full with his heart overflowing with cheerfulness and he gives it to one to whom he is ordered, he is one of the givers of charity." (Sahih Muslim, Book 5, Hadith 2231) In another hadith, Prophet Muhammad (PBUH) said: "Any man whom Allah has given the authority of ruling some people and he does not look after them in an honest manner, will never feel even the smell of Paradise." (Sahih Bukhari, Book 89, Hadith 264) From above two hadiths, it is clear that a Muslim must be aware to his duty and responsibility. He should not do any work that is painful to another human being.

From the above statements, it can be concluded that the spiritual meaning of Shariah, i.e. justice and full of benefits, is applicable in any place and at any time.

C. Islamic Criminal Panel and Cybercrime

In criminalization and punishment, the Shariah law objective is to protect five important values: religion, human life, intellect, lineage, and property. Muhammad Mohyi Aldeen (n.d.) indicated that the criminalization process in the contemporary world is similar to that found in the Shariah; it is established to protect interests that are vital to human beings.

D. Shariah prohibits Cyber crime

Shariah does not explicitly criminalize any kind of cyber crime, but it does contain general rules of criminalization. The earlier mentioned scholars, traditionalists and reformists approach criminalization issues differently. According to the traditionalists, the second source of Shariah law, (the Prophet Tradition) provides significant support for the criminalization of cybercrime. Scholars have quoted a number of Hadiths, for example, the Prophet said 'No harm shall be inflicted [on anyone] nor reciprocated [against anyone]' to criminalize emerging crimes.

CONCLUSION

New development in technology and the creation of new media have good and bad effects to the society. The good effects are people can interact and work easily by using technology. In fact, the teachings of Islam can be conveyed to anybody without border. However, the bad effects are the society is exposed to many illegal and immoral activities such as the commission of computer crimes, degradation of moral value, social crises, destruction of marriage institution and insult on Islam. I have tried to show that there are some issues and problems that are unique to computer ethics. It is very important to develop the Islamic outlook to computer ethics especially since we know that most Islamic countries place it at the center of their legal codes for computer crimes like Saudi Arabia, Sudan and Iran. Facts decide the importance of the Islamic law to minimize computer crimes, by providing a worldly punishment as well as that in the hereafter.

Track – 2 :
Renewable Energy

Brief Summary	
Track-in-charge	1) Karishma Desai, Assistant Professor of IT, VSIT 2) Swapna Kadam, Assistant Professor of Management, VSIT
Session Chair(s)	1) Dr. Gurusamy, Head of Commerce Department, Madras University 2) Dr. K. Venkateshwarlu, Vice Principal, Raheja College
Best Paper Awarded	Title of the paper: To Study the Potential Plant Species as Biofuel resource: A eco-friendly way of nature Conservation
	Author(s): Dr. Siddhesh Patil, Assistant Professor Department of Management, VSIT

To Study The Potential Plant Species as Biofuel Resource: A Eco-Friendly Way of Nature Conservation

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ABSTRACT

Society's increasing demand for transportation fuels has assured a viable future for the development of renewable fuels. Although first-generation biofuels are dependent on starches, sugars and vegetable oils, the need to generate higher volumes of biofuels at lower cost has shifted the research focus to cellulosic ethanol. A biofuel is a fuel that is produced through contemporary biological processes, such as agriculture and anaerobic digestion, rather than a fuel produced by geological processes such as those involved in the formation of fossil fuels, such as coal and petroleum, from prehistoric biological matter. Biofuels can be derived directly from plants, or indirectly from agricultural, commercial, domestic, and industrial wastes. One of the best resource for biofuel is the plant resource. There are different species of plants which will be a major contributor as natural fuel resource. The present study covering the future potential plant species can be used as biofuel.

Keywords :- *Biofuel, Plant resource*

INTRODUCTION

Petroleum has been the transportation fuel of choice for more than a century now, but it's not the only fuel that can run our cars and trucks. Some of the most promising replacements for oil come from organic biomass, including crops such as corn and soybeans. Those are the main sources for the most common types of biofuels in use today, ethanol and biodiesel fuel.

Biofuels are attractive because they can be used in gasoline and diesel engines, but unlike oil, they're renewable. Biofuels also help lower tailpipe emissions because they burn cleaner than petroleum fuels, with lower greenhouse gas emissions. In addition, biofuels are generally grown and produced domestically rather than shipped from halfway around the world.¹

Biofuels have been around as long as cars have. However, with the recent rise in oil prices, along with growing concern about global warming caused by carbon dioxide emissions, biofuels have been regaining popularity.

Countries around the world are using various kinds of biofuels. For decades, Brazil has turned sugarcane into ethanol, and some cars there can run on pure ethanol rather than as additive to fossil fuels. And biodiesel—a diesel-like fuel commonly made from palm oil—is generally available in Europe.

On the face of it, biofuels look like a great solution. Cars are a major source of atmospheric carbon dioxide, the main greenhouse gas that causes global warming. But since plants absorb carbon dioxide as they grow, crops grown for biofuels should suck up about as much carbon dioxide as comes out of the tailpipes of cars that burn these fuels. And unlike underground oil reserves, biofuels are a renewable resource since we can always grow more crops to turn into fuel.

With global climate change, some researchers are exploring sources other than petroleum for fuel. Organic matter is one such source. Materials like corn and soybeans have oil extracts that can be converted to ethanol or biodiesel. These and many other organic materials are more sustainable than petroleum, meaning they can be regrown and remain productive with less negative impact on our ecosystem.²

For the future, many think a better way of making biofuels will be from grasses and saplings, which contain more cellulose. Cellulose is the tough material that makes up plants' cell walls, and most of the weight of a plant is cellulose. If cellulose can be turned into biofuel, it could be more efficient than current biofuels, and emit less carbon dioxide.³

METHODOLOGY

The Descriptive method of study is used with reference to secondary data. The present study includes the comparative study of the important biofuel plants with reference to present need.

RESULT

The potential Biofuel plants as follows :

1. *Pongamia pinnata*

Pongamia pinnata is a species of tree in the pea family, Fabaceae, native in tropical and temperate Asia including parts of India, China, Japan, Malesia, Australia and Pacific islands. Common names include Indian beech, Pongam oil tree and karanj. The seed oil has been found to be useful in diesel generators and, along with *Jatropha* and Castor, it is being explored in hundreds of projects throughout India and the third world as feedstock for biodiesel. It is especially attractive because it grows naturally through much of arid India, having very deep roots to reach water, and is one of the few crops well-suited to commercialization by India's large population of rural poor. Several unelectrified villages have recently used pongamia oil, simple processing techniques, and diesel generators to create their own grid systems to run water pumps and electric lighting.⁴

2. Oil Palm

Elaeis is a genus of palms containing two species, called oil palms. They are used in commercial agriculture in the production of palm oil. The African oil palm *Elaeis guineensis* is the principal source of palm oil, it is native to west and southwest Africa. The American oil palm *Elaeis oleifera* is native to tropical Central and South America, and is used locally for oil production. Since palm oil contains more saturated fats than oils made from corn and sunflowers, it can withstand extreme deep-frying heat and resists oxidation. *Elaeis guineensis* is now extensively cultivated in tropical countries outside Africa, particularly Malaysia and Indonesia which together produce most of the world supply.

3. *Triadica sebifera*

Triadica sebifera, also known as *Sapium sebiferum*, is commonly known as the Chinese tallow tree. The tree is native to eastern Asia, and is most commonly associated with eastern China, Taiwan, and Japan. In these regions, the waxy coating of the seeds is used for candle and soap making, and the leaves are used as herbal medicine to treat boils. The plant sap and leaves are reputed to be toxic, and decaying leaves from the plant are toxic to other species of plant. It is useful in the production of biodiesel because it is the third most productive vegetable oil producing crop in the world, after oil palm.

The nectar is non-toxic, and it has become a major honey plant for beekeepers. The honey is of high quality, and is produced copiously during the month of June, on the Gulf Coast. In the Gulf coast states, beekeepers migrate with their honey bees to good tallow locations near the sea.

The tree is highly ornamental, fast growing and a good shade tree. The tree grows well in urban areas, and is very good for "sidewalk holes" along busy roads with a lot of traffic where most trees will not grow well. It can provide shade to counter the heat island effect of mainly-concrete areas, as well as habitat for urban animals such as lizards and birds.

4. Coconut

The coconut tree (*Cocos nucifera*) is a member of the family Arecaceae (palm family).

The term coconut can refer to the entire coconut palm, the seed, or the fruit. The coconut is known for its great versatility as seen in the many uses of its different parts and found throughout the tropics and subtropics. Coconuts are part of the daily diets of many people. When mature, they still contain some water and can be used as seed nuts or processed to give oil from the kernel, charcoal from the hard shell and coir from the fibrous husk. The oil and milk derived from it are commonly used in cooking and frying; coconut oil is also widely used in soaps and cosmetics. The husks and leaves can be used as material to make a variety of products for furnishing and decorating. The coconut also has cultural and religious significance in many societies that use it. Traditional areas of coconut cultivation in India are the states of Kerala, Tamil Nadu, Karnataka, Pondicherry, Andhra Pradesh, Goa, Maharashtra, Odisha, West Bengal and the islands of Lakshadweep and Andaman and Nicobar. As per 2013-14 statistics from Coconut Development Board of Government of India, four southern states combined account for almost 92% of the total production in the country: Tamil Nadu (31.93%), Kerala (27.54%), Karnataka (23.26%), and Andhra Pradesh (8.43%). Other states, such as Goa, Maharashtra, Odisha, West

Bengal, and those in the northeast (Tripura and Assam) account for the remaining productions. Though Kerala has the largest number of coconut trees, in terms of production per hectare, Tamil Nadu leads all other states. In TamilNadu, Coimbatore and Tirupur regions top the production list. The coconut palm is grown throughout the tropics for decoration, as well as for its many culinary and non culinary uses; virtually every part of the coconut palm can be used by humans in some manner and has significant economic value. This plant is the 4th largest production of biofuel per hectare per year.

5. Jatropha

Jatropha curcas is a species of flowering plant belongs to family Euphorbiaceae, that is native to the American tropics, most likely Mexico and Central America. It is cultivated in tropical and subtropical regions around the world, becoming naturalized in some areas.

J. curcas is semi-evergreen shrub or small tree, reaching a height of 6 m (20 ft). It is resistant to a high degree of aridity, allowing it to be grown in deserts.

The seeds contain 27-40% oil (average: 34.4%) that can be processed to produce a high-quality biodiesel fuel, usable in a standard diesel engine.

When jatropha seeds are crushed, the resulting jatropha oil can be processed to produce a high quality biofuel or biodiesel that can be used in a standard diesel car or further processed into jet fuel, while the residue (press cake) can also be used as biomass feedstock to power electricity plants, used as fertilizer (it contains nitrogen, phosphorus and potassium), or as animal fodder. The cake can also be used as feed in digesters and gasifiers to produce biogas.

There are several forms of biofuel, often manufactured using centrifugation, and filtration. The fats and oils are turned into esters while separating the glycerin. At the end of the process, the glycerin settles and the biofuel floats. Glycerin is another by-product from Jatropha oil processing that can add value to the crop.

Estimates of *Jatropha* seed yield vary widely, due to the genetic diversity of the crop, the range of environments in which it is grown, and *Jatropha's* perennial life cycle. Seed yields under cultivation can range from 1,500 to 2,000 kilograms per hectare, corresponding to extractable oil yields of 540 to 680 litres per hectare. The plant may yield more than four times as much fuel per hectare as soyabean, and more than ten times that of maize (corn), but at the same time it requires five times as much water per unit of energy produced as does corn. A hectare of jatropha has been claimed to produce 1,892 litres of fuel. However, as it has not yet been domesticated or improved by plant breeders, yields are variable *Jatropha* can also be intercropped with other cash crops such as coffee, sugar, fruits and vegetables.

- a) Jet fuels (Aviation fuels) may be more widely replaced by biofuels such as jatropha oil than fuels for other forms of transportation.
- b) In terms of Carbon dioxide sequestration, 2013 study published by the European Geosciences Union, shows that the jatropha tree may have applications in the absorption of carbon dioxide, whose sequestration is regarded by some as important in combating climate change. This small tree is very resistant to aridity so it can be planted in hot and dry land in soil unsuitable for food production. The plant does need water to grow though, so coastal areas where desalinated seawater can be made available are ideal.
- c) Currently the oil from *Jatropha curcas* seeds is used for making biodiesel fuel in Philippines, Pakistan and in Brazil, where it grows naturally and in plantations in the southeast, north, and northeast of Brazil. Likewise, jatropha oil is being promoted as an easily grown biofuel crop in hundreds of projects throughout India and other developing countries. Large plantings and nurseries have been undertaken in India by many research institutions, and by women's self-help groups who use a system of microcredit to ease poverty among semiliterate Indian women. The railway line between Mumbai and Delhi is planted with jatropha and the train itself runs on 15-20% biodiesel. ⁵

6. Castor

Ricinus communis, the castor oil plant, is a species of flowering plant in family, Euphorbiaceae. Castor is indigenous to the southeastern Mediterranean Basin, Eastern Africa, and India, but is widespread throughout tropical regions (and widely grown elsewhere as an ornamental plant).

Castor seed is the source of castor oil, which has a wide variety of uses. The seeds contain between 40% and 60% oil.

As per Food And Agricultural Organization of United Nations: Economic And Social Department: The Statistical Division, India is the largest producer with 17,44,000 tonnes castor oil seed producer.

Castor oil is an effective motor lubricant and has been used in internal combustion engines, including those of World War I airplanes, some racing cars and some model airplanes. It has historically been popular for lubricating two-stroke engines due to high resistance to heat compared to petroleum-based oils. It does not mix well with petroleum products, particularly at low temperatures, but mixes better with the methanol based fuels used in glow model engines. In total-loss-lubrication applications, it tends to leave carbon deposits and varnish within the engine. It has been largely replaced by synthetic oils that are more stable and less toxic.

7. Brassica napus

Rapeseed (*Brassica napus*), also known as Canola, is a bright-yellow flowering member of the family Brassicaceae (mustard or cabbage family), consumed in China and Southern Africa as a vegetable.

Rapeseed oil is used as diesel fuel, as biodiesel, straight in heated fuel systems, or blended with petroleum distillates for powering motor vehicles. Biodiesel may be used in pure form in newer engines without engine damage and is frequently combined with fossil-fuel diesel in ratios varying from 2% to 20% biodiesel. Rapeseed oil is the preferred oil stock for biodiesel production in most of Europe, accounting for about 80% of the feedstock, partly because rapeseed produces more oil per unit of land area compared to other oil sources, such as soybeans, but primarily because canola oil has a significantly lower gel point than most other vegetable oils.

Rapeseed is currently grown with high levels of nitrogen-containing fertilisers, and the manufacture of these generates N₂O. An estimated 3-5% of nitrogen provided as fertilizer for rapeseed is converted to N₂O.

India is third largest producer of rapeseed producers in 7.8 millions of ton in Year 2013.⁶

8. Peanut

Peanut, also known as groundnut (*Arachis hypogaea*), is a crop of global importance. It is widely grown in the tropics and subtropics, being important to both smallholder and large commercial producers. It is classified as both a grain legume, and, because of its high oil content, an oil crop. World annual production is about 46 million tonnes per year. As a legume, peanut belongs to the botanical family Fabaceae (also known as Leguminosae, and commonly known as the bean or pea family). Like most other legumes, peanuts harbor symbiotic nitrogen-fixing bacteria in root nodules. This capacity to fix nitrogen means peanuts require less nitrogen-containing fertilizer and improve soil fertility, making them valuable in crop rotations.

Peanuts offer a potential oil source for farm based biodiesel. Peanuts are over 50% oil and are capable of producing 123 gallons of oil per acre.

India is the second largest in production of peanuts with 9.5 million tonnes.⁷

9. Sunflower

Helianthus or sunflowers comprising about 70 species in the family Asteraceae. Oilseed sunflower (*Helianthus annuus L.*) is quickly gaining popularity as a feedstock crop for biodiesel because it shares several positive agronomic features with other common oil crops, yields well in a variety of conditions, and can be grown easily and profitably at both small farm and large field scales. The high oil content of sunflower seed, often over 40%, makes it an excellent choice for a biofuel crop. Because it is already grown widely for use as food oil, agronomic practices are well established for regions where the sunflower is common in field rotations. Sunflower oil holds great potential for offsetting petroleum diesel use, especially at

the farm scale. Sunflower oils are already used for high-grade food oils, and the meal can be readily used as a livestock feed. Most sunflower oil is produced for human consumption, a high-value oil that nets a premium for producers.

Dry land sunflower yields generally average 560 kg/acre, but yields over 907 kg/acre in irrigated or high rainfall conditions are not uncommon. Average oil content is 40 to 42%. Oil yield extracted from the sunflower seed ranges from 132 to 303 kg per acre. The quantity of oil extracted from the seed varies depending on growing conditions, post-harvest seed handling, and whether the oil was extracted through chemical or mechanical methods.

Sunflowers are a strong component of oilseed and bio fuel cropping systems, because they adapt well to a variety of conditions and often require fewer agricultural inputs than more common crops. Because the oil has several potential markets and the pressed meal can fill niche cattle-feed markets, sunflower is a good choice for growers on both small and large scales.⁸

10. Cotton Seeds

Cotton is a soft, fluffy staple fiber that grows in protective case, around the seeds of cotton plants of the genus *Gossypium* in the family of *Malvaceae*. The fiber is almost pure cellulose. Under natural conditions, the cotton bolls will tend to increase the dispersal of the seeds. The plant is a shrub native to tropical and subtropical regions around the world, including the Americas, Africa, and India. The greatest diversity of wild cotton species is found in Mexico, followed by Australia and Africa.

Cottonseed oil is non-edible oil, thus food versus fuel conflict will not arise if this is used for biodiesel production. A maximum of 77% biodiesel was produced with 20% methanol. The engine experimental results showed that exhaust emissions including carbon monoxide (CO) particulate matter (PM) and smoke emissions were reduced for all biodiesel mixtures. However, a slight increase in oxides of nitrogen (NO_x) emission was experienced for biodiesel mixtures.⁹

11. Hibiscus cannabinus (Kenaf)

Hibiscus cannabinus, is a plant in the *Malvaceae* family commonly known as Ambadi. It is believed to be native to Asia (India to Malaysia) or Tropical Asia. It is probably native to southern Asia, though its exact natural origin is unknown. The name also applies to the fibre obtained from this plant. Kenaf is one of the allied fibres of jute and shows similar characteristics.

Seed oil is extracted from seeds of the plant *Hibiscus cannabinus*. Kenaf seeds yield an edible vegetable oil. The kenaf seed oil is also used for cosmetics, industrial lubricants and for biofuel production.

Seeds are greyish or dull green in appearance, contain 18-22% oil. They have good storage stability, and their strongly adherent seed coat makes separation from the kernel difficult. The yield of oil from seeds is about 15%. To extract the oil, the seed is flaked, steamed and pressed.¹⁰

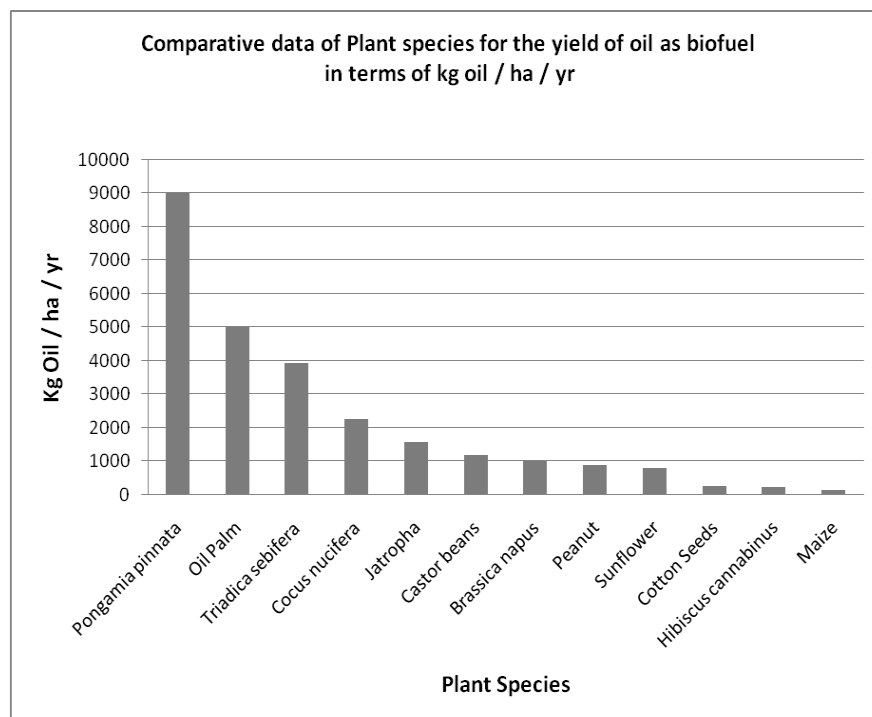
12. Maize

Maize (*Zea mays*), is a large grain plant. Maize is increasingly used as a feedstock for the production of ethanol fuel. Ethanol is mixed with gasoline to decrease the amount of pollutants emitted when used to fuel motor vehicles. High fuel prices in mid-2007 led to higher demand for ethanol, which in turn led to higher prices paid to farmers for maize. This led to the 2007 harvest being one of the most profitable maize crops in modern history for farmers. Because of the relationship between fuel and maize, prices paid for the crop now tend to track the price of oil. The price of food is affected to a certain degree by the use of maize for biofuel production. The increase in food prices the consumer has been seeing is mainly due to the higher energy cost. The effect of biofuel production on other food crop prices is indirect. Use of maize for biofuel production increases the demand, and therefore price of maize. This, in turn, results in farm acreage being diverted from other food crops to maize production. This reduces the supply of the other food crops and increases their prices. Maize is widely used as a feedstock for biogas plants. Increasingly, ethanol is being used at low concentrations (10% or less) as an additive in gasoline for motor fuels to lower pollutants, and reduce petroleum use, also known as "biofuels".

Table 1

The comparative data for the yield of oil as biofuel in terms of kg oil / ha / yr

Plant Species	Kg Oil / ha / yr
<i>Pongamia pinnata</i>	9000
Oil Palm	5000
<i>Triadica sebifera</i>	3950
<i>Cocus nucifera</i>	2260
Jatropha	1590
Castor beans	1188
<i>Brassica napus</i>	1000
Peanut	890
Sunflower	800
Cotton Seeds	273
<i>Hibiscus cannabinus</i>	230
Maize	145



CONCLUSION

- The present study shows the maximum yield is obtained from *Pongamia pinnata* that is 9000 kg oil/ha/yr., and other plant species such as Oil palm and *Triaduca sebifera*.
- The least yield shown by Maize (145 kg oil/ha/yr) and other plant species such as Hibiscus cannabinus and cotton seeds.
- The study reveal the potential of various plant species as a potential biofuel resource, which will play a major role in nature conservation as it reduce the burden from fossil fuels as fuel resource.
- The major flora noted in the present work shows the better survival rate in major climatic conditions is a added advantage for the plantation at various conditions.

SUGGESTIONS

- As most of the plants shows better growth in major climatic conditions, there should be encouragement for plantation of such species understanding the future need of the world in terms of fuel demand.
- Identification of new potential plant species as biofuel resource.
- Availability of the processing plants for extraction of oil from the bio fuel plant seeds.
- Encouragement to the farmers from the Government.
- Development of new plantation techniques for better yield.

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Reaching India's Renewable Energy Targets Cost Effectively

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ABSTRACT

India has ambitious targets for renewable energy growth. As part of its Union Budget 2015-2016, India aims to install 60 GW of wind power capacity and 100 GW of solar power capacity by 2022, which is more than six times the current installed capacities of approximately 22GW and 3GW, respectively.

This important task is made difficult by the government's limited budget, which is constrained by a large fiscal deficit and multiple development priorities. Since government support is required when renewable energy is more expensive than the fossil fuel energy it would replace, there is a need for an objective comparison between the levelized costs of electricity from renewable energy and fossil fuels.

This project investigates not only this comparison but also how much it would cost the Government of India to reach its renewable energy targets. We answer this by comparing the levelized cost of electricity from renewable energy to a baseline fossil fuel in absence of any subsidies – whether explicit or implicit; estimating the total cost of support for renewable energy under accelerated depreciation, which is the most cost-effective of existing policies; and investigating federal policy options to make this support even more cost-effective.

We use the levelized cost of electricity from imported coal as the baseline for this comparison because this is the fuel, rather than domestic coal or natural gas, that renewable energy is likely to replace. While natural gas is the most expensive fossil fuel, it has very limited availability. Imported coal is the next most expensive fossil fuel, and is also projected to account for 18% of India's total generation, higher than India's target of 15% of generation from renewable energy by 2020 (NAPCC, 2008).

INTRODUCTION

India faces serious challenges of climate change and energy security.

India's energy mix is dominated by fossil fuels, with 68% of total power generated from coal (IBEF, 2014). High dependence on imported oil and increasingly, imported coal, large peak power and energy deficits, and high energy intensity all pose serious challenges to climate change and India's energy security.

To overcome these challenges, India has set ambitious renewable energy targets.

Under India's most recent budget, Union Budget 2015-2016, India aims to install 100 GW of solar energy capacity and 60 GW of wind energy capacity by 2022, which is more than six times the current installed capacities of approximately 22GW and 3GW, respectively (MNRE, 2014a).

However, this is a difficult task due to the government's limited budget, which is constrained by a large fiscal deficit and multiple development priorities. Renewable energy would require government financial support if it were more expensive than the energy from fossil fuels it would replace. Since renewable energy is perceived to be more expensive than fossil fuels because fossil fuels receive implicit and explicit subsidies, there is a need for an objective comparison between the levelized costs of electricity from renewable energy and fossil fuels.

Our objective comparison between the cost of renewable energy and fossil fuels can provide a fair basis for government planning and budget allocation for renewable energy deployment.

In order to estimate the cost of government support needed to achieve India's renewable energy targets, the unsubsidized levelized cost of electricity from renewable energy must be compared with a baseline of the levelized cost of electricity from the marginal fossil fuel source that it would replace. Renewable energy will likely replace imported coal, so we use imported coal as the baseline comparison.

By forecasting the levelized cost of electricity from renewable energy and from fossil fuels in the absence of any subsidies, we determine the cost of government support required to bridge the difference for renewable energy.⁵ We then identify the most cost-effective policies to achieve India's renewable energy targets.

Over the years, India has put in place several progressive policies, both federal and state, to boost the renewable energy sector. Federal policy support has been in the form of accelerated depreciation, generation based incentive, and viability gap funding, while state policy support has typically been feed-in tariffs.

In this paper, we build on this work to compare the cost of government support to achieve its renewable energy targets under different policy pathways.

OBJECTIVE

- To provide Comparison between the cost of renewable energy and fossil fuels
- To provide a fair basis for government planning and budget allocation for renewable energy deployment.

REPLACING IMPORTED COAL

Renewable energy will likely replace marginal fossil fuel plants, which we use as our baseline for comparing costs.

As India sets out to meet its renewable energy targets, the additional renewable energy capacity will likely replace marginal fossil fuel plants, or in other words the most expensive fossil fuel plants that would have been commissioned in absence of renewable energy deployment. By comparing the levelized cost of electricity from renewable energy with a baseline of the levelized cost of electricity from marginal fossil fuel plants, we can then estimate the cost of government support needed for renewable energy.

Renewable energy will likely replace imported coal-based power.

At present, natural gas is the most expensive source of fossil fuel-based power in India. However, natural gas currently constitutes only 8.6% of the total energy mix due to supply constraints (Ministry of Statistics and Programme Implementation, 2014). The share of natural gas in India's energy mix has not changed significantly over time. Therefore, natural gas-based power plants are unlikely to be deployed at a significant scale over the next few years, and thus unlikely to be replaced by renewable energy deployment.

On the other hand, the share of imported coal, the next most expensive fossil fuel, as a percentage of total coal consumption has risen steadily from 8.7% in 2006 to 16% in 2012 (MOSPI 2014). Imported coal accounts for 18% of total electricity (CRISIL, 2012), which is higher than India's target of 15% of generation from renewable energy by 2020 (MNRE, 2009). Therefore, imported coal is the most expensive fossil fuel that is likely to be replaced by renewable energy.

We therefore use the cost of electricity from imported coal as our baseline to compare with renewable energy.

Domestic coal remains the predominant source of electricity (CRISIL, 2012), accounting for around 55% of total power generation. However, domestic coal-based power plants will not be the marginal fossil fuel-based plants replaced by renewable energy, since domestic coal is cheaper than imported coal, and the latter already accounts for a larger proportion of total power generation than the proposed share of renewable energy. However, for reference, we have provided a comparison of domestic coal-based power prices with imported coal based power and renewable sources of coal-based power in Figure 9

FORECASTING THE LEVELIZED COST OF RENEWABLE ENERGY

In order to estimate the cost of government support required to achieve India's renewable energy targets, we begin by forecasting the levelized cost of electricity for three technologies from 2015 to 2022: utility-scale wind and solar power (the dominant renewable energy technologies), and the marginal fossil fuel-based power source, which we determined is imported coal.

The levelized cost of imported coal serves as the baseline cost of electricity. Based on the difference between the forecasted levelized cost of renewable energy and the baseline cost of electricity, we calculate the cost of government support required to meet its renewable energy deployment targets for each year from 2015 to 2022.

support required to meet its renewable energy deployment targets for each year from 2015 to 2022.

Our forecasts for the levelized costs of electricity from renewable energy and imported coal estimate the unsubsidized levelized costs, or the costs without policy support. We estimate the forecasts of the levelized costs for plants commissioned each year from 2015 to 2022 by examining project-level cash flows, which are driven by the variables explained in the following section.

Drivers of levelized cost of electricity

Several factors, such as return on equity, interest rate, capital expenditure, and the capacity utilization factor, may drive changes in the levelized cost of electricity from renewable energy. By assessing the responsiveness of the levelized costs to these factors, we observe that the levelized costs of both wind and solar energy are highly sensitive to capital expenditure and the capacity utilization factor.

Capital expenditure is the expense associated with acquiring or upgrading property and equipment. In the case of renewable energy projects, this primarily includes turbine (wind) and module (solar) costs, balance of system costs, land costs, construction costs, and evacuation costs. Higher capital costs naturally result in higher levelized costs.

The capacity utilization factor is the fraction of a period of time that a plant is producing energy, and is used as an indicator of plant efficiency. This is the same as another commonly used term – the plant load factor. For example, capacity utilization factors for solar plants without storage are low (around 25%) given that there is typically good sunlight for only six hours out of a 24 hour day; on the other hand, capacity utilization factors for fossil fuel plants can be much higher, around 80-90%. A higher capacity utilization factor typically means higher generation for any given installed capacity and, therefore, lower levelized costs.

Because the levelized cost of electricity from renewable energy sources are most affected by capital expenditure and the capacity utilization factor, these two are the key variables that we forecast to calculate the levelized cost of electricity for solar and wind energy. Other variables have a much lower impact on levelized costs.

For coal-based power plants (both domestic and imported), the levelized cost of electricity is primarily driven by capital expenditure and fuel cost.

Wind power: forecasting the drivers of the levelized cost of electricity

While capital costs are expected to decrease as developers gain experience, capital expenditure for wind energy is expected to increase slightly from 2015 to 2022, due to inflation.

The first key variable that drives the levelized cost of electricity for wind power is capital expenditure, which are the costs associated with acquiring or upgrading property and equipment.

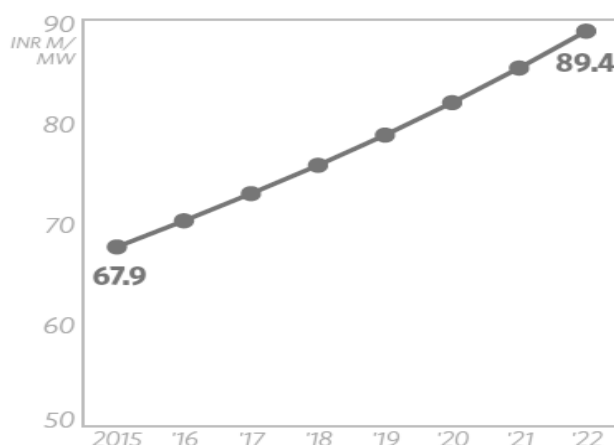


Figure 1: Capital Expenditure Forecast for Wind Energy

Our forecasts for capital expenditure for wind power from 2015 to 2022 indicate that it will increase by around 4% each year, as depicted in Figure 1. The capital cost is expected to rise from INR 67.89 million/MW (USD 1.13 million/MW) in 2015 to INR 89.4 million/MW (USD 1.49 million/MW) in 2022.

The primary reason for this is the effect of inflation on component costs. We observe that there will also be a significant reduction in capital expenditure due to a strong learning effect, which is an increase in efficiencies over time as experience with a technology grows. However, the effect of inflation on component costs is much stronger, and outweighs the cost reduction from learning.

The capacity utilization factor for wind power will increase from 25% in 2015 to 29% in 2022.

The capacity utilization factor is the fraction of a period of time that a plant is generating power, and indicates plant efficiency. A higher capacity utilization factor means lower levelized costs.

The capacity utilization factor for a wind plant depends on the height of the turbine from the ground, or hub height, as well as wind speeds. The capacity utilization factor typically increases with hub height due to higher wind speeds at higher elevations. At present, most of India's wind deployment is at a hub height of 80 meters, with an average capacity utilization of 25%. However, hub heights are steadily rising, with turbines of 100 meters becoming increasingly common (Phadke et al., 2011).

Because of this, we expect that capacity utilization will rise gradually over the coming years. By 2022, we expect that most of the new wind plants will have a hub height of 120 meters, with an average capacity utilization of 29%. This assumes a linear increase in capacity utilization from 25% to 29% based on continued similar wind speeds (Phadke et al., 2011).

Overall, we forecast an increase in the levelized cost of wind energy over time.

An increase in capital expenditure will raise the levelized cost from wind energy, while an increase in capacity utilization factor will lead to a reduction in the levelized cost, but the increase in capital expenditure will outweigh any cost reduction from increased capacity utilization.

Solar power: forecasting the drivers of the levelized cost of electricity

Capital expenditure for solar energy is expected to decline from 2015 to 2022.

We find that capital expenditure for solar power, or the cost of setting up a solar plant, will decrease by approximately 1.83% each year (Figure 2). The capital cost is expected to decrease from INR 71.25 million/MW (USD 1.19 million/MW) in 2015 to INR 62.6 million/MW (USD 1.04 million/MW) in 2022.

This decrease is due to strong global learning effects (increased efficiencies due to experience gained over time), which push down the price of solar panels. We also observe local-level learning effects, which are not as strong, that marginally reduce non-panel costs over time.

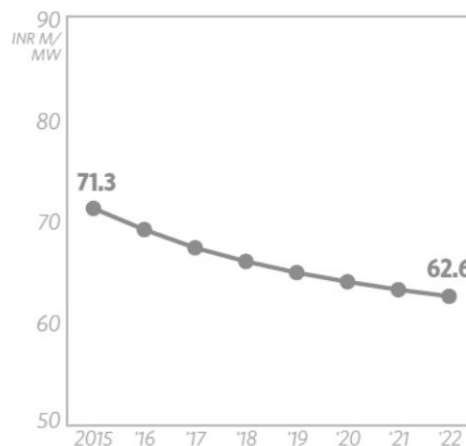


Figure 2: Capital Expenditure Forecast for Solar Energy

The capacity utilization factor for solar energy will remain constant at 20.5%.

The capacity utilization factor indicates the fraction of a period of time that a plant is producing energy. In the case of solar energy, this would depend on the amount of solar resources (solar radiation) as well as the local temperature. Data shows that existing capacity utilization levels are sustainable for the government’s proposed solar targets due to abundant solar resource availability. Therefore, it is possible to achieve the government’s 2022 solar targets while maintaining the current level of capacity utilization of 20.5% (CERC, 2011).

Overall, we forecast that the levelized cost of solar energy will decrease over time.

Since we forecast that the capacity utilization factor will remain constant, the levelized cost of solar energy will be driven downwards by decreasing capital expenditure

Imported coal: forecasting the drivers of the levelized cost of electricity

Capital expenditure and coal price are the main variables that drive the levelized cost of electricity for imported coal, so we use those to calculate the levelized cost of electricity from an imported coal-based plant.

Our forecast of capital expenditure for a coal plant shows a steady increase over time (Figure 3). Capital expenditure rises by about 2.86% per year from INR 56.6 million (USD 0.9 million) in 2015 to INR 68.9 million (USD 1.15 million) in 2022.

Forecasts for the second driver, fuel price, indicate an increase of 2.12% each year, from USD 98 per ton in 2015 to USD 114 per ton in 2022 (Figure 3). These imported coal prices are driven by global demand and supply.

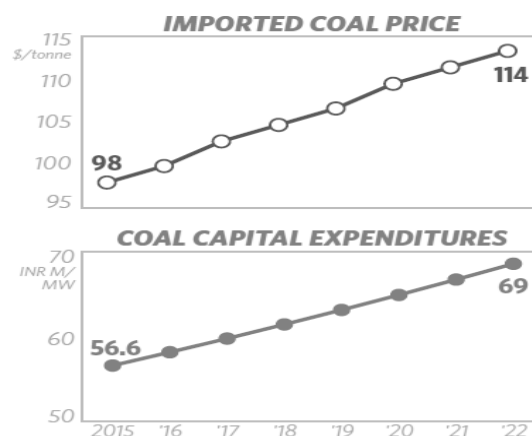


Figure 3: Capital Expenditure and Fuel Cost Forecasts for Coal Energy

Therefore, overall, we forecast that the levelized cost of electricity from imported coal increases over time, due to increasing capital expenditure and fuel prices.

However, the rate of increase in fuel prices is significantly lower than the increase in capital expenditure, causing levelized costs to rise gradually over time.

Comparing the levelized cost of renewable energy with imported coal

By comparing the levelized costs of electricity from wind power and solar power to the levelized cost of electricity from imported coal, which we use as our baseline, we can then estimate the cost of government support required to meet its renewable energy targets. Wind energy is already cheaper than imported coal based power; but solar plants will require government support up to 2019. Our analysis shows that compared to the baseline of imported coal-based power, which has a levelized cost of INR 6.92/kWh (USD 0.12/kWh) in 2015, wind energy is already competitive at a levelized cost of INR 5.94/ kWh (USD 0.1/kWh).

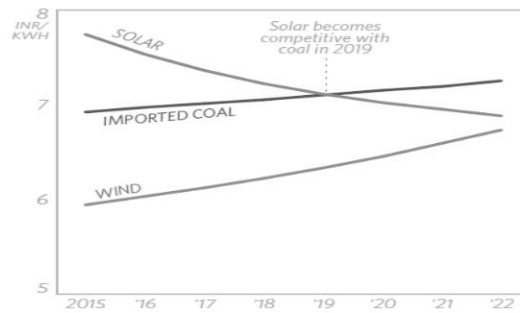


Figure 4: Forecast of Levelized Cost of Electricity

In spite of the increase in the wind capacity utilization factor, which would decrease the levelized cost of electricity from wind power, we observe an increasing trend in wind levelized costs. The primary reason for this is the increase in capital cost, discussed in Section 3.2, which outweighs the cost reduction from increased capacity utilization.

The levelized cost of imported coal-based power, which serves as our baseline for comparison, is also expected to increase due to an increase in capital expenditure forecasts, as well as rising fuel costs, measured by imported coal prices.

Overall, the gap between the levelized cost of wind power and imported coal-based power is expected to decrease from 14% in 2015 to 7% in 2022. This is primarily because inflation is expected to have a stronger impact on capital expenditure than fuel prices. In the case of wind power, all levelized cost increases are driven by capital expenditure. In the case of coal-based power, since capital expenditure only accounts for a part of the change in the levelized cost, and the increase in fuel price is much more gradual, the overall increase in the levelized cost is not as rapid. However, even though the gap between the costs will grow smaller, wind power will continue to be competitive with imported coal.

Unlike wind energy, solar energy continues to be more expensive than imported coal-based power. The levelized cost of solar energy is INR 7.74/kWh (USD 0.13/kWh) in 2015, about 11.79% more expensive compared to imported coal.

The levelized cost of electricity for solar power declines gradually, driven by the expected reduction in capital expenditure, and becomes competitive with imported coal-based power in 2019 (Figure 4). By 2022, solar energy is expected to become around 5% cheaper than imported coal-based power. The gap between solar energy and wind energy narrows, but solar energy still remains more expensive than wind energy up to 2022 (Figure 4).

COST OF GOVERNMENT SUPPORT

Our forecasts of levelized costs have shown that while wind energy is already competitive, solar energy is still more expensive than imported coal-based power, and thus would require government support. In this section, we present the cost of government support needed to meet India's renewable energy targets. We also identify the most cost-effective policy for providing support. Given that wind energy is already competitive, the cost of support is mainly calculated for solar energy.

The cost of support refers to the required government spending under a policy mechanism to bridge the gap between the unsubsidized levelized cost of renewable power and the baseline cost of electricity. Estimating the cost of support under each policy enables us to identify the most cost-effective policy to support renewable energy.

In India, policy support is provided through a combination of state and federal support. Our previous work (CPI, 2014) found that, in general, any federal support is more cost-effective than state support which is usually in the form of feed-in tariffs.

To measure and compare the cost of support, we use the **total cost of support** as our key metric, which indicates the net present value of all the government cash flows over the project life for projects commissioned during 2015 to 2022.

The cost of support is calculated on the basis of capacity addition of renewable energy for each year and the forecasted difference between the unsubsidized levelized cost of renewable power and the baseline cost of electricity from imported coal.

We use the Planning Commission's 12th Five Year plan cumulative capacity targets of 20 GW of solar capacity and 50

GW of wind capacity by 2022. While the Planning Commission has outlined interim cumulative capacity targets at the end of the 12th Five Year Plan (2017) and the 13th Five Year Plan (2022), it does not specify annual capacity addition targets. Therefore, we assume that the annual targets are a linear division of the cumulative targets (Figure 10).

We use the 12th Five Year Plan targets since the government has created a realistic deployment roadmap for it with interim targets. The Union Budget 2015-2016 targets, on the other hand, were made official very recently in February, 2015 and interim targets are yet to be created.

Total Cost of Support

We examine current federal policies as well as a set of proposed debt-related policies and calculate the cost of government support under each, to determine which is most cost-effective. The full list of policies can be found in Appendix A. Among existing federal policies, we give special attention to accelerated depreciation, which is the most cost-effective of current policies. With accelerated depreciation, the most cost-effective among existing policies, the total cost of support for solar is INR 2.71/W.

Accelerated depreciation is a policy which allows the developer to write off the asset value of a renewable energy project in its initial years, thereby reducing tax liability. However, after the value of the asset has completely depreciated, taxes are higher in later years, which would lead to partial government recovery of the cost of support. The government currently provides accelerated depreciation of up to 80% for both wind and solar projects. As discussed in Section 3.5, wind energy is already competitive, whereas solar energy will require policy support from 2015 to 2019 in order to be competitive with imported coal-based power.

Under the existing policy of accelerated depreciation, the annual cost of support, defined as the net present value of the cost of support for capacity deployed only in a particular year, declines from INR 8.6/W in 2014 to INR 0.23/W in 2018.

The corresponding total cost of support, which is the average cost of support over the full project life for plants installed during 2015 to 2018, for solar energy is INR 2.71/W, about 3.8% of the capital cost of solar energy in 2015 (Figure 5). Based on the 12th Five Year Plan deployment targets of 20 GW of solar and 50 GW of wind by 2022, the total cost of support is INR 46.97 billion.

Accelerated depreciation is the most cost-effective policy among the existing federal policies. If the government were to provide policy support through another policy of viability gap funding instead, the total cost of support would be 19% higher. In the case of another federal policy called generation based incentive, the total cost of support would be 61% higher compared to accelerated depreciation. This is primarily because accelerated depreciation is front-loaded, or in other words, the downward impact on the levelized cost of electricity is higher since the entire benefit of the policy is available to the project developer from the first year, unlike other policies which may spread out the benefits over a longer period of time. Accelerated depreciation also enables the government to recover subsidies, since some of the tax loss is recovered through higher taxes in later years, after the value of the asset is written off completely.

However, our previous work shows that it is possible to further lower the total cost of support by using policies that address a key barrier for renewable energy projects – the cost of debt. Inferior terms of debt such as high cost, short tenor, and a variable interest rate add approximately 30% to the total cost of renewable energy in India compared to developed countries (CPI, 2012). Therefore, debt-related policies that address these challenges can significantly reduce the total cost of support (CPI, 2014).

The total cost of support can be lowered by 96% through policy support in the form of reduced cost, extended tenor debt.

Under a policy of reduced cost, extended tenor debt, the government would make direct loans to project developers below the commercial rate of interest for longer than the usual commercial tenor. If the government provides policy support through reduced cost, extended tenor debt instead of the existing federal policies, the total cost of support for solar energy can be reduced to an average of INR 0.10/W. Under reduced cost, extended tenor debt, the annual cost of support varies from INR 3.75/W in 2014 to a recovery (i.e., a profit) of INR 2.73/W by 2018 on account of loan repayments. Based on the 12th Five Year Plan deployment targets of 20 GW of solar and 50 GW of wind by 2022, the total cost of support would be INR 1.81 billion under reduced cost, extended tenor debt, around 96% lower than under accelerated depreciation (Figure 5).

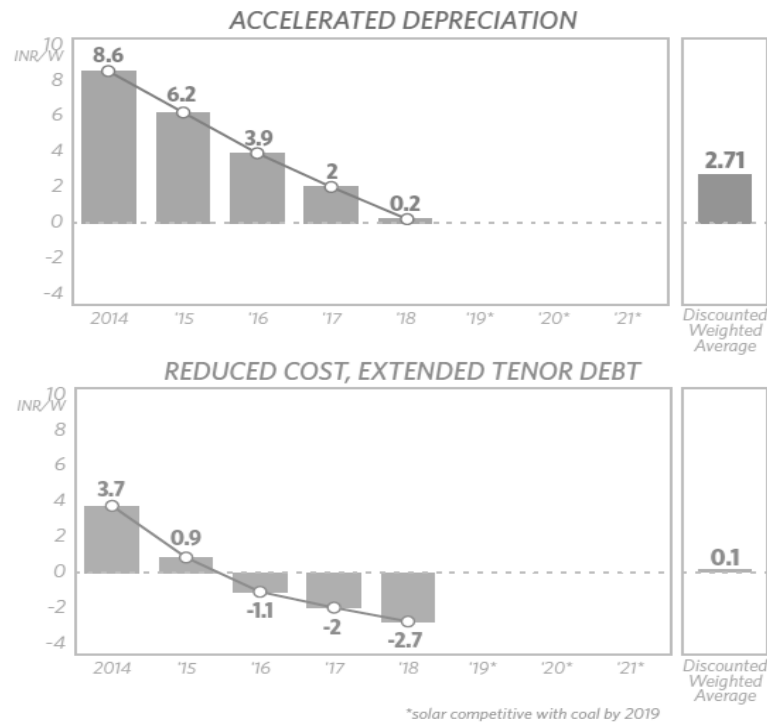


Figure 5: Annual Cost of Support (INR/W)

This is because as a policy mechanism, reduced cost, extended tenor debt offers a number of advantages. The net cash outflow for the government is recovered over time since policy support is provided in the form of a loan rather than a grant. It also provides an opportunity for interest arbitrage: in cases where the government lends at a higher rate of interest to the developer than its own cost of borrowing (7.8% on a 10-year government bond), the net cash flows for the government are positive. Lastly, when debt is cheaper, the developer can substitute equity with more debt in the project while meeting debt servicing conditions. By replacing expensive equity with cheaper debt, the overall cost of capital is reduced.

Nominal Cost of Support

We also look at the nominal cost of support as a measurement of the cost of policy support.

The **nominal cost of support** indicates the net annual cash outflow for the government in nominal terms, i.e. without discounting for time value of money. It is calculated as the sum of net cash outflows for projects deployed in a particular year as well as continuing policy support obligations for projects deployed in previous years starting from 2015.

Whereas the total cost of support includes the effect of future cash flows over a project's life from the provision of a subsidy, the nominal cost of support only measures the net cash outflow for the government at a particular point of time, ignoring any future costs or recoveries for the government. For example, in the case of reduced cost, extended tenor debt, the nominal cost

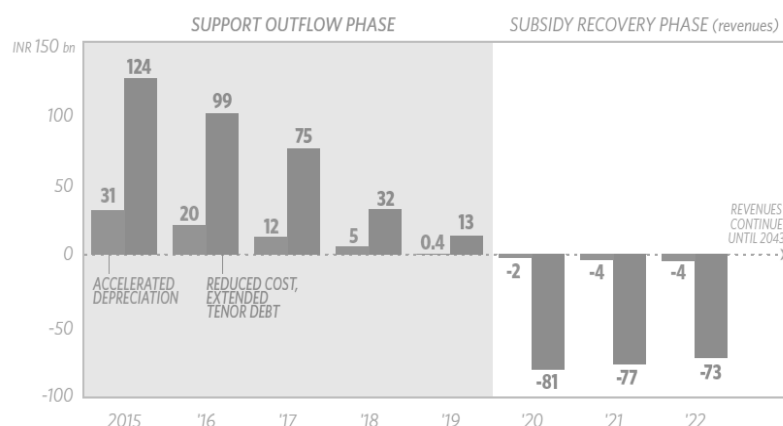


Figure 6: Nominal Cost of Support for Solar Energy

of support in 2015 will simply be the loan disbursed by the government for the capacity installed in that year, while the total cost of support will account for loan repayments over the entire project life cycle. Therefore, the total cost of support provides a complete measure of the cost of support for the government.

The nominal cost of support, however, is instructive from a budgetary perspective in showing government cash flow profiles for each year. However, it does not facilitate fair comparison of the cost-effectiveness of policies since it does not take into account all the costs over a project’s life cycle costs, which is the focus of the total cost of support.

While reduced cost, extended tenor debt is much more cost-effective than accelerated depreciation over a project’s life cycle, it would require a higher allocation of the budget in the initial years.

Figure 6 presents the nominal amount required from the government’s budget under accelerated depreciation, the most cost-effective among existing policies, and reduced cost, extended tenor debt, which is the most cost-effective among all policy options.

While the net present value, or the total cost of support, for reduced cost, extended tenor debt is significantly lower due to recovery of the subsidy amount invested by the government through loan repayments, the annual budget allocation, or nominal cost of support, for reduced cost, extended tenor debt is much higher in the initial years, since the government needs to provide approximately 70% of the total project cost in the form of debt.

For example, in 2015, based on the 12th Five Year Plan deployment targets of 20 GW of solar and 50 GW of wind by 2022, the total budget allocation for reduced cost, extended tenor debt would be INR 123.79 billion (USD 2.06 billion). In contrast, the nominal cost of support in 2015 under accelerated depreciation is INR 31.2 billion.

However, after 2019, once solar power becomes competitive, there would be a net cash inflow for the government thereafter, since solar power would no longer require additional support, and the policy support provided in the form of debt would be repaid by the project developers. As shown in Figure 6, the subsidy recovery is approximately 25 times higher under reduced cost, extended tenor debt as compared to accelerated depreciation.

Therefore, although the government will need to make a budgetary commitment that is four times that of accelerated depreciation in the short term, the net cash outflow in the long term will be 96% lower with reduced cost, extended tenor debt. In other words, in net present value terms, the total cost of support under accelerated depreciation is about 25 times higher than that of reduced cost, extended tenor debt.

The total cost of support can be further reduced if the government accelerates deployment of wind energy in the near term, and gradually ramps up deployment of solar energy.

Our analysis shows that wind energy is already competitive, and so the government's targets for deploying wind energy can be met quickly. The government can encourage rapid deployment of wind energy by creating a friendly policy environment that focuses on other barriers to wind deployment, for example, challenges in land acquisition and delays in environmental clearances (TERI, 2014).

By 2022, we anticipate that solar energy will be cheaper than other sources of electricity. However, at present, solar energy is competitive only in the presence of policy support. Thus, in the absence of direct policy support, it is likely that a larger proportion of solar capacity will be commissioned after 2019, when solar energy becomes competitive.

A schedule of solar capacity addition in which a larger part of the capacity addition takes place after 2019 is tenable for the 12th Five Year Plan targets, and would also minimize the total cost of support for the government.

However, the Budget 2015 targets of 100 GW may be difficult to achieve if much of the capacity deployment is delayed to 2019. In order to accelerate solar deployment in the near term, the government will need to provide more financial support to solar project developers and should therefore consider the cost implications of changes to the capacity addition schedule.

CONCLUSION

- Renewable energy will likely replace imported coal based power plants
- Compared to imported coal, wind energy is already competitive, while solar energy will become competitive in 2019
- Under current policy, the total cost of support for solar energy is INR 2.71/W.
- The total cost of support for solar energy can be lowered 96% by using reduced cost, extended tenor debt instead of accelerated depreciation; however, this will require a larger amount of support in the initial years.
- The total cost of support can be further reduced if the government focuses on accelerating deployment of wind energy now, and gradually ramps up deployment of solar energy.

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Renewable Energy : Opus Energy (Case Study)

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ABSTRACT

Renewable energy is generally defined as energy that comes from resources which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat.

Renewable energy replaces conventional fuels in four distinct areas: electricity generation, air and water heating /cooling, motor fuels, and rural (off-grid) energy services.

In this paper we will focus on Case Study: Opus energy & its benefits with other projects. How opus energy helped many generators of renewable energy to start realising the benefits of selling power and achieving additional revenue.

Keywords: *Opus Energy, Rita Awards.*

SECTION I

Various Renewable Energy Sources

The Energy exists freely in nature. Some of them exist infinitely (never run out, called Renewable, the rest have finite amounts (they took millions of years to form, and will run out one day, called Nonrenewable).

We will notice that water, wind, sun and biomass (vegetation) are all available naturally and were not formed. The others do not exist by themselves, they were formed. Renewable energy resources are always available to be tapped, and will not run out. This is why some people call it *Green Energy*.

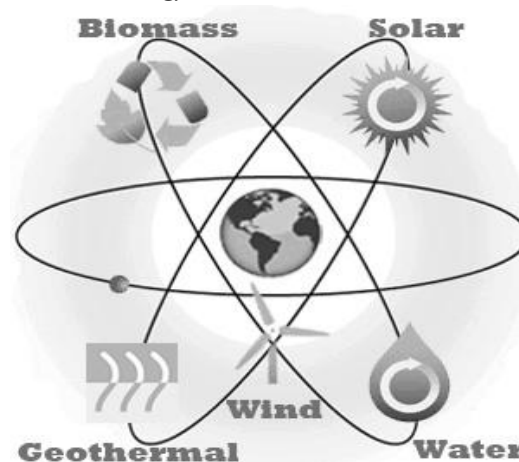


Fig : Renewable energy sources

1. WATER:

Water can be considered a renewable material when carefully controlled usage, treatment, and release are followed. If not, it would become a non-renewable resource at that location.

For example, groundwater is usually removed from an aquifer at a rate much greater than its very slow natural recharge, and so groundwater is considered non-renewable. Removal of water from the pore spaces may cause permanent compaction (subsidence) that cannot be renewed. 97.5% of the water on the Earth is salt water, and 3% is fresh water; slightly over two thirds of this is frozen glaciers and polar ice caps. The remaining unfrozen fresh water is found mainly as groundwater, with only a small fraction (0.008%) present above ground or in the air.

Water pollution is one of the main concerns regarding water resources. It is estimated that 22% of worldwide water is used in industry. Major industrial users include hydroelectric dams, thermoelectric power plants, which use water for cooling, ore and oil refineries, which use water in chemical processes, and manufacturing plants, which use water as a solvent.

2. WIND

Wind energy or wind power is extracted from air flow using wind turbines or sails to produce mechanical or electrical energy.

Wind mills are used for their mechanical power, wind pumps for water pumping, and sails to propel ships. Wind power as an alternative to fossil fuels, is plentiful, renewable, widely distributed, clean, produces no greenhouse gas emissions during operation, and uses little land. The net effects on the environment are far less problematic than those of non renewable power sources.

Wind farms consist of many individual wind turbines which are connected to the electric power transmission network. Onshore wind is an inexpensive source of electricity, competitive with or in many places cheaper than coal or gas plants. Offshore wind is steadier and stronger than on land, and offshore farms have less visual impact, but construction and maintenance costs are considerably higher. Small onshore wind farms can feed some energy into the grid or provide electricity to isolated off-grid locations.

Wind power is very consistent from year to year but has significant variation over shorter time scales. It is therefore used in conjunction with other electric power sources to give a reliable supply. As the proportion of wind power in a region increases, a need to upgrade the grid and a lowered ability to supplant conventional production can occur.

3. GEOTHERMAL

Geothermal energy is thermal energy generated and stored in the Earth. Thermal energy is the energy that determines the temperature of matter. The geothermal energy of the Earth's crust originates from the original formation of the planet and from radioactive decay of materials (in currently uncertain but possibly roughly equal proportions). Earth's internal heat is thermal energy generated from radioactive decay and continual heat loss from Earth's formation. Temperatures at the core-mantle boundary may reach over 4000 °C (7,200 °F). The high temperature and pressure in Earth's interior cause some rock to melt and solid mantle to behave plastically, resulting in portions of mantle convecting upward since it is lighter than the surrounding rock. Rock and water is heated in the crust, sometimes up to 370 °C (700 °F).

Geothermal power is cost effective, reliable, sustainable, and environmentally friendly, but has historically been limited to areas near tectonic plate boundaries. Recent technological advances have dramatically expanded the range and size of viable resources, especially for applications such as home heating, opening a potential for widespread exploitation. Geothermal wells release greenhouse gases trapped deep within the earth, but these emissions are much lower per energy unit than those of fossil fuels. As a result, geothermal power has the potential to help mitigate global warming if widely deployed in place of fossil fuels.

4. SOLAR

Solar energy is radiant light and heat from the Sun harnessed using a range of ever-evolving technologies such as solar heating, photo voltaic, solar thermal energy, solar architecture and artificial photosynthesis.

It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on the way they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power and solar water heating to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favourable mass or light dispersing properties, and designing spaces that naturally circulate air.

5. BIOMASS

Historically, humans have harnessed biomass-derived energy since the time when people began burning wood to make fire. Even today, biomass is the only source of fuel for domestic use in many developing countries. Biomass is all biologically-produced matter based in carbon, hydrogen and oxygen. The estimated biomass production in the world is 104.9 pentagrams (104.9×10^{15} g) of carbon per year, about half in the ocean and half on land.

Wood remains the largest biomass energy source today; Examples include forest residues (such as dead trees, branches and tree stumps), yard clippings, wood chips and even municipal solid waste. Wood energy is derived by using lignocelluloses biomass (second-generation bio fuels) as fuel. Harvested wood may be used directly as a fuel or collected from wood waste streams. The largest source of energy from wood is pulping liquor or "black liquor," a waste product from processes of the pulp, paper and paperboard industry. In the second sense, biomass includes plant or animal matter that can be converted into fibres or other industrial chemicals, including bio fuels. Industrial biomass can be grown from numerous types of plants, including miscanthus, switchgrass, hemp, corn, poplar, willow, sorghum, sugarcane, bamboo, and a variety of tree species, ranging from eucalyptus to oil palm (palm oil).

SECTION II :

OPUS ENERGY LTD

A. Introduction to Opus Energy Ltd.

B. History

C. Scope of Opus Energy Ltd.

D. Various Case Studies

- | | | | |
|--------------------------------|------------------------------|------------------|---------------|
| 1. TGC renewable | 2. Tewitt hall farm | 3. Bowler energy | 4. Ynergy Ltd |
| 5. Gamlingay community turbine | 6. The port of milford haven | 7. Clean Earth | |

E. RITA Award 2015

A) INTRODUCTION

Opus Energy Limited (trading as Opus Energy Limited, Opus Energy (Corporate) and Opus Gas Supply Limited) is an electricity and gas supplier, based in the United Kingdom, in Northampton. It has an additional office in Oxford, UK. It was founded in 2002 by Charlie Crossly Cooke, Chief Executive. Opus Energy Limited is an independent supplier of power and competes against a number of larger energy companies in the UK.

In October 2014 Opus Energy was ranked in The Sunday Times Top Track 250 for the fourth consecutive year, in position 39. Previously the business had been ranked 56th in 2013, 129th in 2012 and 186th in 2011.

B) HISTORY OF OPUS ENERGY

Since 2002, OPUS ENERGY have been delivering outstanding levels of service, embracing renewable energy sources and providing competitively priced energy.

Opus Energy was founded in April 2002 by Charlie Crossly Cooke, Chief Executive, and signed its first customer in November 2002, initially just supplying SMEs with electricity.

(Superconducting Magnetic Energy Storage (SMES) is a novel technology that stores electricity from the grid within the magnetic field of a coil comprised of superconducting wire with near-zero loss of energy.)

In December 2002, Telecom Plus Plc took a 20% stake in the company, and then in May 2006, 30% of the company was acquired by International Power Plc (now part of GDF SUEZ).

Opus Energy expanded its product offering to the corporate sector, and in 2007 it launched Opus Evolution, a flexible purchasing tool designed to give corporate customers direct access to the wholesale market.

In 2009, Opus Energy started to also supply gas to its business customers. Opus Energy's renewable division was launched in 2011, purchasing power from UK renewable generators.

In 2012, Opus Energy celebrated its 10th anniversary, when its customer base reached 200,000 business sites. The company has received numerous awards, including the prestigious 'Independent Energy Supplier of the Year' award in 2010. In 2011, 2012 and 2013, Opus Energy has earned a place in The Sunday Times HSBC Top Track 250 league.

C) SCOPE OF OPUS ENERGY IN RENEWABLE:

Opus Energy pays market leading prices for your renewable energy. Team of experts can help us through the entire process by deciphering jargon and making sure understands every step along the way.

OPUS ENERGY competitive rates, expert support and flexible terms ensure a hassle-free experience.

Transparent price plan with no confusing peak/off-peak tariffs. We offer just one fixed competitive rate.

Opus pay in timely, accurate instalments.

Step-by-step support throughout the start-up processes from planning to connection

Dedicated Account Management team based in Northampton on hand to offer advice at any stage of the process.

D) VARIOUS RENEWABLE CASE STUDIES OF OPUS ENERGY

Opus Energy works with developers such as TGC Renewable to buy their customers' excess renewable energy. They benefit from Opus Energy's competitive prices, easy to understand literature and expert market knowledge.

- 1) Tewitt Hall Farm is owned by award-winning farmer Jonathan Sharp, and sells its renewable wind power to Opus Energy.
- 2) Opus Energy works with Bowler Energy to offer a simple, all-encompassing solution for the process of setting up their renewable energy generation business.
- 3) 90% of the power generated by Ynergy is sold to Opus Energy and the remainder is used to power and heat the farm's poultry houses.
- 4) The village of Gamlingay sell back the turbine's power to Opus Energy to create a long-term income stream for the local area.
- 5) Solar panels have lowered the Port of Milford Haven's utility costs. It values Opus Energy's ability to make monthly payments on time.
- 6) Clean Earth chooses to work solely with Opus Energy as believes that it's the only renewable supplier able to meet their business needs.

1) CASE STUDY : TGC RENEWABLES



TGC Renewable, a renewable energy consultancy, recommends Opus Energy to its customers to purchase their excess power.

TGC Renewable benefits from Opus Energy's competitive prices, easy to understand literature and expert market knowledge.

Established in 2006, TGC Renewable, originally The Green Company, was created with the ambition of making renewable energy financially viable and accessible to everybody. TGC Renewable works with its customers to deliver large scale renewable projects across the UK, from installing wind turbines to the development of large scale solar PV. TGC Renewable' core customers are farmers and landowners, but the company also works with a wide range of corporate and public organisations.

Opus Energy works with developers such as TGC Renewable to buy their customers' excess renewable power. This is achieved by setting up Power Purchase Agreements (PPAs). Opus Energy offers PPAs for wind, anaerobic digestion (AD) and hydro projects from 30KW in size and for solar projects from 50KW in size. Chris Tucker, Project Manager,

TGC Renewable, comments: “After our first installations of medium-sized wind turbines, it was clear that the procurement and implementation of PPAs were an important factor for delivering a successful project. It provides a key revenue stream to our customers and is therefore a crucial element of our generation projects. Considering this, we reviewed a number of PPA providers to see who would provide the best option for our customers. “We chose to go with Opus Energy as they proved to be consistently competitive plus all of their literature was really straightforward; it seemed like the obvious choice. We’re happy to recommend Opus Energy to our customers, as well as others in our sector, as we’ve always had a positive working relationship with them, and our customers like Opus Energy’s competitive prices.”

Andy Dayus, Head of Renewable Operations, Opus Energy, comments: “Opus Energy provides its customers with competitive and easy to understand PPAs, enabling them to see a return on their investment by selling their excess renewable power.”

Opus Energy’s dedicated renewable team works closely with developers such as TGC Renewable. Chris Tucker, Project Manager, TGC Renewable, comments: “After our initial projects together, it was clear that the people in the renewable team at Opus Energy understand the industry and our line of business well. This means that they are always able to react quickly to our requests.”

Andy Dayus, Head of Renewable Operations, Opus Energy, concludes: “The renewable team is on hand to provide a high level of customer service, which TGC Renewables can then pass on to their customers. Opus Energy has been involved in the renewables market since 2010, so we are able to draw on our expert market knowledge to help ensure the speed and efficiency of our service.”

2) CASE STUDY : TEWITT HALL FARM



Tewitt Hall Farm is owned by an award-winning dairy farmer, Jonathan Sharp, and is based on the hills outside Oakworth in West Yorkshire. Tewitt Hall Farm has been in Jonathan’s family since 1947, making him the third generation in his family to run the business. The farm’s primary function is dairy farming; producing around one million litres of milk a year, which is sold on to ASDA.

The farm stands at nearly 1,200 feet above sea level with wind speeds of 6.3 m/s, making it an ideal location for a wind turbine. In 2012, Jonathan took full advantage of this positioning and made the wise decision to install a 50 kW turbine. Because of the turbine’s positioning, Jonathan saw fantastic results almost instantaneously. In the first two months of operation the turbine produced 57,000 kWh and within five months the turbine had produced 100,000 kWh! This means that not only is Jonathan able to power his milking parlour, but he even produces an excess of electricity which is equivalent to the amount needed to power 50 homes each year.

Renewable generators such as Tewitt Hall Farm are able to sell their excess power to energy suppliers by setting up a power purchase agreement (PPA). Choosing a knowledgeable supplier which can offer high quality customer service and be relied upon to make prompt payments was important for Jonathan. By choosing to work with Opus Energy, Jonathan received all the information he needed at industry level: he received step-by-step support throughout the start-up processes, from planning to connection, ensuring he had all the necessary information before he signed his contract. When asked why he chose to work with Opus Energy, Jonathan said:

“Opus Energy was recommended by my turbine installer, Earthmill. Trusting their opinion, I didn’t hesitate and went with Opus Energy right away. We would recommend Opus Energy wholeheartedly; we’ve had no negative experiences with them and their customer service is excellent.”

Having worked with over 1700 independent generators since 2010, Opus Energy can offer a wealth of support, including dedicated account managers, advice whenever and wherever possible and regular, reliable payments for electricity generated. Generators also benefit from competitive and transparent pricing which has no confusing peak/off-peak tariffs.

“The turbine will continue to earn us a good income for the farm for at least another 15 years,” comments Jonathan. “It’s currently being used to power the milking parlour and farmhouse, which helps reduce our electricity bill by approximately £500 per month!”

Andy Dayus, Head of Renewable Operations at Opus Energy, explains: “Mr Sharp of Tewitt Hall Farm is just one of the 1700 independent generators from across the UK who we’ve helped to generate renewable electricity. We’re proud of the relationship we build up with our generators over the years, especially as 97% of the generators we work with choose to renew with us. I think this is testament to our knowledge and experience in the industry and the great customer service and support the team offer to all our generators.”

3) CASE STUDY : BOWLER ENERGY

- Opus Energy works with renewable energy consultants to offer a simple, all-encompassing solution for the process of setting up their renewable energy generation business.
- Bowler Energy, a renewable energy consultancy, has chosen to work exclusively with Opus Energy.
- Opus Energy provides a high level of customer support and service.

Bowler Energy is part of the John Bowler Group of companies, which has been trading nationwide for 30 years in free range egg production. The company’s interest in renewable energy was confirmed when the potential to reduce energy costs across their own farms was realised by installing solar panels on the roofs of the farm’s chicken sheds. Due to its success in reducing its own energy costs, Bowler Energy has diversified, positioning the company as a nationwide consultancy and installer of wind turbines and solar panels.

In 2011, Bowler Energy chose to work exclusively with Opus Energy. Bowler Energy felt that for businesses entering into renewable energy, there was often a lack of support from other energy suppliers. They realised that by working with Opus Energy they would be supported throughout the entire process.

Michelle Tyreman, Business Development Manager, Opus Energy: “Opus Energy provides a high level of customer support, which is a key driver in helping to boost and maintain the level of customer service that Bowler Energy is able to pass onto its customers.

“Bowler Energy required a simple, all-encompassing solution for the process of setting up their renewable energy generation business. Opus Energy was ideally suited to solve their needs because of the specialist sector knowledge we can bring to a partnership.

“The offer of this partnership approach, supplemented by a dedicated point of contact for customers, seamless processes and competitive rates, made us an ideal match for Bowler Energy. Our bespoke service was well-suited to them, and is something that we have been able to develop over time to form an ongoing successful partnership.”

Opus Energy offers Bowler Energy advice on the Feed-in Tariff (FIT) scheme, which Bowler Energy can then pass on to its customers. This service ensures that in these turbulent times of varying FITs, the systems are registered within the Department of Energy and Climate Change (DECC) tariff deadlines. Bowler Energy offers advice on the latest FIT banding information, and specialises in maximising return on investment even as FIT rates begin to fall.

Michelle Tyreman, Business Development Manager, Opus Energy continues: “Opus Energy works in a similar way with a number of other developers and third party intermediaries. Opus Energy understands the processes involved in getting generators of renewable energy connected to the national grid and the commercial benefits that they will gain from this.”

As an example of these financial benefits, a typical 50 kilowatt (kW) group of solar panels costing in the region of £1,700 per kW, excluding grid connection, can generate approximately £7,500 in FITs and export per annum, whilst saving around £2,500 per annum in on-site usage, assuming 50% is used on-site. Sites suitable for wind turbines can generate higher returns.

Andrew Watson, Sales Director, Bowler Energy: “We conducted a survey of energy FIT providers. Following a meeting with Opus Energy, we decided to revert all of our FIT applications to them, as they stand apart from other energy providers because of their high level of service and support.

“In choosing Opus Energy as a partner, they gave us a dedicated Account Manager as a key point of contact, who is extremely helpful and efficient. Opus Energy offers us very good rates and guides our customers through the complex area of exporting renewable energy. Because of this partnership, our customers can be assured of the best attention throughout the commissioning process.

“The personal service and quick response times are very beneficial – they beat other suppliers. This is extremely important to us; Bowler Energy has a proven track record and an enviable reputation for providing a complete service and supporting customers through every step of the project. With this in mind we would definitely recommend Opus Energy.”

Bowler Energy offers advice to clients who are keen to invest in renewable energy and work with businesses and individuals to reduce existing energy costs and maximise return on investment.

Bowler Energy differentiates itself by concentrating on sourcing the best products, which are often innovative, such as the solar tracker range – solar panels which move to follow the sun. Not only do Bowler Energy customers benefit from the highest quality products but also from expert advice and a “full turnkey package”, including planning, grid connection application, construction, commissioning under the MCS or ROOFIT scheme and applying for FITs.

4) CASE STUDY : YENERGY



Ynergy generate renewable power by anaerobic digestion of farm products. 90% of the power is sold to Opus Energy and the remainder is used to power and heat the farm’s poultry houses.

Opus Energy offers renewable generators a competitive price for their energy.

Renewable generators are supported by Opus Energy’s dedicated renewables team .Hereford-based company, Ynergy, uses anaerobic digestion (AD) to convert the farm’s chicken waste and maize silage into renewable energy.

Speaking about why the farm decided to turn to AD, Mrs Shakesheff, the company’s Director, says: “We heard about the anaerobic digestion industry in Germany as it’s very popular there – there are thousands of plants. We were keen to set it up on our farm as it’s a nice, sustainable way of farming. It fits in well with the resources of the farm as we feed the digester with maize silage and chicken litter, both of which are from our farm.

Mrs Shakesheff continues: “We used to use the chicken litter as a fertiliser, so methane would have been released into the environment when the litter was spread. Using the digester means that doesn’t happen; the digester recycles the litter and maize silage so you end up with a very good quality and odourless fertiliser. All of that’s in addition to the electricity of course; we produce 2,000,000kWhs per year, which we use to power the poultry houses and AD system. We sell the remaining electricity – about 90% of what we produce – to Opus Energy, and use the ‘waste’ heat to heat the chicken houses.”

Speaking about why the farm chose to work with Opus Energy, Mrs Shakesheff explains: “Opus Energy was recommended to us, although we’d also shopped around ourselves so we knew that we were being offered a good deal on the electricity price.”

Renewable generators such as Ynergy are able to sell their excess power to an energy supplier by setting up a power purchase agreement (PPA). Michelle Tyreman, Business Development Manager, Opus Energy, comments: “Opus Energy provided Ynergy with a competitive PPA, enabling them to see a return on their investment by selling their excess renewable power. We make our PPAs easy to understand and also ensure that we’re on hand to answer any questions to help the process go as smoothly as possible for our customers.”

Once renewable generators have signed their PPA with Opus Energy, the renewable team liaise with them on a monthly basis to send their energy payments. The team is the direct point of contact for the generator should they have any questions, and play an integral part during the set-up of the renewable generation.

Andy Dayus, Head of Renewable Operations, Opus Energy, explains: “The AD plant at Ynergy is close to the farm buildings, so when it was set up we were able to transfer the farm’s three energy supplies into one, thereby saving Ynergy money on standing charges. We managed the relationship between Ynergy and the various industry parties, such as the National Grid, to ensure that everyone was kept up-to-date throughout the process.”

Mrs Shakesheff concludes: “At the time we set up our digester, there were only a handful of AD plants in the UK, so we had to go to Germany to do our research. There are around 75 AD plants now in the UK and the industry hopes that over the next 5 to 10 years this will increase to over 1000 plants to help achieve the government’s renewable energy target. We’re proud to be at the forefront of the AD move, improving our sustainability, energy self-sufficiency, and generating extra income at the same time.”

5) CASE STUDY : GAMLINGAY COMMUNITY TURBINE



- Gamlingay Community Turbine chose to work with Opus Energy due to their simple and clear processes, competitive prices and excellent customer service.
- Gamlingay Community Turbine benefits from the tailored support that Opus Energy’s dedicated Renewable team provide.

Gamlingay Community Turbine is situated just outside the village of Gamlingay, Cambridgeshire. It is a privately funded enterprise which has been wholly funded from local residents and businesses. Priority was given to smaller investors to ensure that as many local people as possible could invest if they wished.

The village installed the turbine for three reasons: to reduce its carbon footprint (they estimate that the turbine will reduce the amount of fossil fuels used to produce electricity for the village by 10%); to raise money for the community by selling the turbine’s power; and to create a good investment opportunity for individuals and businesses in the area. They concentrated on sustainability throughout the project, even down to the track up to the site which was built out of concrete from an old RAF airfield.

The team behind the Community Turbine were seeking a high level of customer service, which is why they choose to sell their power to Opus Energy. Mr Brettle, a director of the project, comments: “It really came down to how it easy it was to talk to Opus Energy. We’re all people with day jobs so don’t have much spare time, and we’re certainly not experts in this area! Opus Energy helped us cut through the jargon and gave us confidence that nothing horrible will happen because we’d missed some technical detail. They made the entire process simple from start to finish.”

As the project is wholly funded by local residents and businesses, the profits will be distributed back to the local rural economy; Gamlingay Community Turbine Ltd will give 10% of the net income, after all running costs, to a

community fund. This will enable them to create a long-term income stream for the local area which will be used to support environmentally friendly projects for the benefit of the whole community.

Opus Energy offers to purchase power at market-leading prices. Mr Brettle explains: "Opus Energy's prices are competitive but also very easy to understand. We'd highly recommend them to others in our line of businesses, and in fact already have!"

Andy Dayus, Head of Renewable Operations, Opus Energy, concludes: "Each member of Opus Energy's Renewables team is empowered to assist the customer to achieve their end goal. We have a very good understanding of the challenges clients could face so ensure that the whole process is as simple as possible. At Opus Energy we provide a tailored service to meet our customers' needs and thereby ensure we provide the best solution".

6) CASE STUDY : THE PORT OF MILFORD HAVEN



- The Port of Milford Haven is employing an innovative approach to renewable energy; by installing solar panels on its buildings it's able to rent them with lower utility costs.
- Opus Energy buys the excess solar power from the Port's buildings.
- The Port values Opus Energy's ability to make monthly payments on time.
- The Port benefits from the updates and timely responses to queries which Opus Energy's specialist renewables team provide.

The Port of Milford Haven is a natural deep water port in Pembrokeshire, Wales. It is the third largest port in the UK and the biggest in Wales. The Port offers a range of marine services and facilities such as cargo handling, ferry operations, fish landing, cruise calls and a first class marina. It is widely recognised as the Energy Capital of the UK, safely handling around 29% of Britain's seaborne trade in oil and gas. It supports over 5,000 jobs in Wales and is a key driver of economic activity in the local area. The Port decided to install solar panels during the winter of 2011. Explaining the motivation behind this, Tim James, Energy Development Manager for the Port of Milford Haven, says: "We recognise that renewable energy is an established, essential and growing part of the energy mix and, as the UK's energy port, we are committed to establishing a substantial presence in this industry. The Port's facilities are also providing opportunities for other businesses in this industry to operate here." The Port has installed solar panel systems over multiple buildings. Some of the sites are used by the Port for their operations, whilst others are available for rent; commercial tenants include a bowling alley, boat builders and a college. Other buildings are currently untenanted, Tim James comments: "Untenanted buildings were used for solar panels primarily because of the long term viability of the installations, but also to make them more attractive to companies who could rent the buildings with lower utility costs."

Renewable generators such as the Port of Milford Haven are able to sell their excess power to an energy supplier by setting up a power purchase agreement (PPA). The Port of Milford Haven sells its excess power to Opus Energy.

Tim James continues: "The solar panel systems have produced well above what we expected, meaning they significantly contribute to the running of the buildings. The Ferry Terminal consumes 100% of the power its 42kWp solar panel system produces, and the Phoenix Bowl bowling site consumes 82% of the electricity generated by its

100.8 kWp system. By generating its own energy, the Port has lowered utility costs, reduced emissions, and become more sustainable.”

Once renewable generators have signed their PPA with Opus Energy, the renewable team will liaise with the generator on a monthly basis to send their energy payments. Should the generator have any questions, they are able to contact the renewable team, which is on-hand to help resolve any queries.

Tim James says: “The main driver for us to work with Opus Energy was their ability to deliver to deadlines when it was of paramount importance. We’ve found their customer service to be good; payments have been made consistently and on time, and the staff have been in contact regularly with updates. They also provide quick responses to our queries. We’ve already recommended Opus Energy to other businesses.”

Andy Dayus, Head of Renewable Operations, Opus Energy, concludes: “The specialist renewables team at Opus Energy understands the commercial benefits that the Port of Milford Haven gains from their installation. We commend the Port for their innovative approach to renewable energy – their diversification into the area is seeing them reap financial rewards by reducing the running cost of their buildings.”

7) CASE STUDY: CLEAN EARTH



- Clean Earth values the depth of knowledge and great customer service that Opus Energy provides
- Clean Earth chooses to work solely with Opus Energy as it believes that it's the only renewable supplier able to meet their business needs
- Opus Energy is unique in the amount of advice and support that it gives potential customers.

Clean Earth was founded by Dean Robson in 2010 to install renewable energy systems in the UK. This was in response to the introduction of legislation that meant that investing in renewable energy sources was financially viable for many for the first time. Experienced and fully-accredited installers were in high demand.

In 2011, Dean was attempting to agree a Power Purchase Agreement (PPA) for Galsworthy Farm in Galsworthy (near Buckland Brewer, Devon) where he was installing solar panels, but needed clarification around the process and related industry requirements.

Opus Energy went through the process with Dean and gave him information on how it works on an industry level. He was then provided with a quote, which led to a confirmed PPA. Throughout the process Opus Energy provided Dean with support, guidance and the benefit of extensive industry knowledge.

Dean Robson comments: “We were thrilled with the comprehensive service that Opus Energy gave us; they made it much easier to work through the associated bureaucracy. It was obvious that Opus Energy provided us with all that we were after; a responsive service, knowledgeable staff, and a price that was competitive. They certainly offered the best option to meet our needs and we were impressed to get this level of service at such a reasonable price.”

Dean's solar installation at Galsworthy Farm is generating 200MWh/year (or 200,000kWh/year). According to Ofgem research, this is enough to power 60 homes for a year*.

Since this initial PPA, Clean Earth has continued to work solely with Opus Energy to purchase the excess power from its installations.

Dean explains: “We’ve been in touch with other suppliers, but our contacts at Opus Energy really do seem to know the renewable market far better than anyone else. I’d say that they’re pretty tremendous!

“There’s a world of difference between Opus Energy and the other suppliers we spoke to. Quite simply, Opus Energy is the only supplier with the knowledge and understanding to meet my business needs. We’d absolutely recommend Opus Energy to other people!”

Andy Dayus, Head of Renewable Operations, Opus Energy, concludes: “Since the Opus Energy renewables division began in early 2011 we have grown rapidly. We have a dedicated Renewables Sales team to supply quotes and PPAs, and our knowledgeable Renewables Operations team offer a step-by-step approach to customers seeking support and guidance.”

E) RECENT AWARD : RITA AWARD IN 2015



Subject : Innovation in Business

Published: 14th March 2015

Opus Energy Broker Pricing Portal recognised for online innovation

A boom in the number of quotes generated online since the launch of business energy supplier Opus Energy’s Broker Pricing Portal, has seen the web-based program named as a finalist for two prestigious business innovation awards.

Before the Broker Pricing Portal launched in autumn 2014, just 6% of Opus Energy’s broker quotes were completed online. That number now stands at 85% – an increase of hundreds of quotes in the space of several months. The innovative technology has been recognised by The Real IT Awards, which is hosted by the corporate IT Forum, where it has been shortlisted for two categories – Innovation in Technology and Innovation in Business.

By using the Broker Pricing Portal, business energy brokers can see all quotes online at any time, enabling them to view all tenders, refresh pricing, accept quotes and complete by e-signing contracts. It allows management of the entire brokering process from initial quote request to contract acceptance and account management, dramatically cutting the time needed to process energy quotes.

Steve James, Director of Corporate Solutions at Opus Energy, says: “Making the shortlist for this award is recognition of the expertise that has gone into developing the Opus Energy Broker Pricing Portal. It’s great to see the portal being recognised for the difference it has made to the way energy brokers do business.

“When we had the idea for the portal, we could have bought in a product and then developed it, but to make the Broker Pricing Portal fit all energy brokers’ needs we decided to start from scratch. The entire process has been thoroughly planned – even through to roll out – including a number of road shows to demonstrate features of the portal and capture feedback from brokers, which was a great success and helped in the final development of the system. From November to December 2014 alone, the number of our brokers using the portal jumped from 40% to 84% – showing just how useful it is. The Broker Pricing Portal is just the first stage of continuing to improve our offering to brokers and the short listing at the Real IT awards has been a fantastic way to give credit to those plans.”

Within its two categories, Innovation in Technology and Innovation in Business, the portal is up against products developed by high-profile companies with global networks. The winners will be revealed at the Real IT Awards ceremony on 21 May 2015.

VARIOUS AWARDS OF OPUS ENERGY LTD

- The Real IT Awards 2015: Innovation in Business (May 2015)
- The Sunday Times: #87 UK's Best Companies to Work For 2015 list (Feb 20)
- Data monitor B2B Energy Buyer Customer Satisfaction 2014: Ranked 1st for SME customer service (Oct 2014)
- Customer First UK: Putting the Customer First accreditation (Oct 2014)
- CIPD People Management Awards: Building HR Capability shortlist (July 2013)
- National Apprenticeship Awards: Newcomer Employer of the Year shortlist (July 2013)
- Investec Hot 100: League table #95 ranking (June 2013)
- HR Excellence Awards 2013: Most Effective Recruitment and Retention shortlist (April 2013)
- Data monitor's 2012 B2B Customer Satisfaction Survey: Ranked 1st for SME customer service (March 2013)

SECTION III

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SECTION IV

Conclusion of this paper :

- Renewable energy is important source which will be helpful to store regenerate energy by natural resources.
- Opus energy ltd is an organisation deals with various renewable resources at various level.
- It means opus energy is responsible to provide bridge between renewable resources & Information technology advanced technologies.

It means OPUS ENERGY LTD. not only deal with renewable energy sources also handles E-business by innovation in technology by providing broker pricing portal.

Trends in Future Green Energy

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ABSTRACT

Current fossil fuel usage is unsustainable and associated with greenhouse gas production. Renewable energy technologies are required to provide world's primary energy supply. The environmental pollution and diminishing fossil fuel sources and global warming problems make it important for considering renewables as alternative energy sources, such as solar, wind, hydro, etc. Hence, the relevant technologies such as hydrogen fuel, solar cell, biotechnology, Nuclear energy, wind and ocean energy for green environment are reviewed. The implementation of renewable energy sources instead of fossil fuels to produce electricity and hydrogen which results in the reductions of air pollution emissions. With present costs of wind and solar electricity, shown that when electricity from renewable sources replaces electricity from natural gas, the cost of air pollution emission abatement is more than ten times less than the cost if hydrogen from renewable sources replaces hydrogen produced from natural gas.

INTRODUCTION

There is strong scientific evidence that the average temperature of the earth's surface is rising as a result of the increased concentration of CO₂ and other GHGs in the atmosphere as released by burning fossil fuels. This global warming will eventually lead to substantial changes in the world's climate, which will have a major impact on human life and the built environment [1]. The major problem - Significant global problems, such as global climate change, world energy conflicts and shortages of energy resources, have increasingly threatened world stability. These negative effects, which are mainly attributable to increasing fossil fuel consumption, are observed globally. If increasing use is made of fossil based energy sources, the related significant global problems will probably increase. However, fossil fuels cannot continue indefinitely as the principal energy sources due to the rapid increase of world energy demand and energy consumption. Energy experts need to predict potentially and economically available fossil fuel reserves, and how much green energy should be used to meet world energy demand in the future. Modern power generation and transportation systems powered by hydrocarbons are characterized by growing air pollution and greenhouse gas emissions. Nitrogen oxides (NO_x) in combination with volatile organic compounds (VOCs) cause the formation of ground level ozone and smog. Healthy people can suffer eye irritation and a decrease in lung function when exposed to smog. Elevated levels of ozone can cause lung and respiratory disorders and noticeable leaf damage in many crops, plants and trees. Carbon monoxide (CO) emissions impact the ability of red blood cells to transport oxygen to body tissues. Numerous other environmental impacts are associated with emissions of NO_x, VOCs and CO [3].

The replacement of environmentally unfriendly fossil fuels with green energy resources plays a fundamental role in resolving environmental pollution and global warming problems. However, due to its inherent nature of lacking controllability and availability, renewable energy by itself cannot meet the full requirements of a load. The recent advances in hydrogen and fuel cell technologies have enabled hydrogen fuel cell as a new energy option for supplying electrical power in commercial and residential buildings [4]. The concept of a "green energy sustainable house," emphasizes the use of modern green energy technology to reduce environmental load, achieve energy sustainable, and use energy intelligently, comfortable living environment. Chen et al. [5] has established a feasible applied model of a green energy sustainable house based on bio-hydrogen energy. Better energy policies, strategies and projections can facilitate the introduction of

green energy-based environmental benefits in several ways. Energy consumption is better controlled. Also, the environmental impacts of energy sources and technologies such as greenhouse gas emissions and pollution are reduced. In addition, energy planning can contribute to innovative implementations of green energy technologies so as to achieve improved sustainability and global stability, particularly during a transition to a green energy-based economy [7]. Today's energy system is unsustainable because of equity issues as well as environmental, economic, and geopolitical concerns that will have implications far into the future. Hence, sustainable renewable energy sources such as biomass, hydro, wind, solar (both thermal and photovoltaic), geothermal, and marine energy sources will play an important role in the world's future energy supply. Geothermal energy can be utilized in various forms such as electricity generation, direct use, space heating, heat pumps, greenhouse heating, and industrial sectors. Nearly all geothermal energy refers to heat derived from the Earth's molten core. Geothermal energy is clean, cheap and renewable, and can be utilized in various forms such as space heating and domestic hot water supply, CO₂ and dry-ice production process, heat pumps, greenhouse heating, swimming and balneology, industrial processes and electricity generation. Direct application of geothermal energy can involve a wide variety of end uses, such as space heating and cooling, industry, greenhouses, fish farming, and health spas [10]. The world primary energy consumption will increase by 20.57% while its coal consumption will drop to 11.22%, the world oil consumption to 15.14%, its natural gas consumption to 31.89% and its green energy consumption to 32.29% from 2005 to 2025, respectively[7].

A growing number of scientists and engineers are exploring and tweaking material properties at an atomic scale to create designer materials, which might ultimately increase the efficiency of current energy sources or make new energy sources practical on a commercial scale. Nanotechnologists are searching for new catalysts to improve the energy efficiency of cracking fossil fuels, to remove the sulfur and to create cleaner-burning fuels, also needed for converting coal to diesel and other liquid transportation fuels. [14-16]

HYDROGEN FUEL CELL

Recent advances in hydrogen and fuel cell technologies further facilitate energy options to supply electrical power to various communities. Hydrogen fuel cell systems coupled with renewable energy sources works as a promising solution. Hydrogen is an energy carrier, provides a good opportunity for utilizing renewable energies in distributed or a centralized way. During the past few years, a number of researchers and developers have been engaged in adopting renewable energy and hydrogen fuel cell technology to supply electrical power [4]. Use of hydrogen as an energy source could improve global climate change, energy efficiency, and air quality. Hydrogen has the potential to solve two major energy problems: reducing dependence on petroleum and reducing pollution and greenhouse gas emissions. Fuel cells are clean, quiet, and efficient. Hydrogen is currently more expensive than conventional energy sources. There are different technologies presently being practiced to produce hydrogen economically from biomass. Biomass represents a large potential feedstock resource for environmentally clean hydrogen production. It lends itself to both biological and thermal conversion processes [9]. Fuel cell systems are very complex to design and build—especially the small, rugged ones for vehicles, which must stand up to bumps and to temperature variations. Alkaline fuel cells, Proton exchange membrane fuel cells, Phosphoric acid fuel cells, molten carbonate fuel cells are basic types of fuel cells which differentiated by their electrolyte and by operating temperature range [17-20]. Hydrogen is the ideal feedstock for fuel cells because the chemical and physical interactions are mainly governed by surfaces; the nanostructured materials can have different properties than conventional materials. Advanced nonstructural catalysts may allow hydrocarbon reforming at very low temperatures (below 100°C). Successful development of such catalysts will help in making fuel cells that operate at ambient temperatures. The major technical challenges is a hydrogen economy: storing hydrogen, purifying hydrogen, devising membranes for fuel cells, and producing enough hydrogen on a commercial scale from water instead of from natural gas to support a hydrogen economy genuinely independent of fossil fuels. For fuel cell focused on the miniaturization, two main research axes are possible for the global conception of the small fuel cells: either the reduction in the size of existing fuel cells or the search for new

materials and structures usable for their fabrication. The first solution seems to be the easiest but it involves the miniaturization of all the auxiliary components and the difficulty to adapt macrofabrication techniques to miniature sizes. So, research rather tends to apply itself to develop size-adapted methods with suitable materials. The important issue in is chemical reaction and higher cost for equipment for fuel cells. As per the eco-friendly requirements, it's related to "green" microtechnology and nanotechnology applied to fuel cell fabrication should be given in an industrial environment [14].

WIND AND OCEAN ENERGY

Instead of natural gas, introducing wind and solar renewable energy sources to produce electricity and hydrogen leads to a reduction of air pollution emissions. Implementation of wind- and solar-based electricity is less costly than the introduction of wind- and solar-based hydrogen. When electricity from renewable sources replaces electricity from natural gas, the cost of air pollution emission abatement is less than the cost if hydrogen from renewable sources replaces hydrogen produced from natural gas. The results provide a useful economic evaluation of air pollution emissions mitigation by the introduction of renewable wind and solar energy sources [3]. Renewable energy from the wind has been used for centuries to power windmills to mill wheat or pump water. More recently, large wind turbines have been designed that are used to generate electricity. This source of energy is nonpolluting and freely available in many areas. Wind turbines are becoming more efficient. The cost of the electricity they generate is falling. Wind energy is renewable, mostly distributed generation characterized by large variations in the production. The wind energy sector is one of the fastest-growing energy sectors in the world. The world wind power engineering entered during the stage of industrial development. From 1991 until the end of 2002, global installed capacity has increased from about 2GW to over 31GW, with an average annual growth rate of about 26%. During this period, both prices of wind turbines and the cost of wind-generated electricity have been reduced. Wind power would need to be produced 1% more to compensate for the losses of hydropower production. Wind power production, on an hourly level for 1–2 days ahead, is more difficult to predict than other production forms, or the load. Wind energy is safe, clean, and abundant resource. Wind energy is an indigenous supply permanently available in virtually every nation in the world. Wind energy is abundant, renewable, widely distributed, clean, and mitigates the greenhouse effect if it is used to replace fossil-fuel-derived electricity. Wind energy has limitations based on geography and meteorology, plus there may be political or environmental problems. On the other hand, wind can cause air pollution by degradation and distribution of pieces of pollutants such as waste paper, straw, etc. Wind power in coastal and other windy regions is promising as well. By any measure the power in the wind is no longer an alternative source of energy [10]. The ocean waves have tremendous energy. Wave energy varies considerably in different parts of the world, and wave energy cannot be harnessed effectively everywhere. To exploit fully the possibilities of electricity production from wave and tidal sources, advances are required in the most developed ocean technologies including tidal barrages, tidal current turbines, and wave turbines. Like wind energy, corrosion is also a problem for wave and tidal energy and will require the continued development of advanced long-lasting protective coatings to reduce maintenance costs and prolong life [14].

SOLAR ENERGY

One of the most abundant energy resources on the surface of the Earth is sunlight. Solar energy has a tiny contribution in the world total primary energy supply. The last three decades have witnessed a trend in solar thermal electricity generation of increasing the concentration of sunlight [10]. Polymer and hybrid solar cells have the potential to become the leading technology of the twenty-first century to convert sunlight to electrical energy because they can be easily processed from solution printing devices in a roll-to-roll fashion with high speed and low-cost. The performance of such devices critically depends on the nanoscale organization of the photoactive layer, which is composed of at least two functional materials, the electron donor and the electron acceptor forming a bulk-heterojunction; however, control of its volume morphology still is a challenge. The main requirements for the morphology of efficient photoactive layers are nanoscale phase separation for a large donor/acceptor interface area and hence efficient exciton dissociation, short and continuous percolation pathways of both components leading through the layer thickness to the corresponding electrodes for efficient charge transport and collection, and high crystallinity of both donor and acceptor materials for high charge mobility [11].

For commercial applications, it is important to reduce the cost of high efficiency, which will meet the affordability criteria. High-efficiency solar cells with cost-effectiveness require thinner semiconductor wafers (less than 200 nm) and replacement of current costly photolithography processes with low-cost, simple processing techniques. Using a number of expensive photolithography processes involving thick silicon wafers high-efficiency silicon solar cells has been fabricated. Potentially even more efficient may be quantum dot solar cells, which absorb solar infrared and create electron-hole pairs from thermal gradients. In theory, nanoscale quantum dots of various sizes and chemical compositions could be optimized to harvest solar radiation of all wavelengths from infrared to ultraviolet. Except for the designed PV solar cells using nanowires and nanocrystals, it can be pointed out that quantum dots have more distinct advantages over photosensitive dyes in the fabrication of solar cells. Furthermore, quantum dots have a superior ability to match the solar spectrum, because their absorption spectrum can be tuned with the particle or dot size. Quantum dots have demonstrated a capability to generate multiple electron-hole pairs per individual photon, which could result in enhanced conversion efficiency for a solar cell. It is believed that deployment of quantum dot technology in fabrication of solar cells will meet both critical requirements, namely, higher conversion efficiency and low fabrication cost [14, 2]. Researchers are working on alternate architectures and suitable materials for quantum dots and nanowires to achieve higher conversion efficiencies. In addition, integration of nanotechnology-based zinc oxide nanorods will significantly improve the conversion efficiency of solar cell. Hybrid PV solar cells based on conducting polymers and semiconductor nanorods also hold special promise; Technical challenge with flexible solar cells is creating an impervious vapor barrier to prevent water molecules from diffusing inside and lowering the efficiency. By combining the excellent electronic properties of inorganic semiconductors with the process flexibility of organic polymers, researchers are homing in on PV devices with good efficiencies that are easier and much less expensive to manufacture than are conventional solar cells [14, 21-22].

BIOTECHNOLOGY

In order to reduce fossil fuel usage and carbon dioxide emissions, the fuel, heat or electricity must be produced from biological sources that are environmentally friendly. Microalgae are potentially a great source of natural compounds that could be used as ingredients for preparing foods and enhancing the nutritional food content of humans and animals [7]. More recently, algae have been used successfully to produce biodiesel, polyunsaturated fatty acids. The high capital cost associated with producing microalgae in closed culture systems is the main challenge for commercialization of systems [12]. To use microalgae to fix CO₂ released from power plants via the exhaust gas and thereby mitigate the amount of Carbon released into the atmosphere is an attractive before this idea becomes practical. Growth of algae is negatively influenced by increasing CO₂. The idea of biological sequestering by growing algae and take advantage of their photosynthetic machinery of capturing carbon dioxide has been suggested by many researchers as an alternative method of reducing the amount of CO₂ released in the atmosphere. Globally, a lot more needs to be done before the utilization of microalgae can become a reality. An urgent need exists to set up facilities comprising “banks” for maintenance of algal germplasm useful as sources of biofuels, and trained manpower (biologists, engineers and technocrats) needs to be developed for effective utilization of these valuable sources of “green energy”[8]. There has been rapid progress from last decade in the biofuel marketing trend: increasing production capacity, increasing international material flows, increased competition with conventional agriculture, increased competition with forest industries, increasing international trade flows, and strong international debate about the sustainability of biofuels production. It appears to have significant economic potential provided that fossil fuel prices increase in the future. Biomass offers important advantages as a combustion feedstock due to the high volatility of the fuel and the high reactivity of both the fuel and the resulting char. Activated carbons from biomass have applications such as adsorbents for the removal or reduction of gaseous pollutants from the exhaust gases of industrial sources. They can be used as adsorbents for the removal of volatile organic compounds, ozone from air, mercury and dioxin emissions from incinerator flue gas, and Hydrogen sulfide emissions from sewage treatment facilities. Activated carbons can be used to remove chlorine and organic chemicals, heavy metals and organic contaminants from water and also can be used to extract some harmful elements of cigarette smoke by incorporation in filter tips of the cigarettes.

Liquid biofuels are important in the future because they replace petroleum fuels. The biggest difference between biofuels and petroleum feedstocks is oxygen content. Biofuels are non-polluting, locally available, accessible, sustainable and reliable fuel obtained from renewable sources. Electricity generation from these fuels is a promising method to use in the near future. The future of biomass electricity generation lies in biomass-integrated gasification/gas turbine technology, which offers high energy conversion efficiencies. Biodiesel is an environmentally friendly alternative liquid fuel that can be used in any diesel engine without modification. If the biodiesel valorized efficiently, it would be beneficial in terms of the environment and the local population, job creation, provision of modern energy carriers to rural communities, avoiding urban migration, and reduction of CO₂ and sulfur levels in the atmosphere. The second generation biofuels include renewable and green diesels. No engine modification is typically needed to use the blend. Ethanol can be used as an octane-boosting, pollution-reducing additive in unleaded gasoline. Bio-oils are liquid or gaseous fuels made from biomass materials, such as agricultural crops, municipal wastes and agricultural and forestry byproducts via biochemical or thermochemical processes. They can serve as substitutes for conventional fuels in vehicle engines, either totally or partially in a blend. Biogas is a valuable fuel, which is produced in digesters filled with the feedstock like dung or sewage. The digestion is allowed to continue for a period from 10 days to a few weeks. Biogas is obtained from decomposing organic material. Biogas is composed of methane, carbon dioxide, air, ammonia, carbon monoxide, hydrogen, sulfur gases, nitrogen and oxygen. Among its components, methane is the most important one, particularly for the combustion process in vehicle engines. Biohydrogen technologies provide a wide range of approaches to generate hydrogen, including direct biophotolysis, indirect biophotolysis, photofermentations, and dark fermentation. Biological hydrogen production processes are found to be more environmentally friendly and less energy intensive as compared to thermochemical and electrochemical processes. Researchers have investigated hydrogen production with anaerobic bacteria since the 1980s. Technical barriers for biofuel production are Production costs are uncertain and vary with the feedstock available [9].

NUCLEAR ENERGY

Nuclear energy, as the solution to the energy challenges, is a low-carbon source of electricity and makes an important contribution to the diversity of the energy supplies. The carbon emissions would be higher and higher in the absence of nuclear power stations. Nuclear energy generation is therefore an important component of the green energy sources. The technical challenge is for the safe and efficient harnessing of nuclear energy, exploring both fission and fusion technology [23]. Nuclear power reactors are mainly fueled with uranium, the heaviest element occurring in nature in more than trace quantities. The principal fissile materials are uranium-235, plutonium-239, and uranium-233. To improve further the efficient and safe utilization of nuclear fission, full understanding of the physicochemical effects of radiation on material fatigue, stresses, and corrosion in nuclear power stations; improving methods for spent fuel processing, including developing advanced separation technologies to allow unprecedented control of chemical selectivity in complex environments; studying the nuclear and chemical properties of the actinide and lanthanide elements and the radiation effects on polymers, rubbers, and ion exchange materials; storing, disposing, and reusing the nuclear waste efficiently. The new generation of advanced reactors will have the potential to deliver step-change benefits. Opportunities exist in the design and demonstration of new reactors. For nuclear technology, it is always very dangerous. More serious considerations on the nuclear energy exploitation should be taken because of the nuclear crisis that caused the contamination after the earthquake and tsunami [14].

CONCLUSION

If the increase of fossil fuel consumption continues, it is likely that the world will be affected by many negative problems due to the fossil fuels. More utilization of fossil fuels will harm world stability and increase local and global environmental problems, resulting in increasing global unrest. Thus it is suggested that the utilization of fossil fuels should be reduced, and fossil-based technologies should be gradually converted to green energy-based technologies. Sustainable green energy strategies are definitely required to ensure the global stability by reducing the harmful effects of the fossil-based energy consumption. Moreover, a transition to the green energy-based economy should be encouraged, and developed countries, in particular, should increase investments in green energy and technologies. The foremost factor that will determine the

specific role of green energy and technologies will likely be energy demand. In order to balance the energy demand now and in the future, it is suggested that sustainable green energy sources and technologies should be definitely taken into consideration to increase the sustainable development in a country. In summary, green energy strategies can make an important contribution to the economies of countries where green energy is abundantly produced. Renewable resources such as wind, solar, and ocean power exploited by Nano techniques will be promisingly reliable solutions to diminishing the dependence on fossil fuel supplies. In the Good future, research on the remediation of environmental problems and green technologies will be realized to make the new clean eco-energy sources practical on a commercial scale.

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Sustaining Energy

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ABSTRACT

Renewable energy is generally defined as energy that comes from resources which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat. Renewable energy resources have significant opportunities for energy efficiency as it exist over wide geographical areas, in contrast to other non renewable energy sources, which are concentrated only in a limited number of countries.

Rapid use of renewable energy and technological diversification of energy sources, would result in significant energy security and economic benefits. It would also reduce environmental pollution such as air pollution caused by burning of fossil fuels and improve public health, reduce premature mortalities due to pollution and save associated health costs.

Use of renewable sources of energy will not only help to fulfill need of present generation but also fulfill needs of future generation and thus help in sustainable development of nation.

Keywords:- *Renewable energy, Energy Security, Sustainable energy.*

INTRODUCTION

Energy is an important input for development. Its use pervades every segment of our life; from household to industry. Movement of people and goods alone, consumes about 20% of all energy produced globally.

Energy resources can be classified into two groups: 1) Non Renewable energy 2) Renewable energy.

Non Renewable energy sources may include fuel which is used to generate heat and power and Renewable energy is energy from natural resources such as sunlight, wind, rain, tides, waves, biomass and geothermal heat.

Since ages fuels are principal sources of energy in use but the fossil fuels of coal, oil and natural gas and the nuclear fuels of uranium and thorium is regarded as earth's energy capital that is being used rapidly and once used, cannot be replaced. There has been great successes in the discovery of new reserves of coal and oil. Although such discoveries extend estimated reserves, capital energy has definite limits that will eventually be reached.

Income energy comes from continuing activity of the sun and gives man much better long term prospects because it is renewable resource. The Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters relating to new and renewable energy. The broad aim of the Ministry is to develop and deploy new and renewable energy for supplementing the energy requirements of the country.

ALTERNATE SOURCE OF ENERGY

1) Solar energy

Solar energy is the most abundant and easily available renewable resource and has been harnessed by humans since ancient times. Solar cookers and solar water heaters can be used at home.

Solar electricity is the conversion of sunlight into electricity. Concentrated solar power systems use lenses or mirrors to focus a large area of sunlight into a small beam which is hot enough to convert water into steam that turns turbine to produce electricity. Photovoltaics system convert sunlight directly into electric current using the photoelectric effect. Commercial production of solar energy takes place in Japan, Australia and France.

India receives solar energy equivalent to 20 mw./sq.km.per year. India has over 4,00,000 box type solarcookers. Sagar Island in West Bengal has a 26 kw. Solar energy is the only hope for mankind as an alternate source of energy. It is freely available but not cheap. It consumes land and Silicon used in the production of solar power which is polluting.

2) Hydropower

Hydropower is energy derived from the movement of water in rivers. Conventional hydroelectric power involves creating a dam and using the resulting potential water force to turn a water turbine and generator.

Hydroelectric power is well developed in USA, Europe especially United Germany, France, Italy, Switzerland, Norway, Sweden, Australia and United Kingdom.

3) Geothermal Energy

Geothermal energy comes from earth's crust and originates from the original formation of the planet (20%) and from radioactive decay of minerals (80%). The available energy from the earth's crust and mantle is approximately equal to that of incoming solar energy. Geothermal heating is the direct use of geothermal energy for heating applications. Italy, Japan, Iceland, the Philippines and the United States have geothermal power stations.

4) Biofuels

Biofuels include fuels derived from biomass conversion. Bioethanol is an alcohol made by fermentation mostly from corn and sugarcane. Biodiesel is made from vegetable oils and animal fats. Biodiesel is produced from oils or fats and is most common biofuel in Europe. Biogas is methane produced by the process of anaerobic digestion of organic material by anaerobic bacteria.

5) Green Energy

Green energy includes natural energetic processes that can be harnessed with little pollution. Green power is electricity generated from renewable energy sources. Anaerobic digestion, geothermal power, wind power, small-scale hydropower, solar energy, biomass power, tidal power, wave power, and some forms of nuclear power (ones which are able to "burn" nuclear waste through a process known as nuclear transmutation, such as an Integral Fast Reactor, and therefore belong in the "Green Energy" category).

CASE STUDY**1. Solar Energy**

Rajasthan Sun Technique Energy, a subsidiary of Reliance Power, has commissioned its 100 MW concentrated solar power (CSP) plant. The plant is the largest plant based on the linear fresnel technology. The 100 MW CSP plant becomes the second CSP plant to be generating power in India. The first one was 50 MW plant of Godavari Green Energy Limited using parabolic trough technology. It was commissioned in August 2013. Reliance Power said in a statement, "The company has successfully synchronised the Rs 2,100 crore 100 MW solar CSP project with the grid, and power generation has commenced". The project developer has signed a power purchase agreement for 25 years. The plant is based on Areva's compact linear fresnel reflector (CLFR) technology. The biggest advantage is that it requires lesser area to operate in comparison to other technologies for the same power output.

2. Hydropower

The connection between water and energy production is not always appreciated. Areas with a lack of diversity in their energy sources can expose themselves to risks if water supplies are unreliable.

Hydropower accounts for over 90 percent of Brazil's electricity – and this abundant hydroelectric power is a mixed blessing. On the positive side, hydroelectric power reduces Brazil's overall generation costs, compared to countries with more diverse sources of supply.

India is endowed with significant hydroelectric potential and ranks fifth in the world in terms of usable potential. As per the latest available data, India has around 36 GW of installed hydropower capacity whereas an additional 13 GW is under construction.

Compared to most thermal generation, it is also more sustainable for the environment. However, this dependence makes the country more vulnerable to supply shortages in years with low precipitation, especially given sustained and increasing consumer and industrial demand.

3. Geothermal Energy

The Global Geothermal Alliance, launched on the sidelines of the UN climate talks in Le Bourget, aims at a sixfold increase in geothermal electricity production and a tripling of geothermal-derived heating by 2030. At present, geothermal is growing modestly, at three to four percent per year, providing 12 gigawatts of electricity annually.

In India, exploration and study of geothermal fields started in 1970. The GSI (Geological Survey of India) has identified 350 geothermal energy locations in the country. The most promising of these is in Puga valley of Ladakh. The estimated potential for geothermal energy in India is about 10000 MW. There are seven geothermal provinces in India : the Himalayas, Sohana, West coast, Cambay, Son-Narmada-Tapi (SONATA), Godavari, and Mahanadi.

4. Biofuels

In September 2007, the Hindustan Petroleum Corporation Limited (HPCL) joined hands with the Maharashtra State Farming Corporation Ltd (MSFCL) for a jatropha seed-based bio-diesel venture. As part of the project, jatropha plants would be grown on 500 acres (2 km²) in Nashik and Aurangabad. In November 2005, the Maharashtra Government aimed to cultivate jatropha on 600 km² in the state, with half the land going to the public sector and the other half to the private sector. On 1 July 2006, Pune Municipal Corporation took the lead among Indian cities in using bio-diesel from jatropha in over 100 public buses.

5. Green Energy

Suresh Prabhu- Railway Minister has taken Steps towards green initiatives on 30th December 2015, He has launched two environment-friendly measures - a 26 MW wind mill plant at Jaisalmer and "head on generation system" in Mumbai Rajdhani. Dedicating the 26 MW wind mill plant at Jaisalmer to the nation, Prabhu said there is a need to protect our environment, promoting sustainable development and reducing dependence on fossil fuel while rationalising the cost of fuel bills."

CONCLUSION

It is clear that alternatives to fossil fuel have to be found. While a number of technologies exist, a lot of research and innovation is needed to enable wide spread shift to renewable energy sources including the following areas:

1. Research in material sciences for new efficient solar cells, moving away from the need for rare earth materials.
2. Reliable and affordable, yet environmentally benign batteries.
3. Renewable energy manufacturing industry/ deployment.
4. Design firms working on reliable durable products, designed for reuse and recycle.
5. Design of energy efficient appliances, products.
6. Designing manufacturing of pollution abatement, reducing equipment.

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Track - 3 :
Corporate Social
Responsibility (CSR)

Brief Summary	
Track-in-Charge	1) Sandip Khandekar, Assistant Professor, Department of Accountancy, VSIT 2) Rumeli Sharma, Assistant Professor, Department of Communication, VSIT
Session Chair(s)	1) Dr. Gurusamy, Head of Commerce Department, Madras University 2) Dr. K. Venkateshwarlu, Vice Principal, Raheja College
Best Paper Awarded	Title of the paper: Linking between CSR Partnership and Transaction Specific Relational Contract Theory: Evidence from Health Sector in India
	Author(s): 1) Susanta Datta, Assistant Professor, Department of Economics, VSIT 2) Mohan Iyer, Assistant Professor, Department of Accountancy, VSIT

Linking between CSR Partnership and Transaction Specific Relational Contract Theory: Evidence from Health Sector in India

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ABSTRACT :

As per under section 135 of the newly enacted Company Act 2013 read with Companies (The Corporate Social Responsibility Policy) Rules 2014, companies could implement their CSR either directly or implementing through implementing agencies. While direct implementation involves more transaction costs is much higher as compared to implementing through specialized agencies in order to achieve certain scale economics. It is quite evident that both public sector enterprises as well as private sector enterprises prefer to implement directly in the vicinity of their plant, while they prefer to collaborate with specialized agencies viz NGOs, Foundations in order to implement their CSR projects across India. Collaboration with enterprises with specialized agencies leads to hybrid model of CSR partnership. This type of hybrid CSR partnership is definitely helpful from two perspectives – (a) enterprises reduce their risk and uncertainties associated with their CSR expenditures vis a vis their desired outcome from the projects by collaborating with specialized agency of implementing projects, and (b) NGOs/Foundation could be able to manage continuous funding and smooth running their existing project after post financial crisis period when most of the donor agencies cut their funding across the world. Under this backdrop, this paper tries to examine different favourable conditions with respect to build CSR partnership among different NGOs/Foundations with public and private sector enterprises with respect to CSR intervention in health sector. This paper is completely based on secondary data with specific reference to health sector. Due to lack of publicly available data to carry out rigorous analytical, an attempt has been made to build a case study on CSR partnership and its projects implementation with reference to “Mobile 1000” project of Wockhardt Foundation. We concluded that under what conditions successful partnership could be build up in order to provide basic services through medical mobile vans across different states. This is a case on responsive CSR.

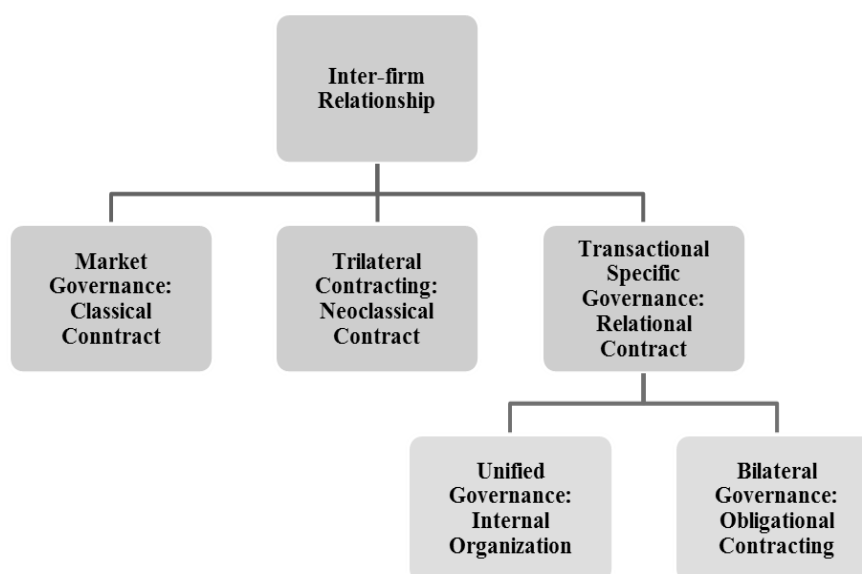
Keywords:- *Corporate Social Responsibility, Corporate Governance, Relational Contract*

INTRODUCTION :

Most of the companies in the developed countries are supposed to follow UN Global Compact ratification a part of their Corporate Reporting (CR) in order to become a good corporate Citizen. Corporate Reporting mechanism helps government to monitor and regulate its corporate governance mechanism so that economic stability can be ensured as well as protect investment made by shareholders of companies due to any unforeseen contingencies. It was also found that most of the countries introduced CSR after the incidence of their stock market crisis/financial recession. After the financial recession 2008, Government of India introduced its corporate governance mechanism through its “Result Framework Document (RFD)” in order to ensure better monitoring and regulation of companies Act 1956 and ensure public disclosure norms by corporates/enterprises in order to minimize both (a) financial risk for corporates in terms of profit and returns to investors and (b) non-financial risk which may lead to higher cost of production for the companies in future. For private sector enterprises, Ministry of Corporate Affairs introduced “National Voluntary Guideline” in 2009 which was voluntary in nature and for public sector enterprises which was mandatory in nature, Department of Public Enterprises (DPE), under Ministry of Heavy Industries & Public Enterprises, Government of India, has initiated a Corporate Governance mechanism through “Result Framework Documentation” (RFD). The basis of introducing RFD is to ensure the governance mechanism to bring in more transparency and accountability in the functioning of the Indian CPSEs and particularly promoting

contractual engagement of specialized agencies to create value in business vide different CSR guidelines since 09.04.2010 (Table 1). RFD is divided into two parts – financial (50 marks) and non-financial performance (50 marks). CSR expenditure (with the help of specialized agencies like NGOs, CBOs) belongs under non-financial performances. As per Revised CSR Guideline 2012 is concerned, 80% of CPSEs CSR fund to be implemented in project mode in collaboration with any specialized agency, NGOs, CBOs etc. under section 135 of the newly enacted Companies Act 2013 read with Companies (the Corporate Social Responsibility Policy) Rule 2014, CSR is mandatory to all companies in India and mode of implementation could be done either directly by the companies through their dedicated CSR department or implementation through specialized agencies. Now the next question would be: how to choose between these two methods of implementation? Or what would be the guiding principle of choice of mode of implementation? If the companies prefer to go for implementing through specialised agency which ultimately calls for discussion of hybrid types of arrangement between two or more partners and how to prepare governance of contractual relationship under contract theory.

Hence, the best way to explain governance of contractual relationship with the help of “Transaction Cost Economics” (and henceforth TCE) [initiated by Coase (1937) and developed by Williamson (1975, 1985, 1991a)]. Transaction Cost Economics studies how trading partners protect themselves from the hazards associated with exchange relationships. TCE maintains that in a complex world, contracts are typically incomplete due to uncertainty, frequency with which transactions recur, and the degree to which durable transaction specific investments are incurred. [Williamson (1975, 1985, 1995), Klein, Crawford & Alchian (1978), Grossman & Hart (1986), Hart & Moore (1990)]. Williamson (1979) narrowed down to the following three way classifications which are relevant to explain inter-firm relationship given as follows:



Governance of CSR contractual relation

Hence “Transactional Specific Governance” which belongs under “relational contracting governance mechanism” is much more suitable as per as RFD and Companies Act 2013 are concerned. While unified governance takes places when all CPSEs signed their MOU target with DPE, however, bilateral governance takes places when respective CPSE signed their MOU with any external agency viz. NGOs/CBOs/Foundation etc. for their CSR project specific purpose.

Noorderhaven (1994) has explained the basic relationship in a very lucid way which was quoted as follows: Transactional relationship between firms can take the form of a series of transactions between autonomous parties, or alternatively, of mutual adjustment under common ownership and management. In the first case, the relationship bears the characteristics of

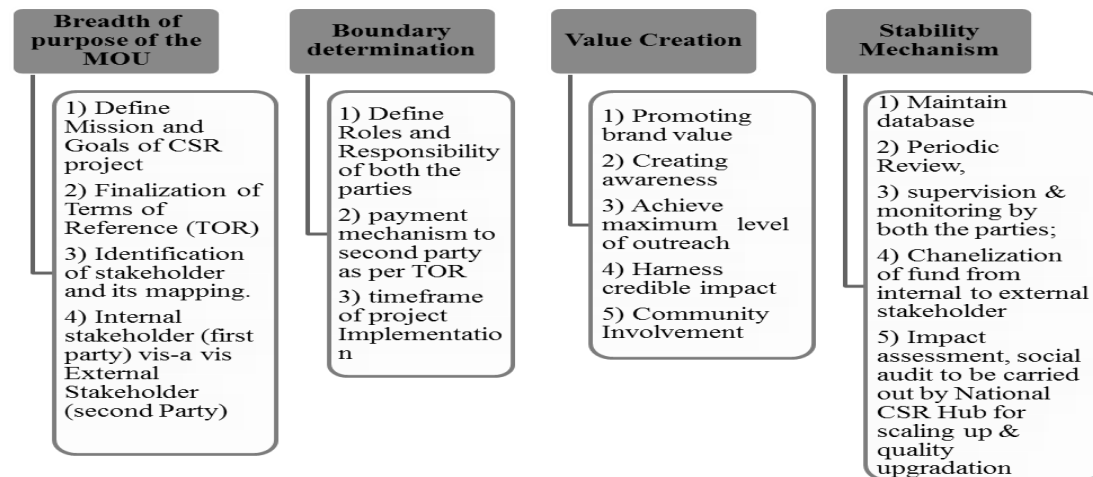
a ‘market relationship’ (Williamson, 1975) and in the second case those of a ‘hierarchical relationship’ (Williamson, 1975). As a third possibility, the relationship can be neither market nor hierarchy, but a hybrid of both. In this case, the relationship is steadier than the typical market relationship and at the same time less tight than the relationship between parts of one and the same firm (Williamson, 1991)”. Michelini (2012) explains these new kinds of institutional setting with reference to companies and enterprises.

Defining Hybrid model

According to hybrid institutional arrangement [Borys & Jemison (1989)], in which two or more sovereign organizations combine to pursue common interest and based on broad 4 elements which form the core of a hybrid arrangement:

- a) Breadth of purpose
- b) Boundary determination
- c) Value creation
- d) Stability mechanism

Memorandum of Understanding (MOU)



Evidence of Transaction specific partnership in Health Sector: “Mobile 1000 project”

A. Basis of Project formulation:

Mobile 1000 was started after seeing the dire need for medical assistance in the underprivileged areas of India. For more than 5 years, Wockardt Foundation conducted medical camps in the slums of India. They learnt that these camps were not sufficient in satisfying the medical needs of the people. Gradually, Wockhardt Foundation decided to focus and concentrate on the medical problems of the rural poor who are hardly aware of their medical problems and cannot afford basic health care. As per National Rural Health Mission Report, some key highlighting issues are mentioned as follows:

- 1) Rural Health Centers are critically short of trained medical personal.
- 2) 8% PHC's don't have doctor's.
- 3) 39% PHCs do not have Lab Technicians.
- 4) 18% PHCs do not have a Pharmacist.
- 5) 75% graduate doctors live in urban areas, serving only 28% of the population.
- 6) Mobile Medical Units are the best & most viable solution.

Relevance of mobile medical van in rural areas:

It is also important to justify with reference to rural areas due to following facts:

- 1) 700 million people live in 6,36,000 Indian villages.
- 2) Preventable and curable diseases dominate the morbidity patterns of: diarrhea, measles and typhoid.
- 3) 66% of rural Indians do not have access to critical medicine.
- 4) 31% of the population travels more than 30 kms to seek healthcare in rural India.

Objective: Under the given backdrop, the objective of Mobile 1000 is to provide awareness, diagnosis and cure to the poor rural population through mobile health van.

Awareness	Diagnosis	Cure	Referrals
Hygienic Sanitation	Blood Pressure	Medicines	Cases required specialty care
Hygienic Water Consumption	Hemoglobin	Nutritional Supplements	Cataract
Mother & Child Health Care	Oxygen Saturation	De-worming	Surgical
Immunization	Malaria		Gynecology
Anemia	Dengue		Obstetrics
De-Worming	Hepatitis		Pediatrics
Vector Borne Diseases	Typhoid		
Hepatitis	Diabetes		
Typhoid			
Common Cardiac Problems			
HIV			
Diabetes			
Snake Bite			
Tuberculosis			

Source: Wockhardt Foundation

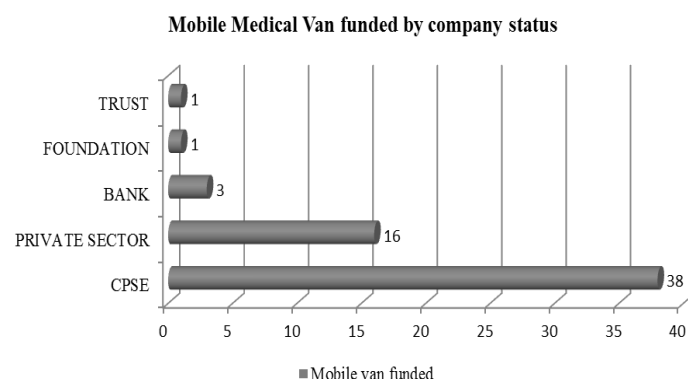
Project Cost: Cost per van per month is Rs. 2.25 Lakh. Hence cost per year per van is Rs. 27 lakh. It is expected that each medical van could cover 25000 patients per year. So the cost per patient will be Rs. 108 which is less than the NRHM standard rate of Rs. 150 per patient.

Executing of the project:

- Each and every funding partner has to sign bilateral MoU between Wockhardt foundation and respective partner.
- Stakeholder mapping: Internal stakeholder and External stakeholder
- Defining roles and responsibilities
- Implementation and monitoring the programme
- Expected outcome
 - Access to health facilities remote rural areas
 - Reach to excluded people
 - Providing referral/consultancy basic medical consultancy services.
 - Providing free medicine

Outreach of Mobile 1000**Distribution of outreach by Company**

	Company Name	State covered	Mobile van Funded
Central Public Sector Enterprises [CPSE (38)] 64%	GAIL	MP(7), UP(5), UTT(2), GJ(1), PN(1), HR(1), AP(1)	18
	HPCL	BH(1), OD(1), RJ(1), MH(1), JK(1) AP(1), JH(1)	7
	RCF	MH(5)	5
	NALCO	OD(4)	4
	BHEL	AP(1), JK(1)	2
	ECL	JH(1)	1
	SAIL	MP(1)	1
Private Sector Enterprises (16) 27%	China Light and Power Company	HR(1), MH(1)	2
	Johar Health Maintenance Organisation	JH(2)	2
	NYK Line	MH(2)	2
	TATA Powers	MH(2)	2
	Welspun	MH(1), GJ(1)	2
	Wockhardt Ltd	GJ(1), MH(1)	2
	Shivsena	MH(1)	1
	Shriram Finance	MH(1)	1
	Vedanta	OD(1)	1
	Wockhardt Hospital	MH(1)	1
Foundation (1) 2%	AMM Foundation	KR(1)	1
Trust (1) 2%	Shri Ramchandra Charitable Trust	OD(1)	1
Bank (3) 3%	Vaijapur Merchants Co-Op Bank	MH(3)	3
Grand Total			59

Distribution of outreach by status of Company

Source: Authors calculation based on Workhardt Foundation data

Distribution of outreach by state

States	Central Public Sector Enterprises [CPSE]	Private Sector Enterprises	Banks	Foundation	Trusts	Mobile Medical Van funded
Andhra Pradesh	03					3
Bihar	01					1
Gujarat	01	02				3
Haryana	01	01				2
Jammu & Kashmir	02					2
Jharkhand	02	02				4
Karnataka				01		1
Madhya Pradesh	08					8
Maharashtra	06	10	03			19
Odisha	05	01			01	7
Punjab	01					1
Rajasthan	01					1
Uttar Pradesh	05					5
Uttarakhand	02					2
Grand Total	38 (64%)	16 (27%)	03 (5%)	01 (2%)	01 (2%)	59 (100%)

Source:

Observation:

- 64% Mobile medical vans are funded by Central Public Sector Enterprises (CPSEs). Apart from CPSEs, Private Sector Company's share is 27%, followed by Bank (5%), Foundation (2%), and Trust (2%).
- 20 funding partner collaborated with Wockhardt Foundation and implemented the programme across 14 states in India. Among the 14 states, Maharashtra is having highest share of mobile medical van as compared to other state due to plant location advantage of mainly private and public sector companies.
- It is important to note that GAIL India is having highest contribution in Mobile 1000 programme. Out of 59 funded mobile van, GAIL India's contribution is 18 van i.e 31% total cost and out of 38 funded mobile van across all CPSEs, its contribution is 18 i.e. 47% of CPSEs contribution to this programme. Apart from Maharashtra, Madhya Pradesh and Uttar Pradesh are having predominantly covered by GAIL India.

Value Creation by GAIL Mobile Medical Van Programme:

National CSR Hub (2013) had already conducted an impact assessment on GAIL Mobile medical Van in 4 different plants of GAIL India – three in MP (vijaipur, Kheda and Jhabua) and one in UP (Pata). Using census method of data collection across 225 villages following a weekly journey cycle plan of Monile Medical Van, following remarks can be made:

- 1) It empowers the community about their basic right to health access in some remote areas located in the backward districts and also makes them understand that health is an asset. It somehow overcomes the problem of infrastructure bottlenecks in the health system.
- 2) Communities are happy to consult with a qualified MBBS doctor. Mutual respect and affection towards the doctor are very high. This has helped the community to reduce risk caused due to un-scientific medical practice in rural areas. Water borne diseases and digestion related problem can be solved with the provision of access of clean drinking water and improving hygienic conditions.
- 3) Impact of the programme was access and following are the benefits derived from the programme as reported by the villagers: free medicine, time saving, no need to go hospital/ treatment at home, free consultancy advice, treated by trained/qualified doctors, travelling cost is saving etc.

CONCLUSION

There is no doubt about the outreach of the project, even conceptualizing the project and its implementation is really created impact to the locality and that can be showcased accordingly. Mobile medical van is really an innovative idea to reach the untouched people in our society, which actually guarantees the basic fulfilment of inclusive development conditions. This will help us to reduce health inequality in long term. From human development point of view, this type of hybrid arrangement between Workhardt foundation and its partner, say, GAIL India has been created value which can be shared by other communities of the locality.

But it could not have been possible without transaction specific relational contract, which means without signing an MoU. This type of collaboration will definitely reduce risk in terms of creating shared value among all shareholders and also reduce future uncertainties of recurring investments. It is also expected that over the period of time existing partners are going to increase their funding capacity in terms of increase number of mobile van over time and new collaborators are also added over time. Hence we conclude that transaction specific relational contract is a good starting point, and depending upon its level of value creation over time, other conditions can be revise over time in order to continue better CSR partnership in future.

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Website access

DPE : <http://dpe.nic.in/> GAIL (India) Ltd: http://www.gail.nic.in/final_site/index.html

Mobile 1000: <http://www.wockhardtoundation.org/pro-vision-1000.aspx>

National CSR Hub: <http://www.tisscsrhub.org/>

Wockhardt Foundation: <http://www.wockhardtoundation.org/welcome.aspx>

Appendix 1: List of Important Milestones and Events in the Process of Evolving CSR as an Obligatory Mandate for Companies in India.

1) December, 2007	RBI issues a circular to all Scheduled Banks, regarding the Role of Banks in Corporate Social Responsibility (CSR), Sustainable Development (SD) and Non-Financial Reporting (NFR).
2009	Publication of Voluntary Guidelines, for Corporate Governance, by the Ministry of Corporate Affairs, Government of India.
April, 2010	DPE issues Guidelines on CSR, for CPSEs.
May, 2010	DPE issues Guidelines on Corporate Governance, for CPSEs.
July, 2011	National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business, issued by the Ministry of Corporate Affairs.

September, 2011	DPE issues Guidelines on Sustainable Development; Research and Development; and Human Resource Management - for CPSEs.
November, 2011	SEBI mandate: for top-100 companies, in terms of market-capitalisation; to submit Business Responsibilities Reports, as part of their Annual Reports.
2012	Publication of Voluntary Guidelines for Companies for providing general information on their websites about the company, to promote good corporate governance and to enhance investors' awareness; by the Ministry of Corporate Affairs, Government of India.
April, 2013 :	DPE's integrated set of Guidelines, titled "Guidelines on Corporate Social Responsibility and Sustainability, for Central Public Sector Enterprises": comes into effect.
29th August, 2013	The Companies Act, 2013 enacted; Section 135 of which specifically addresses CSR-related mandatory requirements.
27th February, 2014	Notification of the 'CSR Rules', 2014, under The Companies Act, 2013 + Revision of Schedule VII, pertaining to 'CSR Activities'.
18th June, 2014	The Ministry of Corporate Affairs issues a detailed circular, clarifying the CSR-related requirements, under Section 135, of The Companies Act, 2013. This includes answers to specific queries submitted by various organizations, regarding admissibility of their current/proposed CSR activities, under Schedule VII.
6th August, 2014	Inclusion of 'Slum Area Development', in Schedule VII of The Companies Act, 2013.
21st October, 2014	DPE issues the revised 'CSR & Sustainability Guidelines, for CPSEs', in line with The Companies Act, 2013. This replaces the April, 2013 DPE Guidelines on the subject.
24th October, 2014	Inclusion of contributions to 'Swach Bharat Kosh' and 'Clean Ganga Fund', in Schedule VII, of The Companies
Source: Excerpt from National Corporate Social Responsibility (CSR) Hub	

Appendix 2

States	Central Public Sector Enterprises [CPSE]	Private Sector Enterprises	Banks	Foundation	Trusts	Mobile Medical Van funded
Andhra Pradesh	BHEL -01 GAIL- 01 HPCL -01					3
Bihar	HPCL -01					1
Gujarat	GAIL - 01	Welspun -01 Wockhardt Ltd -01				3
Haryana	GAIL -01	China Light and Power Company -01				2
Jammu & Kashmir	HPCL -01 BHEL -01					2

Jharkhand	ECL - 01 HPCL -01	Johar Health Maintenance Organisation				4
Karnataka				AMM Foundation - 01		1
Madhya Pradesh	GAIL -07 SAIL -01					8
Maharashtra	HPCL – 01 RCF – 05	China Light and Power Company -01, NYK Line -02, Shivsena -01 Shriram Finance-01, TATA Powers-02 Wockhardt Hospital -01 Wockhardt Ltd -01 Welspun -01	Vaijapur Merchants Co-Op Bank -03			19
Odisha	HPCL – 01, NALCO -04	Vedanta -01			Shri Ramchandra Charitable Trust -01	7
Punjab	GAIL -01					1
Rajasthan	HPCL -01					1
Uttar Pradesh	GAIL -05					5
Uttarakhand	GAIL -02					2
Grand Total						59

Chennai Floods: CSR Activities Done by Companies to help Tamil Nadu's Disaster Victims

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ABSTRACT

2015 south Indian floods that which resulted in heavy rainfall affected the coromandel coast region, states of Tamil Nadu and Andhra Pradesh. Nearly 400 people have died and over 1.8 million people have been displaced. During the annual cyclone season a low pressure area consolidated into a depression before crossing the coast Tamil Nadu, because of the interaction and high vertical wind shear, the system weakened into a well-marked low pressure area over north Tamil Nadu. It resulted in heavy rainfall over coastal and the north interior districts of Tamil Nadu, dropping huge amount of rainfall over Tamil Nadu. In my study I m going on focus of the CSR activities done by the different companies .Many have begun taking to social media to offer their prayers and support for the victims, a number of business and companies have stepped forward to help the flood victims in whatever ways their services are able to. In this study I m going to concentrate on 10 companies which have done CSR activities in Chennai to help the victims. Study will be based on the secondary data collected. The study will find the effectiveness of the companies to help the victim.

Objectives of the study

- To know the effectiveness of the help provided by the companies.
- To know that the Companies were able to satisfy the victim.
- To analysis the effectiveness of the efforts taken by the companies in rehabilitation of the flood affected people.

INTRODUCTION

The south Indian state of Tamil Nadu has been declared a "disaster zone". Total population of Tamil Nadu is **76,656,206 were affected because of this disaster**. Tamil Nadu is the emerging hub of technology and modern lifestyle in India. Home to several ancient monuments and temples, destinations in Tamil Nadu are very popular among tourist from all over the world. Tamil Nadu is one of the most developed states of India with 44% of its population living in urban areas. Tamil Nadu is one of the well developed states of South India. The state offers good health care facilities along with a highly improved education system that makes it one of the progressive states in South India.

The Indian army was deployed to rescue thousands of people who were stranded after the region received the heaviest rainfall in a century. After such kind of efforts also nearly 280 people lost their life's, and nearly thousands of people were trapped and displaced

After looking such kind of disaster in the state some of the companies came ahead to provide helping hands to the flood affected people in different ways. We will here by take a look of such companies and the help provided by them in detail and will also analysis the effectiveness of the efforts taken by them for the CSR activities done.

Reviewing the details of the disaster, the 2015 South Indian floods resulted from heavy rainfall of annual northeast monsoon in November–December 2015. They affected the Coromandel Coast region of the South Indian states of Tamil Nadu and Andhra Pradesh, and the union territory of Puducherry, with Tamil Nadu and the city of Chennai particularly hard-hit.^[9] More than 400 people were killed ^{[1][2][4]} and over 18 lakh (1.8 million) people were displaced.^[10] With estimates of damages and losses ranging from ₹50000 crore (US\$7 billion) to ₹100000 crore (US\$15 billion),^{[5][11][12][13][14]} the floods are the costliest to have occurred in 2015, and are among the costliest natural disasters of the year.¹ The flooding has been attributed to the El Niño phenomenon.

Tamil Nadu state government pegged the damage at Rs 8,481 crore, with Chief Minister J Jayalithaa urging Prime Minister Narendra Modi to immediately release Rs 2,000 crore to sustain relief work. Detailing the extent of the damage, Jayalithaa told the PM that despite her government's preventive efforts, the state had suffered severe damage on account of the "extremely heavy and sustained" rainfall which, she said, had left a trail of destruction and that her government had allocated Rs 500 crore for relief work.

The assessment of damages and requirement of funds for immediate relief and restoration of infrastructure which she said had been speedily carried out indicated a much higher financial requirement.

"The requirement of funds for immediate rescue and relief and the temporary and permanent restoration of infrastructure has been worked out at Rs.8,481 crore in all...." "This assessment has been made as an immediate measure since the Government of Tamil Nadu requires assistance from Government of India to meet the very high expenditure requirements that such a severe calamity has caused. The funds required are well beyond the resources available with the state, including the State Disaster Response Fund." Despite of all these efforts taken by the government thousands of the people were affected and displaced, so companies like Uber, Twitter, Facebook, Ola Cabs, Airtel, Paytm, BSNL, Vodafone, Google, Zomato, Skype and Lookup App.

Results

1. Uber

Using Uber's uberCARE service for Chennai, people were able to request the taxi service to pick them up free of charge. Uber replaced their traditional taxis with trucks, which they said were better able to deal with the waterlogged streets. Apart from offering free rides in the region, people could also request a truck to come to their doorstep and collect essential supplies to donate to the flood victims. Uber would then deliver the supplies to the necessary locations, however, people were also able to specify a location to which they wished the supplies to be dropped off at.

2. Twitter

As many Indians began taking to Twitter to coordinate relief efforts in the region, Twitter India's account became a central rallying point for the different ways people could assist during the floods. Twitter India has been rounding up all the different volunteering services that are taking place for the flood victims, as well as organising the different hashtags related to the floods by ensuring that people are using the correct hashtags for the correct purposes. The account was also providing useful emergency contact numbers and updates on the situation on the ground.

3. Facebook

Facebook activated their "safety" tool during the floods to help people let their loved ones know they are OK. The tool was particularly useful as many mobile networks were down and people struggled to reach their family and friends. Those who were in the area got an automatic message from Facebook, prompting them to mark themselves as "safe". Those not in the region were able to access the safety tool to check which of their friends were there, who had marked themselves as "safe", and who were yet to do so.

4. Ola Cabs

In November taxi service Ola Cabs launched a free rescue boat service for the Chennai flood victims. The Ola taxi app, which works on a similar basis to Uber, deployed boats in waterlogged areas based on information provided by the state's Fire and Rescue Department.

Ola Cabs hired professional rowers and fishermen to operate the boats, which could be hailed using the taxi's app. The boats were also used to provide food and drinking water in areas that were short of basic supplies, with both ferrying and supplying services made available free of charge.

5. Airtel/ Paytm/BSNL

Telecom companies across India have been offering free talk time to their customers in a bid to ensure that everyone can remain connected with their loved ones during the floods. Airtel, BSNL, Vodafone, RCom and Aircel are among those offering free time to customers in the flood-hit regions. Apart from offering free time, mobile networks also provided users with free internet data of up to 100MB in some instances and an extension on monthly phone bills.

Social media users quickly began taking advantage of these offers, with volunteers offering to top up the phones of those who are stranded if they sent them their phone number.

6. Vodafone

Vodafone India took their efforts one step further than other mobile networks during the Chennai floods by launching a service to help find missing people. Through the 'Trace Your Loved One' program, customers were able to call a special helpline and provide the phone number of the person they were attempting to track down. Vodafone would then send them a text within two hours with the details of their loved one's last tracked location.

7. Google

Google launched a Crisis Response tool that rounded up everything people needed to know about the disaster region, including useful emergency numbers. It also listed useful messages on Twitter and provided weather updates for the region. Information on staying safe and maintaining hygiene during the floods was issued, alongside a list of crowdsourced places and people offering shelter to those whose houses had been flooded.

8. Zomato

Restaurant-finder and delivery service Zomato launched a 'Meal for Flood Relief' offer. Any time someone bought a meal for a flood victim in Chennai, Zomato added another meal to the donation. A number of restaurants agreed to take part in the initiative and the service gained nationwide popularity. Within a few hours people had bought 15,000 meals for Tamil Nadu's flood victims, with Zomato delivering 30,000 meals after matching each donation.

9. Skype

In an attempt to help connect Chennai's flood victims with their loved ones abroad, Skype made international calls to landlines and mobiles in Tamil Nadu free of charge. Anyone based outside India was able to call their friends and family in the flood-hit region to check on them, free of cost, through Skype. The organisation's blog also posted instructions on how to make calls to landlines and mobile phones from a Skype account.

10. Lookup app

Messaging app Lookup partnered with India's largest youth volunteering organisation Bhumi to round up volunteers who could pick up clothes and other essential materials from people living in different parts of Chennai. The donations were then handed out to those who needed it most. People were able to easily chat with Bhumi volunteers through the Lookup app, share their pick-up location, and have their donations picked up straight from their doorstep. The service provided useful during a time when few wanted to venture outside.

CONCLUSION

The companies mentioned above have effectively provided help to the flood affected people to whom the help of the government did not reach and the companies also provided extra ordinary help which is new in its kind. Companies like Uber and Ola Cabs helped in rehabilitation of the flood affected peoples where as companies like Zomato provided food to the people. Some of the companies also gave an extra ordinary services like connectivity, with their loved one's and tracing them, which the people did not expect in such disaster in India. Company like Lookup App partnered with India's largest youth volunteering organisation Bhumi and gave clothes and other essential material to the affected people. Providing these kinds of help have resulted in earlier recovery of the state from the tragedy of the flood.

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Corporate Social Responsibility and its Impact on Financial Performance : A Case Study of ITC Limited

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ABSTRACT

While much has been written about corporate social responsibility (CSR), relatively less is known about impact of CSR on financial performance of the company. Motivated by this gap in the literature, the paper is aimed to highlight the influence of CSR activities on financial performance. It illustrates how essential it is for a company to be socially responsible and to have a sense of responsibility towards its stakeholders and It also lists out the various financial benefit a company can achieve by undertaking corporate social responsibility activities. This paper is based on secondary data. Based on the available data analysis has been carried out.

Keywords: *corporate social responsibility; financial performance, stakeholders*

INTRODUCTION

Corporate Social Responsibility (CSR) is a concept that organizations, especially (but not only) corporation, have an obligation to consider the interests of customers, employees, shareholders, communities, and ecological considerations in all aspects of their operations.

This obligation is seen to extend beyond their statutory obligation to comply with legislation and sees organizations voluntarily taking further steps to improve the quality of life for employees and their families as well as for the local community and society at large.

The context surrounding social and environmental issues has been changing rapidly in the last few years. NGOs have become increasingly sophisticated; mainstream investors have become more concerned about social and environmental risk; legal cases are on the rise; and CSR standards have been proliferating at a dizzying rate.

CSR is not a new concept in India. What is new is the shift in focus from making profits to meeting societal challenges. Giving a universal definition of CSR is difficult, it is usually described in terms of accompany considering ,managing and balancingthe economic ,social and environmental impact on its activities . In India, the concept of CSR is governed by Clause 135 of Companies Act, 2013. The CSR provisions within the Act are applicable to companies with an annual turnover of 1000 crore INR and more, or a net worth of 500 crore INR and more, or a net profit of five crore INR and more. The new rules also require companies to set up a CSR Committee consisting of their board members, including at least one independent director.

- The Act encourages companies to spend at least 2% of their average net profits in the previous three years on CSR activities. The Act lists out a set of activities eligible under CSR. Companies may implement these activities taking into account the local conditions after seeking board approval.
- The indicative activities which can be undertaken by a company under CSR have been specified under Schedule VII of the Act, which are as follows:
 1. Promotion of education
 2. Eradication of extreme hunger and poverty
 3. Gender equity and women empowerment
 4. Reducing child mortality and improving maternal health
 5. Combating HIV-AIDS, malaria and other diseases
 6. Contribution to Prime Minister's relief fund and other such state and central funds.

7. Social business projects
8. Environment sustainability
9. Employment enhancing vocational skills
10. And such other matters as may be prescribed

Importance of Corporate Social Responsibility

There are actually two different types of corporate social responsibility to consider. The first one consists of corporations providing funding and resources for worthwhile social causes, such as donating money or employee time to charities. For many people, this is the definition used when thinking about corporate responsibility. However, another type of CSR involves putting together a real plan to produce products or provide services that are in the best interests of society. These include things like using safe materials in design and manufacture, corporate environmental initiatives, and other factors such as job creation and economic development.

- **Showing a True Commitment:** The most successful corporate social responsibility programs integrate these two types of CSR together to show a true commitment to a cause. For example, a company that uses sustainable materials in their products, donates financial resources to environmental causes, and allows employees to take paid time off for volunteering at environmental charities would be showing a true commitment to the environment that goes beyond any single CSR initiative.
- **Social Media Visibility:** One of the reasons that corporations should have visible CSR campaigns is due to the importance and prevalence of social media. Corporations that want to protect their brand understand that social media is an integral part of public perception. When a corporation exercises social responsibility in the form of fundraising or setting up employee giving programs, using social media to promote these actions helps to create a positive branding environment and it is a great way to engage with your audience on a deeper level that goes beyond your products or services.
- **Public Relations Benefits:** Public relations is a potent tool for shaping consumer perception and building a company's image. Corporations that actively promote their social responsibility activities often take steps to publicize these efforts through the media. Getting the word out about corporate donations, employee volunteer programs, or other CSR initiatives is a powerful branding tool that can build publicity for you in both online and print media.
- **Government Relations:** Corporations that place an emphasis on corporate social responsibility typically have an easier experience when dealing with politicians and government regulators. In contrast, businesses that present a reckless disregard for social responsibility tend to find themselves fending off various inquiries and probes, often brought on at the insistence of public service organizations. The more positive the public perception is that a corporation takes social responsibility seriously, the less likely it is that activist groups will launch public campaigns and demand government inquiries against it.
- **Building a Positive Workplace Environment:** Finally, one of the greatest benefits of promoting social responsibility in the workplace is the positive environment you build for your employees. When employees and management feel they are working for a company that has a true conscience, they will likely be more enthusiastic and engaged in their jobs. This can build a sense of community and teamwork which brings everyone together and leads to happier, more productive employees.
- **Attracting and retaining employee:** Several human resource studies have linked a company's ability to attract, retain and motivate employees with their CSR commitments. Interventions that encourage and enable employees to participate are shown to increase employee morale and a sense of belonging to the company.
- **Communities as suppliers:** There are certain innovative CSR initiatives emerging, wherein companies have invested in enhancing community livelihood by incorporating them into their supply chain. This has benefitted communities and increased their income levels, while providing these companies with an additional and secure supply chain.
- **Cost savings:** One of the easiest places for a company to start engaging in sustainability is to use it as a way to cut costs. Whether it's using less packaging or less energy, these savings add up quickly.

Objectives of the study

The primary objective of this paper is to examine and analyse the relationship between Corporate Social Responsibility and financial performance and compare the dependency of corporate social responsibility on financial performance. Secondly to find Out various Benefits a company gets from its CSR activities. Lastly to study Few Indian Companies with respect to their CSR activities and their impact on the company’s financial performance

Review of Literature

The relationship between CSR and financial performance has received considerable attention in the theory literature. The early literature, in the spirit of shareholder theory (e.g., Friedman 1962, 1970), views social responsibility as a “donation” from shareholders to stakeholders that reduces profits. Similarly, CSR may be the outcome of an agency conflict between shareholders and managers (Jensen and Meckling 1976): companies’ social engagement may be driven by managers’ own social preferences or their desire to establish overly friendly relationships with specific stakeholders. While the early literature predicts a negative relationship between CSR and financial performance, subsequent research emphasizes the potential value of CSR. For example, Freeman’s (1984) stakeholder theory argues that companies should consider the interests of everyone who can substantially affect, or be affected by, the welfare of the company. This theory has been extended in various ways (for a review, see Agle, Donaldson, Freeman, Jensen, Mitchell, and Wood 2008). For instance, instrumental stakeholder theory argues that CSR efforts are actions taken to benefit stakeholders with the ultimate goal of benefiting shareholders, i.e. CSR is “instrumental” to firm performance (e.g., Jones 1995). Similarly, in line with the literature on sustainability in business and the resource-based view of the firm, companies may engage in CSR in order to improve their efficiency and enhance, e.g., their reputation, brand, and trust (e.g., Barney 1991, Hart 1995, Porter 1991, Porter and Kramer 2006, 2011, Russo and Fouts 1997). In turn, such actions may attract new customers (such as socially conscious customers, “green” consumers, etc.), increase the companies’ profitability, and enhance their competitiveness.

Research Methodology: This paper is based on secondary data. Based on the available data analysis has been carried out.

CSR AND FINANCIAL PERFORMANCE

Company undertaking CSR activities helps them to benefit in their long term success with respect to profitability , higher share price , better ROI to investors ,financial benefits to stakeholders etc.

There is empirical evidence to show that companies that adopt CSR proposals see financial benefits (0.92 percent increase in shareholder value, as measured by the stock market reaction in a company survey), supporting the conclusion that CSR initiatives lead to better financial performance.

CSR programs improve operating performance (e.g., return on assets, net profit margin) as well as labor productivity and sales growth. This suggests that CSR programs improve employee satisfaction and boost productivity while helping companies cater to customers that are responsive to sustainable practices.

Whether profits are absolutely necessary for any kind of business, it is also important to notice that those profits are made because of the society. CSR developed from this cognizance and the cross link between society and companies.

Society makes business possible and affects directly or indirectly how firms succeed, ranking from education and health of workers to a safe and stable physical and legal infrastructure, and of course a consumer market for their products.

Money spent on all corporate social responsibility (CSR) works cannot be counted as business expenditure but certain social welfare spending activities could be considered for tax benefits, according to Central Board of Direct Taxes (CBDT). There are certain other Income Tax provisions where deduction is allowed like for farming, for education, they also come under CSR. The CSR expenditure which is of the nature described in Section 30 to Section 36 of the Act shall be allowed deduction under those sections subject to fulfillment of conditions, if any, specified therein which are mentioned in the study CSR activities can help in getting tax benefits. Not all activities help in saving tax but there are certain provisions which can help in saving tax.

Listed Below are some provisions under income tax :

Sr No	Income tax section	Tax treatment of expenditure & quantum of deduction
1.	Sec 80G	Donation directly or to registered NGO or to PM national relief fund .or for promoting family planning etc 100%(50% in some cases) of such deduction .donation in kind is not allowed .
2.	Sec 35AC	Expenditure incurred on project or scheme for promoting the social and economic welfare or upliftment of the public as approve by the national committee set up for this purpose ,100% of such expenditure is admissible .But the activity of association whom the donation made should be states under schedule 6 of company act
3.	Sec 35 CCD	Expenditure on skill development project as notified by the board is eligible with weighted deduction of 1.5 times of such expenses

**Name of Company - ITC Limited**

ITC is one of India's foremost private sector companies with a market capitalization of US \$45 billion and a turnover of US \$7 billion. ITC is rated among the World's Best Big Companies, Asia's Fab 50, and the World's Most Reputable Companies by Forbes magazine and among India's Most Valuable Companies by Business Today. ITC ranks among India's Most Valuable (Company) Brands, in a study conducted by Brand Finance and published by The Economic Times. ITC also ranks among Asia's 50 best performing companies compiled by Business Week.

CSR Practices at ITC

ITC is the only company in the world to be carbon positive, water positive and solid waste recycling positive. ITC's businesses and associated value chains support 5 million livelihoods. The CSR activities of the company involve e-Choupal rural digital physical infrastructure, Farm to Food Products Value Chain, Social and Farm Forestry, Tree to Textbook Value Chain, Integrated Watershed Development, Dairy Development, Women's Empowerment Programme, Supplementary Education Programme, Green Centre, ITC Hotels- the World's Greenest Luxury Hotel Chain, Renewable Energy at ITC, WOW- Wealth Out Of Waste, Sangeet Research Academy- A corporate tribute to the rich tradition of Hindustani Classical Music.

Because of all these contributions, ITC has won many awards and has gained constant improvement in its rankings.

EXPENDITURE ON CSR

ITC has, along with Reliance Industries Ltd., received top rating in Asia for their Corporate Social Responsibility initiatives, according to report by the Hong Kong based brokerage and investment firm CLSA, which has given a rating of five points from 1 to 5 to both these companies.

Over the period of one year from 2013 to 2014, paid up capital of ITC has increased from 790.18 crore INR to 795.32 crore INR, total turnover from 41809.82 crore INR to 46712.62 cr. With such a tremendous increase in the profits and turnover, its contribution and the total spending on Corporate Social Responsibility has also increased from 82.34 crores INR in 2013 to 106.63 crores INR in 2014.

The list of activities on which the expenditure on CSR has been incurred is as follows:

Areas listed under Schedule VII to the Companies Act, 2013	ITC Interventions
(i) Eradicating hunger, poverty and malnutrition -	Providing preventive healthcare through civic/sanitation infrastructure and services.
(ii) Promoting education	Improving quality of education, government school infrastructure, skill development and integrated animal husbandry services.
(iii) Promoting gender equality and empowering women	Promoting micro-enterprises for women for sustainable livelihoods
(iv) Ensuring environmental sustainability	Implementing social forestry programmes, water resources development and promoting sustainability practices through the CII-ITC Centre of Excellence for Sustainable Development.
(v) Protection of national heritage, art and culture	Promoting Indian classical music
(vi) Rural Development projects	Providing agri-extension services and farm productivity enhancement measures.

CSR Policy

It is ITC's policy

1. To direct ITC's CSR Programmes, inter alia, towards achieving one or more of the following - enhancing environmental and natural capital; supporting rural development; promoting education; providing preventive healthcare, providing sanitation and drinking water; creating livelihoods for people, especially those from disadvantaged sections of society, in rural and urban India; preserving and promoting sports;
2. To develop the required capability and self-reliance of beneficiaries at the grass roots, especially of women, in the belief that these are prerequisites for social and economic development;
3. To engage in affirmative action interventions such as skill building and vocational training, to enhance employability and generate livelihoods for persons from disadvantaged sections of society;
4. To ITC Centre of Excellence for Sustainable Development, in order to have a multiplier impact. pursue CSR Programmes primarily in areas that fall within the economic vicinity of the Company's operations to enable close supervision and ensure maximum development impact
5. To provide equal opportunities to beneficiaries of the Company's CSR Programmes as vendors or employees on merit;

Awards

- ITC was ranked 2nd among top Indian companies in the first of its kind Standard & Poor Environmental, Social and Corporate Governance ratings (2008)
- ITC ranked 2nd among top companies in India and 7th in Asia in the first of its kind Asian Sustainability Rating released by CSR Asia (2010)
- ITC has been presented the AIM Asian CSR Award by the Asian Forum on Corporate Social Responsibility (AFCSR), in recognition of its contribution to the creation of sustainable livelihoods and fostering economic growth in rural communities in India.
- ITC has won the prestigious 12th Businessworld FICCI CSR Award in the Large Enterprise category. The award recognises the most socially responsible Indian corporates in CSR have been won by ITC for its exemplary contribution to the Triple Bottom Line. ITC was also perceived to be the 'Company Most Active in CSR' for the third year in a row.

IMPACT ON FINANCIAL PERFORMANCE

Thus the overall impact of all its activities and recognition in corporate social responsibility gives a positive impact on its financial performance which can be studied in the following

<i>(Figures in Rs. Crores)</i>		
ITC : Financial Highlights 1996-2015		
	1996	2015
Gross Income	5,188	51,932
Net Segment Revenue (other than Cigarettes)	1,363	23,553
PBIT	536	14,055
Profit After Tax	261	9,608
Assets Employed	2,584	44,196
Market Capitalisation	5,571	2,60,865*
CAGR in Total Shareholder Returns in the period 1996-2015 : 24.3%		
<i>*As on 31st March, 2015</i>		

Table:

Year ending March	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Summarised Financials (Rs. Crores)										
Equity	375	376	377	378	382	774	782	790	795	802
Net Worth	9061	10437	12058	13735	14064	15953	18792	22288	26262	30736
Average Capital Employed	9012	10308	11964	13798	14868	15906	18304	21661	25597	30023
Net Revenue	9791	12164	13948	15612	18153	21168	24798	29606	32883	36083
EBITDA	3613	4293	5015	5393	6689	7993	9674	11566	13562	15017
EBIT	3281	3930	4576	4844	6080	7337	8975	10771	12662	14055
PAT*	2280	2700	3120	3264	4061	4988	6162	7418	8785	9608

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Key Ratios										
Net Worth Per Share (Rs.) **	12.07	13.87	16.00	18.20	18.42	20.62	24.04	28.21	33.02	38.35
Debt-Equity Ratio	0.01:1	0.01:1	0.01:1	0.01:1	0.01:1	0.01:1	0.004:1	0.003:1	0.002:1	0.001:1
Return on Equity* (%)	26.90	27.69	27.74	25.31	29.22	33.23	35.47	36.12	36.19	33.71
Net Revenue / Avg.Capital Employed (x)	1.09	1.18	1.17	1.13	1.22	1.33	1.35	1.37	1.28	1.20
Return on Avg Capital Employed (%)	36.41	38.12	38.25	35.11	40.89	46.13	49.04	49.72	49.47	46.81

EV/ EBITDA (x)	19.30	12.50	15.02	12.41	14.22	16.80	17.60	20.37	20.00	16.47
PE Ratio* (x)	32.38	21.12	25.10	21.54	24.78	28.13	28.79	32.92	31.95	27.15
Earnings Per Share* (Rs.) **	3.01	3.56	4.11	4.29	5.31	6.45	7.88	9.39	11.05	11.99
Cash Earnings Per Share* (Rs.) **	3.38	4.23	4.78	5.44	6.00	7.32	8.86	10.82	12.28	13.65
EBIT / Net Revenue (%)	33.51	32.31	32.81	31.03	33.49	34.66	36.19	36.38	38.51	38.95
EBITDA / Net Revenue (%)	36.91	35.29	35.96	34.55	36.85	37.76	39.01	39.07	41.24	41.62
EBIT / Interest (x)	275.03	1198.16	992.71	264.41	93.90	107.29	115.19	124.56	-	244.77

* Computed before exceptional items

CONCLUSION

- Thus, from the analysis of the performance of ITC over the past ten years, it is evident that the company has grown consistently over the time period. Not only has the financial performance of the company improved, but it has also incorporated more and more brands in its segment of FMCG and has also improved its rankings and ratings thereby replacing TCS as the most admired company. Not only the profits and share prices have been positively affected by its CSR practices but also the Return on Equity has grown over the period from 25.68% in 2005 to 36.19% in 2014.
- Over the ten year period, Net Worth per share of ITC has increased from 10.55 INR to 33.02 INR, Return on Average Capital Employed from 35.88% to 49.47%, and Earnings Per Share from 2.43 INR to 11.05 INR. All these parameters and ratios clearly indicate the financial advantages coming to the company through its CSR implications.

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Corporate Social Responsibility in Banking with respect to State Bank of India

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ABSTRACT

Corporate Social Responsibility is a concept which companies are making a premeditated effort to contribute to the society to make it better and to induce a cleaner environment. Corporate social responsibility is basically represented by the contributions undertaken by companies for the society through its business activities and their social investment.

While CSR is embedded in many of the Bank's business initiatives to cover various social, environmental and welfare activities. In order to attain the social objectives, there is a need for framing a CSR Policy in every banking and financial institutions for prioritization of activities for social spending and allocation of separate funds for this purpose.

The purpose of this study is to give an insight into the extent of incorporation of CSR in banking with special focus on SBI. Corporate Social Responsibility has been a part of the State Bank of India covering various social, environmental and welfare activities.

Keywords : *Accountability, prioritization, SBI, socially responsible, Corporate Social Responsibility (CSR) policy, lending practices, monitoring.*

INTRODUCTION

In recent years CSR has become a fundamental business practice and has gained much attention from the management of large international companies. They understand that a strong CSR program is an essential element in achieving good business practices and effective leadership. Companies have explored that their impact on the economic, social and environmental sector directly affects their relationships with investors, employees and customers. In the circumstance of globalization, companies are becoming aware of Corporate Social Responsibility which can be of direct economic value. Although the prime goal of a company is to generate profits, companies can at the same time contribute to social and environmental objectives by integrating corporate social responsibility as a strategic investment into their business strategy.

A number of companies with good social and environmental records indicate that CSR activities can result in a better performance and can generate more profits and growth. Research has shown that company CSR programs influence to an extensive degree consumer purchasing decisions, with many investors and employees also being swayed in their choice of companies. There is not only an image gain for the companies using CSR, but it is also important for the employees. Within the company, socially responsible practices primarily involve employees and relate to issues such as investing in human capital, health and safety and managing change. In India CSR has been assuming greater importance in the corporate world, including the banking sector. There is a remarkable trend in the financial sector for promoting environment friendly and socially responsible lending and investment practices. The Govt. of India is pursuing the matter relating to CSR and also drafted guidelines for CSR practices from time to time. Indian financial institutions are involved in CSR activities like child education, Rural upliftment, Adoption of Children, Vocational training, Rural Development, Environment protection, Socioeconomic development of vulnerable sections of society and helping the physically challenged.

OBJECTIVES OF THE STUDY

- To study the issues relating to implementation of CSR in banking Companies.
- To study the importance of CSR in Banking Companies.
- To study the challenges faced by banks in the financial sector to promote environment friendly and socially responsible lending and investment practices.

RESEARCH METHODOLOGY

The Research has been conducted keeping in mind of future opportunities and trends. The present study is systematic, objective and the exhaustive search for and studies of the fact relevant to a problem in the field of research.

DATA SOURCES

- Case study:-SBI
Banking sector doesn't come under the preview of Companies act but as a part of their social responsibility most of the banks do invest under CSR program .Ministry of corporate issued national voluntary guidelines to ensure ethical business of corporate's. As a part of that program SEBI has made it mandatory to submit BRS report for Top hundred listed companies based on market capitalisation due to this as the data of BRS report was readily available for SBI ,I took SBI as my Case study for my paper
- Secondary Data:- articles from Published Periodicals, Newspapers, Business Magazines, Books, Websites, etc...

WHAT IS CORPORATE SOCIAL RESPONSIBILITY?

The concept of Corporate Social Responsibility is not new but its focal point changes with the changing requirements of business and varying social needs. The term CSR became only popular in the 1990s when the German Beta Generic Pharmaceutical Company decided to implement CSR. It is a concept whereby companies decide voluntarily to contribute for a better society and a cleaner environment. It is represented by the contributions undertaken by companies to society through its business activities and its social investment. Today Banking Sector is growing larger and powerful than before. Various Non-government organizations put pressure on Banks to act responsibly towards their stakeholders. This pressure has given rise to the concept of Corporate Social Responsibility

CHALLENGES FACED BY BANKS TO IMPELEMENT CSR IN BANKING

1. Due to the lack of international CSR guidelines, the practical application of CSR differs and CSR Strategies within most companies still show major deficiencies.
2. There are still complaints about multinational companies wasting the environment and NGOs still denouncing human rights abuses in companies.
3. Some critics believe that CSR programs are undertaken by especially multinational companies to distract the public from ethical questions posed by their core operations.
4. While companies increasingly recognize their social responsibility, Many of them have yet to adopt management practices which is reflected through companys employees and managers training to acquire the necessary skills and competence.
5. A major challenge for companies today is attract and retain skilled workers. There is not only an image gain for the companies using CSR, but it is also important for their employees. Within the company, socially responsible practices primarily involve employees and their related issues such as investing in human capital, health and safety .

RECENT TRENDS IN IS CORPORATE SOCIAL RESPONSIBILITY IN INDIA

1. The adaptation of reporting CSR practices is comparatively slow in India and would require a greater pace in future. In fact, there is a great need for enacting some stringent regulatory provisions to ensure the adherence to social responsibility principles.
2. There are no standard norms available for measuring, reporting and evaluating the social performance of a corporate enterprise. Reporting of the social activities of the firm should always be in the form of social report, separately enclosed with the annual report.
3. Today the status of social reporting is voluntary; due to which many financial institutions are not taking interest , to solve these problems, the State should take some steps to make it compulsory.

4. In Indian financial institutions whatever CSR activities are happening are centred around education, rural upliftment, Adoption of Children, Vocational training, Rural Development, Environment protection, Socioeconomic development of the vulnerable sections of society and helping the physically challenged.
5. There is nountary or binding international norms for CSR Coverage for Companies, Investors and Environmentalists for Sustainable Prosperity to achieve greater engagement - for more transparency with reference to CSR. A Uniform reporting would reduce the possibility of “Greenwashing” – The Dark Side of Corporate Social Responsibility (CSR).
6. In India there are small number of companies which practice CSR. This engagement of the Indian economy concentrates mainly on a few old family owned companies, and corporate giants such as the Tata and Birla group companies which have led the way in making corporate social responsibility an intrinsic part of their business plans. These companies have been deeply involved with social development initiatives in the communities surrounding their facilities. Jamshedpur, one of the prominent cities in the north-eastern state of Bihar in India, is also known as Tata Nagar stands out at a beacon for other companies to follow.

EXAMPLE

CASE STUDY: CSR IN SBI

The State Bank has a comprehensive Corporate Social Responsibility (CSR) policy, approved by the executive Committee of the Central Board in August 2011. It is rooted in the Bank’s belief that it owes a solemn duty to the less fortunate and neglected members of the society to make a sustainable social change in their development. All its branches and administrative offices throughout the country sponsor and participate in large number of welfare activities and social causes. While CSR is embedded in many of State Bank of India’s business initiatives it covers various social, environmental and welfare activities. The Bank has a comprehensive Corporate social Responsibility (CSR) policy, approved by the executive Committee of the Central Board in August 2011.

SECTION E: PRINCIPLE-WISE PERFORMANCE

PRINCIPLE 1

PRACTICING GOOD CORPORATE GOVERNANCE

Practicing Good Corporate Governance the Bank is committed to the best practices in the area of Corporate Governance, in letter and in spirit. The Bank believes that good Corporate Governance is much more than complying with legal and regulatory requirements. Good governance facilitates effective management and control of business, enables the Bank to maintain a high level of business ethics and to optimize the value for all its stakeholders. This Code of Conduct attempts to set forth the guiding principles on which the Bank operates and conducts its daily business with its innumerable stakeholders, government and regulatory agencies, media, and anyone else with whom it is connected. To get further details, the Code can be easily accessed at the Bank’s website. The Bank’s Business Responsibility policy also covers aspects related to ethics, bribery and corruption.

PRINCIPLE 2

PROVIDING SUSTAINABLE PRODUCTS

Providing Sustainable products and Services as a sustainable business practice, the Bank has consistently delivered products, services and social, environmental and financial returns to support the real economy. The State Bank of India has always been at the forefront of innovation to offer beneficial products or its operations/services.

Some of the recent technology upgrades adopted by the Bank are:

1. To encourage the growth of e-Commerce, state Bank of India has launched “sBiepay”, a payment aggregator services, which facilitates e-Commerce/ m-Commerce transactions between merchants, customers and various financial institutions for all kinds of payments.

2. SBI through Cash Management product (CMP) Centre was the first Bank to use Aadhar payment Bridge system (APBS) for transferring LPG subsidy based on Aadhar number.
3. E-challan cum return for collection of employees provident Fund through Branches and Corporate Internet Banking Channel (CINB). State Bank Virtual Card enables secured e-commerce ,on-line transactions, through internet Banking facility.

PRINCIPLE 3

CARING FOR HUMAN CAPITAL EMPLOYEE

Caring for Human Capital employee is the Strength of the Bank .It has one of the largest employers in the country having 2,22,033 employees at the end of Fy 2013-14, of which 2,610 persons with disabilities. The aim is to encourage the employees to perform to their best ability by a system of proper placements, incentives, while creating an atmosphere of trust and a feeling that the organization cares about the wellbeing and personal aspirations of the staff. This helps align personal aspirations with professional goals and help enhance efficiency.

The Bank runs multiple benefit schemes for its employees some of which are as follows:

1. Providing the employees with provident fund, gratuity, pension, medical benefits, concessionary interest rates on advances, higher interest rates on deposits, scholarships to employees’ children, holiday homes and reservation in schools.
2. The Bank’s training system functions under the overall supervision and guidance of the strategic training unit, headed by a very senior level executive.
3. The strategic training unit ensures:
 - a) All employees to undergo at least one institutional training during a year.
 - b) Active promotion of online learning, including mandatory role-based lessons supported by Rewards & Recognitions
 - c) E-learning has proved to be an effective platform in providing supplementary support to institutional training.

PRINCIPLE 4

ENGAGING WITH STAKEHOLDERS

While Engaging with Stakeholders the Bank’s approach to stakeholder engagement helps to minimize risks, identify ideas for new products and services, and understand and respond to the issues that matter to the communities it serves.

The Bank communicates with the stakeholders through a variety of channels, such as follows:

1. E-mails, websites, conference call, press Meetings, Advertising, one-to-one meetings, analysts’ meetings and attendance at investors Conferences throughout the world.
2. The Bank seeks feedback through all their customer-facing channels, listens to all shareholders concerns and provides opportunities for employees to provide feedback.
3. The engagement with stakeholders is also done through social media like Facebook & twitter, and active participation in a variety of industry and community associations.

PRINCIPLE 5

RESPECTING HUMAN RIGHTS

The Bank recognizes its responsibility to respect human rights within its sphere of influence which it defines as employees suppliers and service providers Retail clients and corporate clients local communities the bank has a direct obligation to protect the human rights of its employees, including the right to equal opportunities, protection from discrimination and fair working conditions. The Bank does not use child labour or forced labour among its own staff. The Bank seeks to ensure that their principal suppliers respect human rights and that its corporate clients comply with all the regulations in

regard to human rights.

PRINCIPLE 6

CARING FOR ENVIRONMENT

The Bank takes proactive steps to reduce the direct impact of its operations on the environment. From recycling programs to energy conservation in offices and branches, the Bank is working to reduce its operational footprints on the environment.

Some of the measures introduced are

1. Wind based power projects have been successfully commissioned and the power generated from these projects helps power Bank's branches/offices in the states of Maharashtra, Gujarat and Tamilnadu, installation of solar ATMs,
2. Introduction of Green Channel Banking (paperless Banking) the Bank has initiated a pilot project to determine its Carbon footprint levels, which will help in determining the Bank's resource consumption pattern and enable the Bank to take effective steps to implement various measures for sustainable usage in a cost effective way. The construction of 'Green' buildings, waste water treatment, programs to sensitize staff on energy savings ,over 48,000 ATM's ensures reduced consumption of paper at Branches.

PRINCIPLE 7

ADVOCATING PUBLIC POLICY

Advocating public policy the Bank's participation in public policy making process is multi-layered. At the leadership level, the top Management meets regularly with policy makers and regulatory authorities. At the policy development level, top executives meet with regulators, government and government agencies on public policy issues relevant to the financial services industry. This engagement takes a number of forms, including participation in government advisory bodies. Some of the major associations of SBI are: Indian Bank's Association (IBA), Foreign exchange Dealers Association of India (FEDAI).

PRINCIPLE 8

GREATER FINANCIAL INCLUSION AND INCREASING THE OUTREACH OF THE BANK

For enabling Inclusive Growth to achieve the twin objectives of ensuring greater financial inclusion and increasing the outreach of the Bank and to provide comprehensive financial services to the underprivileged especially in unbanked areas the Bank's scheme for Financial inclusion includes extending Banking services through Business Correspondents (BCs).

For this the Bank has taken the following steps:

1. The Bank has set up 45,487 BC Customer service points through alliances both at national and regional level.
2. The Bank has achieved 100% coverage under financial inclusion in 31,729 villages during Fy 2013-14.
3. 11,423 BC outlets have been set up in urban/Metro centres which cater to the requirements of migrant labourers, vendors, etc.
4. The Bank has spent a total amount of in 148.93 crores on CSR activities in Fy 13-14.

PRINCIPLE 9

SERVING CUSTOMERS

Serving Customers is the Bank's vision statement which clearly spells out the centricity of the customer in the Banking business. This can be proved by the fact that the Bank has a well-defined and documented Grievance Redressal policy which provides for as follows:

1. A dedicated Customer Care Cell of Bank's Web based Complaint Management system (CMS) has been designed as a single online Grievance lodging and Redressal system for the Bank.

2. Customers can lodge their complaints either through various channels including written complaint at branch or by calling on the toll free number of Bank’s Contact Centre or sending sms message ‘unhappy’ to a specified number.
3. Process innovations Relationship management platform was strengthened across business verticals, which included accounts management teams for corporate customers.

CSR Activities in SBI in comparison with five Major Banks

Name of the Bank	CSR areas	3 main CSR activities	CSR budget 2013-14
State bank of India	Community service banking ,Disaster Relief Children, Education Energy Environment, Physically challenged ,Poverty Eradication Vocational Training, Women Rural community, Development.	Education Girl Child Poverty Eradication	19.72 crore
Allahabad Bank	Community Welfare Education Rural Training Women Poverty Eradication	Farmer’s Welfare, Vocational training Finance to underserved	Rs. 854.51 lakh
Bank of Baroda	Community welfare ,poverty eradication, physically challenged rural, Development vocational training women	Rural development, women’s empowerment, vocational training	Not Disclosed
Andhra Bank	Children Social security pensions, Helping flood victims, Donating various social organizations, Community welfare	Vocational Training ,Rural Development ,Community welfare	4.16 crore
UCO Bank	Community welfare, Education, Rural Development, Vocational training for Women	Rural Development, vocational training, Community welfare	Not Disclosed

SUGGESTIONS

1. Indian banking sector must also depict their socially responsible behaviour through integrating triple bottom line principle.
2. Banks must also provide appropriate training to its employees on environmental and social risks in lending to ensure that climate change is taken into account in corporate banking decisions.
3. Regulatory authorities must envisage the regulations for initiating reforms in reporting practices.

CONCLUSION

The perspective of Corporate Social Responsibility by initiating social and community initiatives is to benefit the society and nation at large which is sought to be achieved through the participation of its employees. In order to attain the social objectives there is a need to frame a CSR policy in every bank and prioritization of activities for social spending and allocation of separate funds should be given for this specific purpose. To have an impact of spending and utilization of allocated budget by CSR there should be a system of periodical monitoring and reporting to the Board of Directors.

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Corporate Social Responsibility (CSR) in the Business of Making Difference

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ABSTRACT

This paper attempts to reveal conceptual approaches and practical function of Corporate Social Responsibility (CSR) in Aditya Birla Group-India. Corporate Social Responsibility (CSR) is defined as the voluntary activities undertaken by a company to operate in an economic, social and environmentally sustainable manner. The corporate houses have started realized and recognized that they would have to look beyond the profitability aspect and take care of all the stakeholders those who connected with their endurance directly or else indirectly in the society. This study move about rising a considerations about the CSR and finding out its extent taking the case study of the Aditya Birla Group about their social responsibility focusing social development, environmental protection etc. This study is based on the secondary sources of information collected from various journals, sustainable reports of the company, website of the company.

Keywords:- *Aditya Birla Group, Corporate Social Responsibility*

INTRODUCTION

Early CSR reports often focused on philanthropy as a driver of CSR. That notion has been supplanted by a broad commitment to protecting and improving the lives of workers and the communities in which companies do business. CSR reports now typically address issues impacting virtually every area of operations: governance and ethics; worker hiring, opportunity and training; responsible purchasing and supply chain policies, and energy and environmental impact. Today the definition of Corporate Social Responsibility (CSR) has changed to operating a business in a manner that accounts for the social and environmental impact created by the business and committing to develop policies that integrate responsible practices into daily business operations, and reporting on progress made toward implementing these practices.

The reason for this is not only the shortage of resources but also the lack in planning process and investment pattern. The government is working very seriously on these issues of poverty and upliftment of rural areas but the efforts of Governments may not be just adequate to provide basic services to its citizens. It is being increasingly recognized that progress and welfare of a society is not only the responsibility of the Government alone, but many more stakeholders need to be involved to attain the development goal.

The corporate sector here plays a pivotal role in ensuring private investment flows to those rural areas that have been left out of the development process so far and also to work for sustainable development of rural areas in general. Over the past few years, as a result of rising globalization and pressing ecological issues, the perception of the role of corporates in the broader social context within which it operates, has been altered.

OBJECTIVES OF THE STUDY

1. To study and understand the CSR initiatives being taken by the Aditya Birla Group for rural development;
2. To examine the corporates' approach to work and their mode of action for implementation for CSR initiatives.

LITERATURE REVIEW

Petit (2015) The authors show that previous CSP assessments underweight environmental and corporate governance concerns. Moreover, findings suggest that firms that are exposed to the closest scrutiny are usually criticized on one single dimension: for instance, banks for bad corporate governance, and basic-resource firms for environmental damage.

Composite scores based on equal weights hence misrepresent CSP and the difference in CSR between sector the author traces the evolution of the CSR construct beginning in the 1950s, which marks the modern era of CSR. Definitions expanded during the 1960s and proliferated during the 1970s. In the 1980s, there were fewer new definitions, more empirical research, and alternative themes began to mature. These alternative themes included corporate social performance (CSP), stakeholder theory, and business ethics theory. In the 1990s, CSR continues to serve as a core construct but yields to or is transformed into alternative thematic frameworks

Shri Huzaifa Khorakiwala, CEO, Wockhardt Foundation(2011). There is need for Corporate Social Responsibility (CSR) to become fully integrated with strategic management, corporate governance and ethics in organizations. CSR is gaining grounds and is becoming essential for corporate sustainability. Many stalwarts of corporate India actively supported the independence movement and the postcolonial nation-building exercise thereafter, so that they have come to be hued with a nationalist tinge (Lala 2007; Roy 2005). Arora and Puranik (2004) found several companies to partner with State agencies on both CSR and normal business operations. Indian corporations regularly align their CSR with State objectives and use State generated data for their CSR programs (Kumar 2004; Mehta et al. 2006; NASSCOM Foundation 2007; SHRM 2007).

ABOUT ADITYA BIRLA GROUP

A US \$41 billion (Rs. 2, 50,000 crore) corporation, the Aditya Birla Group is in the League of Fortune 500. Anchored by an extraordinary force of over 120,000 employees, belonging to 42 nationalities. Over 50 per cent of its revenues flow from its overseas operations spanning 36 countries.

The Aditya Birla Group has been ranked fourth in the world and first in Asia Pacific in the 'Top Companies for Leaders' study 2011, conducted by Aon Hewitt, Fortune Magazine and RBL (a strategic HR and leadership Advisory firm). The Group has topped the Nielsen's Corporate Image Monitor 2014-15 and emerged as the Number one corporate, the 'Best in Class', for the third consecutive year.

Mr. Birla took over as Chairman of the Group in 1995, at the age of 28, after the untimely demise of his father. As Chairman, Mr. Birla has taken the Aditya Birla Group to an altogether higher growth trajectory. In the 20 years that he has been at the helm of the Group, he has accelerated growth, built a meritocracy and enhanced stakeholder value.

In the process he has raised the Group's turnover from US \$2 billion in 1995, to US \$41 billion today. Mr. Birla has restructured the businesses to emerge as a global/national leader in the sectors in which the Group operates. He has made 36 acquisitions in 19 years in India and globally, the highest by an Indian multinational in India.

The acquisition of Novelis, global metals major, in 2007, the second largest acquisition ever by an Indian company, led to a new found respect for Indian companies and stoked a higher level of interest in the country as well. The subsequent acquisition of Columbian Chemicals, a US-based company and the world's third largest carbon black manufacturer positioned the Group as the No. 1 player in this sector, given its own sizeable carbon black operations today. Likewise, the acquisition of Domsjö Fabriker, a leading Swedish speciality pulp manufacturer enables the Group's Pulp and Fibre business to further consolidate its global position.

Besides these, over the years Mr. Birla has acquired manufacturing plants in Canada, China, Indonesia and mines in Australia, and set up new plants in Egypt, Thailand and China. Alongside, he has expanded capacities in all of the Group's manufacturing units. In India as well, he has made major acquisitions, the most notable being the Cement division of Larsen & Toubro, Jaypee Cement (MP & Gujarat), Indal from Alcan, Madura Garments from Coats Viyella, the Chlor Alkali division of Kanoria Chemicals and Solaris Chemtech Industries.

Under his stewardship, the Aditya Birla Group enjoys a position of leadership in all the major sectors in which it operates. Over the years, Mr. Birla has built a highly successful meritocratic organisation, anchored by an extraordinary force of 120,000 employees belonging to 42 different nationalities. The Aditya Birla Group has been ranked fourth in the world and first in Asia Pacific in the 'Top Companies for Leaders' study 2011, conducted by Aon Hewitt, Fortune Magazine and RBL (a strategic HR and leadership advisory firm). The Group has topped Nielsen's Corporate Image Monitor 2014-15 and emerged as the Number 1 corporate, the 'Best in Class', for the third successive year.

Aditya Birla Group – In the Business of making difference

Their Vision

"To actively contribute to the social and economic development of the communities in which we operate. In doing so, build a better, sustainable way of life for the weaker sections of society and raise the country's human development index."

— Mrs. Rajashree Birla, Chairperson - Aditya Birla Centre for Community Initiatives and Rural Development

Their strategy

Their projects are carried out under the aegis of the "Aditya Birla Centre for Community Initiatives and Rural Development", led by Mrs. Rajshri Birla. The Centre provides the strategic direction, and the thrust areas work ensuring performance management as well. Their partners in development are government bodies, district authorities, village panchayats and the end beneficiaries — the villagers. At the same time, their network and collaborate with like-minded bilateral and unilateral agencies to share ideas, draw from each other's experiences, and ensure that efforts are not duplicated. At another level, this provides a platform for advocacy.

Aditya Birla Group, CSR is very much a part of the overall business portfolio. Their entire group's community work is carried out under the banner of The Aditya Birla Centre for Community Initiatives and Rural Development. They have 150 people working exclusively for social projects. They work in around 3,700 villages and reach out to approximately two million people every year. Of these, more than 60% live below the poverty line.

Annually, as a group, they spend approximately Rs 65 crore on our social projects. This includes the running of 33 schools in the interiors and 16 hospitals.

- Reaches out annually to 7.5 million people through the Aditya Birla Centre for Community Initiatives and Rural Development, spearheaded by Mrs. Rajashree Birla.
- Works in 5,000 villages globally.
- Focuses on: health-care, education, the girl child, sustainable livelihood, women empowerment projects, infrastructure and espousing social reform.
- Runs 42 schools which provide quality education to 45,000 children. Of these 18,000 students belong to the underprivileged segment. Merit Scholarships are given to 24,000 children from the interiors.
- Its 18 hospitals tend to more than a million villagers.
- Ongoing education, healthcare and sustainable livelihood projects in Philippines, Thailand, Indonesia, Egypt, Korea and Brazil, lift thousands of people out of poverty.
- Set up the Aditya Birla India Centre at the London Business School.

The Aditya Birla Group transcends conventional barriers of business because we believe it is our duty to facilitate inclusive growth.

CONCLUSION

The business have a responsibility to the society, nation and to the environment as it utilizes the various sources available. A wide range of CSR initiatives ranging from income generation activities for livelihood, health check-up camps, mobile health services, education, adult literacy, infrastructure facilities being carried out by Aditya Birla Group of companies. The approach to work is generally shifting from philanthropic to welfare and sustainable development. The organization is progressively heading towards its wilful good work for the society.

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Ethicality in Business Changes with Perceptual Roles

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ABSTRACT

“There will always be businesses that act badly. But revelations of unethical and illegal behaviour shouldn't be used to tar those business people who take pride in their standards”- Janna Thompson.

Recent revelations in businesses behaving badly awaken the suspicion that ethics in business is as unlikely as snow in the Sahara. But when the unethical practices of any business are offended they need to pay a price for the same. All the ethical codes that are universally accepted consider selfish thoughts against somebody also as a punishable sin. How can then, business and ethics go hand in hand? The definition of business itself says venture undertaken for earning surplus. To earn surplus you need to be selfish, self centred and opportunist. To be ethical you need to keep others interest before yours and be selfless. But since ages these two terms are merged and enforced on businessmen. The reason for this merger is to put a control on the profiteering attitude of the businessmen. Hence it can be seen that businessmen need to think profits for their survival, and only that they do not harm the environment too harshly, they are expected to follow code of ethics. The present paper highlights on perceptions of people about ethics (with case study of Coca Cola Company) when they are linked to business in different ways, viz. as a Director/CEO, as an employee, as governing body, as a consumer or as society. It needs to be noted that if one does not follow ethics he is forced to do it.

Keywords: *Ethics, business, business ethics, perceptions about ethicality, ethical behaviour*

INTRODUCTION

The code of ethics is inbuilt in every living being. And the level of its conduct is different for different people. A common person is always confused about this conduct. But if observed minutely every person behaves unethically many times in life, though not always. It is this mixed and situational conduct of people that allows every next person to supersede ethical behaviour at times with unethical (as nobody is following ethics every time) and take advantage (or disadvantage) of a situation. Only when its frequency and intensity increases or it affects the healthy living of masses that it gets highlighted and that particular organisation, group or person comes into limelight and is questioned for its misconduct.

It is ironic that the competitive, risk-taking, unregulated economy that many politicians want to encourage is an environment conducive to unethical behaviour.

Reacting to ethics as per perception or situation

The decision of selecting and reacting between two situations and deciding what is ethical and unethical is a personal choice of each individual. What seems ethical or compulsory act for one may be unethical or misconduct for the other. It can be clearly seen that perception about ethical conduct is a personal choice of an individual.

Examples of how perceptions play with ethical code of conduct

1. 7-Eleven franchise holders who exploited workers were doing what they thought they needed to do in order to remain in business. If the survival of a company depends on cutting ethical corners, then the temptation to do so will be very strong. Unethical behaviour is more prevalent in small businesses or franchises where profit margins are small and survival is always in doubt. That means code of ethics can be compromised for survival.

2. Volkswagen, a company that enjoyed a good reputation, and wants to be at a good market position, has been marketing its diesel cars as low-emission vehicles while engineering the motors to give deceptive readings. The ramifications are worldwide.
3. Apple relies on child slave labour that is working in dangerous conditions, for ten hours each day while being exposed to cancerous vapors. The conditions at the manufacturing plant Foxconn are bad enough that they had to install "anti-suicide nets." The workers live in horrible conditions and experience unreasonable workloads and humiliating discipline. Apple has reduced some of their work with Foxconn, but they still rely primarily on them. Apple also used Irish tax loopholes to avoid some taxes.
4. The tobacco giant Philip Morris has been considered unethical for years as a great deal of advertising from them targets kids. Despite stricter regulations, Philip Morris still prominently places ads and products in magazines, convenience stores, and delis. They continue to try to create the image of smokers being cool and are considered the biggest reason for young smokers. Here growth is achieved on the graveyard of ethics.

Where on one side allegations are put on the young generation for adapting to ultra modern lifestyle and pub culture by the society, the other side the companies launching such products are given honourable place in Fortune 500 companies and shares of such companies are listed in the A group category of stock markets.

The foundation of unethical behaviour is already built in a child when the parents go for female foeticide, child labour and discrimination between son and daughter and is more concerned about their child's somehow clearing the exams and earning a livelihood and are not worried how he does it, ethically or unethically.

When a person selects between ethical and unethical behaviour as per situation, person or product then it is dry clear that there is a wide and open choice availed by everyone in the above selection and that ethics is considered as a subjective matter. What looks right to one person is making the other person lose something crucial, morally or materially.

Ethical Dilemmas faced by Big Corporate

Big corporations are generally in a better position to act ethically. But their ethical probity can be undermined by a culture that encourages aggressive, risk-taking behaviour. The rise and fall of Enron, as detailed in the documentary and book 'The Smartest Guys in the Room', demonstrates how ethical considerations are ignored when employees earn respect and advancement only by outdoing others in the money-making game.

Operating in a global environment adds to the ethical problems that corporations face. Companies that have a reputation for being good to their first world employees and contributing to the community may not think that they need to be so ethically scrupulous in other parts of the world.

Case study of Coca-Cola Company

Vision of the Company

Our vision serves as the framework for our Roadmap and guides every aspect of our business by describing what we need to accomplish in order to continue achieving sustainable, quality growth.

- People: Be a great place to work where people are inspired to be the best they can be.
- Portfolio: Bring to the world a portfolio of quality beverage brands that anticipate and satisfy people's desires and needs.
- Partners: Nurture a winning network of customers and suppliers, together we create mutual, enduring value.
- Planet: Be a responsible citizen that makes a difference by helping build and support sustainable communities.
- Profit: Maximize long-term return to shareowners while being mindful of our overall responsibilities.
- Productivity: Be a highly effective, lean and fast-moving organization.

Facts about Coca Cola Company

- If all the Coca-Cola ever produced were to cascade down Niagara Falls at its normal rate of 1.6 million gallons per second, it would flow for nearly 83 hours.
- Coca-Cola is among the most-admired and best-known trademarks in the world. In fact, it is documented that “Coca-Cola” is the second-most widely understood term in the world, after “okay”
- If all the Coca-Cola ever produced were in 8-ounce contour bottles, and these bottles were laid end to end, they would reach to the moon and back 2,051 times. That is one round trip per day for five years, seven months and 14 days.
- Thirsty consumers around the globe now enjoy Coca-Cola Company products 1.7 billion times every single day—about 19,400 beverages every second.

COMPANY’S WELLBEING

We support and promote active, healthy lifestyles, providing the choice and information consumers need to make the right decisions for them.

As a major beverage manufacturing company, with brands and products loved by many, we are committed to making a distinct and positive contribution to the wellbeing of our consumers.

- We believe our products can be enjoyed as part of a balanced, healthy lifestyle which includes a sensible diet, proper hydration and regular physical activity.
- We know choice and information are fundamental for consumers to be able to make the right decisions for them and their families and we are committed to providing both.
- We recognise that obesity is a very real issue in many countries across the world, including Australia and New Zealand. As a leader within the beverages industry, we take our responsibility to play our part in helping to address this challenge very seriously. Soft drinks are often front and centre of the conversation around obesity, but just 1.9 per cent of the average daily intake of kilojoules for Australians comes from soft drinks and flavoured mineral waters. In New Zealand just 1.5 per cent of the average daily intake of kilojoules comes from soft drinks. Soft drink consumption has declined in the period that obesity has increased.

COKE IN INDIA: (THE IRONY STARTS)

COKE WITHDRAWS FROM INDIA AND RETURNS AFTER 17 LONG YEARS

Since 1977, the newly elected government demanded that The Coca-Cola Company partner with an Indian entity. Coke refused to budge, choosing instead to walk away from a market leadership position in a nation of more than 800 million people. **(as against its well being clause)**

In his article ‘A Look Back at **Coke’s Dramatic 1993 Return to India**’ dated Dec 6, 2013 Mr. Jay Moyer states that on Oct. 24, 1993, to be exact –Coca-Cola made its official return to India in the shadow of the Taj Mahal.

People anxious to see coke back: (anything for taste and business)

In 1993, a team of Coca-Cola sales reps stopped by a café in Pune, India, to let the owner know that the brand would soon return to the market after a 17-year absence. The proprietor, who was in his 50s, started crying and called out to his son in the local language. The young man ran upstairs and brought down a 20-year-old Coca-Cola table and four chairs.

“He’d been keeping them up in his attic, waiting for that moment,” recalls Nitin Dalvi, who at the time was head of marketing for Coca-Cola’s India operations. “He was very emotional and kept telling us, ‘I’m glad you guys are back.’”

Killing the local brands by takeovers and mergers, in the pretext of developing them (Compromise on ethics for business)

The dominant package size of any drink (like Thums up) at that time in India, 250 ML, was sold for 5.5 Rupees. Coke decided to re-introduce Coca-Cola in 300 ML glass bottles at 5 Rupees and up-sized the industry.

Demand for the product was incredibly high. Coca-Cola was literally flying off the shelves. People were picking it up so quickly that shop owners didn’t have enough time to chill the bottles.

Campaign against coke (Now Indians realise the importance of ethics over taste and business)

The reports issued by The Centre for Science and Environment (CSE) in 2006 showed unacceptable levels of pesticides in Coca-Cola and Pepsi Cola soft drinks served in India. Even the India Resource centre reported that the study found lindane levels were 140 times more than those allowed in EU BIS standards and chlorpyrifos (a neurotoxin) level at times 200 times more than the permissible limits. Heptachlor (banned in India and US), four times higher than proposed BIS standards in 71% samples. Malathion a pesticide when applied in a particular area was restricted from entry by workers in USA, was found in 38.6% samples in India.

Instead of modifying the chemical components of the drink, Coca Cola on the contrary started questioning the accreditation of the CSE lab and the authenticity of the test results. They wanted to prove the credibility of their quality control system.

Ethical Dilemma, choice between progress and safety.

The US Undersecretary for International Trade Mr. Frank Lavin warned in his speech that “Bans on soft drinks like Coca-Cola and Pepsi could blight India’s hopes of attracting American investment and may result in setback of country’s economy” This clearly states that foreign currency and relations are more important than health of the citizens.

Different ethical standards for local people and own employees (both are human beings)**Environmental standards for local people**

- The Mussoorie Gulawati Road plant, which makes soft drinks and juices, is one of the HCCB plants in UP. NGT, in its notice dated December 11, 2015 said an inspection found the said nearby pond to be overflowing with effluents. The tribunal has sought clarifications from HCCB (Hindustan Coca-Cola Beverages) before passing any order and directed it to submit its entire drainage map, explaining how sewage as well as trade effluents flow out and move to the pond.
- It has been observed that Coke's choices on where to site their plants are "strictly business" decisions that may cause great distress to local communities. It bluntly states that "community water issues do not appear to form an integral part of the water resource management practices of The Coca-Cola Company."

Environmental standards for own employees

Coca-Cola India, meanwhile, is moving its corporate office in Gurgaon in the National Capital Region to a building, the One Horizon Center that boasts of '20 times cleaner air quality', based on a test done in June. As per the test done by Swiss testing and certification firm SGS, the building had RSPM levels of 35ig/m³ while it was 700ig/m³ in outside air.

Environmental standards for the community as a part of CSR activity

In response to an offer from Haryana chief minister Manohar Lal Khattar, Coca Cola India president Venkatesh Kini assured to explore possibility of setting up Kinnow plant in the state. The meeting was part of the '**Happening Haryana Global Investors' Summit-2016**'. Coca Cola India had started projects in two states for imparting training to the farmers in the field of organic mango farming. It was suggested to start a similar project in Haryana to promote the cultivation of organic mango.

Repercussions to unethical behaviour (again due to change in perceptions)

No doubt things are getting bad to worse every next day, but every unethical action has equal and opposite ethical reaction. A company may spend crores of rupees to sell an adulterated product or create false publicity and brand name but there will be lakhs and perhaps crores of people retaliating against the actions of these companies. Eg. Coca-Cola Ltd. has been manufacturing aerated drink since the year 1886. It has made turnover of 1 billion servings per day recently. Even so there are so many NGOs fighting against the massive health problems created by this company, forcing it to undergo reforms and undertake CSR activities to repair the damages. The founding chairman of 7-Eleven was forced to resign and its new chairman has to face disgruntled franchisees and undertake the task of restructuring the company. The Australian Competition and Consumer Commission are currently investigating whether Volkswagen has broken Australian Consumer

Law. Volkswagen faced costs of billions of dollars in recalls and fines and a loss of reputation that may lead to diminished sales also.

But more serious issue is that these companies are only repairing the damages caused by them in the past and not reverting from their actions to a sound environment friendly business path in totality.

Recommendations:

Ethics in business is possible. The difficult question is how to make it more prevalent. There is no really reliable data on this subject. But here are some common strategies.

Ethical codes

Many companies issue statements of standards and values that are supposed to guide their behaviour. It is easy to be sceptical about the efficacy of these statements. Codes are more likely to be effective if they are fairly specific and if leaders take them seriously.

Ethical training

Since the financial crisis, many firms have organised ethical training for their employees. This training works best when it encourages employees to identify and discuss ethical dilemmas that arise in their working environments and get healthy work environment to choose ethical actions.

Government regulations

Regulation has the advantage of putting the force of the law behind ethical requirements and thus making it less likely that companies can gain an advantage by being unethical. The obvious difficulty is that companies may put their ingenuity to work in side-stepping or flouting the law, as recent cases demonstrate.

Encouraging whistle blowing

Whistleblowers often play an important role in uncovering corporate misdemeanours. Whistle-blowing would probably be more prevalent if whistle blowers were protected and rewarded (as happens in some countries).

Reforming Boards of Management

Giving shareholders more power to question the management regarding ordinary course of actions and exposing their unethical decisions in public or requiring representation by workers (not trade unions) on company boards (as Germany does) and make both of them answerable to the shareholders and public may encourage ethical behaviour.

Transparency

This is probably the most important measure for encouraging ethical behaviour. The companies and small businesses can be encouraged to disclose their financial and operational data by appropriate authorities with some incentives like awards, tax exemptions or subsidies. Companies have legitimate reasons to keep some things secret but the onus of proving this should always rest with them.

There will always be businesses that act badly. But revelations of unethical and illegal behaviour are no reason to be pessimistic about reform. If the recent scandals and reports of labour and environmental exploitation serve a good purpose and if they encourage governments, citizens and business leaders to create a conducive environment then by next decade ethical behavior in conducting business will become a norm and will be followed by all human beings like any other routine activity.

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Evolution of Concept of Corporate Social Responsibility

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ABSTRACT :

Purpose

Concept of CSR is not new for India. Right from Vedic period to present era it was seen as one of the most revered virtue. It was associated with Dāna and Rajdharma. Not only Hindu religion but Buddhism, Jainism, Sikhism, Zoroastrianism emphasized on CSR in its own way. This paper tries to focus on how CSR was followed as Dharma and not just half hearted compliance of rules and laws. The paper attempts to show fundamental difference between western (European) and eastern philosophies for CSR which is seen from seen in pattern of CSR. The paper consists of various examples of existence of CSR in post Vedic period and in current age by house holders and by business houses and examples of philanthropy by business leaders.

Design/ methodology

The study is descriptive and sites verses and examples of CSR by corporates. Main source of information is secondary source consists of books, journals and websites.

Findings

In India according to section 135 of companies act 2013 it is mandatory for specific companies to spend at least 2% of its average net profit for the immediately preceding 3 financial years on CSR activities. With examples it is made clear that it is not the law only but values inculcated for generations for charity, philanthropy and principle of “Sarve bhavantu sukhinah” and “Tena Tyaktena Bhunjeetha” has contributed the success of CSR in India.

Many communities and countries in the world are now trying to discover and explore their own system of management, which includes accounting and financial management, human resource management, corporate governance, and also CSR. The concept of CSR has been attached and deep rooted in every individual's mind. Foundation of Eastern CSR could also be religion, as it is intrinsically connected to daily lives of people in the region. The values of the Indian philosophies which emphasize community rather than the individual, placing an emphasis on family, planning and investing in future generation all ties in well with CSR principles of responsibility.

The idea of corporate social responsibility has evolved gradually. It can be divided into five phases : Vedic period, post Vedic period, medieval period, pre independence period and post independence period.

India the land of milk and honey, An abode of sages, Source of many philosophies

It is a land where many cultures evolved flourished and perished. India or Hindustan is remembered for its scriptures and unique approach of living life. In Indian mythology dharma stands for duty and not just observing rites and rituals. Vedas have repeatedly stated the notion of 'Dharma' as balancing act between own duties and others' rights. Its foundation is “Vasudhava Kutumbakam” or the whole world is like a family. Kings and rulers used to refer Upanishads and Vedas and consult Rishis to take guidelines for ideal practices and decision making.

In India business practices were based on moral principles which were advocated by the Indian Leaders and philosophers. An inside-out approach to CSR was propagated, which was developed due to individual leader's self-conscience (Muniapan & Dass, 2008).

Hymes of Vedas has advocated principles of enjoying wealth by sacrificing one shall follow the path of righteousness. (Dharmam kara - Taittiriya Upanishad i-11) Wealth has to be won by deeds of glory. (Rig Veda Samhita vi-19-10)

Help others to win wealth. (Rig Veda Samhita iv-50-9)

One shall not be selfish and consume all by itself. (Rig Veda Sam x-117-6)

Wealth accumulated through 100 hands should be distributed to 1000 hands. (Atharva Veda Samhita iii-24-5)

The leader is the distributor of wondrous wealth. (Vajasaneya Samhita xxx-4)

Vedas have advocated at various place the importance of balanced ecology and healthy environment. Responsibility of householders towards their surrounding is clearly echoed in Vedas. Some excerpts are-

One should protect the habitation. (Rig Veda Samhita vi-71-3)

Air is God (vayu devta) and it should be free from pollution. (Atharva Veda)

Yajna should be performed by everyone to purify the air. (Atharva Veda)

One should not destroy the trees. (Rig Veda Samhita vi-48-17)

Plants are mothers and Goddesses. (Rig Veda Samhita x-97-4)

Trees are homes and mansions. (Rig Veda Samhita x-97-5)

Nature has to be protected from man's exploitation (Rig Veda Samhita vii-75-8)

Plants and waters are treasures for generations. (Rig Veda Samhita vii-70-4)

Waters bear off all defilements and cleanse people. (Vajasaneya Samhita iv-2)

Whoever injures the forests and mountains is a robber who sinks both itself and its offspring into destruction. (Rig Veda Samhita vii-104-10)

Offerings should be dedicated to waters of wells, pools, clefts, holes, lakes, morasses, ponds, tanks, marshes, rains, rime, streams, rivers and ocean. (Taittiriya Samhita vii-4-13)

Waters and herbs should have no poison. (Rig Veda Samhita vi-39-5)

Waters are to be freed from defilement. (Atharva Veda Samhita x-5-24)

Besides Vedic Samhitas and Upanishadas; 18 Puranas, Shrimad Bhagwat Geeta, the Ramayana, the Mahabharata, Dharmasastras, Arthasastras etc. have also enchanted a lot not only about concern for environment but they have specifically emphasized on 'Raj Dharma' (duties of a king) which pertains to modern days' Corporate Social Responsibility. The term donation and philanthropy were interchangeably used. The term *Dāna* – charity means act giving up of something for other's benefit. Giving to the poor is true charity, all other giving expects some return"; *Paropakāra* means benevolent deed to help others; *Dakshina* (दक्षिणा) which means gift or fee one can afford. whereas *Utsarg* is higher form of *Dana* While *dāna* is typically given to one person or family, Hinduism also discusses charity or giving aimed at public benefit, sometimes called *utsarga*. This aims at larger projects such as building a rest house, school, drinking water or irrigation well, planting trees, and building care facility among others. the *Tirukkuraḷ*, written between 200 BCE and 400 CE, the classics on Hinduism written in a South Indian language discussed charity. Al-Biruni, the Persian historian, who visited and lived in India for 16 years from about 1017, mentions the practice of charity and almsgiving among Hindus as he observed during his stay. He wrote, "It is obligatory with them (Hindus) every day to give alms as much as possible Major Sanskrit treatises that discuss ethics, methods and rationale for charity and alms giving in Hinduism include, the 12th-century *Dāna Kānda* "Book of Giving" by Laksmidhara of Kannauj, the 12th-century *Dāna Sāgara* "Sea of Giving" by Ballālasena of Bengal, and the 14th-century sub-book *Dānakhandā* in *Caturvargacintamani* "The Gem of the Four Aims of Human Life" by Hemadiri of Devagiri

In post Vedic period (500 BCE to 500 CE) rise of Jainism and Buddhism observed the principle of donation. Buddhism identified donation as one of the four traits conditioning happiness and wealth in the next life. Whereas Jainism, *Dāna* is one of ten means to gain positive karma. Such alms giving is called "Vand Chhako", is considered one of three duties of Sikhs. Orthodox Jews and In Christianity commonly practice of tithing 10% of their income to charity. Zakāt or "alms giving", one of the Five Pillars of Islam and it is used for the welfare contribution to poor and deprived Muslims several

management ideas and practices (includes CSR) were found, which was based on the Kautilya's Arthashastra. (Principles of Economics and Administration and Neetishastra or Principles of Political Ethics)

The Chinese pilgrim Xuanzang (Hiuen Tsang), who had visited India during the period, has written that Harshvardhana has donated lot of money, many a times to the University of Nalanda. Hiuen Tsang mentioned that "Benevolent institutions" on the Ashokan Models, for the benefit of travellers, poor, the sick, were established throughout the empire (of Harsha). Rest Houses (Dharmashalas) were built in both towns and rural parts, and provided with food and drink, physicians being stationed at them to supply medicine to the necessitous without stint."

During medieval era many of the local and regional rulers of fifteenth and sixteenth century India, whether Hindus or Muslims, were enlightened and benevolent kings who worked for the welfare and happiness of their people. One of these rulers was Sher Shah Suri whose have done a lot for his people. The present Grand Trunk Road (G T Road) was first built by him was known as Sadak-e- Azam. Akbar started the tradition of meeting to people to know their problems and showed his disposition of being benevolen in this era there were businessmen like Bhama Shah who have offered his all the treasure to the king Maharana Pratap to fight with the aggressive forces of the Akbar. The Indian corporate philanthropic activities can be traced to Virji Vora who was one of the powerful businessmen of 17th century in India.

During Pre independence period Mahatma Gandhi introduced the notion of "trusteeship", according to which the industry leaders had to manage their wealth so as to benefit the common man. According to Gandhi, Indian companies were supposed to be the "temples of modern India". Under his influence businesses established trusts for schools and colleges and also helped in setting up training and scientific institutions.

Current state of CSR- Under the Companies Act, 2013, any company having a net worth of rupees 500 crore or more or a turnover of rupees 1,000 crore or more or a net profit of rupees 5 crore or more has to spend at least 2% of last 3 years average net profits on CSR activities as specified in Schedule VII of the Companies Act, 2013 and as amended from time to time. The rules came into effect from 1 April 2014

RATIONAL OF CORPORATE SOCIAL RESPONSIBILITY

World Business Council for Sustainable Development states that "Corporate social responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large. WBCSD, 2000 argued that companies have an obligation to society and are responsible to numerous stakeholders including owners, employees, customers, suppliers, competitors, government regulators and communities. First, business excellence must be dedicated to spiritualism of work. Secondly, business excellence should evolve around right actions and right measures. Thirdly, business wealth should be accumulated by applying the right actions that should be shared equitably with all stakeholders. Finally, business excellence would be achieved if the business practices are ethical and social responsible to the society.

Traditionally corporate social responsibility dealt with education and health. now the the horizon of CSR has widen and focuses on Supporting social action, Environment protection initiative, Taking people as capacity building exercise, All round community development., According to Geoffrey Lantos:3 main types of CSR.

1. Ethical CSR: It's about the responsibility to avoid harms or social injuries.
 2. Altruistic CSR: Contributing to the common good at the possible expenses of the business for altruistic, humanitarian or philanthropic causes.
 3. Strategic CSR: It's about firm's social welfare responsibilities that benefit both the corporation and stakeholders
- Implicit CSR is part of the "business-government-society" relations and it may be the result from some norms, which are recognized and followed by all parties (Angus-Leppan, Metcalf and Benn, 2010). For instance, IKEA would not have been allowed to open its retail shop in Novosibirsk (Russia) if it had not agreed to build a road junction (that includes a road and a bridge above it) near the shop. In many other countries this activity would be a governmental responsibility and business could not be engaged in it.

Another example from the Russian reality, where implicit CSR is typical, is the fact that many big corporations, which historically have been city-forming enterprises, might have such a big number of responsibilities in front the local community that without this company the whole region would suffer and barely could survive. At the same time, many of these enterprises do not have any traces of their CSR activity on their websites (sometimes they do not have even the latter). Explicit form of CSR reflects voluntary and proactive activities and usually is associated with CSR reports and performance monitoring. Interestingly, all the countries (India, South Korea and Japan) pointed out by Matten and Moor in their article (2008, p.418) as states with implicit CSR, according to Hofstede's model of cultural dimensions, are long-term oriented, pragmatic countries.

In the present scenario companies play a very important role in the growth and development of the nation. The companies are expected to perform their "Social responsibilities" so that people can enjoy a qualitative life. This nature and existence of moral appeal is also desirable since morality cannot be imposed but it is inherent in the very existence of human being. For instance, if a company reallocates the victims of earthquake voluntarily that is a CSR. This is so because if they are performing the mandates of law then that is not a CSR but a mere following of legal commands. The State formulates various laws and regulations keeping in mind its welfare state role. Thus, a balance has been maintained between social responsibilities of the company on the one hand and conferment of absolute autonomy and freedom from interference upon the company on the other. India is a source of many philosophies and cultures. In Indian mythology dharma stands for duty and not just observing rites and rituals. Dāna / charity is essential aspect of both rites and rituals.

dāna is typically given to one person or family, Hinduism also discusses charity or giving alms for public benefit which can be larger projects such as building a rest house, school, drinking water or irrigation well, building care facility or as small as planting trees or adopting a plant.

Dāna is a very crucial notion in Indian philosophy for its synergies with the concept of karma. According to karma theory if one does good deeds then he will lead a good life whereas if bad deeds then bad life. The *Tirukkuraḷ*, written between 200 BCE and 400 CE, is one of the most cherished classics on Hinduism written in a South Indian language. It discusses charity, dedicating Chapter 23 of Book 1 on Virtues to it. *Tirukkuraḷ* suggests charity is necessary for a virtuous life and happiness. He states in Chapter 23: "Giving to the poor is true charity, all other giving expects some return"; "Great, indeed, is the power to endure hunger. Greater still is the power to relieve other's hunger"; "Giving alms is a great reward in itself to one who gives".

Some texts reason, referring to the nature of social life, that charity is a form of good karma that affects one's future circumstances and environment, and that good charitable deeds lead to good future life because of the reciprocity principle. While the donor should not expect anything in return with dāna, the donor is expected to make an effort to determine the character of the recipient, likely return to the recipient and to the society.

Al-Biruni, the Persian historian, who visited and lived in India for 16 years from about 1017, mentions the practice of charity and almsgiving among Hindus as he observed during his stay. He wrote, "It is obligatory with them (Hindus) every day to give alms as much as possible.

Dāna is one of ten means to gain positive karma, in the theories of Jainism. Medieval era texts of Jainism dedicate a substantial portion of their discussions to the need and virtue of Dāna.

Dāna, called Vand Chhako, is considered one of three duties of Sikhs.^[54] The duty entails sharing part of one's earnings with others, by giving to charity and caring for others. There is an East-West divide when it comes to CSR perceptions. This for more part can be explained away using many reasons but the fact remains that it hampers the full utilization of CSR. Many companies in the East believe that CSR is just the new term for philanthropy, social service or a different take on branding - these misconceptions dilute what it really is. The Guardian article declares that, "the challenge is clear, the rewards evident: those companies that best integrate CSR into overall business practices will reap the rewards born of increased consumer confidence." Consumer confidence is not the only motive for engaging in CSR activities, the benefits of CSR is far beyond the sphere of business. In order for this East-West divide to be overcome there needs to be more dialogue between companies and CSR practitioners. In addition to this, there should be more NGO and Government influence.

The ISO 26000 could be the first step towards narrowing the gap, but we will have to wait and see if it really does.

When we talk about world CSR we have to realize that it is the responsibility for the betterment of society. Hence we cannot have universal rules applicable to all. Societal needs differ for the country to country, state to state, city to city. CSR is heavily based on business ethics and business ethics based on ethics.

Ethical dimensions also vary between western and Indian society. Western society are right centric whereas Indian are dharma centric. Indian leaders invest in people. Far more than their Western counterparts, these leaders and their organizations take a long-term, internally focused view. They work to create a sense of social mission that is served when the business succeeds. They make aggressive investments in employee development, despite tight labor markets and widespread job-hopping. And they strive for a high level of employee engagement and openness. Taking example of Vineet Nayar, CEO of the Indian IT services giant HCL states "I have destroyed the office of the CEO." He led the charge that gave rise to the company's bracing motto, "Employee first, customer second"—an idea that would give many managers hives. And he invited employees to evaluate their bosses and their bosses' bosses; then he posted his own review on the firm's intranet for all to see, and urged others to follow his lead. He explained that he sought enough "transparency" and "empowerment" in the company that "decisions would be made at the points where the decisions should be made"—that is, by employees, where the company meets the client. Ideally, he said, "the organization would be inverted, where the top is accountable to the bottom, and therefore the CEO's office will become irrelevant."

Nayar might be dismissed as a loosely tethered idealist except that his company, with nearly 55,000 employees and a market cap of \$24 billion, is growing even faster than India's red-hot economy. He's doing something right, and, as we found in a yearlong study of Indian executives, his leadership approach is closer than not to the norm among India's biggest and fastest-growing companies.

Far more than their Western counterparts, Indian leaders and their organizations take a long-term, internally focused view. They work to create a sense of social mission that is served when the business succeeds. They make aggressive investments in employee development, despite tight labor markets and widespread job-hopping. And they strive for a high level of employee engagement and openness. This is not to say that Indian firms and their leaders are inordinately virtuous. Corruption and malfeasance can be found in the Indian business community as surely as in any other. (Note, for instance, the scandal involving Satyam Computer and its chairman and founder, Ramalinga Raju, who was jailed on charges of misleading investors.) Not all Indian executives are saints or sages, just as not all U.S. CEOs single-mindedly pursue shareholder value while ignoring social concerns. Still, the leaders of the most successful Indian companies do engage with their country, culture, and employees in a characteristic way, and this is an important factor in their performance. Their approach is used often enough that, we believe, it constitutes the centerpiece of a clear model—one from which Western leaders can learn. Although India's competitive environment is relatively new, company leaders have brought to it a long-standing tradition of business largesse—a commitment to social goals fueled by enlightened self-interest. That mind-set is embedded in Hindustan Unilever's Project Shakti, for example, which applied microfinance principles to create a sales force in some of the subcontinent's most remote and economically challenged regions. And it's revealed in hospitals, grade schools, and virtual universities built across the country by leading businesses. Indian leaders also build employee commitment by encouraging openness and reciprocity. They look after the interests of employees and their families, and implicitly (or sometimes explicitly) ask employees to look after the company's interests in return. HCL's "Employee first, customer second" policy, supported by initiatives designed to make employees feel more personally responsible for the company's offerings and give them a voice with upper management, does exactly this. Vineet Nayar's public 360-degree reviews for managers is another example.

Creating shared value (CSV) is a business concept first introduced in *Harvard Business Review* article *Strategy & Society: The Link between Competitive Advantage and Corporate Social Responsibility*.^[1] The concept was further expanded in the January 2011 follow-up piece entitled "Creating Shared Value: Redefining Capitalism and the Role of the Corporation in Society" The central premise behind creating shared value is that the competitiveness of a company and the health of the communities around it are mutually dependent. **Shared values** are organizational values that are usually

developed by the organization's leadership and then adopted by the other members of the organization. The values are shared and followed by all members of the organization when acting on behalf of the organization. They may also be referred to as **core values**. "If we can tackle societal needs with a business model, we've achieved the most powerful force we'll ever get in changing the world." Michael Porter gave this advice at the 2015 Shared Value Leadership Summit, held last month in New York. The Harvard Business School strategy guru coined the term "shared value" back in 2011 to refer to business activities that create both business and social value, which in his mind is just good corporate strategy. "This is not about being good," he says. "This is about thinking strategically and creating more value — which allows you to be profitable, grow, and gain market share. That's what shared value is all about."

<http://www.justmeans.com/blogs/csr-and-the-east-west-divide#sthash.kuvfpgLp.dpuf>

A survey conducted by the Economic Times and Futurescape and IIM Udaipur for the “Best Companies for CSR” in the year 2015 reported that there are four Tata group companies in the list of top 10 of which Mahindra and Mahindra is in the top spot.

Recent Trends

Many companies are focusing on CSR activities now-a-days among them here are the details of the top best companies of India engaged in CSR activities. Below are the ranking of top 10 best companies in CSR activities 2013 vs 2014.

2013 vs 2014 Rankings

Rank Company (2014)	Rank Company (2013)
1 M&M	1 Tata Steel
2 Tata Power Co	2 Tata Chemicals
3 Tata Steel	3 M&M
4 Larsen & Toubro	4 Maruti Suzuki India
5 Tata Chemicals	5 Tata Motors
6 Tata Motors	6 Siemens
7 GAIL (India)	7 Larsen & Toubro
8 BPCL	8 Coca-Cola India
9 Infosys	9 SAIL
10 Jubilant Life	10 Infosys

From the above table it can be known that companies like Mahindra & Mahindra, Tata, Larsen & Toubro, Infosys were able to be in the top 10 best companies in both 2013 and 2014.

And below are the details of 27 best companies doing CSR activities in India 2015.

In the below table we can see that only Tata Group are been able to restrain its position in top 10 best companies doing CSR activities. Basis our extensive analysis we find that the top scoring Companies in CSR are Tata Steel, Tata Chemicals, Mahindra & Mahindra, Maruti Suzuki and Tata Motors. The same set of companies are top 5 in both the Manufacturing category as well as Private category.

TOP 5 Private Companies for CSR activities

Rank	Company
1	Tata Steel Ltd
2	Tata Chemicals Ltd.
3	Mahindra & Mahindra Ltd
4	Maruti Suzuki
5	Tata Motors Ltd

TOP 5 Public Companies for CSR activities

Rank	Company
1	SAIL
2	GAIL India
3	NTPC
4	Indian Oil Corporation
5	ONGC

SR NO.	COMPANY	REVENUE	AVG PAT	ACTUAL SPEND	2% OF PAT
1	INDIAN OIL CORPORATION	442,459	7,783	83	156
2	RELIANCE INDUSTRIES	368,571	21,138	288	423
3	BHARAT PETROLEUM CORPORATION	223,315	1,438	8	29
4	HINDUSTAN PETROLEUM CORPORATION	195,891	1,118	27	22
5	TATA MOTORS	170,678	8,437	15	169
6	OIL & NATURAL GAS CORPORATION	151,121	23,660	121	473
7	STATE BANK OF INDIA	147,197	13,056	71	261
8	TATA STEEL	135,976	3,895	146	78
9	PNB GILTS	104,628	29	NA	1
10	HINDALCO INDUSTRIES	82,549	3,597	28	72
11	COAL INDIA	78,410	11,759	119	235
12	BHARTI AIRTEL	71,506	6,511	33	130
13	MMTC	67,023	129	3	3
14	NTPC	66,366	9,334	49	187
15	LARSEN & TOUBRO	64,960	4,818	70	96
16	ESSAR OIL	63,428	-201	NA	N/A
17	MAHINDRA & MAHINDRA	63,030	2,948	22	59
18	MANGALORE REFINERY & PETROCHEMICALS	57,214	1,066	NA	21
19	TATA CONSULTANCY SERVICES	48,894	8,935	51	179
20	BHARAT HEAVY ELECTRICALS	50,654	5,823	37	116
21	STEEL AUTHORITY OF INDIA	51,428	5,153	61	103
22	GAIL (INDIA)	44,861	3,891	54	78
23	STERLITE INDUSTRIES (INDIA)	43,116	6,831	7	137
24	CHENNAI PETROLEUM CORPORATION	45,397	392	3	8
25	ADANI ENTERPRISES	39,416	1,940	14	39
26	ICICI BANK	37,995	6,366	24	127
27	PUNJAB NATIONAL BANK	37,447	4,460	NA	89
28	WIPRO	37,308	5,152	NA	103
29	MARUTI SUZUKI INDIA	40,050	2,162	12	43
30	JSW STEEL	36,964	1,569	32	31
31	INFOSYS	33,734	7,128	26	143
32	STATE TRADING CORPORATION OF INDIA	30,905	60	NA	1
33	CANARA BANK	30,816	3,313	NA	66
34	BANK OF BARODA	30,488	4,262	NA	85
35	RUCHI SOYA INDUSTRIES	30,332	167	0	3

Read more at :

http://economictimes.indiatimes.com/articleshow/49330470.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Mahindra & Mahindra

Key CSR Areas : Focus on the girl child, youth and farmers through programmes in the domains of education, public health and environment. Mahindra Pride Schools provide livelihood training to youth from socially and economically disadvantaged communities and have trained over 13,000 youth in Pune, Chennai, Patna, Chandigarh and Srinagar. M&M sponsors the Lifeline Express trains that take medical treatment to far flung communities.

CONCLUSION

As we have seen that fulfilling social obligations is not a new concept but deeply rooted in our Indian culture. This tradition of *dann*, which progressed into philanthropy and finally took shape in the form of CSR. The future of evolution of *daan* lies in the form of creating shared values.

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Institutional Social Responsibility (ISR) assessment with respect to Railway Stations adopted by various colleges in Mumbai

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ABSTRACT

On 2nd Oct 2014, Prime minister appealed the whole country to wake up for a cause which he calls is very much non-political – “Swachh Bharat Abhiyan”. He himself lift the broom & started sweeping the colony of sanitation workers in Delhi. In the process of implementing the same Maharashtra Governor and the Chancellor of universities in the state, C Vidyasagar Rao, has appealed to universities and colleges in Maharashtra "to adopt at least one railway station nearer to them". In this paper author has brought to light the work done by various colleges to contribute their bit towards the campaign by adopting railway stations near to them.

Objectives

- To analyse the effectiveness of Governor of Maharashtra’s appeal to the institutes.
- To bring to light the work done by various educational institutes by adopting railway stations.
- To know the future plans of educational institutes towards adding value to adopted stations.

Research Methodology

This papers showcases excellent blend of primary (interview) & secondary data

Contents

Prime Minister Narendra Modi launched his nationwide cleanliness campaign, the 'Swachh Bharat Mission' or 'Clean India Campaign' from the Valmiki Basti in New Delhi on October 2nd 2014. Addressing the nation at the launch, Modi asked India's 1.25 billion people to join the 'Swachh Bharat Mission' and promote it to everyone. After paying tribute at the memorials of Mahatma Gandhi and former Prime Minister Lal Bahadur Shastri on their birth anniversaries, Modi himself swept a pavement at Valmiki Basti, a colony of sanitation workers before the formal launch of the 'Clean India' drive at Rajpath. While launching the mission at Mandir Marg, he also made a surprise visit at the local police station to check on its cleanliness. Modi said, "Today is the birth anniversary of Mahatma Gandhiji and Lal Bahadur Shastriji. We have gained freedom under leadership of Gandhiji, but his dream of clean India is still unfulfilled." He added, "Swachh Bharat Campaign logo is not just a logo, through it Gandhiji is watching us and we all should clean India. I am not claiming that the newly elected government is doing everything. Be it temples, mosques, gurudwaras or any place, we must take efforts to clean our surroundings. Cleanliness is not only the responsibility of the 'safai kaamgar', it is the responsibility of 125 crore Indians. If Indians can reach Mars at a cheap cost, can we not clean our neighbourhoods?" Giving credit to previous governments, Modi said, "I do not make any claim that only the newly elected government has done everything. All governments have done something or the other to achieve cleanliness in the country; I greet all of them for this. Swachh Bharat mission is beyond politics. It is inspired by patriotism and not politics." Thanking the media for supporting this campaign, he said, "I know people will criticise me in the next few days, but to clean India I am ready to face the criticism." Stating that this campaign cannot be done by only the government or the ministers, Modi said, "The work is to be done by all Indians. This campaign is for 1.2 billion people and I repeat it 1.2 billion times. This work is not only about a 'prachar abhiyan'. It is a big effort but we have a lot of time." Mentioning that the response he is getting on the social media is heartening, Modi said, "There are thousands of organisations which have been doing the great work of

cleanliness, and they should also brought into the picture." Modi asked people to take pictures of areas where they saw garbage, then clean the area and take pictures of the clean area. He asked people to upload these images on social media using MyGov, a mobile application. Around 2,700 students from 44 government schools will read from the 'pledge paper' along with the prime minister at India Gate and also take part in a 3-km long 'walkathon' which would be held as part of the launch of the cleanliness mission.

Maharashtra Governor and the Chancellor of universities in the state, C Vidyasagar Rao, has appealed to universities and colleges in Maharashtra "to adopt at least one railway station nearer to them and give only one day in a month for the cleanliness and its' upkeep". Speaking at Raj Bhavan, Rao said that this would help in transforming railway stations. "It will be an important contribution from the universities to the Swachh Bharat Abhiyan launched by our prime minister," he added. Rao was a part of the distinguished guests who were present to witness the signing of a Memorandum of Understanding (MoU) between the University of Mumbai and the Indian Railways to setup a Centre for Railway Research. The Centre will offer degree, postgraduate and Ph D programmes. Rao stated that since the railways have had a monopoly over transport in the country, it has "created a sense of complacency in the organization." He said, "To carry out its mandate in a better manner, the railways must innovate and carry out research about various aspects of rail transportation including passenger amenities, safety, speed and optimization of resources."

Also present at the event was the Union Minister of Railways, Suresh Prabhu and the State Minister for Railways Manoj Sinha. Prabhu also said that development of railways should not only focus on improving technology, "but also on improving the quality of human capital that India has got." Prabhu further said that railways should also be a knowledge base, and to bring that about, it should be linked to various universities. The Railway Ministry shall be financing the research centre. Prabhu requested Governor to visit Konkan Region so that the research centre at Ratnagiri will be expedited. Prabhu also said that the railway is a major contributor to PM's Make in India campaign. "This year we shall transport 1.200 million tons of goods and this shall be its biggest contribution to the Make in India campaign," he said. Rao appealed to Prabhu to start a similar research centre in collaboration with the Nagpur University.

Students from Mumbai's Wilson College have adopted a railway station to do their bit for the national mission for cleanliness. At the Charni Road Station in south Mumbai, students today put up posters, performed street plays and songs and gifted water purifiers and plants. Around fifty students will clean the station's platforms once a week and beautify it with graffiti and art work. Micro biology department of Wilson college will also check how pure is the water being provided at the station. The students say they want to take the Swachh Bharat Campaign beyond a photo opportunity. "It has to start at the ground level, It's a station we use seven days a week; it is our responsibility to keep it clean and pleasant," say the students.

Students of Mithibai College adopted the Vile Parle station, another key hub of Mumbai's arterial suburban railway network, and pledged to keep it clean. The Station Master of the Charni Road station told "If the young generation is so aware, it's great for the country. I hope each college adopts a station. It'll be a huge step towards cleanliness." Nearly three months ago, students of the college cleaned the Hanging Gardens. They plan to extend their campaign across the city. The city's suburban stations are heading for a makeover with the railways roping in educational institutions, corporate houses and NGOs to give them a local flavour, along with upgrading their basic amenities and cleanliness. Work at 40 stations -29 on the central line and 11 on the western line - have already begun in full swing. These stations have been adopted by different organisations. Matunga station has been adopted by Welinkgar Institute, Wadala Road station by Vidyalkar Institute and Dadar station by Nerolac Paints. A cleaning spree has already begun at GTB Nagar, Nahur, Kanjurmarg, Chembur, Vidyavihar, Kings Circle, Bhandup and Ghatkopar stations. The Rotary International District 3140 of the Rotary Club has also adopted eight stations -Thane, Dombivali, Govandi and Mankhurd on the central line, and Borivali, Kandivali, Bandra and Khar Road on the western line. Rotary International has also signed a MoU with central and western railways, taking charge of the cleanliness at 144 suburban stations over a period of three years. The adoption of stations by these organisations is an initiative called the 'Swachh Rail - Swachh Bharat Abhiyan', undertaken by the Indian Railways. "The MOU with Rotary International is part of this initiative. In this plan, we are going to develop suburban

stations according to the needs of the local passengers," a senior railways official from central railways said. Sunil Kumar Sood, general manager of central railways, said, "Seventyfive per cent of the passengers who travel in the railways are regular commuters. Our plan is to make them feel comfortable and treat the station as their own." A cleanup-programme and the beautification of the railway platform and ticketing areas have been undertaken by Gurunanak College that has adopted the Guru Tegh Bahadur Nagar railway station. A nine-day chakachak gtb nagar mahotsav was on at the station . Do not be surprised if you find your stations cleaner than usual. As a part of the national mission for cleanliness, students across city colleges have adopted railway stations close to their campuses. They have been given a makeover, which involves renovation and upgradation and students have taken it upon themselves to maintain them in prim and proper situation. Here's how colleges have done their bit.

WILSON COLLEGE STATION ADOPTED: CHARNI ROAD

After announcing July 8 as Environment day, the college adopted the station for a year. As part of a weekly activity, students have taken the responsibility of maintaining the premises with artworks and graffiti on the walls of its platform. Pooja Nair, a third-year BMM student who was a part of this, says, "The nature club at the college distributed plants to the station for its beautification. Along with two of my friends, I painted a canvas, too."

RAMNIRANJAN JHUNJHUNWALA COLLEGE STATION ADOPTED: GHATKOPAR

During the adoption activity that took place earlier this month, students from NSS department not only cleaned the entire station but also distributed cards of appreciation to railway motormen and guards. Besides keeping it clean, the college's Hindi Vidya Prachar Samiti aims to beautify the place by planting trees in the garden adjacent to platform no 1 and 2. Faculty member of the college, Deviprasad Shetty says, "Soon, we will be painting the station walls with artworks and social messages. The activity will involve young kids from the vicinity."

WE SCHOOL, RAMNARAIN RUIA COLLEGE AND R A PODAR COLLEGE STATION ADOPTED: MATUNGA

In an endeavour to contribute towards building Smart Cities, the three colleges jointly took up the effort of renewing Matunga station earlier this month. By creating a unique entity for the station, the common goal of the institutions is to create a design in order to improve user experience. To enhance visual communications, there will also be onstation signages that will show directional, educational and safety messages and help in locating places around the premises. Group Director Prof Uday Salunkhe adds, "We will soon install public utilities like drinking water, garbage bins, air circulators, build toilets with facilities for differently-abled and paying heed to women's sanitary hygiene. There is also a long-term programme to ensure sustainability by reaching out to various strata of the society and making it a societal cause."of commuters

GURU NANAK COLLEGE OF ARTS, SCIENCE AND COMMERCE STATION ADOPTED: GURU TEGH BAHADUR NAGAR

In addition to beautifying the station, the college held week-long activities as a part of its awareness drive called 'GTB Chakachak' earlier this month. Focussing on issues like AIDS, women's development, environmental concerns, the adoption activity aimed to address the issues of commuters by engaging them in laughter therapy sessions and one-minute exercises, commuters, too, took time off from their daily hustle-bustle.

Narayan Vaish, a member of the student's council that was spearheading the activity says, "Since there is no washroom in the station, we have found a sponsor to build one. Our college will act as a watchdog and students will take part in the activities that will be held once in a month. We also hope to join hands with locals in the near future."

MITHIBAI COLLEGE STATION ADOPTED: VILE PARLE

This year in June, the college took over the responsibility of maintaining Vile Parle station. To start off, students from various faculties installed dustbins, swept platforms and displayed educational artworks. Once in every fortnight, close to 150 students along with the station master, take up tasks for the station's upkeep. "Our plan of action for the next few months involves installing transparent dustbins and providing cleaners with gloves and brooms. We have got permission to adopt the skywalk at S V Road and will soon start working on it. Mithibai College has assumed responsibility of maintaining and beautifying Vile Parle station.

Beginning July 1, groups of 25 students take turns every month to sweep each of its six platforms, install garbage bins and mount artwork on its walls. This is the first instance of an educational institution adopting a city railway station. "students have been using this station for many years now and we would all like to help make it look better," said Dilip Kamath, principal of Mithibai College - the station is located 1.5 km from the educational institution. The announcement that Vile Parle would have an educational institution as its caretaker came after Maharashtra governor Vidyasagar Rao urged colleges and schools to adopt and maintain public spaces, in April. "Given how it serves our students we thought it only natural that we assist the platform staff at the station," Kamath said. "The Western Railways (WR) was very supportive." The college, which has over 12,500 students, will abide by this commitment for an indefinite period of time. "This isn't just a one-day event. This is a long term plan. The management will fund purchase of supplies for the cleanliness drive. Apart from sweeping the platforms, the students will set up dustbins and put up banners and pictures emphasising the importance of cleanliness," said Sunita Maral, a professor at Mithibai and one of the coordinators of the project. "Artwork by students will also be displayed at the platforms." WR chief spokesperson Sharat Chandrayan said this project was indicative of ongoing efforts to involve locals in maintaining public infrastructure. "A station belongs to no one. But when local associations or colleges adopt a station, they know the local issues and problems that need to be addressed or taken care of," he told Mumbai Mirror. Stating that the resources to keep up the drive are very important, he added, "There are things like cleanliness or addition of passenger amenities that can be undertaken by such associations. Also, the fact that students are adopting the station is very important as youth represent the future." Sources in WR said this was the first time that a college has taken up responsibility of a railway station. Vile Parle, which in July 2013 became the first station on the western line to get an escalator, is used by approximately one lakh commuters every day as per WR records. It has six platforms (two harbour, two main line and two fast line; although fast trains do not halt at the station). Next, Mithibai's students plan to adopt the skywalk that connects the station to SV Road. "We will soon seek permission from the BMC to begin work,"

VIDYALANKAR DNYANPEETH TRUST ADOPTED: WADALA STATION

Wadala station on the harbour line has been adopted by instructional trust to make it clean, green and safe. The station has actually been offered for adoption after railway minister Suresh Prabhu appealed NGOs, Corporate and Educational Institutions to come forward for maintenance of train stations. This year in July, the college drew out a long-term plan for the station. Immediately after adopting it, the college cleared debris from the station in large quantities and planted a garden in that space. "Currently, close to 15 students and some staff members, along with the railway officials not only clean the station but also hold placards with informative messages in English, Hindi and Marathi between 9 am and Marathi between 9 am and 5.30 pm. With these messages, students ask commuters to travel safely and use foot over bridges instead of crossing the railway tracks. In addition to this, the HODs of the college deliver lectures to the railway staff members daily, giving them lessons on efficiently managing the crowd," says Ratna Pandey, the community relationship officer for the institute. Around 100 students and staff of Wadala based Vidyalankar Dnyanpeeth Trust (VDT) brought out clearing of particles and cleaning of train premises. CR spokesperson stated, the adoption of this station by VDT will certainly include numerous drives to create awareness about safety and cleanliness and renovation of drinking water centers. Posters, paintings, artwork, banners, plays, musical efficiency will also be held to produce awareness. Chairperson of the trust Dr Sanjeevani Deshpande said with over 5000 personnel and students, Vidyalankar family will

abide to this life long dedication and will make sure that this Station will certainly be understood called the Ideal Railway Station in Mumbai. This station is a crucial transit point over Harbour line towards Western Train.

Work done by Vidyalankar at Wadala station since its adoption.

- Cleaning of platforms by housekeeping staff.
- Cleaning of Foot Over Bridge
- Cleaning of Ticket Counter
- Awareness through display of informative Placards by Vidyalankar student volunteers.
- Students preventing passengers from track crossing.
- Cleanliness drive near platform 2 & 3 – 37 truck load debris lifted
- Vidyalankar arranged training sessions for Wadala station staff members.
- Painting & Beautification of station
- Painting of Foot Over Bridge
- Gardening

Special thanks to Mr. Suryaprakash, Station Manager, Wadala Railway Station.

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Legal Position of Corporate Social Responsibility in Companies Act 2013

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ABSTRACT

Nowadays the Governments are also moving towards the welfare state concept. With this purpose in mind, our Constitution lays down desirable principle and guidelines in Part IV of the Indian constitution. These provisions are known as the Directive Principle of State Policy under Article 36-51 of Indian constitution. The Constitution of India aims to establish not only political democracy but also socio-economic justice to the people to establish a welfare state. Since the increasing of socio-economic imbalances the Governments are encouraging companies to take up social responsibility for changing the social structure by eradicating hunger, poverty and malnutrition, promoting preventive healthcare, promoting education and promoting gender equality etc. For this purpose the Indian companies Act, 2013, section 135 and schedule VII provides guidelines on implementation of CSR and mandates the corporate to spend 2% of their profit towards CSR activities for welfare state and came into effect April 1, 2013.

Keywords:- Directives Principles, Ministry of Corporate Affairs

INTRODUCTION

The corporate social responsibility is assortment of the business interest as well as community interest for social ordering. The actions of business and industry impact the lives of citizens, both directly and indirectly. Hence the business and industry are expected to assure reasonable level of responsibilities towards the society in addition to their economic and legal obligations. As per the World Bank Group, Defined “Corporate social responsibility is the commitment of businesses to contribute to sustainable economic development by working with employees, their families, the local community and society at large, to improve their lives in ways that are good for business and for development.”

The corporate social responsibility (CSR) is a philosophy that looks at the social interest and the long run enlightened self interest of business. It aims at integrating the business interest with that of community in which it operates. The corporations have, thus, obligations towards the society and are expected to be ethical and good corporate citizens. The CSR goes beyond the narrow economic, technical and legal requirements and interests of the firm. It has been widely recognized the world over that integrating social, environmental and ethical responsibilities into governance of business ensures their long term success, competitiveness and sustainability. The clause 135 of the bill makes a series of overhauls to the Companies Act, 1956, one of the most debated clauses of this Bill is the proposed clause 135, which will make it mandatory for certain companies to set aside 2% of their profits for Corporate Social Responsibility (‘CSR’).

In India, prior to the new Companies Act, 2013, both the public and private companies were taking up certain philanthropic activities on voluntary basis. Such programs were mainly focused on religion and to a limited extent on educational activities. Up till 2009 there were no specific guidelines for CSR in the country. It was only in 2009 that the Ministry of Corporate Affairs, Government of India, issued certain guidelines for the companies to undertake CSR activities on voluntary basis. The Ministry, however, issued fresh guidelines for the central public sector enterprises (CPSEs) in 2013 according to which the budgetary allocation to CSR was linked to their Profit After Tax (PAT) of the previous year. With the enactment of the Companies Act, 2013 (w.e.f. April 1, 2014), the public as well as private sector companies are now covered under Clause 135 of the Act and they are under an obligation to allocate and invest at least 2% of their profit after PAT to the CSR activities. Nowadays the Governments are also moving towards the welfare state concept. With this purpose in mind, our Constitution lays down desirable principle and guidelines in Part IV of the Indian constitution. These provisions are known as the Directive Principle of State Policy under Article 36- 51 of Indian constitution. The

Constitution of India aims to establish not only political democracy but also socio-economic justice to the people to establish a welfare state. Since the increasing of socio-economic imbalances the Governments are encouraging companies to take up social responsibility for changing the social structure by eradicating hunger, poverty and malnutrition, promoting preventive healthcare, promoting education and promoting gender equality etc. For this purpose the Indian companies Act, 2013, section 135 and schedule VII provides guidelines on implementation of CSR and mandates the corporate to spend 2% of their profit towards CSR activities for welfare state and came into effect April 1, 2013.

OBJECTIVES

1. To study the concept of CSR.
2. To study the legal position of CSR in India.
3. To find the activities involves in CSR.
4. To analyze problems caused by clause 135 of the companies Act 2013

REVIEW OF LITERATURE

According to Bhattacharya in his book Leveraging Corporate Social Responsibility, consideration of the social, economic and political context demonstrates how CSR forms part of a wider strategic direction being taken internationally with regard to state/market relations and the pursuit of a range of objectives and goals. The context is in part provided by concerns about the numerous examples of irresponsible behaviour on the part of corporations, ranging from colluding with oppressive regimes and in the overthrowing of governments to issues relating to working conditions and the impact of unethical marketing practices. Such examples have demonstrated the need for the worst excesses of business to be curbed.

According to I. Jain in his article (Corporate Social Responsibility Practices in India), the globalised economy is understood to raise important issues for businesses and governments due to changes in patterns of production and consumption. The notion of corporate social responsibility is part of the 'third way', where the role of the state is now to provide "steering for the promotion of social development and social justice". There is increased involvement of the private sector in traditionally statutory provision through privatisation and public/private partnerships. Economic policies have created a need for markets and business to self-regulate in order to continue to pursue an international free market economy, but also to ensure sustainability (of economic, human and other resources, and of the environment). CSR is seen as a solution to these problems of regulation.

RESEARCH METHODOLOGY

In this research, the researcher has used secondary data. Secondary data is being collected from various books, journals, websites as well as newspapers.

WHAT IS CSR?

The term "Corporate Social Responsibility (CSR)" can be referred as corporate initiative to assess and take responsibility for the company's effects on the environment and impact on social welfare. The term generally applies to companies efforts that go beyond what may be required by regulators or environmental protection groups¹.

Corporate social responsibility may also be referred to as "corporate citizenship" and can involve incurring short-term costs that do not provide an immediate financial benefit to the company, but instead promote positive social and environmental change².

Moreover, while proposing the Corporate Social Responsibility Rules under Section 135 of the Companies Act, 2013, the Chairman of the CSR Committee mentioned the Guiding Principle as follows: "CSR is the process by which an organization thinks about and evolves its relationships with stakeholders for the common good, and demonstrates its commitment in this regard by adoption of appropriate business processes and strategies. Thus CSR is not charity or mere donations. CSR is a way of conducting business, by which corporate entities visibly contribute to the social good. Socially

responsible companies do not limit themselves to using resources to engage in activities that increase only their profits. They use CSR to integrate economic, environmental and social objectives with the company's operations and growth."

Legal Position of Corporate Social Responsibility in India

It is mandatory for certain companies to set aside 2% of their profits types of companies

- a) those with a net worth of rupees five hundred crore or more,
 - b) those with a turnover of rupees one thousand crore or more and
 - c) those with a net profit of rupees five crore or more.
- a. These companies would be subject to the following obligations under the aforementioned clause a. Mandatory setting up a CSR Committee consisting of members from the Board of Directors, which will formulate a CSR policy.
 - b. Ensuring that at least 2% of the average net profits of the company for the Past three years are spent in accordance with the CSR Policy.
 - c. Where the companies fail to spend the abovementioned amount, furnishing reasons for the same in the Directors' Report under clause 134 of the Bill. In the deliberations which follow, this Article will examine the practical and legal implications of such a law coming into existence, and whether the same should be allowed or not.

The Official notifications by the Government have been released earlier in the form of 'guidelines' – some mandatory, some voluntary. The first indication of an official notification on CSR guidelines was issued by the Ministry of Petroleum and Natural Gas, whereby public sector oil companies had agreed to spend at least 2% of their net profits on CSR initiatives. This was followed by a notification titled 'Corporate Social Responsibility Voluntary Guidelines', which was issued in December 2009 by the Ministry of Corporate Affairs. Further guidelines were issued for Central Public Sector Enterprises (CPSEs) in April 2010, whereby the creation of a 'CSR Budget' was made mandatory.

'Mandatory' CSR V. 'Voluntary' CSR

One of the principle contentions raised against this provision is that CSR is essentially a 'voluntary' exercise. CEOs of major Indian companies have stated that the process should be more 'democratic' and the decision regarding allocation of a public company's profits towards CSR should be subject to the shareholders' vote, not the government's legislative powers. The following points highlight the debate on this issue.

'Aspirational Law' – an Argument

Scholars argue that law cannot be 'aspirational' – it is not within the scope of law to statutorily mandate positive action; it can only enforce minimum standards. Thus, whereas law can ban companies from using child labour, it cannot force companies to build excellent schools or be as environmentally conscious as possible.

Mandatory CSR and Tax

The primary purpose of a 'tax' is the collection of revenue. When the Government imposes a tax, it need not identify a specific benefit accruing from the same. However, that is not the purpose of clause 135 of the Companies Act, 2013 – the money being used by the companies in CSR initiatives would not be filling the coffers of the Government. Also, the said money would be directed towards specifically earmarked activities. Money given as 'tax' goes to the State, and not directly to the community. For what purpose that money is used is left to the much more effective than a tax – companies have full freedom to give priority to social causes they want to support, and because the money is directly pumped into CSR initiatives, the impact is much higher.

Activities covered under Schedule VII of the Companies Act 2013

Ministry of Corporate Affairs vide its Notification dated 27th February, 2014 (which shall come into force with effect from 1st April, 2014) has come up with the modified Schedule VII which covers wide range of activities which can be undertaken by the Companies as a part of their CSR initiatives.

The activities involve the following:

- Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water;
- Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently abled and livelihood enhancement projects;
- Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups;
- Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water;
- Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art, setting up public libraries, promotion and development of traditional arts and handicrafts;
- Measures for the benefit of armed forces veterans, war widows and their dependents;
- Training to promote rural sports, nationally recognized sports, paralympic sports and Olympic sports;
- Contribution to the Prime Ministers' National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women;
- Contributions or funds provided to technology incubators located within academic institution which are approved by the Central Government;
- Rural development projects.

The above mentioned activities constitute the CSR activities and the companies which are covered under the provisions of Section 135 shall be required to carry out any one or more of the activities as specified above along with following its CSR Policy.

Problems caused by clause 135 of the companies Act 2013

a) Constitutional Validity

Clause 135 of the Companies Bill creates a classification amongst the existing companies in India. It divides companies into two categories

Companies having a net worth of five hundred crore rupees or more, OR a turnover of rupees one thousand crore rupees or more OR a net profit of rupees five crore or more.

b. Other remaining companies.

Now, clause 135 is applicable only to companies in category (a) as stated above. Since this clause creates a ‘classification’, it would attract the tests of being valid on the threshold of Article 14 of the Constitution of India i.e. equality before law.

Finding:

1. Nowhere does the Companies Act, 2013 provide a concrete definition of what amounts to ‘CSR’. This becomes a problem because the scope of the term ‘CSR’ is extremely wide – while certain issues such as environment, healthcare, education etc. are commonly accepted as part of CSR activities.
2. Considering the increasingly vast and complex business environment, the move of the Ministry of Corporate Affairs is a welcoming step which apart from contributing towards society, plays a major role in various ways which includes attracting and retaining employees in a such a way as to increase morale of the employees along with creating a sense of belonging to the company and contributes towards enhancement of company's own goodwill, positive image along with bringing competitive advantages.

3. There is much confusion with respect to the definition of Corporate Social Responsibility.
4. If the scope of the CSR activities is not clearly defined, then this would result in disastrous consequences with respect to the implementation of clause 135, as well as increased litigation for both the companies and the governing body.
5. It is mandatory for certain companies to set aside 2% of their profits types of companies.
6. The Government, has followed a 'socialist' approach in framing this section 135 of companies Act 2013 rather than making it 'company'.

SUGGESTIONS

The Government will adjust the expenditure towards CSR activities by the companies in other manner so that this will provide a positive environment for the companies to function in, with respect to CSR activities.

CONCLUSION

1. It should provide a vast definition for CSR, in order to provide companies with the freedom to select from a large number of areas. Amend Schedule VII to include a broad definition of CSR.
2. A separate body may create for overlooking compliance with the obligations under clause 135. The presence of a separate body which would monitor the CSR expenditure would ensure a higher and more effective degree of compliance.

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Track - 4:
Information and
Communication
Technology (ICT)

Brief Summary	
Track-in-Charge	1) Rohini Gaikwad, Assistant Professor, Department of Information Technology, VSIT 2) Pallavi Tawde, Assistant Professor, Department of Information Technology, VSIT 3) Seema Bhatkar, Assistant Professor, Department of Information Technology, VSIT
Session Chair(s)	1) Dr. Siby Abraham, Head, Department of Mathematics & Statistics, Gurunanak Khalasa College, Mumbai. 2) Anjum Mujawar, Head, Department of Electronics & Telecommunication, Vidyalankar Polytechnic
Best Paper Awarded	Title of the paper: E- learning in Indian Higher Education System: Disruptive Innovation or Sustaining Innovation?
	Author(s): Devayani Ganpule, Associate Professor, Department of Economics, Ramnarain Ruia College, Mumbai

E-Learning in Indian Higher Education System: Disruptive Innovation or Sustaining Innovation

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ABSTRACT

In the developed countries spread and popularity of E-learning in the field of higher education has posed a serious threat to the traditional brick and mortar education system. So it is considered as ‘disruptive innovation’ by some educationist. This paper will discuss why in India E-learning will tend to be more of a ‘sustaining innovation’ and its disruptive effect will be moderate compare to that of in the developed world.

Keywords: *E learning, disruptive innovation, Sustaining innovation, Higher education in India.*

INTRODUCTION

In the developed countries spread and popularity of E-learning in the field of higher education has posed a serious threat to the traditional brick and mortar education system. So it is considered as ‘disruptive innovation’ by some educationist. Of course there are educationists like Le Blanc (2015) who have different take on the issue. In India though the spread of E- Learning is not yet as widespread as it is in the developed countries, it is going to be a major influencing factor in case of the Indian education system in the near future. This paper will discuss why in India E-learning will tend to be more of a ‘sustaining innovation’ and its disruptive effect will be moderate compare to that of in the developed world.

Literature Review

E -Learning is defined as “... electronic learning, and typically this means using a computer to deliver part, or all of a course whether it's in an educational institute , training programmes organised by the employers or a full distance learning course.” (Virtual College, website) Some prefer to call this effective use of electronic technology in education. E-learning can occur in or out of the classroom. It can be self-paced, asynchronous learning or may be instructor-led, synchronous learning. It is suited to distance learning and in conjunction with face-to-face teaching, which is termed as blended learning. (Wikipedia)

The concept of ‘disruptive innovation’ was first introduced by Clayton M Christensen, of Harvard Business School, in his book “The Innovator’s Dilemma. According to Prof. Christensen ‘sustaining innovation’ uses new technology to improve the existing products. For example use of Power Point Presentation instead of chalk and duster in the class room. Whereas ‘disruptive innovation’ creates new markets by developing new business models, uses the existing technology in a drastically different way. E –retailing is an example of ‘disruptive innovation’. It has threatened the existence of conventional retail business in certain segments.(Christensen,2012)

The rapidly spreading E learning facilities in the western world, has adversely affected students’ enrollment in the traditional universities that do not enjoy very high brand value but charge high fees. The average education loan burden of a degree student is \$ 27000 in the USA. The default rate of education loan is rising exponentially as employment value of degrees is going down after 2008 financial crisis. In such a situation E- learning is widely preferred by students as an affordable option. E -learning is also preferred by the employed adults who have missed the opportunity to get into the university as a teenager. Similarly an era in which ‘change’ is the most permanent aspect of life, to keep pace with the changing work place requirements is necessary for the survival. By now the concept of life long learning(LL) ,to keep

oneself updated, is well accepted in the developed world. E-learning has facilitated LLL by making it 'for Any One ,Any Time, Anywhere(AAA)'. In spite of all these advantages of E learning ,according to Le Blanc(2015) it cannot even become close substitute for traditional 'coming-of-age higher education' . For teenager traditional university offers holistic learning experience. Le Blanc says, "That higher education is about getting a degree and education, but it is also about coming of age. Although technology can help improve the educational experience, it does little to augment or replace the magic and messiness of human relationships in this context". But E-Learning is boon to older working students whose needs are different. They need typically four C's – **Creditionls** -to advance their careers, **Completion**- getting degree in the shortest possible time, **Cost** – affordability and **Convenience**- suitable delivery method. All these four criteria can be easily met by on line E learning. In case of teenagers, in the most part of the developed world, affordability of university education is becoming a major concern and so they also are moving towards E- learning. Also quality of on line programmes has improved rapidly in the last decade .Hence ever increasing popularity of on line programmes among all age groups. Traditional students today are less than 20 per cent of all college students in the USA. Even employers don't insist on conventional four year degree as the qualification.70 percent of all new jobs require a two year degree or at least its equivalent (Le Blanc2015). In such a situation rating agencies like Moody's are regularly predicting doom of major section of American Universities. Hence E learning is getting labeled as 'disruptive innovation'.

Indian Scenario

At present Indian Higher Education system is in an ironical situation. It is facing the challenge of low Gross Enrollment Ratio (GER around 19%) at the same time the system collectively has a lot of excess capacity. At the time of Independence of India, there were only 20 Universities and 500 Colleges in the country with 2.1 lakhs students in higher education. The numbers now have increased 37 times in the case of the Universities, 79 times in the case of Colleges and the students enrolment has gone up to over 113 times in the formal system of higher education in comparison to the figures at the time of independence. As on 31.03.2014, the number of Universities had gone up to 666 universities - (45 Central, 313 States 175 State Private, 129 Deemed to be Universities, four Institutions established under State Legislation) and 39,671 colleges in the Higher Education sector. During the academic session 2013-2014, the total enrolment in all courses and levels in regular stream was 237.65 lakhs including 105.52 lakhs women students, constituting 44.40%. Out of the total enrolment of students (237.65 lakhs), 36.57% students were in the faculty of Arts, followed by Commerce 17.60% and Science 17.23%, thus constituting 71% enrolment in just three faculties, while the remaining 29.00% enrolment were in professional faculties.(UGC 2014)

With this backdrop one needs to examine the impact of E -Learning on Indian higher education. Many Western Universities and other service providers of E- learning are all out to market E learning in India because of huge size of young population and low GER The E-Learning market in India is estimated to be around \$ 3 billion and is growing.(Hindustan TimesAug 31, 2015) Examples are sited such as- with more than one million users ,Coursera ,Massive Open Online Course(MOOC), have biggest source of learners from USA, China and India.

Practically every leading news paper in India had published an article discussing only merits of E- Learning. The major advantages mentioned are already discussed in the literature review. In Indian context two more advantage are highlighted -1) improvement in the quality of education due to creative use of Information and Communication Technology. (Because poor quality of Indian Higher Education is always discussed) and 2) E- learning can increase accessibility ,availability and affordability of higher education in India so will make system more 'inclusive'. But the evidence shows that a majority of those registering for E courses in India have a Bachelor's Degree or higher. Courses were not accessed by those who need their "affordability, availability and accessibility" viz. women, poor and dropouts at XII standard level.

Why was it so in spite of the fact, that many online courses are free of charge?

Issues involved with on line E-Learning in India

1. Online courses require easy accessibility to computer and affordable high speed 24 hour internet connectivity to all the children /students in the family. Besides this perennial supply of electricity must be assured. In the typical poor, especially rural, Indian household such facilities are a distant dream. Some of the urban lower income families have computers and limited internet facilities but they get shared among several members of the family. Literacy in general and computer literacy in particular is very low among rural poor in India. Supply of electricity also is very erratic. PM Modi's concept of 'Digital India' and Mark Zuckerberg's concept of 'Free Basic Internet' are trying to address the same issue. But to create level playing field in access to ICT all over India is a mammoth task.
2. The currently available mainstream education in government aided institutes in India is highly subsidized. Besides, economically and socially disadvantaged students get some additional benefits. So affordability is not a major concern but the quality is the major concern in case of Indian Higher Education. Quality is measured in terms of students' employability and their work readiness. E- Learning possibly can deliver course content more effectively but will that increase student's employability? Employers in India when they recruit generalists are not much interested in the knowledge base of the candidate. They are looking out for above average IQ, leadership abilities, presentation skills, emotional intelligence, cultural fitness, proficiency in English, ability to work in team, internships done etc. Many of these attributes get developed in traditional degree colleges as students participate in various co- curricular and extracurricular activities. In case of recruitment of specialist obviously students from well known established education brands, with hands on work experience will be preferred by the employer. That again comes through internships, working as research assistant etc. So E –Learning can do a value addition to the traditional degree programme and can help decorate Curriculum Vitae. But it cannot become substitute for the mainstream education. Similarly faculty in traditional system can use some of the E –Learning techniques and can improve quality of education. In fact in India such blended learning methods are already in practice and are encouraged at all levels of education.
3. Higher education all over the world is demanded for various reasons. In India important factors influencing the demand for higher education are – a) better employment prospects b) social status c) improvement in matrimonial prospects i.e. possibility of getting more dowry or better match. Currently traditional education system is taking care of last three determinants. As far as better employment prospects are concerned definitely graduate fares better than non graduate in the employment market but this is partially true. Quality of Degree College and medium of instruction at school and college level can create a lot of difference in pay packages offered to graduates. The range of these offers at present is 1.5 lakhs to 10 lakhs p.a. This is a huge difference. How to reduce these discrepancies that result essentially because of diverse socio economic backgrounds of students? E -learning can do a great job in increasing language proficiency and exposure levels of students so they become smart enough to face interview panel with confidence.
4. Not all programmes offered though E- Learning are free of charge. Some offered by 'for profit institutions' charge quite hefty fees e.g various on line coaching classes that train students for competitive examination. In fact coaching class industry in India will benefit a lot by adopting E –Learning. This is definitely not a desirable outcome. E- Learning can prove to be a disruptive innovation in case of coaching classes for all India Level Competitive Examinations. Dominant well known coaching classes will make its services available online all over India. So sustainability of local small players will be threatened. E- Learning programmes are conducted in virtual reality. So accountability in case of student's grievances/cheating cases can be a serious problem. Possibility of fraud institutions will always be more in case of E- learning programmes run by 'for profit institutions'.

CONCLUSION

E-learning is definitely a sustainable innovation that can be used to improve quality of traditional higher education in India. Demand for E-Learning will increase in near future because of two reasons- 1) aggressive marketing of suppliers of E Learning Programmes 2) realization that, in the globalised world, knowledge is the most potent source of power and E learning can create easy accessibility to various knowledge sources. But this increasing demand will not result into downfall of traditional higher education. Traditional education system will go through different phases of correction, in fact, this process has already begun. New education Policy is in offing and for the first time an appeal is made to all the stakeholders to give suggestions. A system that is ready to do an honest introspection will not only find a lot of faults with itself but will also come out with corrective mechanism. More use of E-learning methods will be one such corrective mechanism. It will assure long run healthy survival of 'brick and mortar' Indian higher education system.

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“A Study on - Digital Empowerment and E-Employment for Women in India”

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ABSTRACT

Digital technology has empowered and revolutionized the world as never before. Rapid transformations have taken place in the global scenario. The contribution of Information and communication technology has been significant in terms of income and earnings, growth and employment generation. Women are the equal beneficiaries to the advantages offered by technology .According to a recent study, a large number of women are joining the IT enabled services sector. ICTs have created many new jobs especially for women.

In north and western India, there are more women employees in call centers than men. There are numerous possibilities for ICTs to improve women's economic activities in the field of trade, governance, education, health, crafts, employment in formal as well as informal sector. ICT's bring lot of opportunities to women in the work situations and small business.

But a large group of working women of India is in the rural and unorganized sectors. Socially the majorities of Indian women are still tradition bound and are in a disadvantageous position. Keeping these facts in mind, the proposed study identified the benefits, problems and their solutions and also explains the needs of infrastructure and policy intervention to make ICT sector to contribute towards enhancing empowerment of women economic status in India.

Keywords:- *ICTs, Indian women, IT sector, digital empowerment, infrastructure, policy intervention*

INTRODUCTION:-ICT AND E-EMPLOYMENT

The advances in information and communication technologies (ICTs, i.e. Internet, mobile telephony, social media, blogs, etc.) represent a revolution in the way people interact among each other, access information, communicate, access services, work, live, by acting as a facilitator for easier, faster, wider communication and access to information, at all levels (local, regional, national and international).

These developments have a strong potential for the empowerment citizens of India. At the same time, new challenges emerge in terms of risks/threats posed, that need to be identified and addressed appropriately by policy makers and society as a whole.

A prominent feature of the IT sector is the growth of IT enabled services. There has been recent growth in IT enabled service businesses in India as call centres, medical transcription, technical support and back office processing, engineering and design, geographic information services, payroll and other human resource services, insurance claim processing, legal databases. Business Process Outsourcing has tremendous potential for growth.

The impact of information communication technologies and the related synergy effects and increased efficiency "have influenced the numbers and structure of the workforce and significantly changed working conditions and occupational patterns. This is a relatively new development affected the status of workers, especially in recent years. In the medium term, hardly any jobs will remain unaffected by it. ICT can be an important tool in meeting women's basic needs and can provide the access to resources to lead women out of poverty .

Women work two thirds of the world's total working hours spending mainly on growing food, cooking, raising children, caring for the elderly, maintaining a house, hauling water, etc., which is universally accorded low status and without pay .

DIGITAL EMPOWERMENT IN INDIA

Government of India has taken an initiative to start a programme to transform India into digital empowered society and knowledge economy. The vision of Digital India aims to transform the country into a digitally empowered society and knowledge economy. The programme will be implemented in phases from the current year till 2018. The Digital India is transformational in nature and would ensure that Government services are available to citizens electronically. It would also bring in public accountability through mandated delivery of government's services electronically, a Unique ID and e-Pramaan based on authentic and standard based interoperable and integrated government applications and data basis.

TECHNOLOGY AND INDIAN WOMEN

A) Position of Woman in India

In Indian society there occurs a great disparity in the matter of economic resourcefulness between a man and a woman. Our society is male subjugated both economically and socially and women are always dispensed with dependant role. A nation that does not esteem its women cannot be designated as a civilized nation at all. Such a nation cannot grow and develop. Thus, the national consensus should focus on betterment of women by befittingly empowering them. Empowerment is a multi-dimensional social process that aids people gain control over their lives. Women empowerment commonly refers to the process by which women augments their power to take control over decisions that shape their lives, including in relation to access to resources, partaking in decision making and control over distribution of benefits.

Women's empowerment has five components: women's sense of self-worth; their right to have and to decide choices; their right to have access to chances and resources; their right to have the power to control their own lives, both within and outside the home; and their aptitude to influence the direction of social conversion to create a more just social and economic order, nationally and universally. Though empowerment is a central approach taken up by a number of international and national agencies, few of them share shared definitions and most of them have diverse explanations of empowerment. More women are convoluted in careers in the communications sector, but few have achieved positions at the decision-making level or serve on governing boards and bodies that sway media policy. The lack of gender sensitivity in the media is shown by the failure to eradicate the gender-based stereotyping that can be found in public and private local, national and international media organizations. The unremitting projection of negative and degrading images of women in media communications - electronic, print, visual and audio - must be altered. Print and electronic media in most countries do not offer a balanced picture of women's sundry lives and contributions to society in a varying world. Programming that reinforces women's traditional roles can be similarly limiting. The worldwide drift towards consumerism has created a climate in which advertisements and commercial messages often depict women primarily as consumers and target girls and women of all ages improperly. Women and girls are exposed to great discrimination in economic, education, health and social services access worldwide. On the other hand the range of women's economic activities in emerging countries is very broad. It embraces formal sector and informal sector employment, as well as self-employment in farming, trading and crafts production etc. There are plentiful possibilities for ICTs to improve women's economic activities in the field of trade, governance, education, health, crafts, employment in formal as well as informal sector. ICT brings lot of openings to women in the work situations and small business. Teleporting, flexi time and work from home arrangements are some of the gender magnitudes of ICT's usages

B) Status of women in technology:- In rural

Information is power. The less informed are those who have poor access to information and are, therefore, powerless. Women fall into this category, as their information on many matters is restricted for cultural, social, economic and geographic reasons. The primary reason for women's poor access to information is illiteracy and lack of proper education. A great deal of information available through print media and books is lost to women and men who cannot

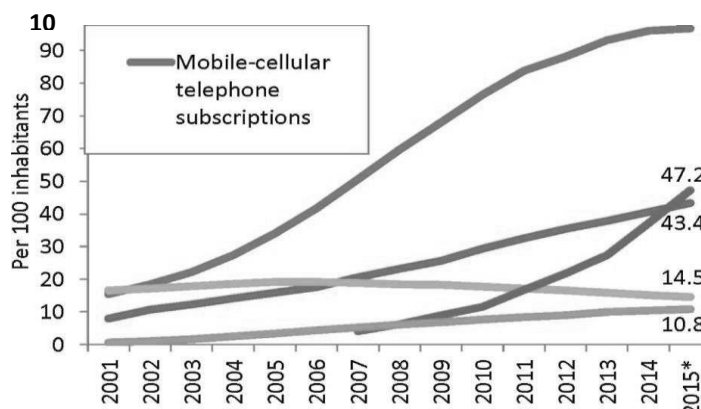
read. Over 50% of women in India are illiterate, and this illiteracy is a barrier to the acquisition of knowledge on various matters relating to their lives. After much research, several surveys and the cumulative experience of implementing a variety of social development programmes in recent times, two realizations have emerged strongly. The first is that, in many ways, the current system of education is irrelevant and, therefore, there is no great incentive to send girls to school. The second—and this should be stressed—is that women's most urgent need is awareness through dissemination of information, irrespective of whether they are literate or not. Where life skills are concerned, schooling is both necessary and desirable because it enhances knowledge, but it is not essential. Inadequate information has led to the establishment of misguided traditions. Surely education is an urgent requirement in affected areas.

In urban

A large number of women are joining the IT enabled services sector (Ramani, S.2000). A large number of companies as GE, American Express, Standard Chartered Bank, CitiBank, British Airways, Microsoft, AOL time Warner, HP, Dell Computers, Prudential Insurance, Morgan Stanley, Mark & Spencer have call centres where a sizeable number of women are employed ranging from 35 to 65% (www.express.it/people.com). GE capital had 40 to 55% women employees in their various centres (Sandhya Sule, 2002). A study of an international call centre at Pune (Dutta, 2003) showed that 59% of employees were women. Due to IT, women have employment options as flexitiming and work at home concept. Tele-tech India, a joint venture BPO company between Tele-tech and the Bharti Group, gives its employees a choice of four-day weeks instead of the normal five, hourly rates with a minimum number of work hours in a week. There are incentives for housewives and other part-time workers for 30-hour weeks.

Mumbai-based Datamatics Technologies, a BPO which processes data, women to work from home, 20 hours a week. This facilitates employment for married women, especially with small children. The employee strength is over 800 part-time workers as compared to only 500 permanent employees. Tracmail, a Mumbai-based business process outsourcing (BPO) company employs 2,000 people of which roughly 45 per cent of them are women who work 8.5-hour shifts, attending calls from clients across the world. A BPO company, Infowavz International, has one third of its 800 employees as women. 24X7 Customer Service, a company based in Bangalore employs women in large numbers where the share of women employees increased from 25 per cent to 40 per cent in the last two years. ICICI OneSource, a company based in Mumbai has 2,400 employees, of which 60 per cent are women, in the age group of 22 to 27 years. There are more women employees in call centres in north and western India.

Global ICT developments, 2001-2QH



MDGs2000-2015:ICT revolution and remaining gaps

CONTRIBUTION OF ICT IN WOMEN EMPLOYMENT IN INDIA

Effective and efficient use of information technology like internet can help in assimilating information about variety, range and quality of products, publicity and marketing of products and services. Apart from being used as a tool of information and communication and employment, application of ICT has created avenues for women empowerment. Noteworthy examples are that of Gyandoot, Embalam, SEWA, Datamation and Smile.

SEWA (Self Employed Women's Association), uses ICT for women empowerment. The main goal of SEWA is to promote local income generating opportunities among women. The Self-Employed Women's Association SEWA, with 200,000 membership is spread over 800 villages in Gujarat. It uses an interactive satellite communication and Internet-based training programme to develop a cadre of barefoot managers among the poor women workers, focusing on women in panchayats, forests, water conservation and so on. Through ICT, training is provided on issues as disaster management, leadership building, health and education, child development etc.

Gyandoot is a project started in Madhya Pradesh to fund rural networked cyberkiosks through panchayats. The project was started in Dhar district, to offer villages multiple services through internet based project. Through this project, information is available about rural life and agricultural projects. The internet gives information which was earlier available through middlemen. Information is available about education and employment opportunities. Complaints can be lodged on the internet which is of great help to men and women.

M.S. Swaminathan research project in Pondicherry in Embalam district has led to creation of information villages. Ten villages are connected by a hybrid wired and wireless network, consisting of PCs, telephones, VHF duplex radio devices, and email connectivity through dial-up telephone lines that facilitates both voice and data transfer. This has enabled villagers to obtain the information that they need and use this information to make improvements. Local volunteers gather the information, feed it into an Intranet, and provide access through nodes in different villages. There is Value addition to raw information, use of the local language (Tamil), multimedia (to facilitate illiterate users), and participation by local people. Most of the operators and volunteers, providing primary information, are women more than 50%, thus giving them status and influence.

Smile (Savitri Marketing Institution for Ladies Empowerment) is a voluntary organisation in Pune. This project has increased literacy level of underprivileged women through the usage of ICT. Internet has also helped them market their various products like soft toys, candles, bags, utility items, etc. Through Internet, there is greater awareness and exposure and market reach for the products. Internet generated debates

Datamation Foundation started a project in 2003 in Seelampur area of Delhi for muslim women. The project localised appropriate communication and information networks by setting up an ICT centre at a Madarsa. This helped link resource-poor women to the information and tools for knowledge management. It also helped establish buyer-seller linkages towards eradication of absolute poverty. It has established its standing in the community and became a big attraction for the women of Seelampur. People drop in to consult on matters other than computer training. The ICT centre has created self confidence in women and creating awareness about their interest and helped them take collective decisions.

Dairy Information Services Kiosk (DISK) is a project which uses Information and Communication Technology (ICT) in the dairy sector in Gujarat. ICT enables the creation of cost effective solutions that strengthen the exchange of useful information between farmers and the union. ICT facilitates dairy farmers with timely messages and education to manage their milch cattle and enhance the production of quality milk. It is also assisting dairy unions in effectively scheduling and organizing the veterinary, artificial insemination, cattle feed and other related services. Usage of ICT goes a long way in empowering men and women.

Aamagaon Soochna Kendra (My village's information centre) is a project started by Government of Orissa by setting up 73 Information and Communication Technology (ICT) kiosks in the rural areas of 12 districts of Orissa. These kiosks are run by Women SHGs/ Panchayats/ NGOs / CBOs / Youth Clubs and managed by the Community IT volunteers paid through user charges collected and managed by the local hosts. Under a partnership with Mission Shakti, women SHG members are

being trained on computer fundamentals and Internet basics at the IT Kiosks on payment of an affordable fee. Access to IT training goes a long way in empowerment of women.

The usage of ICT is prevalent in several villages in Maharashtra. In Warana Project, in a VSAT-and-RF-based computer-communication network, a highly user-friendly information system in Marathi was developed. This was used for marketing of agriculture produce with a number of online features for selling the produce of the 70 villages to wholesale outlets in Pune and other cities and towns in Maharashtra. Information is updated daily with the help of the villagers themselves. Internet thus provides suitable opportunities to men and women.

Community radio in Andhra Pradesh has become popular due to development of Mana Radio, a community radio station run by members of the womens Self Help Groups (SHG) in Orvakal village, Kurnool district, Andhra Pradesh. Realizing the role that Community Media can play in development, empowerment and the right to information. Budhikote Cable Radio Network is another example run by 36 womens self- help groups in the Indian village of Budhikote are running a cable radio network, first set up by UNESCO. With a contribution of 50 rupees every month from each woman, the network has grown to cover 250 of the 750 households of the village. The audio programs are arrowcast from the Budhikote Community Multi-media Center, where the women use computers to edit and produce the radio programmes on relevant issues, such as organic farming, sericulture, health, local electricity and water problems. There are many more cases of similar and different nature, which have encouraged the NGOs, the government and the funding agencies to expedite women's development through ICT. From managing water distribution at the village-level to standing for local elections and having access to lifelong learning opportunities, ICT is opening up new vistas of development.

CONCLUSION

ICT has played an important role in changing the concept of work and workplace. New areas of employment such as teleporting, i.e. working from a distance, are becoming feasible with new technology. The question needs to be asked whether women are getting more opportunities. Undoubtedly, internationally outsourced jobs such as medical transcription and software services have opened up tremendous work opportunities for women in developing countries like India, China and the Philippines. Today, print media and radio are used extensively by feminist groups for information dissemination. ICTs can strengthen these media strategies. With an expected 500 percent increase in India's ICT services and back office work, involving jobs for four million people and accounted for ten percent of GDP by 2010, women's employment in this sector is expected to grow. ICT offers women flexibility in time and space and can be of particular value to women who face social isolation in developing countries. As a result of the technologies, a high proportion of jobs outsourced by big firms are going to women. They can, therefore, work from outside the office -often from their own homes and at any time, thereby raising their incomes to become more financially independent and empowered on protecting people's right to communicate, own and use knowledge for their own ends, and resisting curtailments on freedom to use, share and modify information tools and content.

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Application of ICT in Agricultural Sector in India

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ABSTRACT

In India, Agriculture is considered to be a primary occupation for a most segment of population. We aim to focus on key factors discovered for effective utilization of Information Communication Technology for agriculture. E-Agriculture is a rising field focusing on the improvement of rural and agricultural development through advanced information and communication processes. Some excising issues discussed with agriculture and rural development. The development of agriculture has been on under development for the past few years due to lack of Agriculture knowledge and environmental changes. The main aim of this paper is to reach farmers for their awareness, usage and perception in e-Agriculture. E-Agriculture is a platform for supporting marketing of agricultural products and use of ICT .

Keywords:- E-Agriculture, ICT, Agricultural Products, E-commerce.

INTRODUCTION

Agriculture is India's backbone for the growth and development of the country's economy. Nearly 65 per cent of the Indian population is still dependent on agriculture for its livelihood and employment. It is also source of raw material for industries and provides support to the transport system. The green revolution of the 1960s initiated a gradual transformation of the traditional household agriculture into modern agriculture in several parts of India. The introduction of new technology in agriculture brought about unprecedented increase in yield and output of major crops. In recent years there has been great diversification in Indian agriculture such as livestock, forestry, fisheries, horticulture etc. Information and Communication Technologies (ICTs) have transformed lives across India. Information and Communication technologies have become imperative to the progress of rural India. They have become an integral part in the information-flow for catalyzing the development efforts in rural India. ICTs offer several strategies to achieve sustainable rural development. ICTs have been instrumental in empowering the rural India with technologies which help us to reach our goals of sustainable development.

CURRENT SCENARIO OF AGRICULTURE SECTOR

The occupational structure of India is dominated by the "agricultural sector" and the "manufacturing sector" and the "service sector" is lagging far behind in this context. This shows that India is predominantly an agricultural economy and hence it requires strongest protection and development of its "agricultural resources". India is facing certain "Agricultural Challenges" that must be resolved as soon as possible. The major challenges to "Agriculture Sector in India" are:

- 1) Insufficient agricultural infrastructure and support facilities,
- 2) Insufficient institutional capacity to deliver farmers specific services,
- 3) Lack of awareness regarding suitable agricultural methods among the farmers,
- 4) Agricultural content development and its up gradations,
- 5) Ownership issues of the public and government generated data,
- 6) Inadequate use of Public-Private Partnerships in India,
- 7) Lack of "Common Platforms" for the farmers in India,
- 8) Absence of an "Agricultural Think-Tank" in India,
- 9) Insufficient use of ICT for agricultural purposes, etc.

Realizing the importance of ICTs in rural development in India, several government projects have been implemented to achieve universal access to ICTs. These projects mainly focus on bridging the digital divide between the urban and rural areas of India. ICTs can help to overcome the various constraints in infrastructure. Through the use of ICTs, people in rural areas can connect easily with the local, regional and national economy. ICTs can help to create awareness among the rural public regarding new technologies in agriculture.

ROLE OF ICT IN AGRICULTURE

Information and Communication Technologies (ICTs) refers to systems for producing, Storing, sending and retrieving digital files. These files can contain text, sounds and images, both still and moving. Information and communication technologies, and particularly the Internet, are transforming all human activities dependent on information, including those in rural areas.

Information and communication have always been vital to people who have grown crops, raised livestock and caught fish. They have sought information from each other regarding the most effective planting strategy on steep slopes, buying of improved seeds or feeds, the highest price being paid in the market and the one paying it and so on. The answers to such questions are hard to come by for the farmers. They may have planted some crop for centuries but due to the changing weather patterns and soil conditions, epidemics of pests come and go. Updated information can help the farmers to not only cope with but also benefit from these changes. Although the Green Revolution led to increased productivity of food crops, there is still the need of a new revolution which will bring new prices for consumers, contribute to smart agriculture and incentivize the farmers to increase their productivity. The search has been long on the effective solutions to address the long-term and short-term challenges in agriculture and to answer the vast number of questions which are faced by the farmers. ICTs have emerged as the potential solution to meet the aforementioned challenges. Due to their accessibility, affordability and adaptability, they have found their use even with the rural population. New small devices (such as multifunctional mobile phones and nanotechnology for food safety), infrastructure (such as mobile telecommunication networks and cloud computing facilities) and especially applications (such as those that transfer money and track an item moving through a global supply chain) have proliferated. Many of the questions asked by farmers can now be answered easily and efficiently and with greater accuracy.

The number and type of ICTs which can develop the life of the farmers has been on the rise. Of all, the most noticeable and mentionable is the mobile phone which serves as a platform for exchanging information through the short messaging service 'known as SMS.

ICTs are a generic technology, their application to agriculture and to rural development are very extensive and pervasive. The facilitation of access to information and to knowledge is its main characteristic. They are profoundly transforming extension services through the use of multimedia technology, as well as through the possibility of developing innovative approaches based on interactive knowledge development processes that involve researchers, extension specialists and farmers. The main objective of ICT application, from a development perspective, is that of empowering people through knowledge. It increases the effectiveness of their development efforts through informed decision making and through their capacity to harness science and various forms of knowledge to achieve the objectives of poverty eradication, food security and sustainable development.

USE OF ICT IN AGRICULTURE

Agricultural Information Needed like from 'where to purchase fertilizers' to 'how to use them', information on pesticides, herbicides, storage ... to information on speedboats and net making.

Krishi Vidyan Kendra (KVK) is situated near my area at Kosbad Hill in Palghar district, where maximum adivasi people are living with their Farm. KVK has focused on use of ICT in Agriculture. Computer, Internet, Mobile as well as Print and Digital Media are different ICT tools used by the KVK to enhance the agriculture technology transfer.

1. Computer and Internet - For feeding the analytical data and obtaining precise results



KVK has developed website .which is totally in-house development. Development and updating of content is as per the feedback of the users. Weather information, disease forecasting, market information, on line advisory services, database of the innovative farmers, new technologies available with KVK, demonstration cum instructional units, inputs, services.

Technical information on different commodities were given through KVK website. In weather information village-wise real time weather forecasting of rainfall, cloud coverage and other related weather information of next seven days information is being provided. Similarly based on this weather information disease forecast information is also being made available. In the market information, market arrivals, minimum and maximum rates in the different market for different commodities are made available. Besides getting the information on weather, market, crop information as well as any required information to their related enterprise. Automatic weather station has been established in the KVK and all the data has been recorded in the computer.



This data is being used for providing weather information besides developing the disease forecast messages. For this purpose KVK is having software for some crops and for some crops messages are being developed by the subject experts.

2. Telephone and Mobiles –



Men Use Mobile Phones for Banana Marketing

This is also important ICT tool for faster dissemination of technology. Technical information, weather and market information, disease and pest incidence and their preventive measures, important events or any emergencies are the issues covered in the mobile SMS service. During the initial years, KVK has provided this system free of cost and now charging Rs. 100/year to partially cover the recurring expenditure of the system. SMS broadcast service saves time, labor and money at KVK as well as farmers level and also help to take immediate decision for remedial measures at their farm.



Women Use Mobile Phones to Learn Better Goat, Cow Production Techniques

3. **Digital Media** - KVK has also developed digital CDs. KVK has developed power point based interactive technical information CDs like Krishi Gyan, Krishi Udyojak and Organic Farming which was first of its kind. These CDs were appreciated by different agencies. Similarly VCDs and Audio CDs were also developed on different concepts and issues. Production of all these CDs was in-house and based on the needs and demands of the farmers.
4. **Soil Thermometers** - Estimation of soil temperature



5. **Water Meters**- Measurement of irrigation water



6. Nitrogen Analyzer Unit- Estimation of available and total nitrogen from soil/plant/fertilizer/samples



7. Digital Colorimeter - Estimation of phosphorus from soil samples



8. Light intensity measured by farmer



9. Temperature and Relative humidity measured by farmer



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CONCLUSION

By using ICT in rural area farmer can get following advantages:-

- 1) It can initiate new agricultural and rural business such as e-commerce, real estate business for satellite offices, rural tourism, and virtual corporation of small-scale farms.
- 2) It can support policy-making and evaluation on optimal farm production, disaster management, agro-environmental resource management etc., using tools such as geographic information systems (GIS).
- 3) It can improve farm management and farming technologies by efficient farm management, risk management, effective information or knowledge transfer etc., realizing competitive and sustainable farming with safe products. For example, farmer has to make critical decisions such as what to plant? When to plant? How to manage pests?, while considering off-farm factors such as environmental impacts, market access, and industry standards. IT-based decision support system (DSS) can surely help their decisions.
- 4) It can provide systems and tools to secure food traceability and reliability that has been an emerging issue concerning farm products since serious contamination such as chicken flu was detected.
- 5) It can facilitate rural activities and provide more comfortable and safe rural life with equivalent services to those in the urban areas, such as provision of distance education, telemedicine, remote public services, remote entertainment etc.
- 6) Empowerment of Stakeholders (Government Officials, Research, Education & Extension Scientists, farmers and other service providers such as Community Information centers.
- 7) Efficient management (Development, Conservation, allocation and utilization) of resources .
- 8) Improved productivity and profitability of farmers through better advisory systems.

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Digital Money – A Path to Financial Inclusion

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ABSTRACT

Digital Money means payment that subsists completely in computerised form. It is not physical like an Indian Currency. Money is transferred using electronic form. It is traded using technologies like smart phones, internet and credit cards. Though it can be converted into actual money by withdrawing cash from any ATM.. Financial services providers ease electronic money transfers and encourage electronic transactions among strangers over long area.. Without digital money, many online websites wont be able to transact smoothly. Digital money makes achievable online banking or banking with Smartphone, phasing out the need to use cash or visit a bank.

According to the estimates of World Bank 35% of the Indian population only has accounts with financial institutions. To help increase this percentage the RBI came out with E- wallet and payment banks. E-wallet is basically an account where money gets credited in case of a refund due to cancellation or return. As per RBI there are three kinds of e-wallets—closed, semi-closed and open. A closed wallet is one that a company issues to its consumers for in-house goods and services only but they do not have the facility to withdraw or redeem. Many sites such as Flipkart, Jabong and Amazon provide such closed wallets. Payment Bank on the other hand is based on the concept of PPI that is to load cash into mobile and use it to do various transactions such as transferring money using your mobile to another mobile phone holder or to another bank account or to point-of-sale terminals at large retailer and take out cash.

This paper discusses about the role of Payment Banks in deepening financial inclusion in India. A case study on role of M-pesa in widening the financial inclusion in Kenya and its scope of increasing financial inclusion in India.

Keywords:- Digital Money, Payment Bank, E- wallet, electronic form, PPI, online transactions.

Digital Money :

Any means of payment that exists purely in electronic form. **Digital money** is not tangible like a dollar bill or a coin. It is accounted for and transferred using computers. It is exchanged using technologies such as smartphones, credit cards and the internet. Also called as virtual or electronic money. Virtual, means unreal. This means that digital money does not have any physical form like a dollar bill or coins do. But it can be used as a medium of exchange .Therefore, it would not be wrong to say that digital money has all the features of good old fashioned real money (except it is not real).

Brief History :

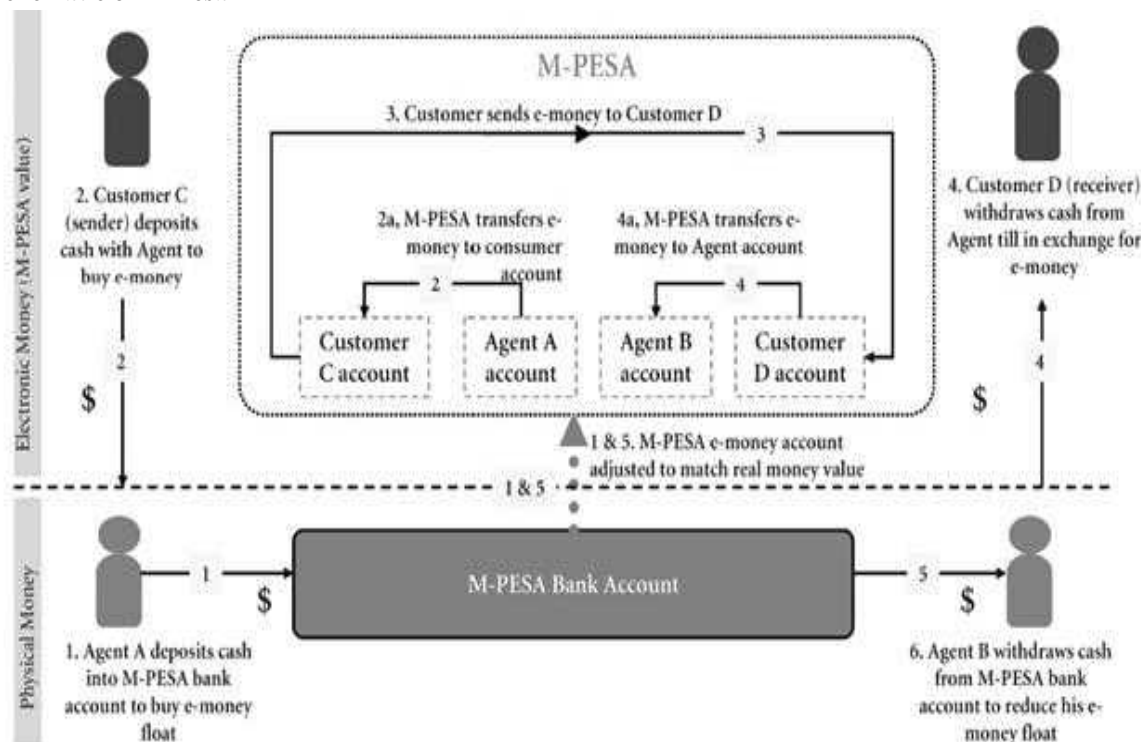
- The first type of electronic money invented was **E-gold**, which was **founded** in 1996.
- The second type of digital currency was the **Liberty Reserve**, which was founded in 2006. Through the Liberty Reserve, people were able to convert dollars or euros to Liberty Reserve Dollars or Euros, and exchange them freely with one another at a small fee of 10%. This made it easier and cheaper to transfer money from country to country. But, due to certain regulatory reasons E gold and the Liberty Reserve were eventually shut down by the US government.
- Thereafter, interest in digital money and currencies was revived only recently in 2009, with the introduction of more developed forms of digital money.

Case study of Vodafone M – Pesa :

M-Pesa was initiated in Kenya in 2007 by Safaricom, a 90 per cent Vodafone subsidiary, as a part of its corporate social responsibility (CSR) activity. Due to high crime rate in Kenya, it was futile to carry cash physically. So M-Pesa started as a money transfer project and was extremely successful. As of Today it has 70 per cent penetration in Kenya and is no more a CSR activity.

The objective of the project: to distribute money directly to the beneficiaries through M-Pesa which was known as a mobile wallet. M-Pesa is a USSD-based (an SMS-based service that does not need Internet) technology that helps people send and receive money over the mobile, apart from paying utility bills and recharging mobile and DTH accounts.

Schematic of M-Pesa



How it Works:

For this to work any person will just need a Safaricom mobile phone and a National ID card. M-pesa is much more informal than any conventional banking services, a person does not need to go through cumbersome registration process as one would in a bank. Once registered for the service, one can visit local M-PESA agents and once the cash is deposited the person will get cyber money called "e-float" in exchange. Then using SMS technology, one can exchange that "e-float" with another M-PESA subscriber. Or one can retrieve cash from the agent in exchange of "e-float" one have in one's M-PESA account.

The Outcome :

- ❖ From its introduction till 2009 M-Pesa was adopted by 9 million customers ie around 40 percent of Kenya's adult population.
- ❖ Transactions through this mode went upto \$320 million per month in person-to-person transfers which is around 10 percent of Kenya's GDP.

Lessons to be learned from M-Pesa :

- ✓ First, it exhibits the value of using mobile technology to provide financial services to major segments of untapped poor people.

- ✓ Second, it shows the importance of designing usage-based rather than float-based revenue models for reaching poor customers with financial services. Not like a traditional bank, which typically differentiates between profitable and unprofitable customers based their account balance sizes and ability to take credit loans, M-PESA provides service to any Safaricom mobile customer who pays for an account.
- ✓ And third, M-PESA emphasises on the need for a low-cost transactional platform that will make low-income customers to meet a range of payment needs affordable.

SCOPE OF DIGITAL MONEY IN INDIA

Facts :

- India has around 100,000 bank branches, of which only five is in rural areas. It is challenging for many villagers to send money to their home town who migrate to big cities. Though we have post office system but it is not totally dependable to transfer money. Therefore most migrant workers send cash home through their relatives or acquaintances who are travelling home.
- Government assistance schemes like JSY and employment plans like MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) have risen a new segment of middlemen.
- This corrupt lot takes commissions to disburse the money to the beneficiaries, but don't always deliver. And the cheated beneficiary is none the wiser, largely due to ignorance and illiteracy. Also there are unavoidable delays due to red tape.
- India has 900 million mobile subscribers of which 40 per cent are rural consumers and therefore m-banking has a huge scope of increasing financial inclusion among rural areas.
- For this platform to be successful it is important that India also reaches a healthy stage of digital inclusion, that is, connectivity for all. Adoption is a key factor for such a service. It is important to understand that for any new service, a mind-shift to use that particular service takes time. This will happen when the government brings vendors, suppliers and the customer on a single platform to promote M-Wallet or, in this case, M-Pesa.

HOW VODAFONE DID IT

- After being successful in Tanzania, Fiji, South Africa and Congo, M-Pesa finally made its entry in India in April 2013 in the circles of West Bengal, Kolkata, Bihar and Jharkhand as a lot of people from these states migrate to bigger cities for jobs.
- The only problem at the time was that all M-Pesa agents were required to be within 30 km of their parent bank which was ICICI Bank for Vodafone and ICICI did not had much penetration in rural areas.
- Within a year of M-Pesa's launch, Vodafone completed its pan-India rollout. Now it has 80,000 outlets or banking correspondents, 60 per cent of which are in rural India, and all of them have the ability to cash out. Even though M-Pesa has other services like utility bill payments and recharge options, money transfer accounts for 60 per cent of the business.

- As there is limited banking infrastructure in the country and the migrant workers' need to send money home in a secure manner it became advantageous to Vodafone as it has a distribution network that covers 1.7 million touch points, and deep penetration in rural India - of its 170 million users, 53 per cent are in rural areas.

CONCLUSION

Though India is still in its initial stage of accepting digital money but steps should be taken to increase its acceptability by Indian people. Vodafone needs to approach the Indian market very strategically by ensuring that people are digitally educated on the advantages and convenience of a platform like M-Pesa. In order to achieve optimum adoption of M-Pesa platform, Vodafone needs to give at least two years.

Word of mouth is the greatest tool for influencing people. If this service picks up in tier-1 and metropolitan cities, it is bound to have a multiple effect in tier-2 and tier-3 cities. However, the success and the growth of M-Pesa will depend on the merchants who will promote and integrate M-Pesa with their business needs.

We still need to understand the fact that there are many uneducated people in the tier-2 and tier-3 markets who do not understand the concept of M-Wallet in its complete functionality. Educating them is a primary concern for vendors. If this problem is approached strategically, it is only then that M-Pesa can achieve its optimum growth. Given this nature of the product, it remains too early to evaluate the success and impact of M-Pesa.

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E-Farmers Friendly Module: Hopes of the Farmers

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ABSTRACT

In the view of worsening conditions of the farmers in India, they are forced to take severe steps like committing suicides out of desperation. There is a need to study and understand reasons behind this situation and find solutions to bring farmers out of the fear of uncertainty. Present paper aims at reviewing the actual conditions of the farmers and the measures taken towards resolving the issue. The objective of this paper is to propose setting of farmer friendly government or social body which will look into the problems of the farmers and help them take timely measures. The paper also proposes an ICT application model to cover larger geographical area to reach more and more farmers. Main objective of this is to reduce the communication gap between farmers & Govt.

INTRODUCTION

We all know that India is an agricultural country. 90% of the India's population entirely depend on agriculture. **FARMERS** are food producer, they cultivate crops for us. How it looks that farmers who produce food are committing suicide because of scarcity of food at their home. Every day we hear that farmers are committing suicide from different states of India. There are several reasons behind it but the main problem is communication gap. They are unable to find solution of problems they are facing. If an educated person is jobless he has many options by which he can earn his living, like he can start a business, take tuitions, invest money in schemes etc. But in case of farmers, there is only one option i.e. farming, they only know farming, & when something goes wrong with their farming they lose their hopes & commit suicide. India's 22% of population comes in below poverty line out of which 21% are our farmers.



Causes of suicide [1]

1. Agriculture is unorganized activity today.
2. Most farms are small and economically unfeasible.
3. Middlemen and economic exploitation of farmers.
4. Government program do not reach small farmers.
5. High indebtedness and exorbitant interest rates.
6. Real estate mafia

1. Agriculture is unorganized activity today

Indian agriculture is largely an unorganized sector. No systematic institutional and organizational planning is involved in cultivation, irrigation, harvesting etc.

Institutional finances are not adequately available and minimum purchase price fixed by the government do not reach the poorest farmer.

2. Most farms are small and economically unfeasible

The ground reality is that majority of the farmers in India own as little as two acres of land. Cultivation on such small area is not economically feasible. Such small farmers have become vulnerable.

In many cases, the farmers are not even the owners of the land, which makes profitable cultivation impossible because significant portion of the earnings go towards the payment of lease for the land.

3. Middlemen and economic exploitation of farmers

Exploitation by the middlemen is the reason put forth for not getting the best price for the produce of the agriculturists.

4. Government program do not reach small farmers

Government has implemented agricultural schemes which are beneficial to the farmers.

But, most of the subsidies and welfare schemes announced by the Central and State governments do not reach the poor farmers. On the contrary, only big land lords are benefited by those schemes.

5. High indebtedness and exorbitant interest rates

The root cause of farmers taking their lives is the increase in their indebtedness and debt burden. Exorbitant interest rates have to be declared illegal and the government has to take strict measures against greedy money lenders. Easy access to institutional credits have to reach the small and marginal farmers, without cumbersome procedures.

6. Real estate mafia

We can see even fertile land best suited for agricultural purpose being sold to real estate people, who prepare plots and give attractive advertisements to sell at exorbitant price. There is need to implement strict measures to prevent land grabbing.

STEPS TAKEN BY GOVERNMENT

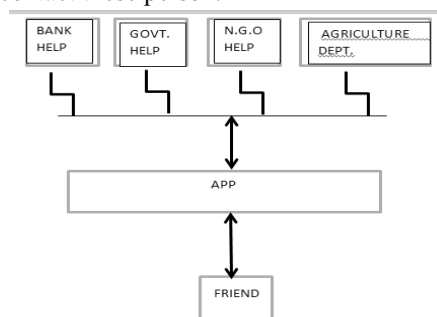
For reducing farmer's suicide rate, Govt. is also trying hard. Number of plans & schemes are prepared. Infact Govt. is planning to proposed a new comprehensive policy centred on investment partnership between state government and private sector on one hand and enhancing the irrigation potential on the other is being simultaneously undertaken to enhance the livelihood of farmers. Apart from this, in every region apart from crop cultivation the stress would be on alternative sources of sustained income flow to ensure farmers are not dependent on moneylenders or resort to any extreme measures such as ending their own lives. The alternative source of livelihood such as dairy, fisheries or poultry farming is being worked region wise to ensure farmers can survive even if their crops fail.

E - SOLUTION

Nowadays we are talking about digital India. It means everything should be digitalized. Every problem has a digitalized solution. The main problem is the **communication gap** between the government schemes & the poor farmers. Government is making plans for the beneficial of the farmers but all these plans are not actually reaching them. Through this paper, I want to propose a plan which can solve their problem.

STRUCTURE OF MODULE

According to this module, Government should appoint a panel in each village, This panel consists of a person who personally visit each farmer. He is like a **friend** to the farmer. He has a full authority to use the app & inform farmers about it. After every month he has to submit the report to the higher authorities. Through this app he can contact right person who can solve farmer's problem. The concept is that whatever problems he is observing in the village and whatever the problems farmers discussing to that person must be recorded & forwarded to the higher authorities at right time. Beside this, panel has person from bank sector, from Govt. NGO sector. So that whenever friend has any problem or query regarding farmer's issue he can directly contact these person.

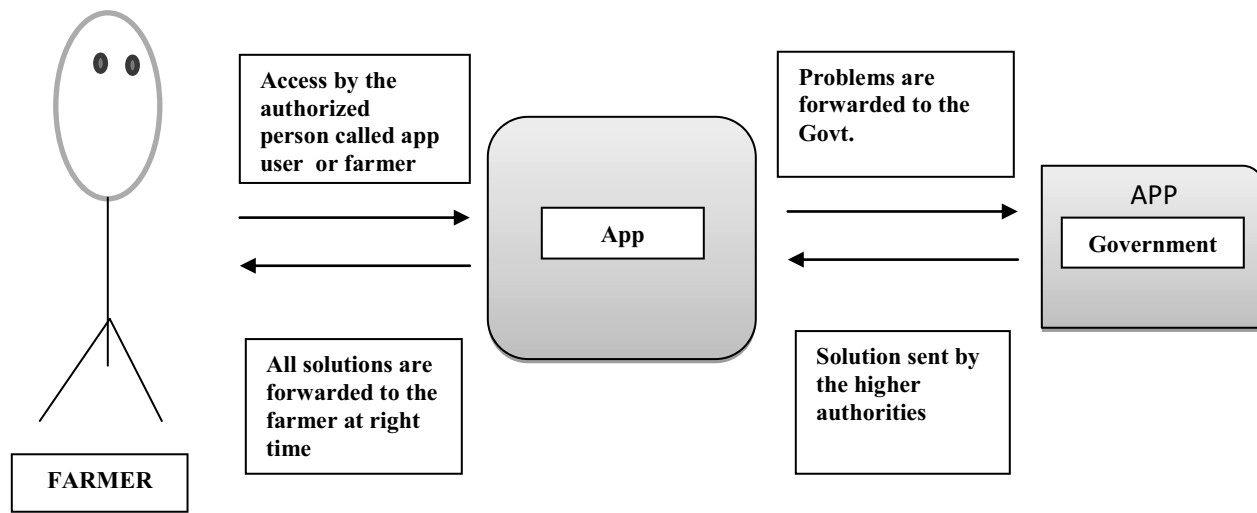


Structure of E-Module

Following are the responsibilities of the farmer friend

1. Register each farmer.
2. Collect information about the field,soil,cultivation method,crop growth etc.
3. Must have information about the farmer’s house condition, family etc.
4. Have information about the investment done by the farmer.

For having all these he is provided with an app ,which is capable of storing all these data



About App

This application must be capable of solving most of the problems of the farmers, On the basis of study it is found that the farmers are basically facing these problems.

1) They don't have any idea about the plans & schemes of the government

Solution :

Whatever the latest plans & schemes of the government , this app will update farmers at right time, It is the responsibility of the app user to provide the entire information to the farmers as well as carry out the procedure of it if it requires.

2) They have to sell their hardwork at a cheapest price

Solution:

Like before investing money, we usually compare prices online similarly this app will compare market price,so that farmer get to know the actual price of their crops.

3) Bank related information

Solution:

Banks provide loan to the farmers at low interest rate, but unfortunately farmers have no idea about it, & whenever they are in need of money they sell their household materials, jewellery or land. This app will try to provide the appropriate help to the farmers in such situation. Beside loan information, farmers don't know anything about the crop insurance. This app will update farmers about all these activities.

4) Farmers personal problems & family dispute

Solution:

This app not only able to solve the farmer's financial problems but also try to solve their personal problems, Beside farming , farmers may have some otherskills which they can use at the time of crises like Painting, Making artistic material, Poultry etc.

CONCLUSION

Government is doing his work properly. Leaders, Scientist, Politicians, Banks all are giving their contribution to the welfare of the farmers infactcity people also helping farmers by giving taxes fund etc. but then also the count of farmer's suicide increasing because the basic problem is the absence of proper channel between the farmers & the Government. Our E-solution is trying to minimize this gap. Instead of providing help after the disaster it is better to provide the right information at right time. India is progressing & developing side by side, but it is of no use if our farmers are not developing. Today no one wants to do farming , but want to eat food, We all very well know this that one app cannot solve the farmer problems completely, with technology we all have to put efforts together then only our country farmers can see their future in farming. Farming is a difficult job and that too in Indian climate ,inspite of all difficulties our farmer working hard day & night without complaining anything to anyone & when something happens wrong with them they simply commit suicide without complaining anything to anyone.

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E-Learning in 2025

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ABSTRACT

Over the next decade the number of city dwellers will soar to nearly thirty million. Virtually all of this urban growth will occur in cities of the developing world, overwhelming ecosystems and placing tremendous pressure on the capacity of local governments to provide necessary infrastructure and services. It is also noted that stage is set to experience a rapid pace of urban growth to transform India into an urban majority society sooner than expected. Urban cities in India pose many challenges for physically challenged people as well as non-physically challenged people in terms of transportation; infrastructure and facilities. Today concerns still focus on the incapacity of infrastructure systems to support growth. Issues of the equitable distribution of infrastructure systems and their impacts have complicated these issues still further. Also accident and traffic are the major concern faced by the urban people. This paper provides the innovative approaches to overcome these problems and help in urban development with respect to infrastructure. It provides the technology that will help handicap people to traverse the railway station, bus station and airport without any difficulties. Embedded sound technologies should be incorporated with the current infrastructure for helping the blind people in urban cities. The key to effective and innovative implementation lies in managing public participation for planning as well as execution. The matrix for the true innovation can best be formed by a new breed of urbanites capable of generating a vision of the future city.

Keywords: *Infrastructure, Urban cities, physically challenged people, handicap, Embedded technologies.*

INTRODUCTION

Urban cities are growing. Our population has swelled to over 1.29 billion people. Construction and development are booming. Indian cities now face the challenges of growth and rapid change, to continue to provide the basic services to physically challenged as well as non-physically challenged and maintain the infrastructure that allowed us to thrive. To ensure that the city we have inherited and the city we are building will provide future generations with the variety and abundance of opportunities we have today. Nowhere are these challenges more acute than on the subject of transportation. Today, with a population projected to reach 9.1 million by 2025 and our transportation systems must adapt or risk strangling our cities, our region's and economic growth. We must continue to foster our urban cities economic growth by controlling the city's existing traffic, transportation and infrastructure that is friendly to physically challenged people and transit congestion while simultaneously developing our transportation networks to meet the ever growing demands of our rapidly increasing population. This paper introduces technologies that can be embedded in our existing infrastructure to aid the commutation of physically challenged as well as non-physically challenged people in urban cities of India.

URBAN INDIAN TODAY

As cities prepare to meet the challenges of the 21st century, the issue of transportation looms large. For the past hundred years, cities transportation networks have dictated our centers of population growth, guided our industries and businesses and shaped our city. Our region's railroads, subways, parkways, thruways, expressways and highways were all built to facilitate movement of people and goods into, around, and through the city.

However, until recently, underinvestment in transportation expansion and innovation, and insufficient maintenance and repair of roads, tracks, highways and bridges has meant that we have been unable to keep our transportation networks growing to match our city's changing demographics. Traffic and transit congestion are nothing new to urban cities.

Concerns about congestion and its impacts on the city's economic health have been ongoing. Many everyday features of the street landscape—parking meters, municipal parking lots, one-way streets, and “progressively” timed traffic signals—were introduced in attempts to reduce congestion. Today, the people in Urban India and the surrounding cities face longer commute times than much of the rest of the developed urban cities. The city's congestion problems are exacerbated in bad weather. Road flooding slows traffic and increases the risk of accidents. Standing water on streets erodes road surfaces and can cause potholes to form. Street flooding and ponding happen when rain from storms overwhelms drainage systems, either because the volume of water is too great, or because drains are clogged by debris. The impacts of congestion, weather and delays are made worse when drivers, riders and mass transit users lack information about road conditions and mass transit services. Insufficient communications systems exacerbate service interruptions because emergency service outage and re-route information cannot be communicated to riders or employees.

Even though persons with disability form 70 million of the Indian population, their needs are seldom kept in mind while designing physical environments – whether it is buildings, roads, public transport, civic development, parks and recreational areas. Internationally cities and towns follow Universal Design approach towards creating access to places and buildings for the physically challenged people. Access Plans are available for the city to provide an easy mobility of disability people of all types including design of roads, streets pavements, crossing, signals and signs etc. These are considered as an important physical infrastructure facility for the disable people. Apart from design of vehicles, mobility – visual, walking and hearing instruments, the planning and design of spaces in the city becomes very important in terms of Physical planning. The changing social structure of urban community and the conventional approach to city planning demands a special attention towards creation of better built environment for disable people. Number of NGO s and organizations take up activities such empowerment, education, health, employment, technological supportive aids and socio-psychological aspect of the disable people. But the built environment, where they live, study, work, and recreate is created by the designers and spatial planners. However the mobility of the disabled people in cities in India towards gaining access to work and public places becomes an issue. Foot path design, access to public transport, etc. needs special attention among city governance agencies and spatial planners.

Wheelchair-Accessible Escalators And Emergency Wheelchair Lifts

Wheelchair-Accessible Escalators and Emergency Wheelchair Lifts are two options for increasing access to public transit systems while working within limited space confines. While both have technical and operational issues that may limit their immediate applicability in cities, they are included here as technologies to watch in the future. Wheelchair-accessible escalators are found in Japan. They are manufactured by Hitachi and are in use at Kansai International Airport and railway stations. Portable Wheelchair Lifts, produced and marketed by a number of commercial vendors, are in widespread use in a variety of public and private settings throughout the developed cities. This approach will help handicap and blind people to commute railway and bus stop without difficulty.

Wheelchair Access For The Subway

This increases the wheelchair options in cities subways and can dramatically increase the accessibility of the city's transit systems for a wide variety of people in wheelchairs or with limited mobility, passengers with strollers and those carrying heavy packages.

Audible Walk Indications

For blind and partially sighted people during crossing. At any given time, people who are blind or visually impaired can travel and cross streets using a human guide, using a long, white cane to identify and avoid obstacles, using a dog guide, using special optical or electronic aids, or using no additional aid. Whatever aid is used, street crossing is a dangerous task. A survey of 500 blind and partially sighted individuals revealed that 91% had concerned over using shared space with non-physically challenged people. Of the 61% of respondents who had experienced a shared environment, 44% reported actively seeking alternative routes to avoid a shared space area, with a further 18% being reluctant to use the area. In terms

of accident rate, 7% of those who had used a shared surface area had been involved in an accident while crossing, with a further 42% experiencing a near-miss. Worryingly, 81% felt that their independent mobility would be negatively affected by the introduction of shared space. Audible pedestrian signals are supposed to be implemented in most traffic signal projects. These audible signals are designed to assist visually impaired individuals in crossing streets.

Separate Lane for Load Carrying Vehicle And Light Motor Vehicle

Many cities have attempted to solve their congestion problems by creating dedicated right-of-ways (ROW) on existing roadways. Traffic on dedicated ROWs is limited to a single type of vehicle (e.g. buses, trucks etc.) in order to increase speed and reliability. Designated ROWs reduce travel times and increase the reliability of scheduled services like buses or deliveries. Dedicated ROWs are typically associated with buses but are also used for bicycles (usually for safety reasons). Constructing new roads is rarely an option in cities, the creation of dedicated lanes require planners and city officials to make decisions about the allocation of space on the roadway. In particular planners must weigh the public benefits gained from increased transit flow or faster goods movement against the cost of reducing space for personal cars.

Accessible Pedestrian Signals (APS)

The new kinds of APS are usually called pushbutton-integrated APS. They are a part of the pushbutton and are supposed to be installed near the crosswalk they signal. There are several important features that you should be aware of: pushbutton locator tones, audible and vibrotactile walk indications, tactile arrows, and automatic volume adjustment. It is important to recognize that the APS information supplements -- but does not replace -- traffic cues. APS provide information only about the status of the signal, so the APS Walk sound tells you that the Walk signal is on, NOT that it is safe to cross. Cars can still be turning across the crosswalk, or running a red light. The APS Walk signal sound can be compared to the "on your mark" instruction at the beginning of a race. It means that the signal has changed, but it is still important to "get set" (check the traffic). Then, after that, if all sounds right, you can "GO" (begin to cross).

Emergency Wheelchair Lifts

Portable wheelchair lifts offer emergency access options for subway stations. Super-Trac, manufactured by Garaventa Lift, is one example. Super-Trac is self-propelled stair climber with a platform large enough to accommodate most manual and electric wheelchairs. Its dual electric motors allow it to carry up to 440 pounds and it can climb up to 30 flights of stairs before needing to be recharged. Smaller auxiliary wheels allow the Super-Trac to roll easily on stair landings which makes the system feasible in locations with multiple landings and flights of stairs. Wheelchairs are secured on the Super-Trac by means of four adjustable straps and a seatbelt. Like all other portable lifts, Super-Trac requires a standing aide to operate the manual controls. However, unlike many other portable lifts on the market, the Super-Trac system does not require the standing aide to do any lifting. Super-Trac can bring wheelchairs upstairs at a rate of about 21 feet per minute and down stairs at a rate of around 35 feet per minute. Motion both up and down is regulated by an electromagnetic fail-safe brake.

Embedded engineering for smart cities

As cities grow and the world barrels toward urbanization, it's important to stay smart about city planning. Embedded engineering plays a key role by allowing for modernization of power systems through self-healing designs, automation, remote monitoring and control, and the establishment of micro grids. Once these things are accomplished within a smart grid, other municipal systems benefit as well. So, embedded engineering and, for that matter, a wide span of Internet of Things (IoT) technologies are essential for smart grids to deliver resilient energy while improving efficiencies and enabling coordination between city infrastructure and operators. Energy, water, transportation, public health and safety, and other aspects of a smart city will rely to a great extent on embedded and IoT technologies to manage and support the smooth operation of critical infrastructure.

CONCLUSION

Today urban cities face the challenges of growth: housing supply and affordability, health, environmental protection and economic development. Our ability to meet the demands of our growing population depends in many ways on the state and future of our transportation systems, for our transportation infrastructure links our city. Transportation brings people, services and goods into our neighborhoods, connects workers to jobs and residences, offers residents and visitors alike access to stores, restaurants, theatres, cultural institutions, parks and public amenities. Both current and future Infrastructural development has the potential to enhance the safety and mobility of blind and partially sighted pedestrians, physically challenged people and non-physically challenged people. With the help of innovative approaches in urban development physically challenged people can live, learn, study and develop themselves like non-physically challenged people. Smart cities plan is on the top priority of Indian government but the planning and design of spaces in the city keeping physically challenged people in mind becomes very important issue. Foot path designing, Wheelchair-Accessible Escalators, Emergency Wheelchair Lifts, Wheelchair Access for the Subway, *Audible Walk Indications*, and friendly public transport access, etc. needs special attention among city governance agencies and spatial planners while developing smart cities in India.

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E-Health – Digital Medical Library Network

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ABSTRACT

This paper deals with the health care product that can be developed with the use of Information technology with internet based technology. The key element of this approach to record all the information of the patient with the help of primary and satellite communication, so that the vital information of the patient's daily activity can be recorded and place remotely on the cloud which can be accessed by the doctors from anywhere remotely to keep track of their patients. These drastic change in the medical and telemedical filed improves the way patients record are maintained creating a new opportunities in the field of technology and medical science based on the built-in decision support and diagnosis. This technology can be termed as the forth coming technology for integrating intelligent analysis of studying patient health. In perspective, e-health work as unified medical space which will provide a transition to the integrated analysis of population health by medical doctors of various specialties from different countries and will open new prospects for studying health of patient by the world's best doctor to provide the best medical service.

Key words: *Digital Medical Library Network, Ehealth, Telecommunication*

INTRODUCTION

E health is an interchangeable term with health informatics with a broad definition covering electronic/digital processes in health. While others use it in the narrower sense of healthcare practice using the Internet and or telecommunication techniques .It can also include health applications and links on mobile phones, referred to as m-health or mHealth.

A common example where E health is useful is with patients living with chronic conditions of diseases. Which acquire lot of knowledge about the diseases due to experiencing it in day to day life. For this type of patients eHealth proves to be a solution for front end application and relatively easy to implement. An application can also be created with the help of students and or doctors studying on a particular medical topic or health care system with lot of data generated on a daily basis for creating medical database or can also be called as digital medical library network.

WORKING OF DIGITAL MEDICAL LIBRARY NETWORK

This network can serve a lot of task by collecting huge amount of information on chronic diseases which will available to doctors ,patients as well as students which can used to study the chronic condition of a patient on a daily live data generated from the digital medical library network .

The Digital Medical Library Network is designed to assist doctors ,hospital ,medical student , patient ,consumer , medical researchers information specialist to find health and scientific data or information related to particular diseases ,medicines ,health care treatment with the use of telecommunication media. Medical libraries are mostly found in the medicals, hospitals, medical colleges and private medical industries were continuous researches are going on. Digital Medical Library Network has an access to large number of medical data through the databases, electronic journals /resources or medical books. Digital Medical Library Network can be break down in three tier system namely: 1) medical institutions; 2) regional systems; 3) federal system. At the regional level both personal health information and integrated data can be stored. At the federal level only integrated personal medical data will be kept, including a specific set of features. Among them is the information on chronic diseases, their treatment, and the vital characteristics of the patients. In terms of information communication, e-health or Digital medical library network is a system or an environment providing the exhaustive electronic document flow with authorized access to personal medical data, if necessary. Such a system should provide the ways for the joint remote analysis of patients' health-related data by different doctors as well as for the communication between doctors and patients in particular by using telemedical technologies.

NEED IN INDIA

Most advance countries are working on this project and are up to the mark by now by providing a lot of information on a lively basis which has proved beneficial to most of patients, doctors and students. India is also working on this system by providing a huge amount of data in accordance with government support health care system. India is a country with billions of people consisting of 29 states and 6 union territories. It has been observed that there is a great deal of disparity in quality and access to health care between urban and rural regions. A systematic evaluation of government initiated telemedicine projects is need of time. Evidence on the cost-benefit aspects of integrating the telemedicine tool into the health delivery system is currently not available. Thus there are many national wide projects are been launched by government. Some of the nationwide projects being taken up by the Ministry of Health in the Government of India are the Integrated Disease Surveillance Project (IDSP), the National Cancer Network (ONCONET), the National Rural Telemedicine Network, and the Digital Medical Library Network. A National Telemedicine Task Force to evaluate the pros and cons of introducing eHealth in India was set up by the Health Ministry.

The terms of reference covered all aspects of eHealth, and the various committees and subcommittees have presented their reports. The National Knowledge Commission, a high level advisory body to the Prime Minister of India, with the objective of transforming India into a knowledge society, has also set up a Working Group for the development of an Indian Health Information Network. This working group has proposed to design, develop, and integrate an end-to-end electronic health care informatics network framework in India to improve public health, health research, and the delivery of health care. A National Resource Center on Telemedicine & Biomedical Informatics is being developed at Lucknow with the support of the IT department of the Government of India. India is acquiring a sizeable market segment in health care BPO (business-process outsourcing) and KPO (knowledge-process outsourcing) industries.

Low Cost Generic Medicine Rajasthan Case

In Rajasthan, nearly 40 % of the population lack medicine facility and cannot buy medicine ,the district administrator of Chhattisgarh has taken an initiative for making awareness among the people regarding generic medicine and reducing the use of patented product. Over a period of three month Rajasthan Medical Supply Corporation has centrally procured 400 essential medicines , 42 surgical items and 71 drugs prescribed by various national health program data which is been collected with the help of telecommunication.

Public-Private-Partnership model

Public-Private-Partnership model is also one Model which works providing a lot of medical data. There is huge gap between demand and supply of medical facilities which can be reduced with the help of digital network. Private sector doctors also play an important role in this development, if private sector comes together with government to plan a Digital Medical Library Network it will turn out a huge development. This similar development was done in Kerala where there was a requirement of MRI(magnetic resonance image) for students to study certain logical diagnosis.MRI was not available in the Kottayam, Alappuzha and Thirur college ;therefore the course could not be conducted .The department of health and family welfare in Kerala has decided to set up a MRI scanner with the help of PPP Model.

CONCLUSION

Looking into the future, one may predict the transition to the integrated analysis of health status of population by doctors of various specialties from different countries and the expansion of the existing transboundary exchange of medical documents. At the same time, the synthesis of diverse information in the e-health system will provide new opportunities for making managerial decisions based on the intelligent analysis of cumulative data.

The steps of e-health for formation of the unified medical information space will guarantee:

- 1) Improvement of the follow-up for patients and enhancement of the continuity in delivering medical care by Different medical institutions.
- 2) Increase in the effectiveness of timely detection of patients at risk of developing pathology or at early stage of disease.
- 3) Multi factorial causal analysis contributing to reduction of morbidity, disability, and mortality.

SUGGESTIONS

In the future, a full-scale e-health system will require:

1. A system which should identify patients their doctor uniquely with the help of biometric system. Biometric system may enhance further processing of data easily.
2. A personalized access/bifurcation to each and every chronic diseases so that the search becomes easy.
3. Use of Artificial Intelligence to different aspect of diseases.

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Elements of Micro-Elearning and its Design Using Hibernate Framework

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ABSTRACT

The paper is used to identify the various elements of micro eLearning methods that can be effectively used for Distance & Open mode of teaching and learning. eLearning is a method of learning through electronic devices which are virtual replacement of conventional class room teaching. To some extent Classroom Management System (CMS) software can be used as teaching-learning resources for eLearning. Micro eLearning is the bit-sized learning methodology that can be used for Distance & Open learning courses with added advantages of incremental learning and better assessment of the pupils.

The elements of Micro eLearning are identified as Text/Email/SMS, Podcast/Video clips, Flashcard, Memorizing the word, Selecting an answer, Quizzes, Micro-games, Educational blogs, Multimedia presentations and Simulations. These elements of Micro eLearning can be designed and implemented through Hibernate Framework

Keywords:– *eLearning, Micro Learning, Micro eLearning, Hibernate Framework.*

INTRODUCTION

eLearning is an electronic method of learning, where computer devices and software techniques are used to deliver part, or all of a course.

It can be used in a school for learning a particular subject, with business training courses where employees from different geographical areas need to be trained, or with a distance or open learning course associated with a university or an institution. eLearning is learning methodology that uses electronic, computer and communication technology to schedule educational curriculum. It is not similar to the conventional classroom teaching techniques, where the teacher directly interacts with the pupils. Since the course module is delivered online, at the earlier stage of this teaching methodology was opposed by many people who stood against the process of change which happens in the education field. As the technology progressed with the easier access of smartphones, tablets even in India, the possibility of eLearning too increased up to a certain level.

Many Classroom Management System (CMS) like Blackboard, Moodle, Vista or Angle, become part of the distance mode of education system where the course content is delivered through internet ^[3]. It allows interactive communication between the teachers and students who are part of a course and even provide mechanism to access the students to a large extent. CMS allow the students to log into the system of learning from any part of the world and even allow interacting with other students too. It creates a virtual class environment with added advantages like cost effective, save time, etc. It allows to include the course syllabus, class lecture content, assignments, quizzes and provide audio video lecture series with whiteboard screen where the tutor can write and teach.

But as per the observation it is found that CMS system to some extent is a failure in terms of learning and assessment is considered.

- System considered the entire class as a single entity as per the course syllabus.
- Individuality of a particular student is least considered, Even though the interaction among a teacher and a student is possible to a limited way.
- It is the design which aims for the virtual reality of the traditional class room, which is impossible in its own limitations.

- Student assessment is based on the Time-bound activity. Rather than considering the pupils progression of learning a concept and testing the students analytical thinking of the area of study, it is more or less considered on the timely completion and submission of the assignments.

MICRO LEARNING

Micro learning is the techniques of learning in small steps which based on the principle of human brain with respect to its attention span. The methodology of teaching and learning is based on the research of human brain engagement pattern. Micro learning principle allows learning better when the course content is designed in short and focussed sessions.

- ✓ Micro learning is more effective and powerful teaching and learning method than traditional method of hour-long class room teaching techniques
- ✓ It encourages the ‘Continuous and Incremental Learning’ by integrating learning into the work structure of an employees for the benefit of Distance & Open method of learning^[4]
- ✓ The course content of the micro learning is to be designed as small to bite-sized units of content with activities that are short in terms of time and understandable in terms of learning and manageable in terms of teaching
- ✓ Micro learning content need to be designed with the constraints of human brain with respect to its attention span. The learning topic needs to be designed in short duration of 5 to 10 minutes at the most to match the human attention span.
- ✓ It is the most useful teaching methods for the current new age learners.
- ✓ It uses the strategies of spaced repetition and distributed practice that refer to learning using small, repeated and increasing steps.

ELEMENTS OF MICRO ELEARNING

Micro eLearning

Micro eLearning is the technique of implementing the concept of Micro Learning teaching-learning methodologies using electronic, computer and communication technologies^[2].

- It is the most useful teaching-learning method that can be adopted for Distance & Open learning courses. It retains the course content in bit-sized lessons and activities that are more understandable and manageable.
- It helps the pupils to understand the subject content more efficiently with time bound, which consider the individual student as the entity, not the course as an whole
- It can be considered as the modern method of teaching and learning process, where learning happens incrementally and bit-sized. The progression to the new topic and content can be rusticated by certain assessment measures taken for the previous topic individually. This makes the pupils to learn the content in incremental order of learning, rather than random approach.
- All the learning elements of Micro eLearning technique can be used for the assessment of the pupils who are enrolled for a particular course.

Micro eLearning Elements

Micro eLearning elements are the techniques which makes the Micro Learning possible with the help of various computer techniques. The research has been done with the various courses conducted under Distance & Open learning courses conducted under the University of Mumbai. The various parameters are used while collecting the data for identifying the Micro eLearning elements are shown in the Fig. 1. The students who have completed and currently doing the various graduate and post graduate courses under the Distance&Open Learning, University of Mumbai are considered during the data collection. Analysis report in Fig. 2 prepared by taking the data from total 50 student members.

Micro Learning Survey

Do you think computer system and applications can make learning more interesting?

☐ YES
☐ NO

If the above answer is "YES", HOW?

Are you heard of Micro Learning ?

☐ YES
☐ NO

Select the various options that will make the learning more effective in todays context.

☐ Reading Text Messages or emails
☐ Listing to Audio/Video Series of content
☐ Flashcard (Flipping with a question and its short answer)
☐ Quizzes
☐ Micro-Games

Fig. 1: Sample data collection Form used for identifying the Micro eLearning elements at Distance & Open Learning, University of Mumbai

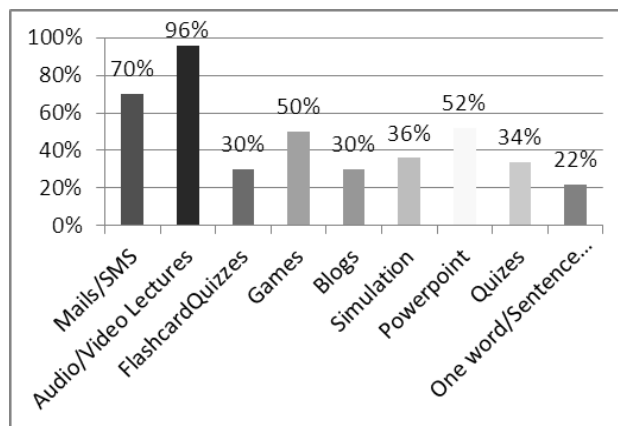


Fig. 2: Analysis Report of Micro eLearning elements at Distance & Open Learning, University of Mumbai

The major elements of Micro eLearning that could be used for learning and assessment are identified as:-

1. Text/email/SMS

Texting the course schedule and course content through e-mail and SMS can be used as part of the Micro eLearning techniques.

For eg – the course details and exam centres can be messaged through text/SMS messages.

The course content syllabus and the frequent assessment report can be emailed to individual pupils. It encourages the students for the continuous improvement and it helps the assessment of the students by default.

2. Listing to Podcast/Video Clips

Instructional Podcast and Video clips are the modern method of learning, where the students can learn the course content with the convenient time and schedule. This makes the learning more comfortable for the Distance & Open learning students and to a greater extends to the regular students also. Custom designed course content videos and video sharing sites (such as Youtube) instructional videos also can be used for eLearning.

For eg – To teach Education students about the concept of “Sarva Shiksha Abhiyan”, Podcast that includes the audio of the objectives and video of its implementation plan can be used.

3. Flashcard

Flipping the question followed by its answer is the method of learning used in Flashcard, which is an integral part of bit-sized learning.

The definition of a particular topic can be shown as ‘Flashcard’ method. It can also be used to display the answer for some analytical or mathematical topic of learning.

4. Memorizing word, Vocabulary and Formulas

Memorizing word, vocabulary and formulas are part of bit-sized learning of micro eLearning techniques. This allows the students to do repeated learning of some of the most important topic, which are given at frequent intervals of time.

For eg – While learning the software engineering course as part of distance mode of learning the ‘steps in waterfall model’ which are requirement gathering, analysis, design, coding, testing, implementation and maintenance can be shown at frequent intervals of initial time that allow to memorizing the concepts.

5. Selecting an answer to a Question / One-to-Two sentence answer

This micro eLearning element can be used to assess the students to a greater extend by making them to attend the test which consist of questions to be answered within a sentence of one or two. This can be used as a compulsory requirement for progression to the successor topic of learning.

6. Quizzes

Online Quizzes can be used as virtual exam to assess the students who are part of the eLearning. The progression of the learners can be understood and informed through email or text-messages. The multiple choice questions and one word answer questions can be used to design the quizzes for micro learning environment. It also motivates the students to improve their performance in learning.

7. Micro-games

Pupils learn better if they get engaged with the subject with fullest involvement. It could be possible through small games that make the learning process more interesting. Micro-games also help the process of individual student’s assessment

For eg – If the topic of ‘Basic Gates’ are taught using Micro eLearning method, a small Micro-game can be designed, where the students should arrange the various gates name with its associated symbols which are shown. This kind of games will make sure that students will remember the fundamental concepts thoroughly.

8. Educational blog posts

Educational blog posts can be used as an element of micro eLearning methods. Blogs allows the learners a platform to communicate with each other and allow mutual learning possible.

A question posted by a student can be answered by other students taking the course. Thus makes the learning more effective and enjoyable. Blogs can also be used to gather the information about the course content.

9. Multimedia presentations

Slide shows that provide micro-lesson content helps the students for incremental learning possible, where the learner can understand the prior concepts before taking the advanced topic of learning.

Sometimes presentations can be used as in-depth learning techniques for understanding the more advanced topic of learning.

For eg – Presentations of Multiplexer circuit diagram can be used to learn the topic in-depth while the students take the course of ‘Digital Electronics’

10. Simulations

Simulation techniques can be used to design the eLearning content that allows the thorough learning of a particular concept.

For eg – A simulation that shows virtual reality of ‘Participatory and Non-Participatory Observation Method’ for the students who are learning the ‘Childhood Behaviour’ of education course can be used to make the concept more clear rather than using the textual information.

The micro eLearning elements Text/email/SMS/, podcast/Video, Memorizing word vocabulary Formula, Educational blogs, multimedia presentations and simulations are major method of learning. But Flashcard, selecting an answer, quizzes and micro-games can be used as a method of learning and assessment

HIBERNATE IMPLEMENTATION

Hibernate is an open source Object Relational Mapping (ORM) tool for Java that allow to develop persistent classes and persistent logic. Hibernate maps from Java classes to database tables and from Java data types to SQL data types. It can be used to develop robust, high-performance database applications with-POJO (Plain Old Java Object), An XML mapping file that describes relationship between the database and the class attributes and Hibernate APIs to load and store the persistent objects^[7].

- As the basic entity to be considered in Micro eLearning is a ‘Student’ entity, the entire state of a particular student can be represented by a POJO object.
- The functions to be called for accessing various elements of Micro eLearning course content will depend on the state of a ‘Student’ POJO and its associated ‘Course’ POJO.
- Hibernate can access the java mailing services API for messaging the student details and course content
- Podcast/Video clips can be stored into the database using BLOB type.
- The Flash card, Memorizing words, selecting an answer of one-to-two sentences, Quizzes, Micro games and Simulations can be implemented by Applet applications. Hibernate POJO object can be accessed by an EJB object present in the server machine, and EJB object can be accessed by a client Applet either by Remote or Local interface object.
- Web applications like Servlets and JSP pages can access the Hibernate POJO object to create an Educational blogs.
- Hibernate applications can use the Input / Output stream classes of java.io to transfer the multimedia presentations from server to the client machine which are used by a particular ‘Student’

Eg – Hibernate sample code implementation to register a student name using a POJO named ‘Student’, with its attributes name, rollno, phone number and the course.

```
public class StudentEnroll{
    public static void main(String[] args) {
```

```
        Configuration cfg = new Configuration();
        cfg.configure("hibernate.cfg.xml");
        SessionFactory factory = cfg.buildSessionFactory();
```

```
Session session = factory.openSession();
Student student = new Student();
student.setName("xyz pqr");
student.setRollno("10B101");
student.setPhone("9821112234");
student.setCourse("MCA");
```

```
Transaction tx = session.beginTransaction();
session.save(student);
System.out.println("Student Registered..");
tx.commit();
session.close();
factory.close();
}
}
```

Hibernate applications uses it's Transaction, Connection, Session object for transferring the content of a POJO into the database table.

CONCLUSION

eLearning is the future teaching-learning methodology that will stand in parallel to the conventional class room teaching methods in near future, and after a decade or two Micro eLearning will be a replacement for both. Thus effective implementation of Micro eLearning elements is essential and it is possible though Hibernate Framework effectively.

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ICT Applications for Agricultural Risk Management

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ABSTRACT

Risk and uncertainty are omnipresent in agriculture and have numerous sources: the vagaries of weather, the unpredictable nature of biological processes, the pronounced seasonality of production and market cycles, the geographical separation of producers and end users of agricultural products and the unique and uncertain political economy of food and agriculture within and among nations. Managing agricultural risk is particularly for small holder framers, who are usually already vulnerable to poverty and lack the resources to absorb shocks. Typical shocks such as drought or a pronounced drop in market prices prevent poor households from acquiring assets (Cole et. Al. 2008). They push families into poverty and cause extreme hardship for those already in poverty. Exposure to risk prevents farmers from easily planning ahead and making investments. Improved management of agricultural risk has significant potential to increased productivity-enhancing investments in agriculture (World Bank 2005).

This paper discusses experiences with emerging ICT applications that channel critical information for mitigating agricultural risk in developing countries, reduce the costs of delivering insurance to remote rural users and deliver vouchers to farm households affected by droughts and floods. Although unproven, such applications offer glimpses of how ICT is likely to be used to manage agricultural risk. Further, paper describes three major strategies for managing risk: risk mitigation, transfer and coping.

Keywords: Risk, risk management strategies, role of ICTs in risk management.

INTRODUCTION

Risk and uncertainty are ubiquitous in agriculture and have numerous sources: the vagaries of weather, the unpredictable nature of biological processes, the pronounced seasonality of production and market cycles, the geographical separation of producers and end users of agricultural products, the unique and uncertain political economy of food and agriculture within and among nations. Managing agricultural risk is particularly important for smallholder farmers as they are already vulnerable for poverty and lack resources to absorb shocks. Shocks such as drought, pronounced drop in market prices prevent poor households from acquiring assets or making most of the assets they have; pushing their families into poverty and causing them extreme hardship. Exposure to risk prevents farmers from planning ahead and making investments. It affects external parties' willingness to invest in agriculture because of the uncertainty about returns. Improved management of agricultural risk has significant potential to increase productivity – enhancing investments in agriculture (World Bank 2005).

This paper discusses on ICT applications that channel critical information for mitigating agricultural risk in developing countries, reduce costs of delivering insurance to remote rural users, and deliver vouchers to farm holders affected by droughts and floods.

Although ICT application is unproven, such applications offer how ICT can be used to manage agricultural risk.

MEANING OF RISK

Although used interchangeably have different meanings risk can be defined as imperfect knowledge where probabilities are known; uncertainty exists where probabilities are unknown. Many of these losses in modern agri food systems is related to uncertain events for which there are no known probabilities, subjective probabilities can be conjured by expert opinion (Jaffee, Siegel and Andrews 2010).

In developing countries traditional risk to agriculture include floods, drought, hail, cyclones, snow, windstorms, hurricanes; pests and disease outbreaks, fire, theft, violent conflict, hardships of the kind that farmers have always feared. “Never” less familiar risks have appeared in commercialization and global integration of commodity chains – commercial price volatility, inputs price volatility, sanitary and phytosanitary risks, the risk of social compliance etc. Regardless whether these risks are traditional or modern, their sudden occurrence and inability to manage them can push millions of farmers into poverty traps and undermine economies of countries that heavily depend on agriculture.

Risks can further be classified into:

Production Risks: Bad weather, pests and diseases, fire, soil erosion, other kinds of environmental degradation, illness and loss of labour in the farm family, and other events that negatively affect the production of agricultural commodities. These risks have a direct, immediate impact on local agricultural production, but it is essential to understand that their effects are transmitted from the farm along the supply chain.

Market Risks: Can include volatile prices of agricultural commodities, inputs (fertilizer, pesticide, seed etc), on exchange rates, as well as counterparty risks, theft, risk of failure to comply with quality or sanitary standards, or risks imposed by logistics. These risks usually emanate from market actors (such as traders and exporters) and their effects are transmitted back to the farm.

Enabling Environment Risks: can include political risks, the risk that regulations will suddenly be applied, risks of armed conflict, institutional collapse, and other major risks that lead to financial losses for stakeholders all along agricultural supply chains. Risks can be idiosyncratic – affecting only individual farms or firms, covariate – affecting many farms and firms simultaneously. The high propensity for covariate risk in rural areas is a major reason that informal risk management arrangements break down and that formal financial institutions hesitate to provide commercial loans for agriculture (Jafee, Siegel and Andrews 2010).

RISK MANAGEMENT STRATEGIES

Agrarian communities have traditionally employed various formal and informal strategies to manage agricultural risk, either before or after the effects of risk are felt. For instance, i. ante strategies can reduce risk or limit exposure to risk. Risk can also be mitigated, for example, by buying insurance or through other responses to expected losses such as self-insurance or reliance on social networks. ii. Post strategies include selling assets, seeking temporary employment, and migrating. Governments sometime forgive debts or provide formal safety nets such as subsidies, rural public works programmes, and food aid to help farms and firms cope with negative impacts of risky events.

Agricultural risk management strategies, can be classified into three broad categories:

- **Risk Mitigation:** These actions prevent events from occurring, limit their occurrence, or reduce the severity of the resulting losses. Examples include pest and disease management strategies, crop diversification, and extension advice.
- **Risk Transfer:** These actions transfer risk to a willing third party at a cost. Financial transfer mechanisms trigger compensation or reduce losses generated by a given risk, and they can include insurance, reinsurance, and financial hedging tools.
- **Risk Coping:** These actions help the victims of a risky event cope with the losses it causes, and they can include government assistance to farmers, debt restructuring, and remittances. Government and other public institutions, through their social safety net programmes, play a big role in helping farmers cope with risk.

There is a distinct role for both public and private institutions in helping smallholders to manage agricultural risk. Private interventions include individual actions and private arrangements among individuals (either informal arrangements or formal, contractual arrangements). Governments have a supporting role to play here, which may include providing infrastructure, information, and a suitable framework for private institutions.

Central Role of Information and ICTs in Risk Management

Risk mitigation, transfer and coping have limitations, and farmers often deploy a combination of strategies to manage their risks. The mix of strategies often depends on factors like the availability and understanding of different risk management instruments, institutional and physical infrastructure, a farmer's capabilities and resource endowment, and a farmer's social network. Information about what needs to be done, when, how, and why is fundamental for smallholders and other stakeholders in the agricultural sector to implement actions to mitigate risk, transfer risk before it occurs, and determine how to cope once those events have occurred.

Farmers' information needs and sources are varied and change throughout the agricultural production cycle but all farmers require a comprehensive package of information to make decisions related to risk.

Founder of market information service said farmers have been poorly informed:

Most farmers have long relied on a patchy network of local middlemen, a handful of progressive farmers, and local shop owners to receive decision-critical information, whose reliability, accuracy and timeliness can have a critical impact on their decision making and therefore livelihood. These are fundamental decisions, such as what price to sell the crop, where to sell, when to harvest, and when to spray pesticides to save the crop.

Research in Sri Lanka found that the cost of information, from the time the farmer decides what to plant until produce is sold at the wholesale market, can be up to 11 percent of production costs. The study also found that information asymmetry is an important contributor to overall transaction costs (De Silva 2008). ICT such as the Internet, networked computers, mobile phones and smart phones are the latest in a long line of technologies that support risk management practices by collecting, processing, distributing and exchanging information. (World Bank 2007).

IMPORTANCE OF ICTS

A survey of current applications of ICTs to manage agricultural risk suggests that they are valuable for two primary reasons.

1. ICTs channel information, advice and finance to farmers who are difficult to reach using conventional channels.
2. ICTs reduce the costs for organization to provide risk management services, because they can greatly reduce the costs of collecting, storing, processing and disseminating information.

These cost reductions have produced two effects that encourage private investment in ICTs to manage agricultural risk.

- Previously unprofitable activities have become profitable.
- Reduction in operating costs can reduce prices for the end user.
- Products and services that were once too expensive for the poor have come within reach, opening a new market segment for risk management products.

ICTs can be used to design insurance contracts, deliver insurance policies, assess crop damage, and delivery indemnity payments. Although the agricultural insurance markets in developing countries are very small, ICTs clearly have features that should help broaden those markets.

With regard to risk coping, technologies that allow real-time visualization and assessment of damage are beginning to be applied to agricultural shocks such as floods.

CHALLENGES

- In some instances, farmers will pay for risk management services, particularly information services, customized to their needs. Before adequate customization occurs, most risk management services need public or private funding to support farmers' initial access. Thus partnerships are central to assembling the combination of knowledge, skills and resources required to manage risk through the use of ICTs.
- Successful efforts display cooperation between software developers, hardware manufacturers, agricultural experts, financial intermediaries, state governments and institutions, donors, non-governmental organisations, mobile operators and others in the private sector.

- Because partnerships, particularly with the participation of the private sector, an enabling policy environment and institutional framework supporting business and entrepreneurship is also critical to incentivizing private investment to cope with or transfer risk.
- Rural areas where risk management services are so desperately needed, also lack education services, financial services, and even agricultural services. Many aspects of human capacity – such as financial literacy, knowledge of best agricultural practices, and familiarity with technology – are prerequisite for using risk management tool successfully.
- Women and other vulnerable groups do not have equal access to risk management tools. Traditional cultural norms in many societies restrict women’s ability, education, assertiveness, and awareness, all of which affect their ability to acquire information or advisory services to help manage agricultural risks. Even when women proactively seek information, their access to information and ability to use it are hampered by gender norms and stereotypes (ILO 2001:6).
- A mobile phone does not differentiate between a female farmer and a male farmer, but a male extension worker might. It is often difficult for women farmers to travel long distances to ascertain market prices, but a short messaging service (SMS) might deliver that information without breaking any traditional stereotypes and gender norms.
- Trust in information and trust in transfer products are also critical issues in risk management.

CONCLUSION

The main task of Reuters Market Light (RML) is to give farmers price information to increase their bargaining power in markets, but is also provides early warning information that can be used to mitigate risk.

West African farmers and traders receive targeted, scheduled text messages on commodity prices or offers from buyers. The focus is on creating a transparent, stable market and reducing transaction costs. Similarly, the Kenya Agricultural Commodity Exchange makes prices on the exchange available by text message (KACE 2010). These services improve farmers’ ability to negotiate prices and serve to partially mitigate price risk. Research Institutes are also innovating in the delivery of information services.

The m-Krishi service recently launched by TCS in India is a prototypical example of remote extension services that allow two-way interactions. A farmer uses the platform to access best practices and query agricultural experts through low-cost mobile phones, mostly using SMS (Banerjee 2010).

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ICT Application to Key Sector : E-Business

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ABSTRACT

Information and Communication Technologies (ICTs) plays a key role in development and Economic growth of any country. In the emerging global economy e-business have increasingly become necessary components of business strategy. The use of ICT in business has enhanced productivity, encouraged greater customer participation, and enabled mass automation, besides reducing costs. With developments in the Internet and Web-based technologies, distinctions between traditional markets and the global electronic market are gradually being narrowed down. ICT have derivative effects, and the more people use ICT, the greater the impact on business.

Keywords: *ICT, Enhanced Productivity, Mass Automation*

OBJECTIVES

Importance of Information and Communication Technology in E-Business

METHODOLOGY

The secondary sources of data and related study were used.

INTRODUCTION

In the emerging global economy e-business has increasingly become a necessary component of business strategy and a strong catalyst for economic development. The integration of information and communications technology (ICT) in business has enhanced productivity, encouraged greater customer participation, and enabled mass customization, besides reducing costs. It is worth mentioning that information and communication technologies (ICT) play a vast role in development of e-commerce, and with today's fast advancing technology more businesses, will adopt e-commerce one way or another.

With ICT application effect, e-commerce enhanced with the appropriate strategy and policy approach which enables small and medium scale enterprises to compete with large and capital-rich businesses.

The use of ICT in business enhances following areas:

1. **Productivity:** ICT application knowledge can positively affect productivity by providing an infrastructure for communications of supply chain participants to execute business processes. It can innovate new distribution channels, a platform for efficient e-procurement, and most importantly, creates a two-way customer interaction. ICT and e-Business coordinates among Supply Chain members in various areas such as data integration, workflow coordination and so on.
2. **Customer Participation:** In old business system customer interaction was not directly with producer. They have to do business via retailer. Using ICT applications customer participation increased day to day business. Suppliers are able to interact and transact directly with buyers, thereby eliminating intermediaries and distributors. However, new forms of intermediaries are emerging. For instance, e-markets themselves can be considered as intermediaries because they come between suppliers and customers in the supply chain. Companies can exchange data electronically with suppliers or customers based on e-business standards. ICT systems can automatically process the step from basic to advanced e-business.

3. **Automation:** Knowledge of ICT opened a lot of doors to successful implementation of e-commerce. Every achievement and innovation attained by ICT has a direct influence on the evolution of E-Commerce.
E-Business is heavily dependent on telecommunications since it is a means of connecting computers across global or local networks to easily communicate. The knowledge of ICT and its applications have proved to enhance information and knowledge management within an enterprise and that can decrease transaction costs and increase the speed and reliability of transactions.
ICT applications in E-commerce promises automated business and sustainable economic development for developing countries.
4. **Advancement with reduced cost:** There are three cost areas that are significantly reduced through the conduct of e-commerce using ICT applications:
 - a. First is the reduction of search costs, as buyers need not go through multiple intermediaries to search for information about suppliers, products and prices as in a traditional supply chain. In terms of effort, time and money spent, the Internet is a more efficient information channel. Using ICT, buyers and sellers are gathered together into a single online trading community, reducing search costs even further.
 - b. The reduction in the costs of processing as ICT allows for the automation of transaction processes and therefore, the quick implementation of the same compared to other channels
 - c. Online processing improves inventory management and logistics.

CONCLUSION

The knowledge of ICT has numerous usage in e-commerce further advancing the system of business, both in developed and developing countries. The importance of ICT knowledge in e-commerce activities also reflects on successful business conduction. It can be concluded that most of the business activities across the globe require staff who are well versed with fast-changing technologies, proactive to adapt the changes for better results and have expertise in information and communication technologies.

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Internet : A Quality Based Approach to Implement in BMC Schools

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ABSTRACT

The purpose of the research paper is to explore different aspects of Internet in our education system and our target area is “BMC Schools” to provide Holistic Education to all the Students. Technology is making rapid progress and is making many things easier. As the innovative thinking of persons is increasing day-by-day, new methods for wireless networking have been evolved, so we thought to adapt Wi-Fi as one of the technique for the enhancement of our teaching technique in our education system. Paper also deals with the different ways of wireless networking, connecting Wi-Fi and with Wi-Fi security that will help the students to learn in an interactive way rather than the use of traditional teaching methods. This paper concludes with the pros and cons of this technology and its future.

INTRODUCTION

To implement the “Digital India” program for the wellbeing of the ever changing society needs, why we can’t start from the root. Thus let us start from the young mindset of India. Keeping this thought in mind, the change should be started with our educational system because **“Education is the most powerful weapon which you can use to change the world”** and the target area is BMC(Brihanmumbai Municipal Corporation)Schools because there is lot of change needed in government school.

Education truly has been orphaned in municipal schools. The teaching methodology in BMC Schools is only done in traditional way. Whatever is there in their syllabus only that much is thought and work is done but nowadays there is rapid change has happen in our education system but only in Private Firm but we want this change in our government schools. So each children of our **INDIA** to get the opportunity to learn in an interactive way. So the best way to learn in an Interactive way is use Internet because there are so many live examples given and as there are so many students in the schools are learning and each student needs an access so the best way is to use the technique of **Wi-Fi** keeping in mind all the securities.

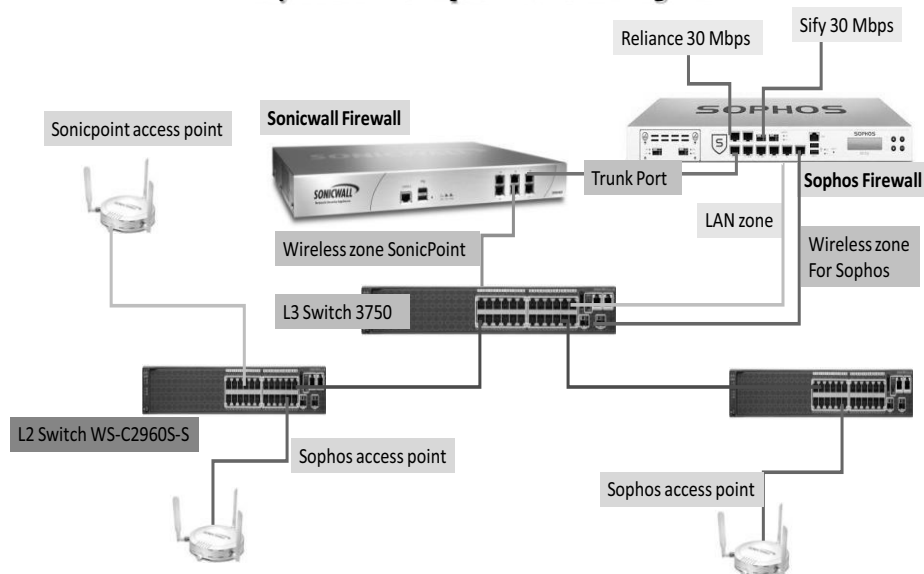
WHAT IS WI-FI?

The use of Wi-Fi in Wireless System has been a highly active research area. Wi-Fi (Wireless Fidelity) is a generic term that refers to **Institute of Electrical and Electronics Engineers (IEEE)802.11** standard for Wireless Local Area Networks (WLANs)[1]. Wi-Fi is a type of wireless networking protocol that allows devices to communicate without cords or cables [2]. Wireless Technology is an alternative to Wired Technology which is commonly used for connecting devices in wireless mode. Wi-Fi is increasingly becoming the preferred mode of **internet** connection all over the world. To access this type of connection, one must have a **wireless adapter** on their computer.

Wi-Fi provides wireless connectivity by emitting **frequencies between 2.4GHz to 5GHz** based on the amount of data on the network. Areas which are enabled with Wi-Fi connectivity are known as Hot Spots. To start a Wireless connection, it is important that the **wireless router** is plugged into the internet connection and that all the required settings are properly installed.

HOW DOES WI-FI WORK?

Vidyalankar Campus Network Diagram



Working of Wi-fi

The main firewall is **SOPHOS Firewall** which are connected with Reliance (30 Mbps) and Sify (30 Mbps) and the second one is **SONIC Firewall** which provides internet facility. The user is connected with the access point and the access point is connected with the **Switches**. whenever there is a request from the user it goes through the access point and then through the Switches from there it goes to the Sonic Firewall and that request goes to SOPHOS firewall through **Trunk Port**. SOPHOS is providing internet facility through **Wireless Zone** Which will Connect wireless access point and the Computer Laboratories through **LAN Zone**. the Security provided in firewall is done in four ways

1. MAC filtering

A media access control address (MAC address), also called physical address, is a unique identifier assigned to network interfaces for communications on the physical network segment.

- It can be done through MAC Address Filtering
- Individual System MAC Address id used to be register in server system

2. Web Filtering

A Web filter is a program that can screen an incoming Web page to determine whether some or all of it should not be displayed to the user. The filter checks the origin or content of a Web page against a set of rules provided by company or person who has installed the Web filter.

- It is used for filtering websites only.
- Websites are categorized and according to them this categories are blocked or accessed (user level access)

3. Application Filtering

Application filters can access the data stream or datagrams associated with a session within the Firewall service. Application filters are registered with the Firewall service and work with some or all of the application-level protocol

streams or datagrams. An application filter can perform protocol-specific or system-specific tasks, such as authentication and virus checking.

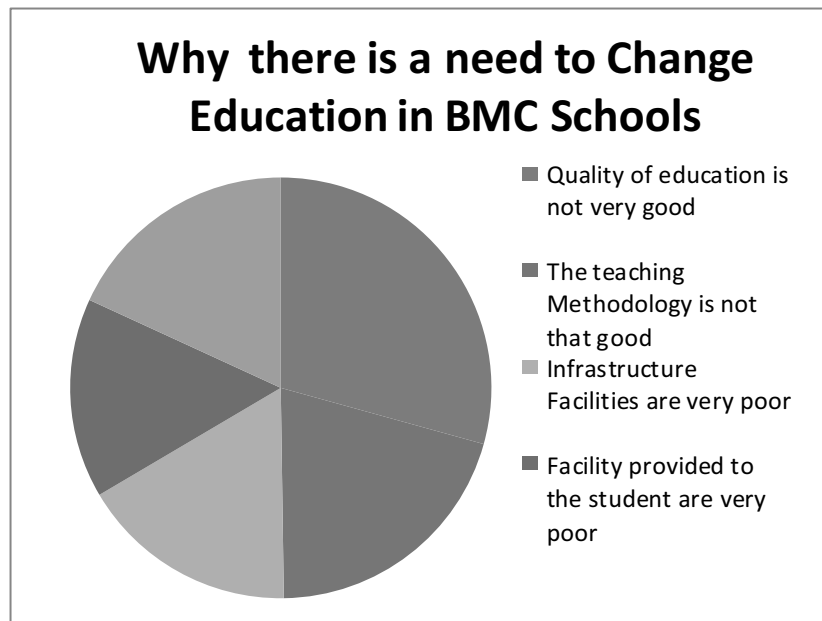
- It is application level filter .

4. Pass Page Filtering

- Its uses Firewall and Server to reach up to user.
- It generate a key
- Share this key with the client

WHY WI-FI?

If we use Wi-Fi in our traditional education system we can provide a holistic education in BMC Schools[3]



Nowadays, undoubtedly there exist a growing emergence of Human Beings who are Reward creativity, original thinking, research and innovation, etc. they should not only have theoretical knowledge through books to pass the exam but they should have power to work in an innovative way and in an exhausting climate around us where so many challenges we have to face .

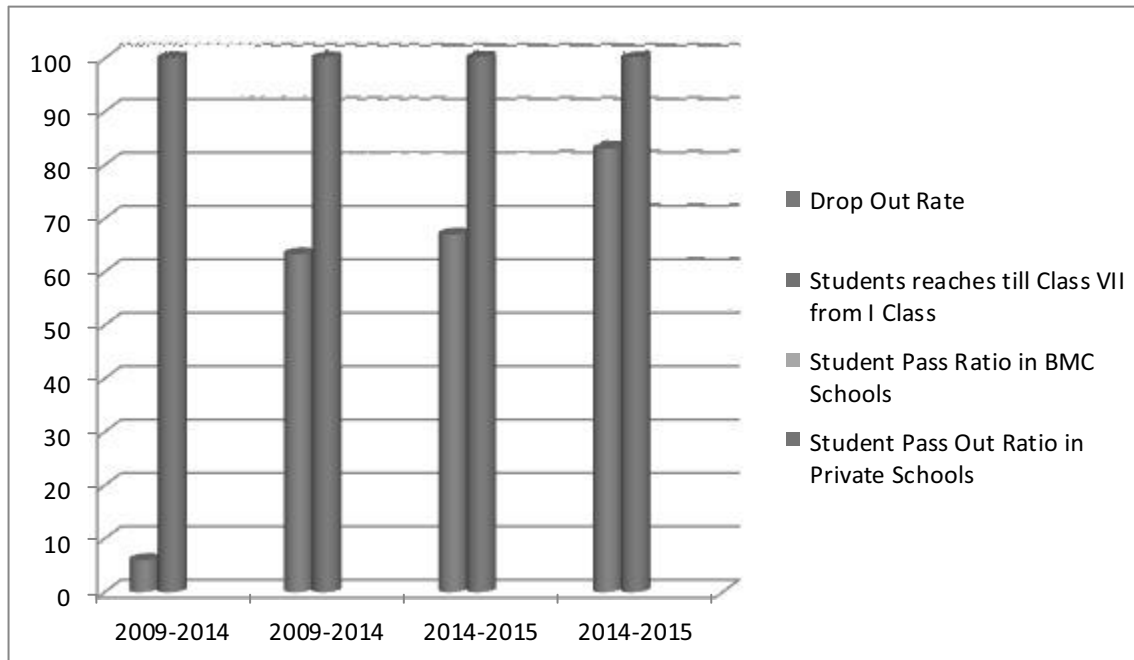
- Huge amount of education material on internet which make studies simpler and available in different languages.
- Flexible learning.
- Mobile Learning is now trend of today's country, no need to carry personal laptops, computers for reading notes, watch video, all features are available in mobile phone.
- Bringing people together using video conferencing technology, emails and online resources.
- Student interest toward technology is increasing day by day, so youth is not facing any problem to adapt the changes.

WHY BMC SCHOOLS?

While we were doing the analysis we found lot of key factors that need to be change in their education system [4].

- 22% of students in Class V are illiterate! This is also why about 54% of students drop out of school between Class III and Class VII .
- The data shows that 67,477 students had enrolled for class I in the year 2009-10, but only 53,056 made it till class VII in 2013-14

- 100 students who enroll in the primary classes of BMC schools, only 12 reach Class X.
- During survey we found that 80% of the teaching staff don't know that how they are going to use internet facility while teaching.
- They are using 1 modem that is only used by teaching staff if they feel needed.



RESEARCH METHODOLOGY

ANALYSIS

A Project of 20 Crore's of providing tablets to students of standard VIII in which Syllabus , Maps and notes has been uploaded.[5]



The **Brihanmumbai Municipal Corporation (BMC)** has approved a proposal to distribute 22,799 tablet PCs to class 8th students across all municipal schools in the city [6]. If such a big contribution has been made by our government so why we can't take this opportunity to make it effective so that students learn in a better way with all real life example. We even

take under consideration about the security issues also, we have several ways so that we can provide the security so that no misuse can be done. In our survey we came to know that 95% of the people don't know the meaning of Wi-Fi, even we came to know that they use modem on one machine and only teachers have access to that machine , and they use internet very rarely.

SURVEY:

We did survey in BMC Schools near the areas like Wadala , Navi Mumbai .We covered around 5 to 6 schools and we found that all 85 % of the teaching faculty need change.

While doing the survey with different schools we have found one thing that all of the teaching faculty want change in their teaching methodology without using the way of traditional teaching and even we found they are using internet only 2 % in their entire academic and that also only for few extra questions .no internet facility is provided to them. One common thing we have found that in each school only 1 or 2 machine with an modem is there. In our survey we have asked question that , do you want change in their teaching and we were glad that we got an positive feedback and we were happy that they are also ready to accept the change.

PRESENTATION:

We had given a Presentation of Research Paper to Mrs. Shambhavi Jogi (Shikshan Adhikari BMC school) and Mrs. Trishna C. Vishwasrao (Co-operator and Sabha Griha Neta) at CST Head office and we are happy to say that we got a positive feedback even they are planning for this but only for security purpose they are not planning to implement internet based approach in BMC schools.

CONCLUSION AND FUTURE WORK

Without leaving the use of tradition of Regular Books, we have to implement new methodologies in our teaching system so that student can become that much capable so that when they enter in an industrial market or any other they can compete like others also. We want our youth of India to be physically and mentally strong enough so that in today's competitive world they can be strong enough and they should be keen to learn new upcoming technology and implement some more new ideas in it. In future we are going to do actual implementation of Wi-Fi and if they want our college is ready to give training to the technical staff of BMC. We believe the best way to improve lives is to improve public education, Our Research Paper Concludes with the benefits for Today's Youth in educational system.

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MCC Based Smart Information Management System For Student and Parent

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ABSTRACT

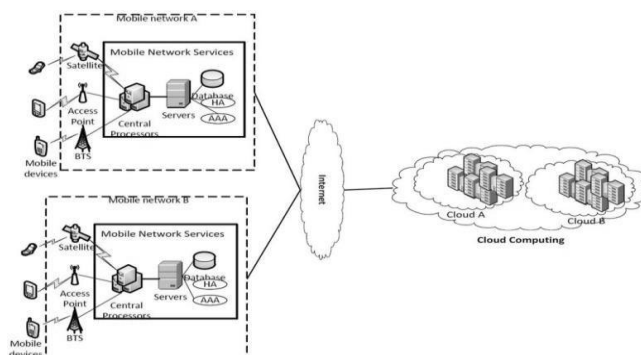
In today's E-World where mobile applications are most preferred way of accessing information by everyone due to increase use of smart phones. The recent rapid advancement in mobile computing technology and wireless networking also created a requirement to build a user friendly and easily accessible information system. This drives a strong demand for mobile cloud applications and services for mobile device users which has become one of the buzz words and a major discussion thread in the IT world. The traditional paper based record maintenance system has become obsolete due to high cost and space constrain. Also redundant storage methods make the system vulnerable to any risk of loss of data and incorrect information. Hence our paper has proposed to build a Student and Parent information system based on the concept cloud management which can be easily accessible on smart phones. The new system will primarily tackle the issue of storage and accessibility of student information, with the enhancement of live updates and contemporary look & feel.

Smart Information Management System for Student and Parent (SIMS) provides a simple interface for maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. It also facilitates Parents to explore all the activities happening in the college, Different reports and Queries can also be generated. The main objective of this paper is to add mobility and automation to the process of managing student information using mobile cloud system which facilitates two way communications between parents and an education institute.

Keywords: MCC, SIMS, Mobile cloud application

INTRODUCTION

Mobile Cloud Computing (MCC) is the combination of cloud computing, mobile computing and wireless networks to bring rich computational resources to mobile users, network operators, as well as cloud computing providers. The ultimate goal of MCC is to enable execution of rich mobile applications on a plethora of mobile devices, with a rich user experience. MCC provides business opportunities for mobile network operators as well as cloud providers. More comprehensively, MCC can be defined as "a rich mobile computing technology that leverages unified elastic resources of varied clouds and network technologies toward unrestricted functionality, storage and mobility to serve a multitude of mobile devices anywhere, anytime through the channel of Ethernet or Internet regardless of heterogeneous environments and platforms based on the pay-as-you-use principle." [1]



Mobile Cloud Architecture [1]

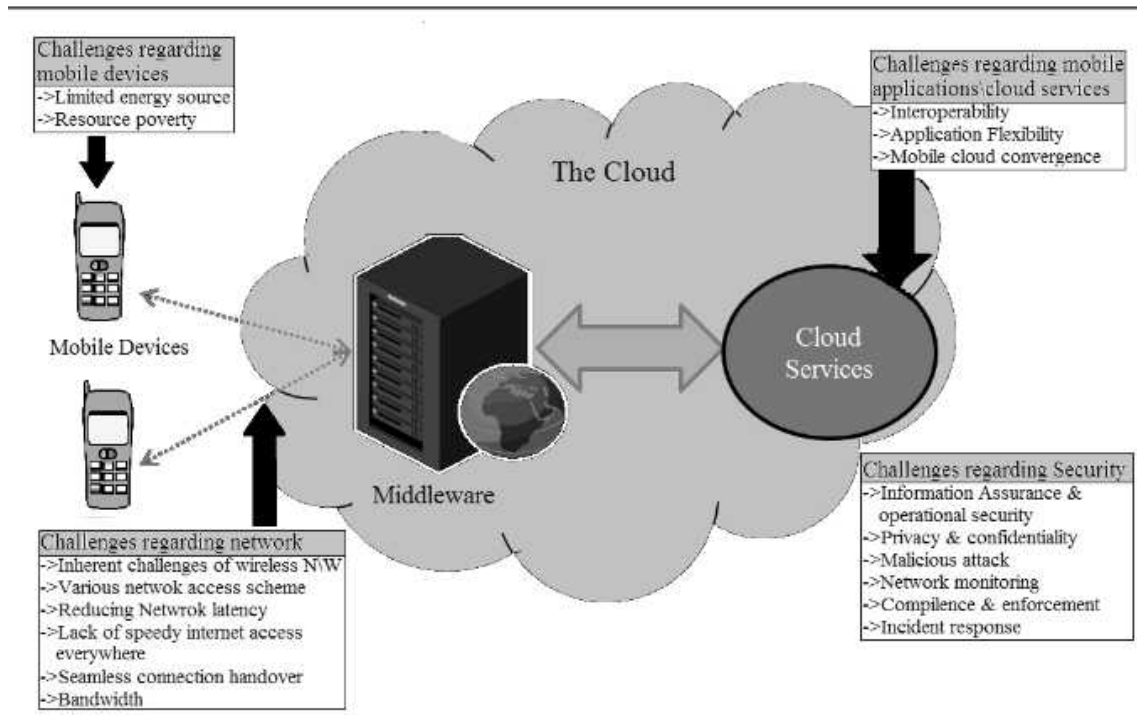


Fig. 1: Challenges regarding Implementation of Cloud Computing in Mobile Applications

Challenges regarding the network [9]

- Inherent Challenges of Wireless Network
- Various Network Access Schemes
- Reducing Network Latency
- Lack of Speedy Mobile Internet Access Everywhere
- Seamless Connection Handover
- Bandwidth

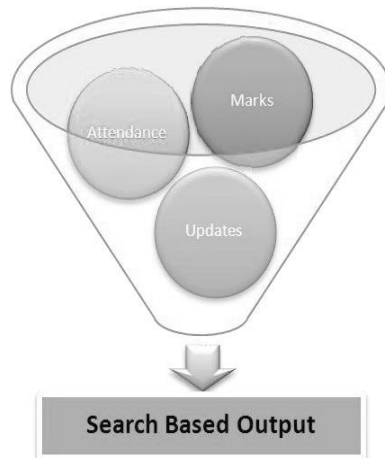
Taking into consideration the popularity of MCC and requirement of information for parent and student, this system involves new way of managing records and transaction processing which will achieve time efficiency on processing student information. The system would be helpful to the educational institute to maintain information about student and parent to access information at remote location.

Most of the systems used currently in the educational institute are the paper based system or windows application where parent and student have to meet the administrative person to receive any information. So to fetch the required information about the student is an expensive and time consuming activity. All the Educational institutes were looking for system which can maintain all student related information on a centralised repository which can be accessed by authorised users. The personalized search engine will fetch accurate result in least possible time.

The application introduces portability as it is used on a mobile device and can be carried anywhere. Since the application is used on a mobile device, it improves connectivity between the students and the staff, thus helping the institution to provide a more transparent system altogether.[2]

The Smart Information Management System for Student and Parent (SIMS) would be an innovative way of creating a communication channel between institutes and parents. The system will not only provide timely updates to parents but also facilitate parents to communicate with teachers from anywhere. In today's busy schedule our system will act as mobile communicator replacing the existing need of physical parent meetings.

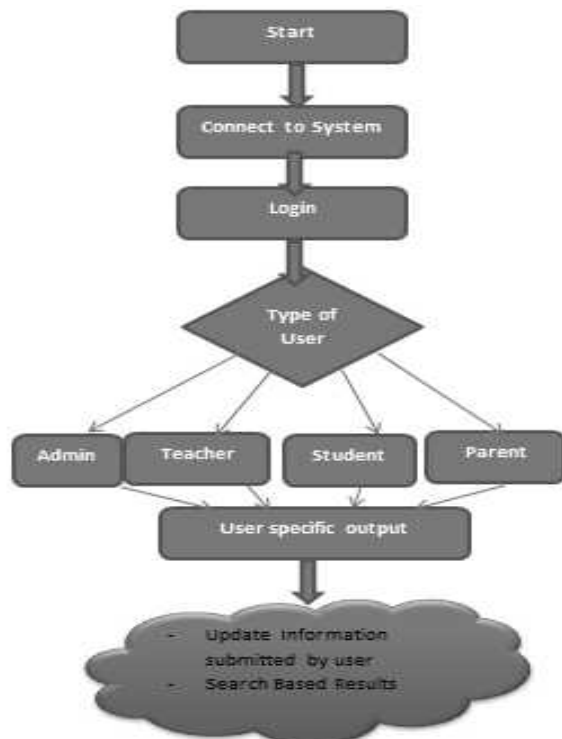
Cloud Architecture of SIMS System:



Existing and Proposed System Comparison:

Parameters	Existing System	Proposed System
Live Updates on events	✗	✓
Anywhere Accessibility	✗	✓
Real Time Attendance Tracking	✗	✓
Paperless Record Maintenance	✗	✓
Easy Connect between parents and students	✗	✓
Online Notifications	✗	✓

System Flow chart:



Type of User and Outcome:**Admin**

- Updates Attendance
- System Updates
- Add New User
- Grant Rights

Teacher

- Updates Attendance
- System Updates
- Add New User
- Grant Rights

Student

- View Results
- View Upcoming Events
- View Attendance
- Update Assignments/Projects

Parent

- View /Approve Results
- View Upcoming Events
- View Attendance
- Queries to teacher

System Modules:

- ✓ Course Work and Assignment – Students can view course work and assignments posted by teachers. They can view all course work, unit test and exam papers in one place. They can also upload their course work and assignment online.
- ✓ Track Attendance – Teachers and admin can add attendance of students. Student and parent can track attendance. System will send live alerts of student absenteeism to parents.
- ✓ Results – Result will be available online for parents to validate and approve. If parents are not validating and approving the result the system will automatically send an alerts to the parents.
- ✓ Live Chat Session: - Live chat session is enabling parents for quick queries and updates.
- ✓ Events – All upcoming events and important dates will be available.
- ✓ Health Report - Student and parent can view health records. The report can be used to track progress towards a better mind, body and soul. If student health report is not good continuously the system will alert the parent immediately.
- ✓ Notice Boards –Important notices can be shown here for the student and parent.
- ✓ Alerts – Automated SMS, Email can be sent to student and parent as per the institutions requirements.

Case 1: If student attendance is less than 75 % then an alert to students and parents.

Case 2: If student final result is declared then an alert to students.

Case 3: If student result is not validated and approved by the parent then an alert to the parents.

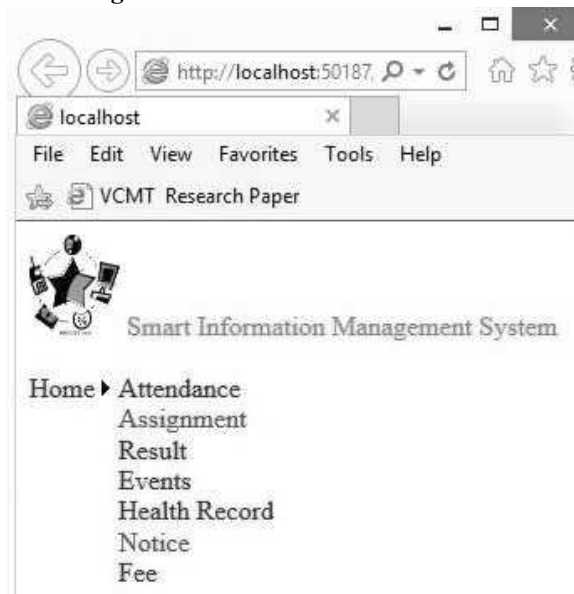
Case 4: If important notice is to announced then an alert to the students or parents.

Case 5: If fees are not paid then an alert to the parents.

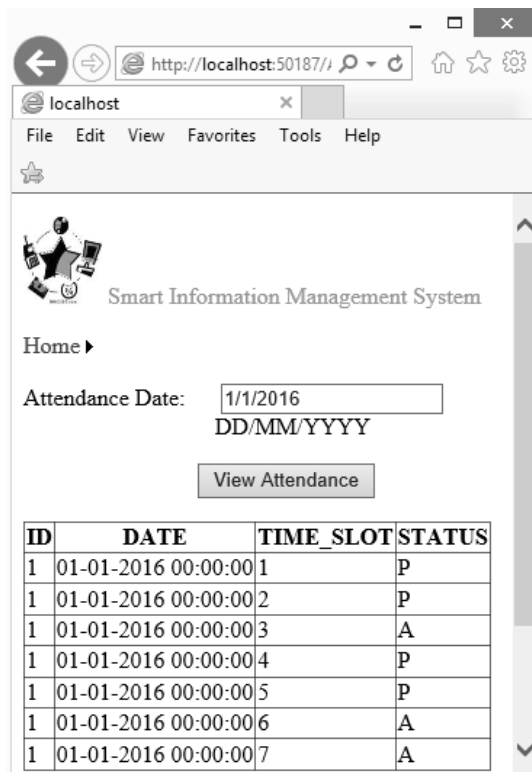
- ✓ Fee Payment- Fee payment details can be viewed by staff, student and Parents.

Result:

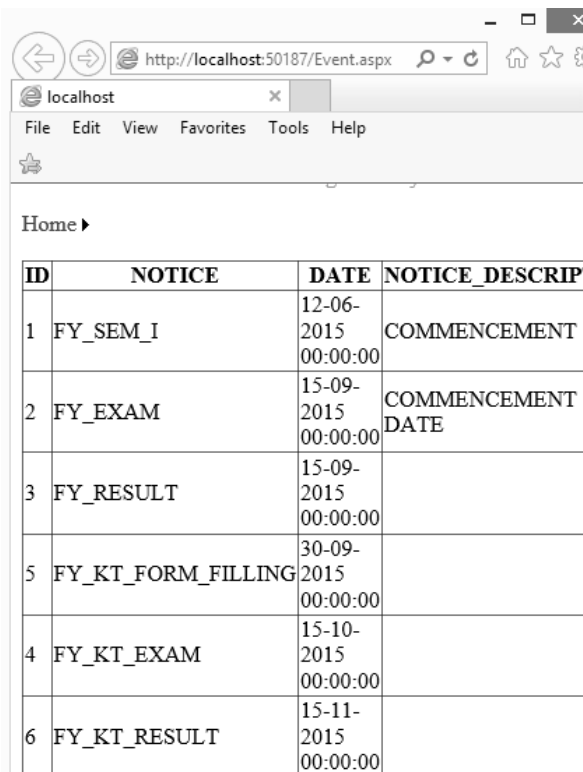
Home Page:

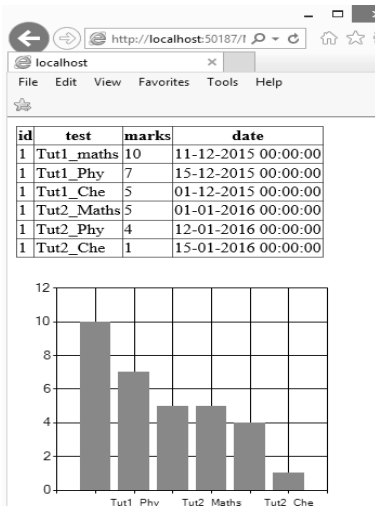
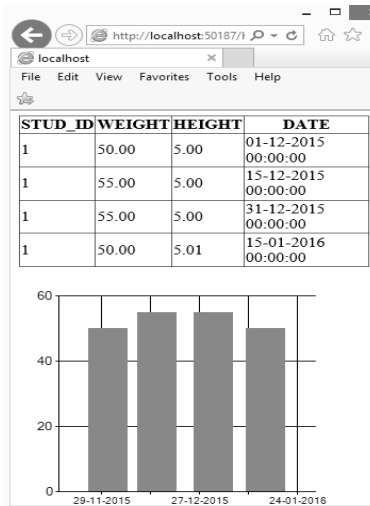


Attendance Result:



Notice Result:



Test Result:**Health Record:****CONCLUSION**

This system ensures portability as it is used on a smart phones and can be accessed from any remote location. This will act as a communication channel between education institute and parents/students. This two way communication system will ensure student updates are timely delivered and validated by parents.

It will bring due transparency in student records such as attendance, Results, Internal assessment, Upcoming events, Important Notifications and alerts etc. The server based storage facilitates paper less administration and record maintenance. It will bring in consistency in output and enhance security for information storage. Parent will have online visibility about the student information so that they feel comfortable and secure with their child's education journey.

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Prospects of E-Agriculture using ICT Augmented With Wireless Sensor Networks

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ABSTRACT

The GOI has been making strategic efforts to ensure and boost high productivity in agriculture. This has led to allocating a significant portion of the central budget to implement agriculture and farmer centric schemes and services. Schemes and services such as Kisan Call Center(KCC)^[1], MKrishi, Paramparagat Krishi Vikas Yagna (PKVY), Pradhan Mantri Krishi Sinchai Yojana(PMKSY), Soil Health Card Scheme^[2] etc. are some of the initiatives that are being implemented keeping the vision of sustainable agriculture in mind. Indian farmers are already reaping the benefits of these schemes assisted by ICT like KISAN CALL CENTER (KCC) right from its inception in January 2004. This paper explores the potential of performing agriculture using ICT techniques augmented Wireless Sensor Networks (WSN). It discusses the possible shortcomings in current way of communication and suggests a solution. Further, a general framework of ICT augmented with the current state-of-the art wireless sensors network is given as a promising combination to alleviate Indian farming practices to the next level. The suggested framework can be implemented in real time to achieve the goals of development in agriculture.

Keywords:

e-Agriculture, Information & Communication Technology (ICT), Kisan Call Center(KCC), Soil Health Card scheme, Wireless Sensor Networks (WSN),

INTRODUCTION

In India a large portion of population is engaged in agriculture. Agriculture being the backbone of Indian Economy receives a great focus and support from central and state governments. Several farmer centric schemes and services have been implemented and are in use. A challenging situation has risen in field of agriculture due to global warming and patterns in climate change that have previously not occurred.

Farmers use ICT enabled services like KCC & MKrishi to address their day to day queries and seek suggestions. Experts called as Subject Matter Specialists (SMSs) use telephone and computer to interact with farmers to understand the problems they face and answer the queries at a Call Centre.

THE OPERATIONAL MECHANISM OF KCC

The Kisan Call Center is a combination of two separate technologies, these are Information & Communication Technology (ICT) and Agricultural Technology. The Kisan Call Center, operates at three levels namely Level-I (where the Call Center is equipped with high quality bandwidth and local language proficient Agriculture Graduate), Level-II (where experts known as Subject Matter Specialists on vast variety of topics like important crops, fertilizers, etc are connected through an infrastructure similar to Level-I) and Level-III (the Management Group to ensure that all of the farmers queries which are not resolved at Level-II, have been resolved on off line mode). ^[1]

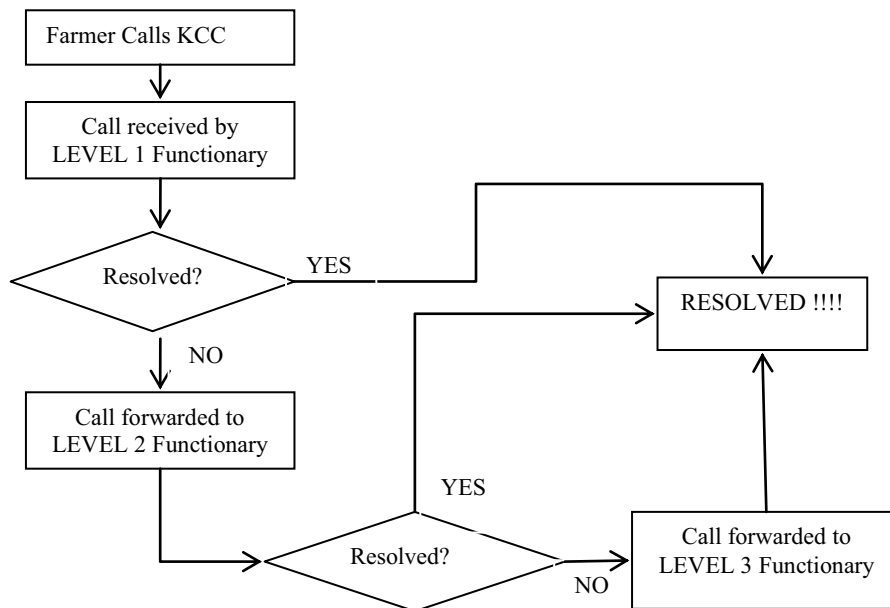


Fig. 1: Operation Mechanism of KCC adapted from [1]

POSSIBLE SHORTCOMINGS OF KCC

KCC is a very powerful tool empowering farmers. It connects farmers to experts in field of agriculture. The expert formulates a hypothesis based on the inputs given by the farmer. This communication model suffers if the information provided by the farmer is not correct. The suggestion or solution provided by KCC experts may be a particular kind of fertilizer or pesticide to be used. The recommendation is made on the basis of no real time data on the condition of soil or nutrients present and is a general suggestion. If the proportion of the constituent nutrients of such fertilizer/pesticide is above or below the permissible levels it will affect the crop yield or may not give maximum yield. This problem may even go unnoticed.

FERTILIZER^[3] AND MICRONUTRIENTS

The agriculture industry is heavily dependent on the use of NPK fertilizer. There are numerous building blocks or micro-nutrients that plants need for healthy growth. Due to various reasons either naturally, or as a result of over cultivation over a period of time soils often lack these essential micro-nutrients which needs to have these essential micro-nutrients put back into it. NPK fertilizer is composed of three primary elements: Nitrogen (N), Phosphorus (P), and Potassium (K), each being essential in plant nutrition. Nitrogen helps quick growth in plants, while also increases the production of seed and fruit, and improves the quality of crops. Nitrogen is one of the components of chlorophyll, a substance that gives green color to plants, and also aids in the process of photosynthesis. Phosphorus is also one of the components in the photosynthesis process. Phosphorus supports the formation of sugars, oils and starches. Phosphorus also aids the process of conversion of solar energy into chemical energy, as well as the development of plant, and its ability to withstand stress. Additionally, it also encourages the growth of roots, and promotes blooming. Potassium being the third essential nutrient assists in photosynthesis, fruit quality, protein building, and the reduction of disease. Since these three elements are the primary once to promote healthy plant nutrition and growth, they are the important nutrients necessary for the development of healthy, productive plants.

At present the recommendations on fertilizers made by experts followed by farmers for primary nutrients N, P & K are general and often overlook micro-nutrients like Zinc, Sulphur & Boron. This limits the crop yield which otherwise would be more. Also excessive use of these fertilizers has been cited as a frequent source of contamination of groundwater and

surface. Keeping this in view the Government of India has started facilitating soil test based balanced and judicious use of chemical fertilizers^[4].

The Central Government inaugurated a new scheme- Soil Health Card for every farmer in Feb 2015^[5]. Under this scheme a portal has been developed where soil samples are registered, test results of soil samples are recorded and soil health card (SHC) are generated along with fertilizer recommendations.

POSSIBLE SHORTCOMINGS OF SOIL HEALTH CARD SCHEME

The Soil Health Card Scheme is a very promising scheme that provides soil nutrient data on web portal for about 14 crore land holdings throughout the country to promote soil management practices and restore soil health. This is done once in a cycle of 3 years^[5]. A time span of three years is too big and the composition of micro-nutrients in the soil tend to change with every crop, not to mention the irregular weather condition with floods, hailstorms or draughts. There are different stages in crop cultivation that may vary and each stage requires different nutrient levels. Hence soil testing just once in 3 years is not a practical solution.

WIRELESS SENSOR NETWORKS

Wireless sensor networks (WSNs) are composed of sensor nodes with limited resources. A sensor node consists of three main components: a sensor, a processor and a wireless communication device. These sensor nodes are dispersed through the area of interest to monitor, collect, and transmit data. These sensors could be used to monitor, collect and report various environmental or physical parameters such as temperature, pressure, humidity, wind direction, chemical concentration, pollutant levels, etc.

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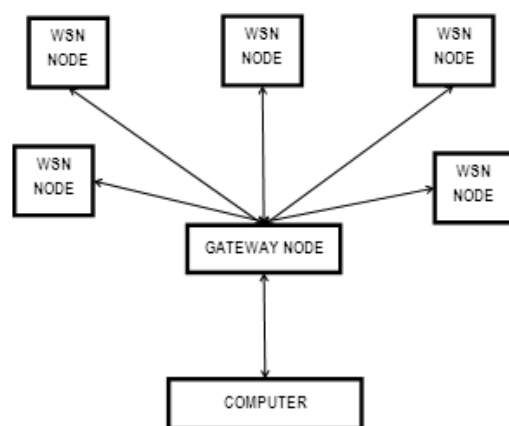


Fig. 2: Components of a WSN

Every node transmits data at regular intervals to a gateway node which relays the data to a computer that has a software designed to interact with WSN nodes.

APPLICATION OF WIRELESS SENSOR NETWORKS IN E-AGRICULTURE

Since there are different stages in crop cultivation that vary and each stage requires different nutrient levels on-site measurement of soil nutrients are considered an ideal approach to the stage varying application of fertilizers. a wsn can monitor, collect and store real-time data on the changing composition of nutrients in the soil.

on the basis of this knowledge of soil nutrients level, farmers can directly use the data generated by a wsn to enhance the crop productivity. development in agriculture depends to a great extent on how successfully knowledge is generated and its application.

E-AGRICULTURE USING ICT AUGMENTED WITH WIRELESS SENSOR NETWORKS

The following section suggests a framework where the e-agriculture schemes based on ict after integrating with wireless sensor networks can prove highly resourceful for the nation.

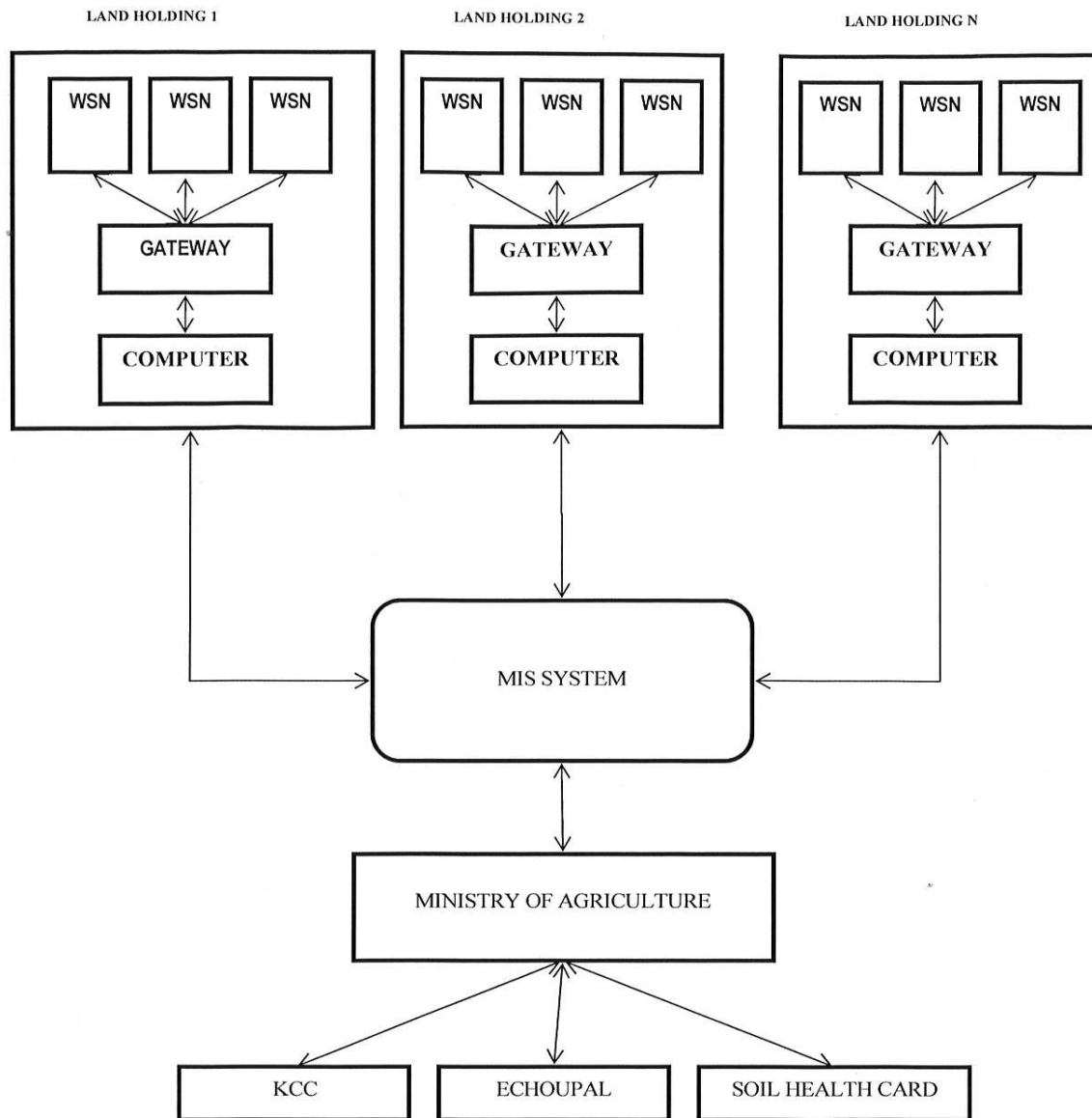


Fig. 3: Framework for e-Agriculture Infrastructure using ICT augmented with WSN

The above diagram suggests the framework for creating an infrastructure that has 3 layers:

1. **Data Acquisition Layer:** This layer is formed by each individual WSN's at the smallest of land holdings a farmer can have. Each WSN generated data is locally stored
2. **MIS Layer:** This layer collects and indexes the data collected at every individual land holding.
3. **Services Layer:** This layer allows different ICT enabled schemes access to data in MIS layer on a service basis.

PROSPECTS OF E-AGRICULTURE USING ICT AUGMENTED WITH WIRELESS SENSOR NETWORKS

- A. **Better recommendation by KCC** – Experts at KCC can access real time data on farmers land and recommend the exact proportion of fertilizers.
- B. **Better Irrigation** – With WSN the utilization of water for different types of crops can be studied over time. This data can help to further propose a system of irrigation grids which can dynamically supply water for irrigation and help conserve water.
- C. **Alert Systems-** Given the knowledge on type of crop the data collected by WSN can generate alerts in different situations like Alert for Excess or deficient supply of Water Alert, Alert for Excess or deficient supply of certain nutrient of fertilizer.
- D. **Planning of Fertilizer Production** – Once the type of crop and area to be cultivated is known the amount of fertilizer to be produced can be better predicted.
- E. **Efficient Budget Allocation by Government-** Statistical analysis of stored data can help the government to economically plan better policies.
- F. **Creating a better Market for farmer:** Data on the agricultural production can be made available on website of Ministry of Agriculture so that potential buyers at national and international level can procure the crops.

CONCLUSION

E-Agriculture using ICT augmented with Wireless Sensor Networks has immense potential to improve the state of agriculture in India. From a government point of view the framework suggested can prove to be instrumental in statistically planning of the entire agricultural sector and achieving a sustainable approach towards agriculture.

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Signing MoU on Internet Using Digital Signature with the Help of Trusted Third Party

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ABSTRACT :

In this paper, I have presented a method of Digitally Signing Memorandum of Understanding (MoU). The MoU can be signed on internet without the need for the two parties to meet personally. The MoU can be signed on internet using the Digital Signature Algorithms. Any of the existing Digital Signature Algorithms can be used such as RSA. The MoU can be signed between two parties say Alice and Bob. The public and private key pairs are used for creating and verifying the digital signatures. The key should be exchanged via some secure channel otherwise man-in-the-middle attack is possible on the digitally signed MoU. This system also needs a trusted third party to provide security and authentication.

Keywords:- MoU, Digital Signature, Public and Private key pair, RSA Algorithm, Trusted third party.

INTRODUCTION

A memorandum of understanding (MOU or MoU) is a formal agreement between two or more parties. Companies and organizations can use MOUs to establish official partnerships.

MOUs are not legally binding but they carry a degree of seriousness and mutual respect, stronger than a gentlemen's agreement. Often, MOUs are the first steps towards a legal contract. In US law, a memorandum of understanding is synonymous with a letter of intent (LOI), which is a non-binding written agreement that implies a binding contract is to follow.

MOUs are popular in multinational international relations because, unlike treaties, they take a short time to ratify and can be kept confidential. MOUs may also be used to modify existing legal treaties. [1]

Memorandum of understanding (MoU) and is actually just a means for two parties to reach a decision. It is used to gauge the intention of the transacting parties before a deal is officially signed between them and doesn't grant either of them any rights. So, in some cases, it may make more sense to opt for a softer, non-legal document than a legally binding one.

"Sometimes, situations warrant the use of a softer document that only captures the intention of the parties till a more definitive agreement can be drawn up. So, MoU is a good choice. MoUs are very handy even in matters where the final deal would depend on the fulfilling of certain conditions.

For instance, a MoU could be useful while making a real estate deal. Suppose you have chosen a house that you would like to buy but can only pay for it after six months. In the meantime, you could make a small advance payment and draw up an MoU with the seller stating the terms and conditions from both sides.

Difference between Agreement and MOU

Agreement

- This document can be legally enforced in a court of law.
- The agreement is the final, definitive document detailing the terms and conditions of the deal.
- It is always binding on all the parties.
- It grants substantial rights to the parties.

MoU

- The document cannot be legally enforced in a court of law.
- There should be a clear mention of another agreement that will be drawn up at a later stage.
- It becomes binding on all parties if it has been drafted for a monetary exchange.
- It does not grant substantial rights, just captures the intentions of all parties.[2]

ADVANTAGES

One advantage of MoUs over more formal documents is that, because obligations under international law may be avoided, they can be put into effect in most countries without requiring parliamentary approval. Hence, MoUs are often used to modify and adapt existing treaties, in which case these MoUs have factual treaty status. The decision concerning ratification, however, is determined by the parties' internal law and depends to a large degree on the subject agreed upon.

OBJECTIVE

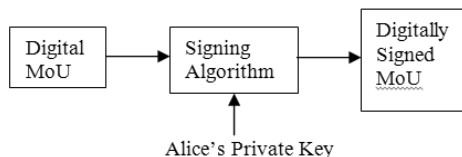
The objective of the paper is to present a method by which the persons or parties involved in signing the Memorandum of Understanding don't have to meet personally. They can sign the MoU at their leisure and submit it to the other party. The MoU will be valid and each party can authenticate the other party who has signed the MoU.

SIGNING MOU BETWEEN TWO PARTIES

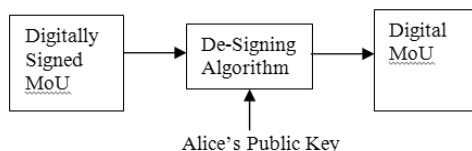
Recent advancements in network bandwidth, compression technologies and computer performance have led to the routine use of Digital signature for authentication. If Alice and Bob are the two parties involved in signing the MoU, in order to ensure that the MoU signing happens smoothly, Bob contacts the trusted third party say Trusted Authority (TA). Alice also speaks with TA over phone and is assured that TA is responsible third party, in which she could trust. Alice and Bob can use Public Key Encryption to authenticate each other. Alice and Bob will contact TA to provide Public and Private key pair. The TA will provide public and private key pair to Alice and Bob. Alice's keys are called Alice's Public key and Alice's Private key. Bob's keys are called Bob's Public key and Bob's private key. These keys are given to Alice and Bob via some secure channel. The public keys of Alice and Bob need to be exchanged. As Alice and Bob agree to sign a MoU, they will request TA to give the public key to each via some secure channel. TA will give the Alice's Public key to Bob and Bob's public key to Alice.

Now let's write the steps to sign MoU on internet and it will be complete and comprehensive in all respects.

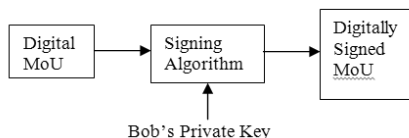
1. Alice will create a Digital copy of MoU and will digitally signs the copy of the MoU using Alice's Private key and sends it to the TA over the internet.



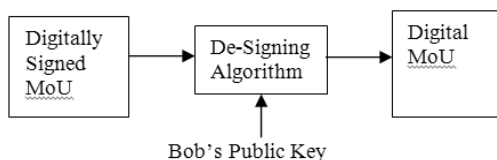
2. TA verifies the digitally signed MoU by using Alice's Public key. As TA is able to verify the MoU, TA can authenticate that the MoU has actually come from Alice.



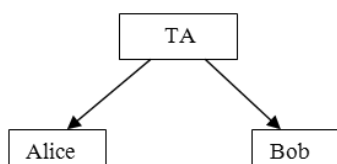
3. Bob will create a Digital copy of MoU and will digitally signs the copy of the MoU using Bob's Private key and sends it to the TA over the internet.



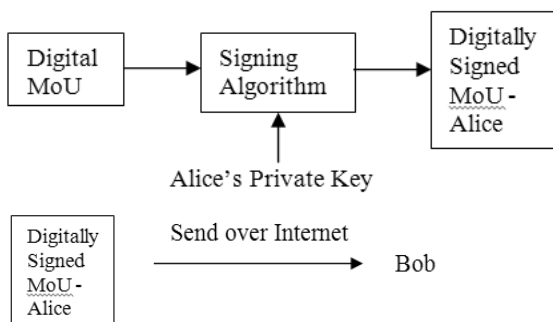
4. TA verifies the digitally signed MoU by using Bob's Public key. As TA is able to verify the MoU, TA can authenticate that the MoU has actually come from Bob.



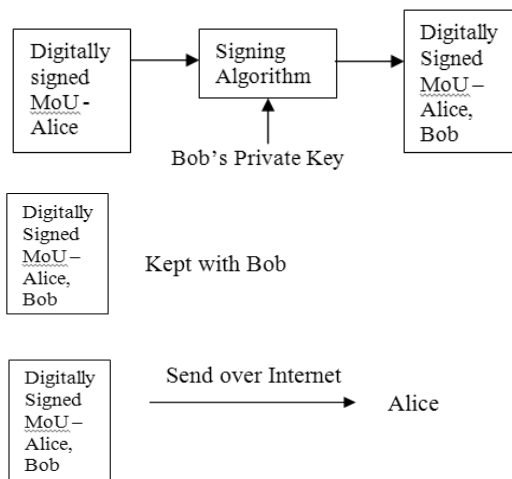
5. TA then sends message to both Alice and Bob, informing them that he has received the digitally signed MoU from both.



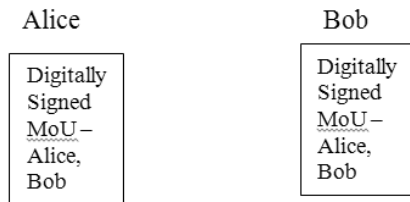
6. At this stage, Alice digitally signs two more copy of the MoU using Alice's Private key and sends both of them to Bob.



7. Bob now digitally signs both the MoU copies received from Alice. He keeps one of copies for his record and sends the other to Alice.



8. Alice and Bob both inform TA that they have a copy of the MoU which is digitally signed by both of them.



9. TA now destroys the original copies of MoU received from Alice and Bob in beginning. Alice and Bob have a copy of MoU signed by both of them.

Alice cannot deny that she has never signed the MoU because Bob has one copy of the MoU, which is signed by him as well as by Alice. Also Bob cannot refuse of having signed the MoU, because Alice has a copy of the MoU signed by both. Thus the solution is indeed comprehensive. This solution requires the use of trusted third party i.e. for providing public and private keys to Alice and Bob.

POSSIBLE ATTACKS

The trusted third party needs to send the both public and private via some secure channel, otherwise the algorithm may suffer from man-in-the-middle attack. Alice and Bob had agreed to sign MoU on internet without meeting personally. There is a hacker H on internet who is listening to all the conversation done via email between Alice and Bob. The attack may happen as follows:

1. When Alice communicate over internet, Alice will send her public key to Bob and ask Bob to send his public key.
2. A hacker H intercepts the Alice message. H will change the public key value to Alice and forward his own public key value to Bob.
3. Bob will receive the public key value to hacker and will assume that it is the public key value of Alice.
4. Bob will send his own public key value to Alice.
5. Hacker H will intercept the message from Bob and H will change the public key value of Bob with his own public key value.
6. Now when Bob authenticate the MoU from Alice it may happen that H might have read or changed the contents of the MoU.

This same condition may be possible when the TA is sending the Alice's public key to Bob and Bob's public key to Alice. So even though public keys are exchanged, it has to be exchanged via secure channel.

CONCLUSION

This paper presents a method of signing MoU on internet using the Digital Signature Algorithms. Any of the existing Digital Signature Algorithms can be used such as RSA. The MoU can be signed between two parties say Alice and Bob. The public and private key pairs are used to creating and verifying the digital signatures. The key should be exchanged via some secure channel otherwise man-in-the-middle attack is possible on the digitally signed MoU. Hence this paper solves the problem of signing the MoU on internet without the need for the two parties to meet personally. This system also needs a trusted third party to provide security and authentication. The algorithm needs to be extended to more than two parties.

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The Role of ICT in Building Smart Cities

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ABSTRACT

This paper highlights what is smart city and how ICT plays a vital role in building a smart city.

The core infrastructure elements in a **smart city** include adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing especially for the poor and robust IT connectivity and digitalization,

A **smart city** uses information and communication technologies (ICT) to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to improve contact between citizens and government.

INTRODUCTION

A city equipped with basic infrastructure which can give clean and sustainable environment as well as decent quality of life through application of smart city can be called as a smart city. Now days an increasing population in urban areas is in need of such smart cities through which they can get more efficient asset and resource management. The transformation of a simple city into smart city can be achieved by technology advancement and the deployment of intelligence and information management system.

Features of smart city

A smart city uses information and communication technology to enhance quality performance and interactivity of urban services to reduce cost, resource consumption and to improve contact between citizens and government.

It's applications are developed with an intention of managing urban flows and allowing real time responses to the challenges.

These cities can also be referred as flexi city, knowledge based city, intelligent city, wired city etc.

Role of ICT

An intelligent city use ICT for

- 1) Making an efficient use of physical infrastructure facilities through artificial intelligence and data analytics to support strong and healthy economic, social and cultural development.
- 2) Engaging people in e-governance to improve the collective intelligence
- 3) Making the people to learn and adapt the developments in information technology so as to respond more effectively and promptly to the changing circumstances.

The use of ICT leads to strong integration of all dimensions of human intelligence, collective intelligence as well and artificial intelligence within the city.

The intelligent cities are combination of digital communication networks, sensors and tags, soft wares and ubiquitously embedded intelligence.

These forms of intelligence in smart cities are described in 3 different ways such as:

- 1) **Orchestration intelligence** which helps the cities to establish institutions and community based problem solving collaborations.
- 2) **Empowerment intelligence** where cities provide open platforms, experimental facilities and infrastructure in order to cluster the innovations.
- 3) **Instrumental intelligence** where infrastructure of the city is made smart city through real time data collection.

Coverage

Intelligent cities are efficiently working through various urban infrastructures such as transport, Energy / utilities, protection of the environment and safety etc.

- **Transportation:** A shift to electric mobility is essential to counter depletion of fossil fuels, increase in fuel costs, and impact of transportation on the environment. Delhi is the first city in India to install intelligent traffic lighting systems. Road accidents in developing countries have declined even as vehicle sales have risen.
- **Energy:** The use of renewable energy sources makes electrical systems more unpredictable. This means they require a new capacity for monitoring and control, which ICT can provide. The aim is to transform the command and control structure of a traditional grid into an interactive, communicating smart grid
- **Water supply:** Information and communication technologies (ICT) have the potential to enhance water sustainability, efficiency and accessibility — for example ICT can also be incorporated to increase efficiency in irrigation, saving up to 70 per cent of water in some networks.

Issues

The criticisms of smart cities revolve around:[26]

- A bias in strategic interest may lead to ignoring alternative avenues of promising urban development.
- The focus of the concept of smart city may lead to an underestimation of the possible negative effects of the development of the new technological and networked infrastructures needed for a city to be smart.
- As a globalized business model is based on capital mobility, following a business-oriented model may result in a losing long term strategy: "The 'spatial fix' inevitably means that mobile capital can often 'write its own deals' to come to town, only to move on when it receives a better deal elsewhere. This is no less true for the smart city than it was for the industrial manufacturing city.
- The high level of big data collection and analytics has raised questions regarding surveillance in smart cities, particularly as it relates to predictive policing.

CONCLUSION

A smart city uses information and communication technologies (ICT) to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to improve contact between citizens and government.

They are efficiently working through various urban infrastructures such as transport, Energy / utilities, protection of the environment and safety. Whereas the focus of the concept of smart city may lead to an underestimation of the possible negative effects of the development of the new technological and networked infrastructures needed for a city to be smart.

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To Streamline Student Record through Digital India

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ABSTRACT

Student is core entity in Education system .Student is associated with many exams starting from SSC, HSC, GRADUATION and POST GRADUATION. Our education system lacks in following area

1. No uniformity in storing student records.
2. No single place for student database
3. Every time he takes new admission his documents are verified.

When student take admission in particular course [1], institute is taking all information required and if student is changing an institute or upgrading from one course [1] to another, he/she has to do the same process again. That is every time student is enrolled for new course or he is changing course his/her records are entered again .So student is losing his data from one institute to another. There is no proper link to student's educational career. Student has to carry all his documents every time for enrolment. Every institute is repeating same task again and again that is document verification and record entry. So ultimately it leads repetition of

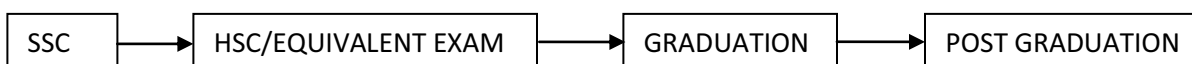
1. Records entry
2. Documents verification

Keyword: [Course [1]: SSC, HSC, GRADUATION and POST GRADUATION,icloud:Intelligent Cloud]

OBJECTIVE

To streamline student record through digital medium.

Streamline: creating proper link for student educational career.



Digital medium: using cloud computing as technology to store student details.

Cloud computing

[Reference: <http://www.ibm.com/cloud-computing/in/en/what-is-cloud-computing.html>]

Computing as a service over the Internet

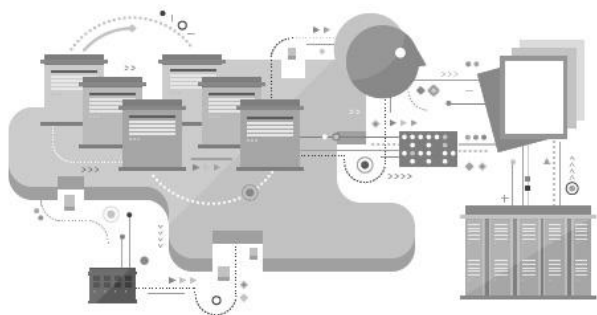


Fig. 1:

Cloud computing, often referred to as simply “the cloud,” is the delivery of on-demand computing resources—everything from applications to data centres—over the Internet on a pay-for-use basis.

Elastic resources : Scale up or down quickly and easily to meet demand

Pay for use : Metered service so you only pay for what you use

Self Service : All the IT resources you need with self-service access

LITERATURE SURVEY

Admission processing was based on paper application materials kept in each student's file folder and data kept in the mainframe student information system. Multiple staff members in Admissions and other offices needed to see the documents in the folders to do their work, and these pieces of paper could only be shared by making copies or passing the folder from desk to desk. Admissions Office file cabinets were increasing with folders and taking up valuable floor space. Loose documents and file folders were piled high on staff members' desks. Frantic emails were sent many times a day to the entire office to try to locate "missing" files, transcripts or applications. Admissions Office staff answering questions from students and parents on the telephone and at the front desk effectively removed a student's file from the processing flow when they retrieved it for information. Staff members from other offices, such as Sports and the Placement Cell, stalked from desk to desk in search of files for students they were trying to process. Copies of every transcript and transfer credit report were routinely made and sent to academic advisors via the campus mail system. We desperately needed a way out of the paper chaos.

PROCESS

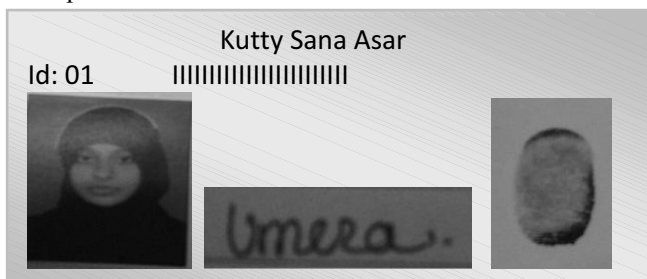
Education system needs pointed to a paperless, shared admissions process to improve efficiency, expand capacity and enhance customer service. The solution explored and then implemented was a university-wide electronic document management system with automated workflow. The Admissions Office was selected for the initial implementation of the new system, including document archive and retrieval functionality and automated workflow processing, with plans to extend it to meet similar needs of other university offices over time.

Application forms, checks, transcripts, and other paper documents that arrive in the mail are sorted and scanned into the system daily. As soon as a set of documents has been scanned and image quality is approved, a staff member uses customized software that interfaces student information system to assign indexes to each scanned document. These indexes include the applicant's student number, name, campus, and other identifying information so that the document image can be easily retrieved. Images submitted to the system are immediately available for offices across the university to view or annotate. This has provided an enormous customer service benefit. A staff member taking a call from a student or parent is able to use a query tool to see a list of documents received for the student in question without having to search for a file folder that might be anywhere in the office.

Electronic workflow has renovated the way applications are processed. In the old paradigm, an application form was held until the application fee was paid and all required supporting documents were received and manually added to the file folder. With the new system, a workflow package, or virtual file folder, is created upon receipt and scanning of an application. When the application is scanned, the index data from the student information system is also used to populate the workflow database. Workflow rules then automatically route the package to a holding queue until all necessary transcripts, etc. have arrived. Document type is captured during the scanning step, and any type other than "application" triggers review of the package. When an application package is complete, workflow rules route it to the appropriate electronic queue for review and action. A staff member selects a package from the system by using a predefined profile, or filter, based on package characteristics such as status, campus, or queue. He/she "locks" the selected package into his/her electronic in-box before starting to work on it, guaranteeing that only one person is working on a package at a time, although multiple people can be working from the same queue. After his/her work on the package is complete, then a click of a button sends it back to the workflow process where it is evaluated by the automated rules and sent on to the next queue.

1. Every institute should register itself on icloud with required details and every institute will be having its own cloud also.

2. Every institute should have Student Registration department where student can register themselves. OR student can even register themselves online.
3. Institute will issue electronic card for each student which will have unique identification, photo, signature and thumb impression detail which on swipe will display student details.
4. Example.



5. Either institute will upload respective documents or Student has to enter his details and upload his respective documents through login and there will be verification service on cloud which will verify student details and documents and then after it will be uploaded to the cloud.
6. There will be an icard reader with institute when student comes for admission, institute can use icard for details. Information on the icard is portable where institute has right to add that student to its cloud.

CONCLUSION

The use of profiles has had benefits other than allocating work among the staff. Because most admission processing for the branch campuses is done locally (transcript evaluation being the exception), manual procedures were difficult to standardize. Use of profiles allows the automated process and a single set of rules to drive procedures and events at all campuses. Also, when management decides to give priority to processing applications in a particular status, profiles enable quick set up of queries to find them, instead of researching and locating individual files.

The most noticeable benefits of e-document are the absence of piles of paper in the Admissions Office and shared electronic access to all application materials. Paper admission file folders are a thing of the past, and substantial savings has been realized because staff in the Admissions Office and at the branch campuses no longer spend time tracking down "lost" folders or documents. Customer service staff members have immediate access to a student's virtual folder without interrupting processing. They are able to give informed and accurate answers to questions regarding a student's information or status. Other offices across campus, including Sports, Interschool Programs, and Multicultural Student Services, can also view and track a student's progress through the system. Advisors in academic departments can see or print transcripts and transfer credit reports themselves, eliminating the need to make and mail copies from the Admissions Office. Because the branch campuses are able to scan and index documents that they are received, they no longer need to fax, mail, or send application materials by courier.

1. Admissions application processing flow is triggered and monitored electronically, not by file folders passed from desk to desk, and office to office.
2. Permanent "file folders" for students who enrol are now maintained and available electronically, not created and transported to the vault in the Registrar's Office.
3. A complete history of actions taken on every student is kept automatically by the system.
4. There will be public cloud where all students' details and documents will reside and every institute will have its private cloud where they will transfer details from public cloud to their private cloud. So it will ensure **uniformity**.
5. Student can access their details and documents from anywhere no need to carry hard copies.
6. No need for verification again and again if done once from verification service.

Track - 5:

Student Presentation

Brief Summary	
Track-in-Charge	1) Seema Vishwakarma, Assistant Professor, Department of Information Technology (IT), VSIT 2) Mithila Satam, Assistant Professor, Department of Information Technology (IT), VSIT
Session Chair(s)	1) Dr. K. G. Dawani, Dean Academics, Oriental Institute of Management, Mumbai. 2) Dr. Hanif Lakdawala, Assistant Director, Akbar Peerbhoy College, Mumbai.
Best Paper Awarded	Title of the paper: Smart Garbage Collection
	Author: 1) Mitesh Naik, M.Sc (IT), Semester IV 2) Tanvi Javkar, M.Sc (IT), Semester IV

Smart Garbage Collection

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ABSTRACT

Missed Garbage collection is a common metropolitan problem. This paper proposes IoT (Internet of things) based embedded device which will detect garbage level in the bin. A notification will be sent to municipal workers for the collection of garbage using android application.

INTRODUCTION

It is estimated that every resident in the metropolis now generates about 630 grams of waste daily, a figure that is expected to touch 1 kg in the coming years. Everyday municipality collects the garbage from all the respective areas and take it to the dumping ground. Sometimes due to some reason the municipal vans miss on collecting the waste from the bins. Overflow of garbage from bins is a common metropolitan problem that occurs due to missed collection. To overcome these problems, this paper is proposed with IoT (Internet of things) based embedded device which will detect garbage level in the bin and when it reaches the maximum level, a notification will be sent to municipal workers for the collection of garbage using android application. The model prepared currently is wired thus it has its own drawbacks. We are working on the wireless model so that the limitations can be reduced.

INSPIRATION

Garbage overflowing from bins is a common metropolitan problem that occurs due to missed collection. When the decomposed garbage is left in open for several days, human beings and animals both get prone to diseases. We have noticed that there are many diseases that are developing off late. Due to waste left open in the environment, Mosquitos and flies breed on it and they carry these germs to the nearby areas. Some of the diseases like **Malaria**- a disease spread by mosquitoes, **Typhoid**- a waterborne disease. The garbage in the area is a good breeding ground for flies. The flies can then carry the disease and infect more people. **Dysentery**- a disease that can cause severe diarrhea, **Cholera**- a disease that causes diarrhea. Cholera is a waterborne disease that can be dangerous to everyone that lives in an unsensitised environment.

Keywords: *Health care, garbage control, Cleanliness.*

TODAY'S SCENARIO

Waste management and disposal issues are not just problem of a certain country or a continent. It is a global issue which should be addressed immediately. Countries and governments are expressing concern over problems with their waste disposal. [3] Taking an example of the current scenario in Mumbai, both dumping grounds at Deonar and Mulund having reached their saturation point. The BMC has decided to install mini-composting plants in some of its gardens to help reduce about 200-300 metric tonnes from the garbage generated every day. The process of dumping the garbage is each day all the garbage is collected by people at one place. The municipality van collects the garbage and takes to the dumping ground. Sometimes due to some circumstances the garbage collection is missed and this can be a very big issue. The garbage bin overflows in the next half of the day because tons of garbage is disposed in one day. If the garbage overflows and stays for a long time it might create health issues to people as there is a possibility of flies sitting on the garbage and carrying the germs to the places around this might affect the health of the people. Even mosquitoes can breed on them and

thus malaria and dengue can come into the picture. Due to flies sitting on it, water borne diseases can be caused to humans as flies might hover over the food and place germs on it. Animals might eat from the dustbin and might fall sick. All these are the possible issues that might come up.

GENERAL SOLUTION TO SUCH PROBLEMS

1. People can call on the municipal helplines to file a complaint about the piled up garbage.
2. Safety measures can be taken to avoid the flies from entering into the house by keeping the windows closed all the time or putting the nets on the windows.
3. Precautions can be taken to avoid Mosquitoes from entering the house by using mosquito repellent products available in the market.

But these can't be the complete solutions to the problems. How much ever you try flies can't be stopped from coming inside the house. The only permanent solution is to stop the accumulation of garbage for more than one day and let it decompose. We have tried to overcome this problem by suggesting this smart garbage collection technique.

OUR WORK

Once the garbage will be at the level of filling the sensor will sense it and the municipal authority will be notified with the location where they need to reach and clear the garbage that is about to spill over the bin.

RELATED WORK

1. In UK there's a portal named as leeds.gov.uk on which people can file a complaint about missed collection of garbage and garbage overflow of the bins. The drawback faced by it is that if nobody files a complaint there will be no action taken over it and the garbage would remain unnoticed creating hazardous effects on human and animal life. [6]
2. A stationary automatic waste collection system consists of a branched pipe system with inlets and a terminal to which the refuse is transported by means of fans. At the terminal, the air is separated out from the refuse, which is then stored in a container for transport on to recycling, incineration, composting or landfill.[9]

SCOPE OF DEVELOPMENT & FUTURE WORK

1. The sensors that are available in the market are not proficient of giving accurate readings. Improved sensors can be used.
2. Wired connection is a problem, if some wire gets disconnected the whole system will stop working thus wireless system can be made.

CONCLUSION

This system is proposed in the interest of people's health to keep them away from health issues caused by accumulation and decomposition of garbage. The city will also remain clean. Street animals will also be protected from eating the garbage that gets spilled due to overflowing of the bin.

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E-Health

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ABSTRACT

The Internet and related digital technologies have spawned the burgeoning growth of an information revolution in health care. The application of information technology (IT) to issues of healthcare delivery has had a long and tortuous history. Within the field of ehealth, applications of advanced computing techniques, such as applications in artificial intelligence or expert systems, have languished in spite of a track record of scholarly publication and decisional accuracy. The problem is one of purpose, of asking the right questions for the science to solve. Historically, many computer science pioneers have been tempted to ask “what can the **computer** do?” New advances in eHealth are prompting developers to ask “what can **people** do?” How can eHealth take part in national goals for healthcare reform to empower relationships between healthcare professionals and patients, healthcare teams and families, and hospitals and communities to improve health equitably throughout the population? To do this, eHealth provider must combine best evidence from the user sciences (human factors engineering, human–computer interaction, psychology, and usability) with best evidence in medicine to create transformational improvements in the quality of care that medicine offers. These improvements should follow recommendations from the Institute of Medicine to create a healthcare system that is safe, effective (evidence based), patient centered, and timely. Relying on the eHealth researcher’s intuitive grasp of systems issues, improvements should be made with considerations of users and beneficiaries at the individual (patient–physician), group (family–staff), community, and broad environmental levels.

Keywords: *ehealth, computer interaction, usability, Artificial Intelligence(AI)*

INTRODUCTION

Since the early 1950s, computer technologies have been used to gather, manage, and disseminate health information. The development of microcomputer processing in the 1970s and its subsequent exponential increase in speed and memory, together with the proliferation of electronic network infrastructures to transmit large amounts of data (e.g., Internet, intranets, electronic medical records, telecommunication networks), have created ever-expanding opportunities to assess and deliver health information to individuals, groups, and populations. Computer technologies also have created extraordinary opportunities for real-time assessments of physiology (e.g., ambulatory heart rate monitoring, galvanic skin response); health behaviors (e.g., accelerometry); and self-reports (e.g., personal digital assistants [PDAs] that capture stress levels, diet, medication use) in the real-world and to deliver individualized information in response. In addition, interventionists can use the rapidly expanding palette of technologic capabilities to deliver evidence-based programs through the Internet in ways that are both individualized and cost-effective. There is evidence that behavior change programs delivered via the Internet, using data provided by users, can be highly effective.

The term eHealth is widely used by many individuals, academic institutions, professional bodies and funding organizations. It has become an accepted neologism despite the lack of an agreed-upon clear or precise definition. We believe that communication among the many individuals and organizations that use the term could be improved by comprehensive data about the range of meanings encompassed by the term.

Yet, in spite of a surge of technologic capability, the corresponding research and evaluation methodologies have not kept pace with the rapid evolution and proliferation of health information and communication technologies. Nor has the dissemination of effective eHealth interventions achieved the level of penetration one might have hoped, given the number of people who now possess access to the Internet.

OBJECTIVE

To report the results of a systematic review of eHealth research.

The Critical Issues in Ehealth Research Symposium:

In June 2005, the National Institutes of Health (NIH) convened a scientific conference to provide an interdisciplinary forum to discuss major theoretical and methodological issues in eHealth research. Prompted by the collective recognition that research methods should evolve along with advances in health information technologies, the conference convened government scientists, academic researchers from a variety of disciplines, computer engineers, patient advocates, and practitioners from the private and public sectors to examine the complex eHealth research issues related to the intersection among health science, communication technology, and research methodology. The conference was co-sponsored by these divisions of NIH: National Cancer Institute, National Institute on Drug Abuse, National Institute of Mental Health, National Library of Medicine, Office of Behavioral and Social Sciences Research, and the Office of Disease Prevention, as well as the Health e-Technologies Initiative (a national program office of the Robert Wood Johnson Foundation).

It identified and explored areas of congruence and controversy related to the development, evaluation, and dissemination of eHealth research and the products of this research. Scientists also discussed the interdisciplinary crossroads that lay the foundation for health applications of information and communication technologies, focusing particularly on the juncture among behavioral science, basic biomedical science, computer engineering, and the information sciences.

Use of the Internet in health research received extensive attention at the inaugural *Critical Issues in eHealth Research* conference for good reason. Public adoption of the Internet soared from a mere 15% of people in 1995 to an estimated 75% of people in 2006, with more than 70 million adults going online to use the Internet each day. As more Americans are online, they rely on the Internet for important health information. A 2005 report from the Pew Foundation estimates that 80% of Internet users have searched online for health information at some point in their lives, and a large percentage of “health seekers” say the resources they find on the web have a direct effect on the decisions they make about their health care and on their interactions with doctors. Use of the Internet by Americans is just the tip of the iceberg, with projections for global use reflecting a true transformation in the ways in which governments address public health issues, businesses pursue economic opportunity, and individuals lead their lives.

With respect to disease prevention and control, increased use of the Internet can facilitate: information acquisition; tailored dissemination of health information; academic, commercial and governmental collaborations; the adoption of healthy lifestyles, such as changes in diet, physical activity, weight, and smoking detection and treatment of disease and community outreach.

We try to highlight general research opportunities and challenges facing eHealth research and emphasizes the need to “promote adherence to the highest standards of research design and methodologic rigor to improve the overall quality of eHealth research.. Diverse definitions of “eHealth” have been advanced, with little consensus. For purposes of the conference, eHealth research was defined broadly as use of health information and communication technologies (e.g., Internet, personal digital assistants, digital cell phones, accelerometers, personalized/electronic health records, electronic medical records, CD-ROM) to assess, monitor, and improve health within a research context.

We also try to highlights the importance of theory in the development of eHealth research.

There are potential errors in eHealth research and health care can be reduced and/or avoided and program effectiveness maximized by incorporating users’ perspectives (how individuals interact with technologies and healthcare systems) into eHealth research and intervention design. They offer an ecologic conceptual framework that depicts the multi-level nature

of the healthcare environment and suggest that eHealth programs consider the goals of users and health systems. Further, they highlight some of the gains that could be achieved in development of user-centered eHealth interventions. Such approaches would transcend focus groups and other formative research methods traditionally used in health behavior research. Instead, the designs of interventions and tools would be guided by patients' and physicians' needs rather than by a priori or imposed models of need. Increasingly, the value of this approach is appreciated in the business sector.

We should be bothered also one of the key threats to the validity and generalizability of eHealth research findings. Internet surveys can be done focusing on the relationship between visual design of Internet surveys and measurement error. Guidelines for Internet survey design are provided to increase standardization of surveys and reduce measurement error.

Consider the methodologic challenges of a separate eHealth research tradition, namely electronic health records (EHRs; also referred to as electronic medical records [EMRs]). In contrast to the Internet, EHRs have not been as readily adopted by medical practices and health systems as their apparent utility might lead us to expect. Unique methodological challenges face evaluation of EHRs. We observe that traditional randomized controlled research designs may not be feasible in research using EHRs, and they discuss alternative research designs. For us of the multiple levels of the healthcare system and the human-computer interface are vital to obtain reliable and valid health information.

There are two novel methods for developing and evaluating eHealth interventions. The methods proposed, based on randomized experiments, provide researchers ways to maximize and tailor behavioral interventions using the richness of electronic data. Moreover, the methods which parallel trends in the evaluation of clinical trials, are aimed at getting research answers more expeditiously and efficiently. These innovative methods take advantage of the extensive data that can readily be collected in eHealth research.

Extends the discussion of eHealth research beyond assessment and intervention to research dissemination. The concept of practical eHealth trials is offered in which study representation, research settings, alternative comparison groups, and relevant stakeholder outcomes all are considered in an effort to maximize balance between internal validity and generalizability of eHealth study results. provides research recommendations and a discussion about the RE-AIM dissemination model as potential strategies by which to extend eHealth research into real-world practice. Consideration of how to disseminate effective eHealth interventions is critical since it is clear from other health domains that dissemination usually falls short of its potential. Because of the possibility of scaling eHealth interventions for dissemination to many millions of people, it is critical that we understand how to achieve dissemination of effective eHealth interventions that is appropriate and efficacious, not just pervasive.

Common themes among the various surveys in this special issue include the importance of examining sample representation, tailoring information according to users' needs and characteristics, considering multiple levels of analyses (e.g., individual, dyad, environment, policy, systems), and using theoretical models/research questions to guide the development of study designs. In addition, eHealth research among at-risk and underserved populations, health disparities, digital divide, privacy/informed consent, and economic issues were present.

CONCLUSIONS

eHealth research is at an early stage of development.,represent notable benchmarks that future eHealth research studies can reference. eHealth research and the information collected from such research is complex. If designed, developed, and employed optimally, eHealth applications have the potential to bridge health disparities, facilitate analysis of population level data to enable tailoring of healthcare delivery, and speed the translation of discoveries into practice advances that parallel revolutionary developments in biomedical science in the form of molecular targeting of drugs and the mapping of the human genomes.

Like other biomedical advances, eHealth applications have the potential for both benefits and harms. The latter include the potential to endanger patient privacy, increase health disparities, lead patients away from effective treatments and widen the digital divide. The latent power of this burgeoning medium requires researchers from different sectors (industry, government, and academia) to collaborate on how best to harness the technical capabilities of emerging information technologies to support the social and cultural realities in which people work and live, while enhancing the system's ability to address the health needs of individuals. Only in this way will research methodologies emerge that effectively support, guide and direct these applications. In a global world in which national boundaries no longer constrain information flow, it behooves us to use all the tools at our command to improve health across the world. Increasingly, eHealth tools are an important part of the arsenal for improving population health. Finally, over the years, considerable concern has been raised about the possibility that computers will eclipse

We should also heed the caution articulated by Crounse in his commentary that: **“all too often our methodology falls back on that which we know and have always done before....But we must...not dig in our heels, resist change and continue to conduct business as we’ve always done so before just because it suits our comfort level. Others around the world will not indulge in, or tolerate that luxury.”**

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Fire Fighting Robot

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ABSTRACT:

In the forthcoming years firefighting robots will be a boon. These robots will extinguish fires in those areas where human intervention is not possible. Such robots are specifically designed to deal in war effected areas. These robots detect fire by specialized flame sensors and in response flush out a flow of water until the fire extinguishers. It is a robot that autonomously detect and extinguish fire. It use flame sensor for detection and arduino board for processing. Fire extinguisher along with electronic valve (actuator) is used to extinguish the detected fire.

The robot rotates while actively scanning for fire. This scanning is performed by sensors placed on the sides. When a fire is detected, it moves in the direction of fire and stops 30 cm in front of it and trigger the extinguisher to turn out the fire.

Keywords: *Flame sensor, arduinoboard, actuators, electronic valve,, trigger*

INTRODUCTION

The aim of the project is to make a robot which can follow a black strip on a white floor and can extinguish the fire on the path. The robot can be used in the rescue operation. Thus the robot can act as a path guider in normal case and as a fire extinguisher in emergency.

Flame sensor modules do not cost much, and the efficiently detect flame.

Keyes flame sensor module is used for this project which has a sensitivity adjustment pot. It has a positive supply pin, which must be provided with a +5v supply. GND pin must be grounded. This module provides both analog as well as digital outputs. Only digital output is used in this project.

Design Specifications

1. For proper functioning of the robot needs a voltage supply of about 5.3V and current about 0.7A.
2. The robot should be able to distinguish between the white and the black surface.
3. If the black surface suddenly ends, the robot should keep on moving in the direction it last moved until the black line is again there.
4. It should stop and extinguish fire and restart only after making sure that the fire has been extinguished.
5. This could not be run using the dry cells because of the current requirement.

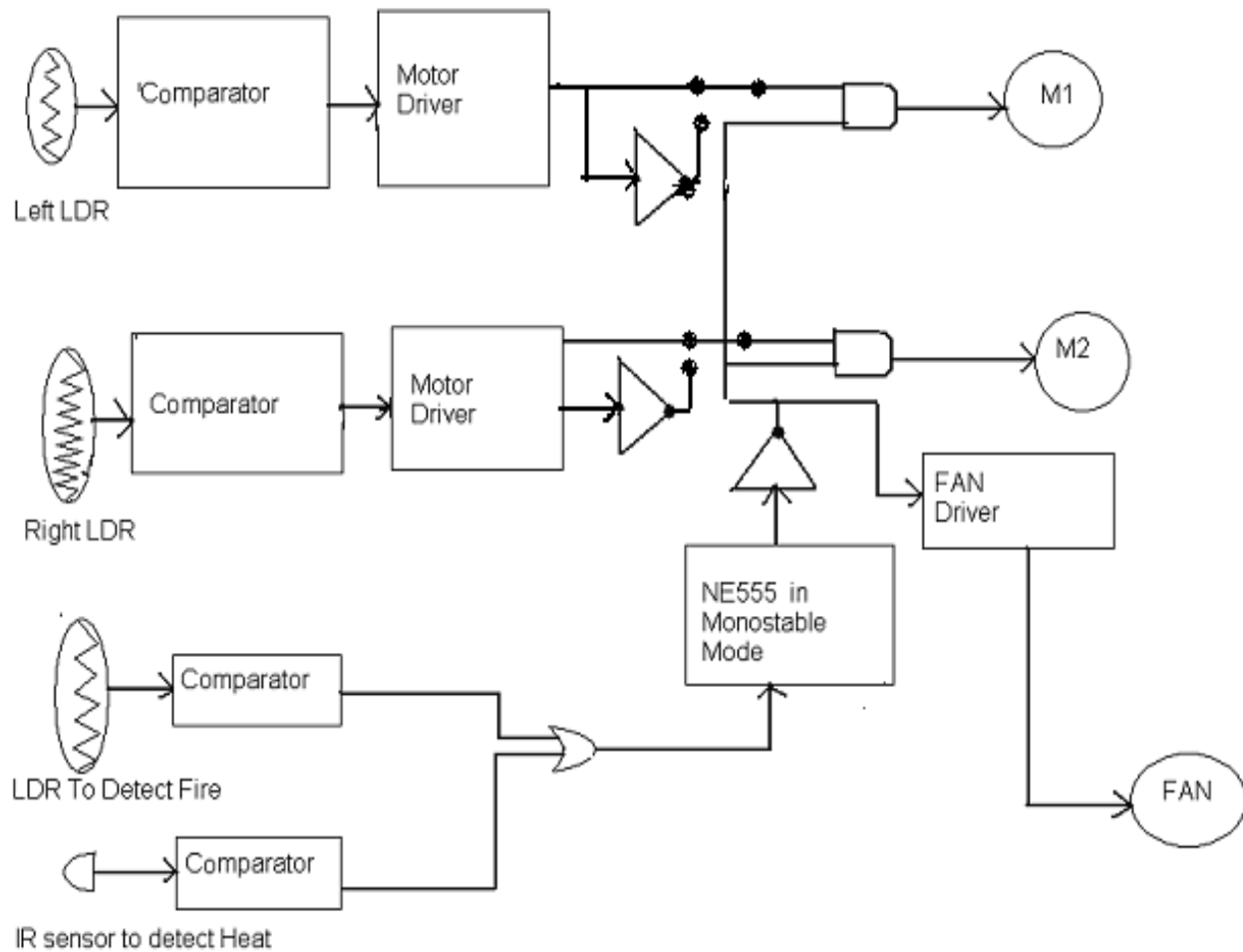
Material Required

The component list for making the robot is as follows:-

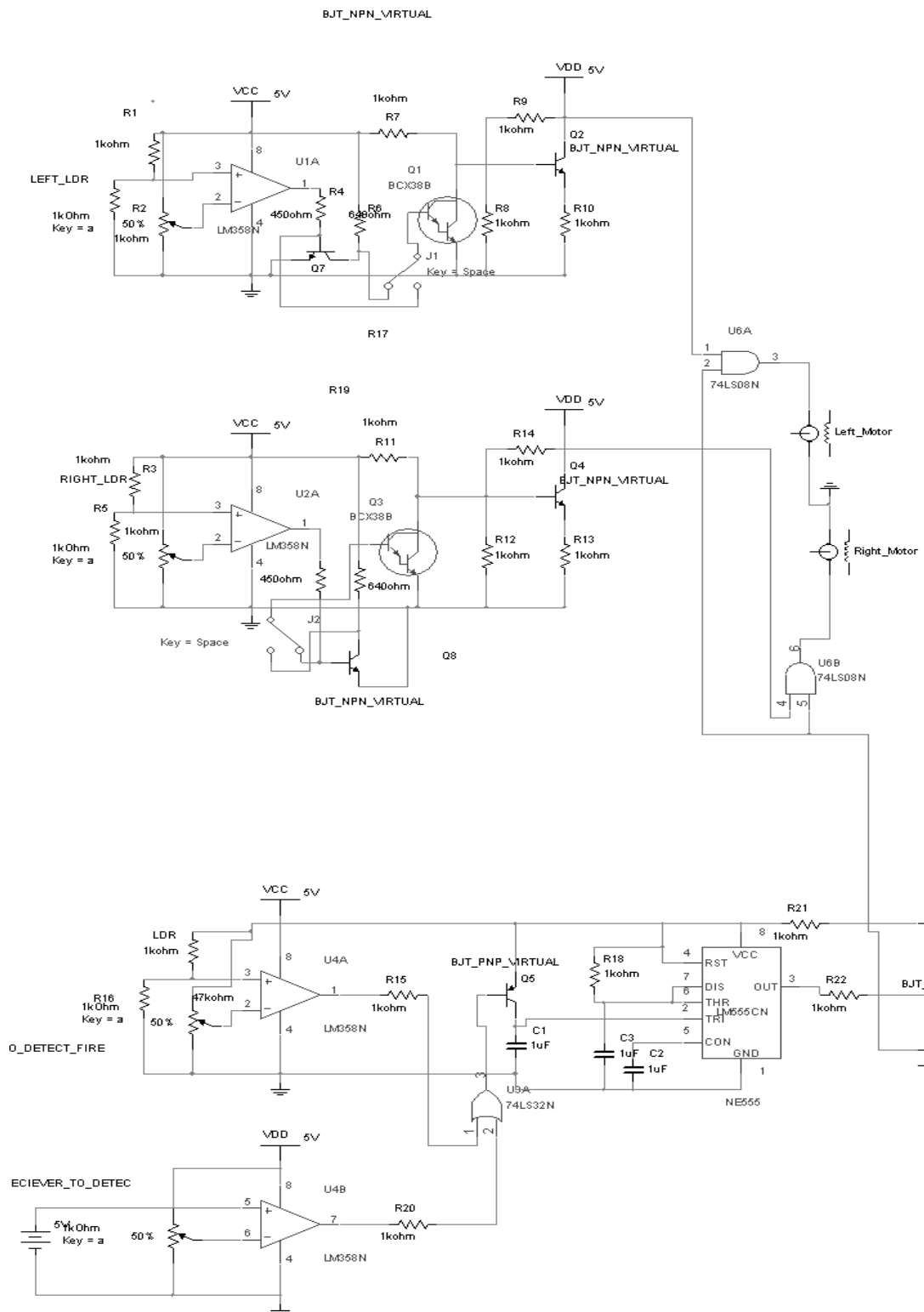
S.No	Material Required	Description	Quantity
1	LM358	Dual Op-Amp	3
2	NE555	Timer	1
3	SL100	NPN transistor	8

4	SK100	PNP transistor	1
5	7408	AND IC	1
6	7432	OR IC	1
7	Vector Board		1
8	DC motors		3
9	LDR	(Light dependent resistance)	3
10	IR Receiver	(for heat)	1
11	32C	Power NPN transistor	2

Block Diagram



Circuit Diagram



Working of the Robot

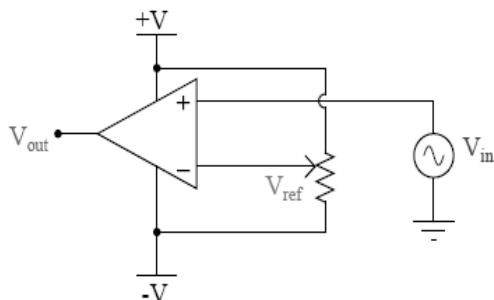
The circuit implemented consists mainly of two different sub-circuits.

The first part comprises of making the robot follow a black strip. This was done using a comparator circuit using the LDR whose reference voltage was fixed using the potentiometer. This was based on the phenomenon that the resistance of the LDR decreases as the intensity of light falling on it increases. In our case, the light reflected from the white surface is more than that from the black surface. Therefore, the voltage in positive terminal of the comparator remains high as long as the robot is moving on white surface. If the black surface come under one of the two LDR's the motor corresponding to that LDR stops, the other making it move away from the black line. But as the other LDR crosses the black line, its motor stops, the other forcing it in other direction, resulting in its following the black line. Thus ,the output voltage of the Op-Amp has been varied according to the need, but the current flowing through the output of Op-Amp is in some mA .Thus there was need for current amplification. The Darlington -pair was used for the same. The resistance of the motor was 5-10 ohms, thus source follower circuit was used.

The second part comprised of using LDR's and IR-receivers to detect flame .The dual Op-Amp LM358 was used for the same. The two comparator circuits were used .For LDR, the working was same, but for IR receiver the voltage and not the resistance vary according to the intensity of light. Thus the two ends of IR-receiver were connected to ground and positive terminal of the comparator .The output of these two were ORed and given to a monostable 555 timer with time period of 4 sec. 555 was used because when the robot sees the fire ,the fan starts and the motors stop but when fan starts the intensity of light decreases and hence the two motors start again and there is a chance that the motor starts before the fire is extinguished .The 555 helps in generating a high pulse of about 4 seconds which will remain high and will not depend on the intensity of light for the same duration .Thus , this will make sure that the fire is extinguished before moving ahead. Once the fire is extinguished it will retain its original motion.

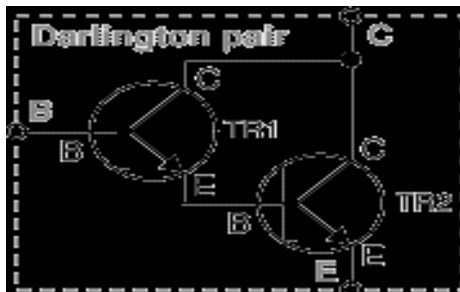
The individual working of each of the sub-circuits is given below:-

1. Comparator Circuit:-



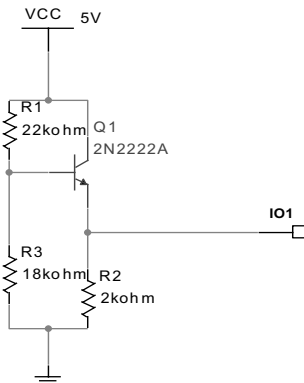
V_{out} is high for V_{in} greater than V_{ref} and is low for V_{in} less than V_{ref} .

2. Darlington Pair :-



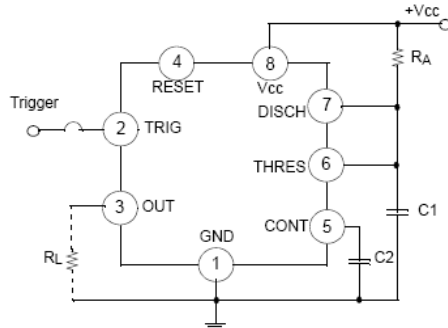
A darlington pair behaves as a single transistor with current gain equal to product of current gain of two transistors.

3. Source Follower:-



The source follower is used to avoid voltage drop due to low output impedance. It supplies the same amount of voltage and current but can drive low resistance devices.

4. Mono-stable NE555:-

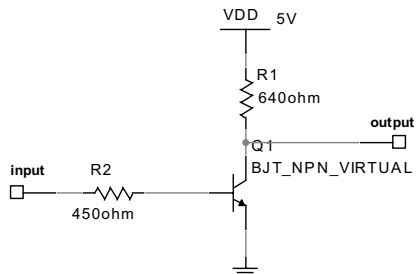


Here the popular 555 timing IC, is wired as a mono stable. The timing period is precise and equivalent to :-

$$W = 1.1 \times R_1 \times C_1$$

With component values shown this works out at approximately 1.1msec. The output duration is independent of the input trigger pulse, and the output from the 555 is buffered and can directly interface to CMOS or TTL IC's, providing that the supply voltages match that of the logic family.

5. Not using NPN transistor:-



Limitation and Suggestions/strategies:

1. First we used 741 for the comparator circuit but the output of the comparator was around 4.5V when high and 1.8 V when low. The AND IC used considered this as a logic high and hence the circuit did not work according to the logic. LM-358 was used to overcome the difficulty. Its logic high is 3.8V and logic low is 0V.

2. The output of the comparator gives very less output current which cannot drive the motor. Thus, the Darlington pair was used to increase the current.
3. The current gain of different SL100 transistors used varied from 100 to 750 .Thus number of transistors used in the Darlington circuit were 3 on one side and four on the other.
4. The output impedance of the motor is few ohms. Thus to run the motor one required a source follower circuit.
5. Though the line follower began to work, the current flowing through SL100 of the source follower circuit exceeded the maximum limit. Thus, SL100 had to be replaced by 32C.
6. The fire extinguishing part of the robot also faced the problem. The robot used the fan to extinguish the fire. The intensity of light and heat governed the speed of the fan. But as the fan tried to extinguish the fire, the intensity of light decreased and hence the robot started to move without extinguishing the fire. The mono-stable 555 was used to solve this problem .It made the fan to rotate for a fixed duration without depending on intensity of light for a fixed duration after which it continued on its path.
7. The main problem which could not be overcome was that it could not be driven by batteries. The power requirement of the circuit could not be received using the batteries.
8. Selecting the best chassis was a time consuming process.

Applications:

1. The robot can be used as a guider to guide the visitors from the entrance to the main office .
2. It can help doctors to carry the medicines from one ward to another .
3. The main purpose is to rescue the people by extinguishing fire in a building .

Future Extensions:

In the present condition it can extinguish fire only in the way and not in all the rooms. It can be extended to a real fire extinguisher by replacing the fan by a carbon-di-oxide carrier and by making it to extinguish fires of all the room using microprogramming. Also the robot could not be run through the batteries because at some conditions the current requirement for the circuit rises to about .8A which is very high and cannot be obtained using batteries.

CONCLUSIONS

1. The first working robot was in itself a great pleasure and satisfaction.
2. We learnt the implementation of the big circuit using the basic small circuits.
3. The step wise execution of the circuit helps to reach the goal quickly and more accurately.
4. The team work is the most important thing we learnt.
5. Never lose hope.
6. There is a huge difference between the theoretical and the practical world
7. We learnt to work under the supervision and guidelines of our professors.

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Renewable Energy Resources – A Smart Idea for Sustainable Business Model

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ABSTRACT

We all are aware of the fact that nowadays there is a need to use more of Renewable energy resources than that of the Non-renewable energy resources, exhaustible resources. Today the sources i.e the non-renewable energy resources through which we obtain the energy are on the edge of getting extinct. This is the need of the hour that we take a step towards using Renewable Energy resources. This is a survey conducted by us to know what are approximately the opinions of businessman of present world, about the access of renewable resources in business. Through this research we can discover what the efforts are taken by businessmen to promote renewable energy. Also we can know that today's businessman gives importance to profit earning or take a small step to save the environment.

Keywords: - *profit-earnings, renewable energy, exhaustible energy, businessmen, environment.*

OBJECTIVES:-

- 1) To find out how many companies are using renewable energy resources for the growth of the business.
- 2) To study the benefits and failures, companies may face while using renewable energy resources.
- 3) To make people aware about the benefits & usage of renewable energy resources.
- 4) To built ongoing monitoring and evaluation of the company's status by survey.

RESEARCH METHODOLOGY:-

- ❖ Our survey was conducted using primary data.
- ❖ We had used an online survey method.
- ❖ Basically we targeted business-related people & tried to know their point of view.
- ❖ We got total 75 respondents to our online survey.
- ❖ We also tried to consider the employees opinions regarding use of renewable energy resources along with the businessman.

HYPOTHESIS:-

- ❖ Hypothesis 1
H0 : The private companies use more of renewable energy resources.
H1 : The public companies use more of renewable energy resources.
- ❖ Hypothesis 2
H0 : Due to use of renewable energy resources, companies earning capacity gets reduced.
H1: Due to use of renewable energy resources, companies earning capacity increases.

INTRODUCTION

- ❖ The use of renewable energy resources such as solar, wind and hydraulic energy is very old; they have been used since many centuries before our time and their applications continued throughout history until the ‘Industrial Evolution’; at times, due to the low price of petroleum they were abandoned.
- ❖ But in recent years, a growing number of companies are adopting various renewable energy resources due to increase in the prices of fossil fuels and the environmental problems caused by the use of conventional fuels.
- ❖ With this effect, we can now protect & prevent the environment from getting polluted because of the waste materials released from the companies which can eventually lead to a pollution free & Sustainable Business Model.

DATA ANALYSIS:-

ACCORDING TO YOU, IS SWITCHING TO RENEWABLE ENERGY A SMART BUSINESS DECISION?

Answer Choices–	Responses–
– Yes	78.26% 54
– No	5.80% 4
– Maybe	15.94% 11
– Can't say	0.00% 0
Total	69

Can use of Renewable Energy affect the organisation's profit-earnings?

Answer Choices–	Responses–
– Yes	60.87% 42
– No	15.94% 11
– Maybe	23.19% 16
Total	69

Will use of Renewable Energy make our country economically powerful, since-?

Answer Choices–	Responses –
– No imports of fuels would be made	75.76% 50
– No, there would be no effect on country's economy	24.24% 16
Total	66

What should an organisation do, if their profit-earnings decrease due to use of Renewable Energy?

Answer Choices–	Responses–
– Ignore profit factor to some extent and continue using Renewable Energy	77.94% 53
– Avoid using Renewable energy	22.06% 15
Total	68

Should our country's Government make more strict rules for business organisation to enhance use of Renewable Energy resources?

Answer Choices–	Responses–
– Yes	60.87% 42
– No	11.59% 8
– Maybe	27.54% 19
Total	69

Using Renewable Energy, organisations can help to save the environment and eventually their expenses–

Answer Choices–	Responses–
– Yes	95.65% 66
– No	4.35% 3
Total	69

Can use of Renewable Energy help a business to maintain their company's status as a carbon neutral company?

Answer Choices–	Responses–
– Yes	60.87% 42
– No	0.00% 0
– Maybe	39.13% 27
Total	69

According to you, which company uses more of Renewable Energy?

Answer Choices–	Responses–
–	53.62%
Public company	37
–	46.38%
Private company	32
Total	69

How can Renewable Energy help in development of masses?

- 1) Renewable energy sources will be an important factor in reducing carbon emissions and mitigating the destructive effects of climate change.
- 2) Environment needs human to take care of it, since we are spoiling it...
- 3) It will help to save more resources
- 4) It will reduce the energy consumption to some extents.
- 5) It starts with implementing them at industrial level
- 6) By using resources which can be recycled several times
- 7) Renewable energy the energy can be used again and again instead of using non renewable energy which can also not affect the environment and help us to keep the environment global.
- 8) HELP to develop electricity or help to create free pollution state
- 9) It surely can. Using more renewable energy can decrease other barrier in environment like pollution etc.
- 10) By effective use like green house system
- 11) Mostly I can say is that it will help to keep nature and surrounding pollution free and can help from lacking energy
- 12) Would reduce the expenses and hence there would be development
- 13) It will cut the cost of fuels and help in the development of the country.
- 14) Help to produce electricity at our home state with solar energy
- 15) If we use renewable energy then we are saving our energy for future and for development for people and if energy is over used then one time will come when we will have lost our all resource so use more and more natural energy for example sunlight, hydroelectric power
- 16) It can provide fuel for our future gen.
- 17) Renewable energy involves invention of new fuel from the waste of existing ones.
- 18) The sun's rays supply an abundant amount of solar energy, which can be converted into electricity or heat. It has many benefits: Solar energy is free and does not add to the production of global greenhouse, acid rain, Also, the cost of solar energy technology has been decreasing significantly as the technology and market mature globally and within Massachusetts
- 19) By making people aware through advertisement i.e. by TV

What steps can be taken by a company to contribute to the Sustainable Renewable Energy?

- 1) Must use smoke absorbers in blast fumes.
- 2) Don't know
- 3) Use solar system wind, geothermal and hydro electricity can be used instead of thermal energy as a start
- 4) Strictly renewable energy should be used
- 5) All companies should shift from using fuel based technologies to using renewable energy. It saves a lot of money, time & is also effective.

TESTING OF HYPOTHESIS:-

❖ Hypothesis 1

H_0 : The private companies use more of renewable energy resources.

H_1 : The public companies use more of renewable energy resources.

Through the survey conducted, we can say that our H_1 hypothesis is accepted.

❖ Hypothesis 2

H_0 : Due to use of renewable energy resources, companies earning capacity gets reduced.

H_1 : Due to use of renewable energy resources, companies earning capacity increases.

Through the survey, we can say that 60% respondents have the opinion that company's earning capacity gets increased & 40% respondents have the opinion that company's earning capacity gets diminished.

SUGGESTIONS:-

- ❖ Through the research on the topic, we can suggest that the use of renewable energy resources should be encouraged more & more.
- ❖ Though the profit-earnings of organizations would be affected, but the organisation should ignore profit-earning factor & use renewable energy resources.
- ❖ Also the Government should make more strict rules for all organizations to quit non-renewable energy & use renewable energy.
- ❖ Through increasing the use of renewable energy resources even the employment opportunities for the masses in our country could be increased.

CONCLUSION

- ❖ Switching to renewable energy resources, a smart business decision.
- ❖ The use of renewable energy affects the organisation's profit-earnings.
- ❖ There would be no effect on country's economy with the use of renewable energy resources.
- ❖ It spreads the message throughout the country to make use of renewable energy resources to adopt pollution free business.

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Smart Health Care Web App

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ABSTRACT

The people in today's world rush to the hospitals even if there is a minor issue with their health. The situation in our environment is getting worst day by day as the germs are getting stronger with time. The dispensaries and hospitals are crowded 24 by 7. Thus there are difficulties faced by the hospitals to maintain the record of 1000 of patients visiting every day. Doctors need to know the history of the patients in order to give them treatment. It is humanly impossible to keep in mind the background of the treatment of each and every patient. Even when there are hardcopies of the reports the patients might forget to get them, many such issues are faced in the treatment phase. It is estimated that, in hospitals not only doctors faces the problems but also patients face them. Some of the common problems faced by the patients are waiting in the queue for long time to get appointments, unavailability of doctors, overview of the treatment given to the patients that would help the relatives and patients themselves to understand how are they treated, total list of prescribed medicines, collection of prescribed reports, payment details of hospital bills are to be maintained by patients. Some problems that Doctors faces are, which treatment work effectively on patient, the medical history i.e. reports of patients, fees details etc. To overcome these problems I introduced this web app for Doctors, Lab Assistant & mainly for patients who would get updates of their ongoing treatment using this web site. This web site also has features similar to a mobile app which alerts the user by sending a notification even when the browser is closed and the account is logged in.

INTRODUCTION

In a hospital manual data entry is done, i.e. the hospitals maintain and update the details of the patients. It is a time consuming process and is much prone to human errors. These limitations are conquered by using the computerized Hospital management systems, mobile and web applications.

Hospital management systems are available in the hospitals which keep the track of all employee details, doctor's details, inventory details, patient's details etc. It helps the hospital to maintain all the records at one place. It keeps employees details, Doctors schedule, patient history, account details, Room availability and ward details etc, but the patient don't get the exact update of the information about their treatment, medical prescriptions & their medical reports which might create inconvenience for the patients .

There are some android apps available which can be used by doctors & Hospital staff to collect data of their patients, to track the patient's information in a summary, view the daily reports, online registration for appointment etc.

My focus is on the patients so they can get the best service from hospital & would get satisfied with the treatment. This is the reason why I proposed this "Smart Health Care Web Application" it is a web site which is not only helpful to doctors and Hospital staff but also helps the patient to know the treatment and get an update of all Lab reports and their payment details. Patients need not wait to generate a hard copy of the reports for the whole day, the reports information will directly be updated on the web site. Users will get all updates as notifications even if the browser is closed and they can easily view & manage these details according to their convenience using this web site.

EXISTING SYSTEM

There are many web sites and desktop applications for hospital management system for the betterment of hospital and patients. There are android app available which can be used by doctors and nurses to collect data of their patients to track patient's general information. [1], developed app for hospitals, which can be used by all the departments to managing the information about the patients. This app will be mainly used to view the daily reports. [2], app to link various hospitals across the country for Aadhaar based online registration and appointment system[3].

DRAWBACKS OF EXISTING SYSTEM

There is no web site available which provides mobile app features like desktop notification to the user to view & manage the all details rapidly. Patients do not get the exact updated information about their treatment, medical prescriptions & several medical reports which might lead to slowing down of further treatment.

PROPOSED WORK

This Smart Health Care Web App will maintain detailed patient history of all IPD & OPD patients that can be viewed and edited by doctor [4]. Availability of doctors will be shown. Patient's relatives get to know the what exact treatment is given to the patient, all the medication, reports and payment details are updated on the web site by doctors, Lab Assistant and operator respectively.

The details are posted to the database in the form of "forms" which are simulations of various forms that might be found in a hospital to store data; each patient is given a unique "Registration-number "by the operator. At a later stage, when it is required to access the medical history of the patient, the registration number is entered and based on that, the database is searched and his entire record appears before the user (the doctors as well as patients). This fulfills first objective of acquitting the patients of the responsibility of securing their own records.

Patients need not to wait for various reports. It will be uploaded & updated by Lab Assistant on the Web site so it can be use for further treatment. Web site will give notification to the logged in user on desktop or on mobile even if browser is closed using Push Notifications System [5]. Patient can easily show the prescriptions list of medicines to the medical using this web app on any device simply opening the site on any browser.

A. Modules of the system

The entire system is divided into 6 major modules

- Administrator module
- Operator module
- Doctor module
- Lab assistant
- IPD module
- OPD module

Administrator Module:

Administrator maintains all the employee's details, doctor's details and patient's details. Logins of the doctors, lab assistant & operator are created by the admin.

Operator Module:

In the Operator Module OPD and IPD patient details and payment details are maintained. Logins of the OPD and IPD patients are created by the Operator & patients will get their login id & password on registered mobile number.

Doctor Module:

In the doctor Module Add medical treatment details of OPD and IPD patients are maintained. Doctors can easily keep track of all IPD & OPD patients and edit it as well.

Lab Assistant Module:

In the Lab Assistant Module Add Lab reports Details of OPD and IPD patient are maintained. Lab Assistant can easily update patient's records faster and keep it confidential.

IPD Module:

In the IPD Module IPD admission details, medical treatment details, Lab reports details and discharge patient details with payment details are viewed.

OPD Module:

In the OPD Module OPD details, medical treatment details, Lab reports details and payment details are viewed.

B. Objectives of the Proposed System

- To provide Mobile device features this is missing from web.
- To generate the quick reports & reduce the paper work
- To make accurate and efficient calculations
- To provide proper information briefly
- To maintain confidentiality of the patients data.
- To provide data security
- To maintain huge records
- Flexibility of transactions can be completed in time
- Doctors can view patient details whenever needed.
- To saves time and reduces human intervention.

C. Push notification System

The Push notification is the most important feature of this system Several web sites like eBay, Facebook, Product Hunt etc. offer push notification on both desktop & android applications. When visiting a site that supports notifications, user will receive a prompt message asking if you'd like to turn them on. When user does that the website can send the user a push notification whether the browser is open or not. User can manage those notifications in a settings screen within the Chrome browser. To implement Push notification HTML5 feature called a Service Worker is required. [6]

SCOPE OF DEVELOPMENT OF THE SYSTEM

- This Push notification cannot work in iOS.
- Does not contain medicinal stock details.

CONCLUSION

This system is proposed to overcome the drawbacks of the existing medical help Web applications. Using this web site user would get notification on their desktop about all updates done by Doctors, Lab Assistant & Operator. Even if the browser is closed notifications will still pop up to the user like any other mobile app. Patients and their relatives will be stress-free as they will have a rough idea of what treatment is been given to them and on what basis are their hospital bills generated. They will also have summary reports of their treatment in one place on the cloud if he is an IPD patient. It will completely focus on the patients ease.

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To Study the Economic Fluctuation in Floriculture Industry With Reference To Festival Seasons in Mumbai Region

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ABSTRACT

Floriculture is increasingly regarded as a viable diversification from the traditional field crops because of higher returns per unit area. Enormous genetic diversity, varied agro climatic conditions, versatile human resources offer India a unique scope for diversification in new avenues which were not explored to a greater extent. The area under flowers has crossed to 1.91 lakh hectares during 2011-12 which is concentrated mostly in Tamil Nadu, Andhra Pradesh, Maharashtra, West Bengal, Karnataka, Kerala, Himachal Pradesh and Uttarakhand.

The present study shows the fluctuation in floriculture industry with Mumbai region with reference Dadar Floral Market. The objectives of the study to understand the fluctuation in floral prices and how it will help the floriculture farmers to get benefited with better financial returns.

INTRODUCTION

Floriculture is increasingly regarded as a viable diversification from the traditional field crops because of higher returns per unit area. Though the art of growing flowers is not new to India, but large-scale commercial cultivation, protected cultivation is relatively new in India. Enormous genetic diversity, varied agro climatic conditions, versatile human resources offer India a unique scope for diversification in new avenues which were not explored to a greater extent. The area under flowers has crossed to 1.91 lakh hectares during 2011-12 which is concentrated mostly in Tamil Nadu, Andhra Pradesh, Maharashtra, West Bengal, Karnataka, Kerala, Himachal Pradesh and Uttarakhand.

Globally, more than 140 countries are involved in cultivation of floricultural crops. Flowers are intricately entwined in the social fabric of our nation and no function is complete without flowers. The domestic industry is growing at annual rate of 7-8% per annum.

The present study shows the fluctuation in floriculture industry with Mumbai region with reference Dadar Floral Market. The objectives of the study to understand the fluctuation in floral prices and how it will help the floriculture farmers to get benefited with better financial returns.

METHODOLOGY

For present study, survey method used at regular time intervals to understand the price fluctuations in floral market with special reference to festival seasons.

RESULTS

The present study shows following results :

Table 1

Hibiscus flower			
Sr no.	Date	Morning	Evening
1	08.08.2015	18	10
2	15.08.2015	10	10
3	05.09.2015	50	30

4	16.09.2015	18	10
5	Ganpati	50	40
6	Navratri	18	10
7	Dilwali	40	35

Graph 1

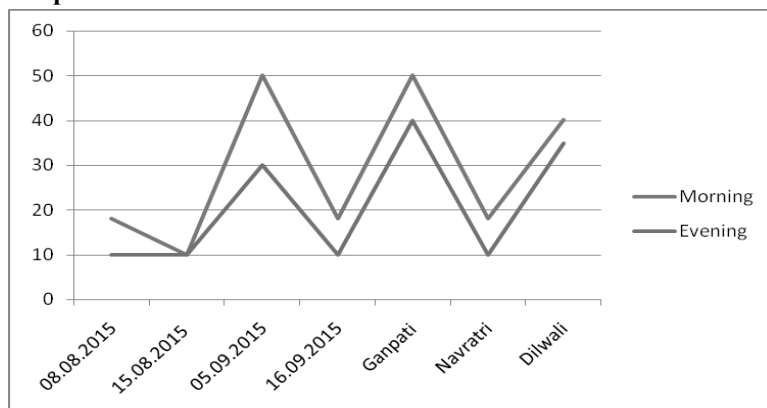


Table 2

Rose			
Sr no.	Date	Morning	Evening
1	08.08.2015	40	30
2	15.08.2015	80	60
3	05.09.2015	15	15
4	16.09.2015	30	30
5	Ganpati	60	60
6	Navratri	50	50
7	Diwali	50	50

Graph 2

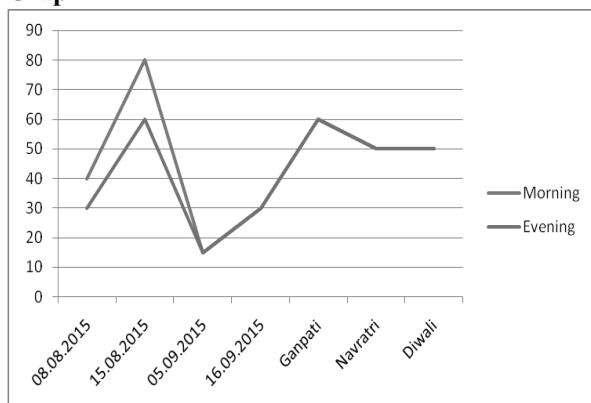


Table 3

Marigold			
Sr no.	Date	Morning	Evening
1	08.08.2015	40	30
2	15.08.2015	50	40
3	05.09.2015	40	150
4	16.09.2015	200	150
5	Ganpati	200	150
6	Navratri	100	80
7	Diwali	100	80

Graph 3

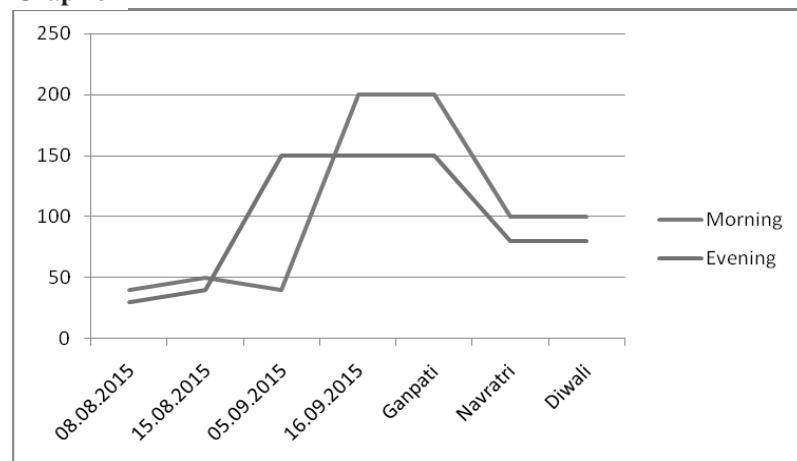


Table 4

Chrysanthemum			
Sr no.	Date	Morning	Evening
1	08.08.2015	60	50
2	15.08.2015	40	40
3	05.09.2015	30	25
4	16.09.2015	180	500
5	Ganpati	50	40
6	Navratri	200	200
7	Diwali	30	30

Graph 4

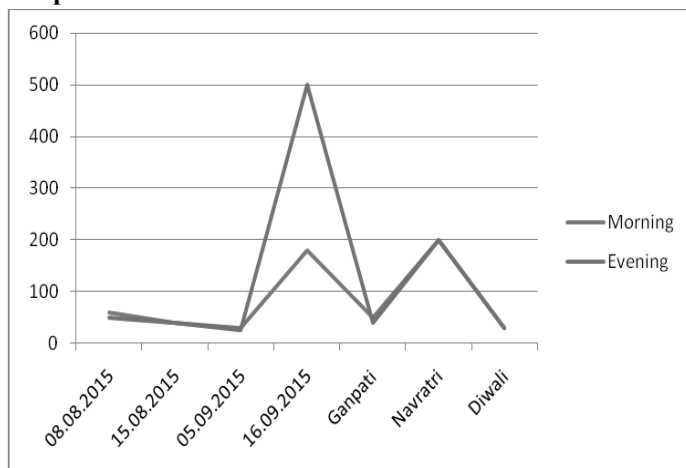
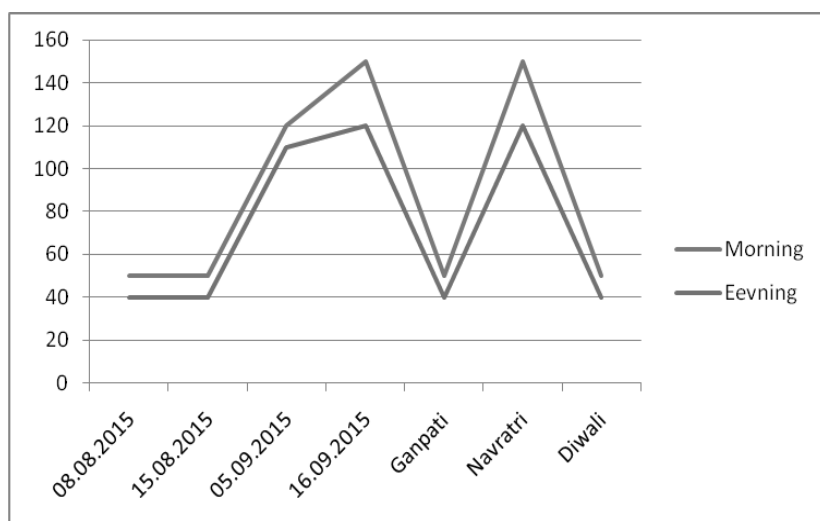


Table 5

Laxmi lotus			
Sr no.	Date	Morning	Evening
1	08.08.2015	50	40
2	15.08.2015	50	40
3	05.09.2015	120	110
4	16.09.2015	150	120
5	Ganpati	50	40
6	Navratri	150	120
7	Diwali	50	40

Graph 5



CONCLUSION

- Flowers which are used for decoration have high prices throughout the year
- There is hike seen in flower price such as Marigold during festival season.
- On non-festival days, there is no hike seen in flowers, they are available at normal rates.
- This shows that flowers which have higher demand are beneficial for the farmers to cultivate.
- The difference between the morning and evening price shows that as the flowers start losing their freshness, the price for the same falls.
- This result will help the farmers to know which flowers have greater demand and in which season.
- The law of demand says that when demand rises the price of goods also rises, applying this law here, when the demand for flowers rises in festival the price for the same also rises.
- Flowers used for traditional purpose showed increase in price on festival seasons.

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To Study the Growing Importance of E-Learning

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ABSTRACT

When it comes to online learning in education, the model has been pretty straightforward - up until the early 2000s, education was in a classroom of students with a teacher who led the process. Physical presence was a no-brainer, and any other type of learning was questionable at best. Then the internet happened, and the rest is history. Some of the most important developments in education have happened since the launch of the internet. These days learners are well versed in the use of smart phones, text messaging and using the internet so participating in and running an online course has become a simple affair. Message boards, social media and various other means of online communication allow learners to keep in touch and discuss course related matters, whilst providing for a sense of community. In this paper, we will be focusing on the concept of e-learning, its origin, the pros and cons of e-learning and how it has paved the way as a better medium for providing knowledge.

Keywords:- E-learning, internet, pros and cons of e-learning.

OBJECTIVES

- To find and understand the concept of e-learning.
- To observe and analyse the advantages of e-learning.
- To compare between the traditional/classroom learning and online/e-learning.
- To review and suggest certain possible solutions to make e-learning a better platform for learning.

RESEARCH METHODOLOGY

This paper consists of primary as well as secondary data.

- **PRIMARY DATA:** Primary data has been collected by conducting an online survey.
- **SECONDARY DATA:** Secondary data has been collected by using the internet.

INTRODUCTION

E-learning (also known as Electronic Learning) is a computer based educational tool or system that enables you to learn anywhere and at any time. Today e-learning is mostly delivered through the internet, although in the past it was delivered using a blend of computer-based methods like CD-ROM. Technology has advanced so much that the **geographical gap** is bridged with the use of tools that make you feel as if you are inside the classroom. E-learning offers the **ability to share material in all kinds of formats** such as videos, slideshows, word documents and PDFs. Conducting webinars (live online classes) and **communicating with professors via chat** and message forums are also an option available to users. There is a plethora of different e-learning systems (otherwise known as Learning Management Systems, or LMSs for short) and methods, which allow for courses to be delivered. With the right tool various processes can be automated such as the marking of tests or the creation of engaging content.

PROS AND CONS OF E-LEARNING:

One of the most longstanding debates in the field of education has been whether or not we can benefit from e-learning to actually learn.

SOME OF THE PROS AND CONS OF E-LEARNING ARE AS FOLLOWS:

PROS:

- **No Boundaries, No Restrictions:** In the case of face-to-face learning, the location limits attendance to a group of learners who have the ability to participate in the area, and in the case of time, it limits the crowd to those who can attend at a specific time. E-learning, on the other hand, facilitates learning without having to organize when and where everyone who is interested in a course can be present.
- **More Fun:** Designing a course in a way that makes it interactive and fun through the use of multimedia or the more recently developed methods of gamification (it is the use of game thinking and game mechanics in a non-game context to engage users and solve problems) enhances not only your engagement factor, but also the relative lifetime of the course material in question.
- **Cost Effective:** Exorbitant amounts of money at some point are spent to acquire updated versions of textbooks for school or college. Traditional learning is expensive, takes a long time and the results can vary. The importance of E-learning is now a given fact and it can offer an alternative that is much faster, cheaper and potentially better.

CONS:

- **Isolation:** Though e-learning offers ease, flexibility and the ability to remotely access a classroom in the student's own time, learners may feel a sense of isolation. This is because learning online is a solo act for the most part, which may give the learner the feeling that they are acting completely alone.
- **Health Related Concerns:** E-learning requires the use of a computer and other such devices; this means that eyestrain, bad posture and other physical problems may affect the learner.

RATIONALE

- 1) Traditional learning is expensive, takes a long time and the results can vary.
- 2) E-learning offers an alternative that is faster, cheaper and potentially better.
- 3) E-learning provides the learners with the ability to fit learning around their lifestyles, effectively allowing even the busiest person to further a career and gain new qualifications.
- 4) Developing nations can leverage e-learning for skills acquisition, something extremely important for countries that seek to increase competitiveness and employment, making them more attractive to foreign investments but also fostering a business and entrepreneurial culture adapted and catering to local needs.

HYPOTHESIS

Hypothesis is the assumption which is made by the researcher even before writing the paper.

H₀: There is scope of e-learning in India in present as well as in future.

DATA INTERPRETATION

Following are some of the questions which were answered by 24 respondents on e-learning:

- Do you think that e-learning is better than classroom learning?

YES	NO	MAYBE
18%	3%	3%

- Is e-learning cost effective and time saving?

COST EFFECTIVE	TIME SAVING	BOTH
4%	3%	17%

- Do you think that people in the rural areas can benefit through e-learning?

YES	NO	MAYBE
13%	5%	6%

- Learners can understand concepts better in classrooms than learning through computer videos? Do you agree?

YES	NO	MAYBE
11%	8%	5%

- Do you think that e-learning fails to impart values such as discipline, punctuality, etc among learners?

YES	NO	MAYBE
8%	4%	12%

- Do you think e-learning can boost our Indian education system?

YES	NO	MAYBE
18%	1%	5%

COMPARISON

TRADITIONAL LEARNING VS E- LEARNING

	TRADITIONAL LEARNING	E- LEARNING
1.Classroom Discussions	The teacher usually talks more than the student.	The student talks at least as much as or more than the teacher.
2. Learning Process	The learning is conducted with the whole class participating; there is almost no group or individual study.	Most of the learning process takes place in groups or by the individual student.
3. Subject Matter	The teacher conducts the lesson according to the study program and the existing curriculum.	The student participates in determining the subject matter; the studying is based on various sources of information, including web data banks and net-experts located by the student.
4. Teacher's Role	The teacher is the authority.	The teacher directs the student to the information.
5. Motivation.	The students' motivation is low, and the subject matter is "distant" from them.	The students' motivation is high due to the involvement in matters that are closer to them and to the use of technology.
6.Location of Learning	The learning takes place within the classroom and the school.	The learning takes place with no fixed location.

FINDINGS

- 18% of the respondents feel that e-learning is better than classroom learning.
- 17% of the respondents think that e-learning is both cost effective as well as time saving.
- 17% of the respondents think that information across the globe can be acquired through e-learning.
- 13% of the respondents think that people living in the rural areas can benefit from e-learning.
- 11% of the respondents think that learners can understand concepts better in classrooms than learning through computer videos.
- 12% of the respondents feel that e-learning may fail to impart certain values such as discipline and punctuality among learners.
- 18% of the respondents feel that learning through visuals is better than just listening to lectures.
- 12% of the respondents think that e-learning does not have an impact on our social life.
- 18% of the respondents feel that e-learning can boost our Indian education system.

TESTING OF HYPOTHESIS

Since there is scope of e-learning in India in present as well as in future. Therefore, our hypothesis (H_0) is accepted.

SCOPE

PRESENT/CURRENT SCENARIO: E-learning market in India is estimated to be around \$3 billion and it is growing. Take, for example, the massive open online course (MOOC) provider Coursera. Coursera is a hub for universities that choose to offer online classes through its platform for free. Already, companies and corporations spanning the globe accept certificates of completion of classes offered in Coursera as valid credits, as if they had been completed at the University of Origin. With one million users, India ties with China as its biggest source of online learners after its home base, the US. That the market expectations from this business model are robust can be gauged from the fact that the firm has raised \$49.5 million, coinciding with the US-based firm's plans to tap the Indian market to increase its user base. The UTV Group is in talks with top institutions such as IIMs, IITs and even globally to start these courses. A few months ago, IIT-Bombay launched three MOOCs.

FUTURE SCENARIO: E-learning is here to stay. As computer ownership grows across the globe e-learning becomes increasingly viable and accessible. Internet connection speeds are increasing, and with that, opportunities for more multimedia training methods arise. With the immense improvement of mobile networks in the past few years and the increase in telecommuting, taking all the awesome features of e-learning on the road is a reality with smart phones and other portable devices. Technologies such as social media are also transforming education constantly. Decreasing internet costs and access to cheaper, more sophisticated, computers and tablets, will only help in this regard. And the new, better educated generation that will emerge, will help bootstrap an even more advanced system for the next one.

CONCLUSIONS

- ❖ From this research paper, we can conclude that e-learning is better than classroom learning.
- ❖ E-learning is cost effective as well as time saving.
- ❖ It also bridges the geographical gap between the learners and knowledge.
- ❖ E-learning can also benefit the people living in the rural areas as they get deprived of quality education.
- ❖ Lastly, with the evolution of the internet, e-learning can be a boon for the people across the globe.

SUGGESTIONS

There are some suggestions/tips with regards for better e-learning scenarios and they are as follows:

- ❖ When running an online course it's a good practice to send out guidelines about correct sitting posture, desk height, and recommendations for regular break.
- ❖ The problem of doubt-solving can be solved by engaging more actively with professors or other students using tools such as video conferencing, social media, and discussion forums amongst others.
- ❖ Technological proficiency is a must for following online courses, as it enables students to manage their assignments and courseware in an organized manner without struggling.
- ❖ A regular schedule planner would be a significant help to these learners, as they could even set reminders for their courses and assignments.

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