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ICTs and Rural Development in India

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Majority of our population still live in villages. Uplift of villages is the key to the progress of the country. Hence rural development is conceived as a base for overall national development in India's pre and post independence era. Over the past decade, India has become the world's test bed for innovations in information and communication technologies (ICT) serving the rural user. ICTs play as catalyst in the implementation of rural development and overall development of rural areas. The objectives of the present are to study the development of ICTs in India, to know the role of ICTs in rural development and to know the problems and challenges faced by the rural ICTs initiatives. The present paper is entirely based on the author's review of published literature on ICTs and Rural Development in India. Information and Communication Technologies (ICTs) have been making considerable impact on the society due to their universal spread in terms of various ICTs applications implemented across the world. The urban communities have seen the positive contribution of ICTs in several dimensions like increases in efficiencies, communications and information on anytime and anywhere. However, significant mass impact is not yet to be felt among vast majority of the rural communities even though ICTs play important role in the rural development.

[Key Words: ICTs, Communication, Village and Rural Development]

The direction and pace of development in ICTs have led practically all world economies to recognize the improvement of ICTs in catalyzing economic activity, in efficient governance, empowerment of society and bringing about major socio-economic

transformations in the societies (Rajendra Singh.2007). Developing countries like India there are now a new mantra-information and communication technologies (*ICTs*). In a burst of 'technology as solution' enthusiasm not seen since the green revolution, but now India has made significant investments in these technologies and integrated the same with the development programmes to gainfully realize the fruits of such developments to the society. *ICTs* are expected to solve a variety of problems, ranging from assuring India's place in the sun to establishing good governance and alleviating poverty and achieving the rural development. (D.N.:2001).

One of the major components and driving force of rural development is communication. Conventionally, communication includes electronic media, human communication & now information technology (IT). All forms of communications have dominated the development scene in which its persuasive role has been most dominant within the democratic political framework of the country (Binod Agarwal: 2006). Further this is added with information, communication and technology and there has been a lot of interest during the last two decades in realizing the potential of Information and Communication Technologies (*ICTs*) for achieving socio-economic development. This resulted in the experimentation with various *ICTs* and its applications in areas such as agriculture, health, governance, financial services, education and employment. Many of these initiatives clearly reveal the huge potential of *ICTs* in improving efficiency and effectiveness of reaching rural communities with relevant information (Rasheed Sulaiman V, N J Kalaivani, Nimisha Mittal, P Ramasundram.: 2011). *ICTs* can play an important role in many aspects of rural development. It can also help to give better governance to the various aspects of rural development.

Objectives: The objectives of the present study are

To study the development of *ICTs* in India

To know the role of *ICTs* in rural development

To know the problems and challenges faced by the rural *ICTs* initiatives.

Method: The present paper is entirely based on the author's review of published literature on *ICTs* and Rural Development in India.

Source of data: The work is done entirely on the basis of secondary sources such as books, journals, internet, research reports and other secondary materials.

ICTs Development in India: IT sector has grown at speed in India. India's IT sector took off in the early 1980s with the establishment of offshore development. Government of India has formulated a national policy in 1998 and also setup a National Task force on Information Technology and software. The mid-term assessment of the Eleventh Five Year Plan accepts the existence of a digital divide in terms of the internet and broadband connectivity between the urban and rural India and the need for policies to address this issue (Planning Commission. 2010). India is currently one of the biggest IT capitals in the world. National Informatics Centre (NIC) has set up a country-wide communication network 'NICNET' as the backbone network infrastructure for Government informatics, providing linkages to 611 districts covering 35 States and Union Territories. The National Knowledge Network (NKN) initiative that provides multi-gigabit connectivity to all knowledge institutions in the country is also being implemented by NIC. Warna Wired Village project initiated in 1988 to provide connectivity to 70 villages in the sugarcane belt of Kolhapur and Sangli districts of Maharashtra perhaps could be the first ICT initiative in India that used an internet enabled PC, to support farmers with information on crops, prices and government schemes in local language. However the most discussed and documented initiative of this nature has been the knowledge centre initiative of M S Swaminathan Research Foundation (MSSRF), which started in 1998 at Pondicherry as part of its Information Village Research Project. In 2000-01 policy was framed at the national level with the '*IT for the Masses*'. Karnataka is one of the many other states to have issued an IT policy statement directed towards the common man. Naidu's solution to the political dilemma of promoting hi-tech is also one of the important achievements in India. In December 2005, based on survey data, the '*Internet and Mobile Association of India*' reported that the number of Indian Internet users increased by 54% over the previous year, to 38.5 million, while the number of cybercafés increased from 18,000 in 2001 to 105,000 in 2005.

Rural Development and ICTs in India

Development can also include improvements in the capabilities of the population, such as education, health and nutrition, independently of any direct or indirect economic impact. The ability to participate in democratic decision-making also falls into this category. In the rural context, development involves use of physical, financial and human resources for economic growth and social development of the rural economies (Burkey: 1993). The term rural development also represents improvement in the quality of life of the rural people in villages. As per *Chambers (1983)* “*Rural Development is a strategy to enable a specific group of people, poor rural women and men, to gain for themselves and their children more of what they want and need.*” *Singh (1999)* defines *Rural Development* as “*a process leading to sustainable improvement in the quality of life of rural people, especially the poor*”. “Sustainable Rural Development can make a powerful contribution to four critical goals of: Poverty Reduction, Wider Shared Growth, Household, National, and Global food Security and Sustainable Natural Resource Management” (World Bank. 1997). The advent of modern information and communication technologies (ICTs) such as telephony or the internet holds unprecedented opportunities for the rural development. Information and communication activities are a fundamental element of any rural development activity. Rural areas are often characterised as information-poor and provision has always been a central component of rural development initiatives. So government and non-government organisations are taking the efforts to achieve the overall development of India by applying ICTs initiatives. Before understand to the major rural ICTs initiatives in India, we have to know the major ICTs in India.

Major ICTs in India

India has been a major hub for rural ICT experiments for more than two decades. Many of these initiatives have clearly revealed the huge potential of new ICTs in improving efficiency, effectiveness and reach of rural (as well as urban) service delivery. Traditional ICTs: Radio, Television, Print Media and New ICTs: internet enabled computer centres (Kiosks/Knowledge Centres/Common Service Centres/Telecentres), Portals, Call Centres, Mobile, Community

Radio, Video, Digital Photography, ICT based enterprises, ICTs in support of existing enterprises.

Major Rural ICT's initiatives in India

Rural Development Department connectivity over APSSWAN and Rajiv Project

Bhoomi Monitoring Cell and Kiosks managed by an operator in Karnataka

Akshaya Project in Kerala

SETU: Integrated Citizen's Service Centres and Warna Wired Village in Maharashtra

Gyna Ganga Project in Gujarat

Setting up of information kiosks and Mandi Board in Madhya Pradesh

Government to citizen portal in West Bengal

Lokmitra in Himachal Pradesh

Information Village Research Project in Pondicherry

Many studies are carried by researchers on application of ICTs in rural development in India. Study conducted by Gaganpreet K, Sidu, Jujvir S. Saini, Ramneet Kaur titled with '*Information and Communication technology-Heading towards Rural India*', '*ICTs in Rural Poverty Alleviation*' by DN, "*The Role of ICT in Governing Rural Development*' by Anita Kelles-Viitanen, "*Technology for Rural Development-Role of Telecommunication Media in India*" by Dr.J.S.Giri Rao and Dr.S.N.Patinaik, '*Review of the Literature, Current Interventions and Opportunities for Action*' by Robert Chapman and Tom Slaymaker and a working paper on '*ICT and Empowerment of Indian Women*' by Rasheed Sulaiman V, N. J Kalaivani and Nimisha Mittal Centre for Research on Innovation and Science Policy (CRISP), Hyderabad, India focuses on role of ICTs in fields such as rural poverty alleviation, development of agriculture, market, rural entrepreneurship, information about government schemes for rural poor, climate information for fishermen for their safety, rural employment and rural education. These studies also reveal the fact that ICT is playing important role in the empowerment of women and marginalised communities and rural poor.

Other studies such as '*ICT for Rural Development: An Inclusive Framework for e-Governance*' Charru Malhotra, V. M. Chariar, L.K. Das, and P. V. Ishwavarasan, Globalisation,

Governance Reforms and Development in India by Kameshwar Choudhary, E-Governance in India: Initiatives and Issues by R.P.Sinha, 'ICT and e-Governance for Rural Development' by Prof T.P.Rama Rao, 'ICT Enabled Development and Digital Divide: Indian Perspective' by Rajender Singh Bist, 'How to Wire Rural India: Problems and Possibilities of Digital Development' by Aditya Dev Sood and 'Communication Technology and Rural Development in India: Promises and Performances' by Binod C. Agrawal reflects the issues such as role of ICTs in E-Governance, problems and challenges faced by digital development in rural India and digital divide by groups that is haves and haven't. But these studies not reflect the issue such as the urban communities have seen the positive contribution of ICTs in several dimensions like increases in efficiencies, communications and information on anytime, anywhere basis. However, significant and mass impact is not yet to be felt among vast majority of the rural communities.

Role of ICTs in Rural Development in India

ICTs and Agriculture: Agriculture is the major occupation of India. Nearly seventy percentage of population of India engaged in the agriculture. Development of rural areas lies in the development of agriculture. ICT can be used as a powerful tool to develop the agriculture exchange for Knowledge of farm practices, accurate information for optimizing operations and pricing information. Digitalmandi (ITC promoted), Tarahaat (graphics), Agmarket, Agriwatch, Kisan Call Centres and Sustainable Access in Rural Internet (SARI) projects are some Agricultural Information Portals which help the farmers by providing agricultural related information. Many farmers make innovations that increase the production. But they often remain local in use. Nowadays these innovations face their increased threat of being appropriated by corporations (multinational and national). The Honey Bee Network of IIM, Ahmedabad, has registered many of such innovations. (DN:2001)

ICTs and Rural Market and Rural Entrepreneurs: Rural markets are being strengthening by ICTs by providing the rural marketing information. ICTs help to rural entrepreneurs to improve access to markets or supply chains and provide a broader base for decision making. By this way rural entrepreneurs can calculate the risk factor in their business. An NGO in Pondicherry FOD has made

possible tele-marketing by village producers, leading to higher price realization.

ICTs and Rural Poverty Reduction: ICTs helps to reduce the poverty by providing earning opportunities, by providing information about rural development programmes, health services and educational services. It also helps to provide good governance and promote democracy.

ICTs and E-Governance: Rural e-Governance applications in the recent past have played an important role in the realm of rural development. Several e-Governance projects have attempted to improve accessibility of information regarding government projects minimize the processing costs, increase transparency, and reduce the cycle times. Several states have initiated the creation of State Wide Area Networks (SWAN) to facilitate electronic access of the state and district administration services to the citizens in villages. In Andhra Pradesh, Internet-based Integrated Citizen Service Centers allow for electronic bill payment, issuing of certificates permits and licenses; or access to public information. The electronic village project of M. S. Swaminathan Research Foundation (MSSRF) in Pondicherry received the Stockholm award for its promise. Bhoomi is a kiosk based project of Karnataka and holds millions of land records.

ICTs and Rural Education: Education we know is an important factor in using the new technologies. While the ICTs have the advantage that semi-literate or even illiterate women and men can access them. But it puts the limit to them for the use. Education does increase one's choices in using ICTs. But creating literacy is a critical factor in expanding choices and enabling people to use ICTs to full potential.

ICTs and Rural Health: Information Communication and Technology (ICT) helps to upgrade the rural and urban health care delivery in India. The Rs. 30 lakh 'infothela' project is being prepared by IIT-Kanpur Lucknow Lab (KLL) under the aegis of Media Lab Asia (MLA) is a step in this direction. Explain is given by Harish Karnick, Department of Computer Science and Engineering, IITKLL in this regard, "*Infothela is a mobile platform for computer based applications, which would help in diagnosis of diseases and impart information on health to the rural population.*" Currently, one prototype of the infothela has been built and is being

tested and other prototypes with different designs are on the drawing board. Infothela is designed keeping in mind the village conditions in the country where electric power is not available all the time. So a pedal generator is designed in such a way that while pedaling, battery will keep on charging for running the on board computers and equipments. Expert say that infothela by bringing diagnosis to the doorsteps of rural population will enhance disease prevention, allow early diagnosis, permit vaccine ,delivery, sample collection and even expert advice from remotely located doctors.

ICTs and Employment Opportunities: ICTs helps to expand the social network. Expanded social networks may also result in increased opportunities for employment both locally and away potentially increasing rural-urban migration. Kiosks give the support for investment in ICTs projects.

ICTs and Information about Rural Development Programmes: The experience of the M S Swaminathan Research Foundation (MSSRF) 'knowledge centres' in villages that information about government programmes has resulted in higher demand for access to these facilities from the poor. Information and knowledge, promoted by ICTs can pro-mote transparency of government and helps to mobilise resources for poor people.

ICTs and Empowerment of Women: The poor and women could become new power centres within the village, breaking older monopolies. Overall the increased availability of knowledge from outside could itself have beneficial effects on creativity of women and helps them to empower.

ICTs and Empowerment of Rural Poor and Deprived Sections: As poor people are often unaware of their rights, entitlements and the availability of various government schemes and extension services, ICT can also improve their access to the information they need. Through info kiosks or with the help of mobile phones farmers can access information on market prices or on extension services. Timing is often crucial when it comes to the sale of produce. Workers can also get information on available jobs and minimum wages. In a tribal district in Madhya Pradesh, in India the most commonly used services related to various grievances, market information and land records: The 'Gyandoot' community network, ICT can also assist people in monitoring accountability of development programs. For example, when residents of a district

heard of a road building scheme, of the money spent on it and of the wages that were claimed to be paid to local hires, they demanded to see the payrolls and hear an account of where the money went. (Anita Kelles-Viitanen: 2006 :)

ICT and Digital Village Concept: Pathinettangudi some 35 km from Madurai, which presents the look of just another underprivileged village. However, a silent IT revolution is brewing in the tiny hamlet where the illiterate farm workers use webcams voice mail and e-mail regularly. Similar is the communication technology spread in at least 30 other villages around Pathinettangudi and Melur became the first cyber taluka in the country with courtesy of the '*Sustainable Access in Rural Internet* (SARI) project. Villagers no longer run to tahsildhar office and post to get caste, birth and death certificates here. They simply download the application online and forward it through e-mail to the tahsildhar. The acknowledgement is received within hours and the certificate issued in a week. Earlier, people had to shell out at least Rs. 250 to get an income certificate or old age pension and it costs less and saves time of villagers.

Digital Divide: The digital divide is often only understood as the gap between accessibility of information and communication technology by haves and have-nots. Looking at the case of India, in cities and larger towns, cyber kiosks have already begun to proliferate. Urban population densities, income levels, cultural attitudes and telecom infrastructure all seem to be sufficient for the commercial success of these enterprises. The falling cost of hardware and the availability of a variety of English language software have also supported this trend. In non-Internet IT-related services, IT education has clearly taken off in cities as well, inspired by India's success in software exports. In rural areas and smaller towns, however, the various demographic and socioeconomic factors such as income levels, cultural attitudes, and geographic and social fragmentation may not be present in configurations that would easily enable the diffusion of commercial access to various IT-enabled services. By September 2011 –there are 112 million internet users in India. 88million users are from Urban and 24 million from rural areas. Of the total internet users in India 72% is young people. Number of mobile broadband subscribers will be 5million by 2016. 2009 –Teledensity is total for

India-25.34 19.03- Rural Areas, 64.48 urban areas, By 2008 Rural Mobile Penetrates is 4.92 and where as Urban is 43.88. (Sumanjeet Singh)

Problems and Challenges in Application of ICTs initiatives in Rural India:

Illiteracy, Poverty, Lack of Training, Problem of connectivity, Lack of Infra-structures

Electricity, Problem of affordability, Equitable access opportunities for all, Lack of gender equality and Lack of basic amenities such as transport.

Major Findings

It helps to increase the agricultural productivity.

It helps in access to health care and other allied services in the time of urgency.

It gives timely information about agriculture, price, market and demands within few minutes to rural people.

ICTs can also improve their access to the information they need.

It provides the good governance to the all rural areas.

ICTs can also assist people in monitoring accountability and transparency of development programmes.

It provides information about employment and generates employment opportunities to youths, women and underprivileged.

Suggestions

Enhancing the rural libraries

Improvement of ICTs Infrastructure

E-literacy

Local language and Local Content

Community Ownership of ICTs

Tele-Health

IT-enabled Artisanal Industries

Digital Village Prize

Public funding would be necessary

Conclusion

In the rural settings, various successful e-governance models, the digital library initiatives, the improvement of IT infrastructure and many ICT projects for development are giving hope for the digital unite opportunity for India, though the pace of their development is quite slow. What is required to sustain these projects is adequate financial support, support of the government,

industry and community participation, encouraging private participation on a mutually beneficial basis, collaboration amongst researchers, social scientists, librarians, technologist, etc, stable and corruption free government, massive campaign on e-governance involving rural people etc.

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