ICT FOR SUSTAINABLE RURAL DEVELOPMENT: AN INDIAN PERSPECTIVE

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Abstract

The Rural development plays a significant role for the growth of economy in India. In the current scenario our main focus is on poverty alleviation, better employment, provision of basic services and infrastructure facilities as far as rural development is concerned. The infusion of Information and Communication Technology (ICT) is playing a prominent role in strengthening these demands. ICT in Rural Development can not only speed up the development process but bring the educationally and technologically backward and forward sections of the society on the common platform. Bridging the digital divide also bridges the overall infrastructural gap and addresses other constraints faced by rural areas.

ICT acts as a measurement of the development of any society in this knowledge era. Now a days, ICT plays a key role for better productivity, proficiency, increased capital and prosperity. This paper presents a brief review of the present ICT technologies, overview of the rural ICT projects like 'Gyandoot' community network, NREGA etc and the issue associated with the use of ICT for rural development and discusses its impact on sustainable rural development. It also reflects on e-powering rural India and effects of ICT projects on poverty reduction and finally their empowerment.

Key words:-ICT, Rural development, Digital divide, Rural ICT Projects

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Introduction

Information is the key to democracy. Information Technology (IT) has made it possible for a common man to access global information. Information superhighway has brought knowledge and its numerous applications to millions of people, creating new choices and openings in some of the most vital areas of human endeavor. The Rural development is one of the most significant factors for growth of the economy in India. The current policy of rural development mainly focuses on poverty alleviation, better employment opportunities, provision of basic services and infrastructure facilities.

The power of connectivity can change the current ailing system and can empower rural poor with the power of information, which can be converted into awareness and be used for the betterment of livelihood. Information and Communication Technologies have a potential for financial growth and societal empowerment (Nandi, 2002). Rural informatics can be used for sustainable development only if ICT interventions are able to adapt to the needs of the local people and wisely use the existing and competent knowledge of the rural areas Inclusion of ICT in Rural Development can not only speed up the development process but it can also bridge the gaps between the educationally and technologically backward and forward sections of the society.

ICTs help people in rural areas to associate with the local, regional and national economy and access markets, banking/financial services and employment opportunities. ICTs serve as an instrument of awareness creation and feedback, giving rural people a voice in the nation's socio-political life. ICTs can also act as a channel of delivery of e-Government services including health and education. Thus bridging the digital divide also bridges the overall infrastructural gap and addresses other constraints faced by rural areas.

ICT can strengthen the function of each governance pillar in rural development and scarcity reduction. It can facilitate rapid, transparent, accountable, proficient and useful interaction between the public, citizens, business and other organizations. This not only encourages better administration and better enterprise natural environment, but furthermore saves time and money in transactions charges of government operations (IICD 2001).

This paper presents a brief review of the existing ICT technologies, the rural ICT projects; issues associated with the use of ICT for rural development and discuss impact of ICT on rural development and sustainability. This paper also reflects on e-powering rural India and effects of ICT projects on poverty reduction and finally their empowerment. It also analyses the factors preventing rural communities from reaping the advantages of ICTs, initiatives taken by the Government of India to overcome the causes, ways and means of poverty alleviation and sustainable development; identifies the obstacles and solutions, and lessons learned. ICTs, if supported with right policies, crosscutting and holistic approaches, will complement and strengthen other multi-sector efforts that are required for rural development.

ICT as an enabler in Rural Empowerment

Communication is one of the foremost constituents and driving force of rural development. Generally, communication encompasses human connection, electrical devices media and now information technology (IT). IT has been now replaced by Information and Communication Technology (ICT), so it is impulsive to talk about computers as the sole agent of IT. Setting up of an IT network at the local level means get access to the world inside within seconds. Through internet, wireless phones, TV, radio, etc. one can understand the newest updates in every field.

Recent developments in ICT have introduced a plenty of opportunities for development in every possible area. ICT as an enabler has broken all bounds of cost, distance and time. Combining IT with communications, through the internet has reduced the world into a global village creating new actors and new environments.

Technological changes further compounded the direction of rural development as ICT has been thought by communication and development workers as a panacea for other ills that obstructs the development process. It has lead to indiscriminate applications and use of ICT in every aspect of information dissemination, management and governance of development. Except a few remarkable examples of achievements of ICT in rural development, there are a large number of failures and claims which are not yet verified.

ICTs mostly cover the set of actions that facilitates capturing, storing, processing, transmitting and displaying of data by electrical devices. The Organization for Economic Co-operation and Development (OECD 2002) defines ICTs as a blend of manufacturing and services industries

that collect, convey, and display facts and figures and information electronically. This definition makes a useful distinction between manufacturing and service dimensions of ICTs and paves way for understanding multi-dimensionality of ICTs and its applicability to help decrease poverty across various regions. The service function of ICTs can enhance rural peoples prospects by improving their reach to get access to market information and smaller transaction costs (for poor farmers and traders); increase efficiency, effectiveness and market access for developing country firms; enhance proficiency of developing countries to participate in the global economy and to exploit their relative advantage in factor costs (particularly skilled labors); health and education. Furthermore, ICTs can promote greater simplicity, faster decision-making process of governments and therefore empower rural population by increasing use of government services, and reduce threats by widening access to microfinance. When private and civil sectors work together as partners, advantages of ICTs can be greatly enhanced, returns to the community improve and profits increase.

ICT is an absolutely vital part of the development strategies of developed and developing countries both. It is highly capable of forming social reforms by presenting a very simple access to people, services, data and other desired technologies. The use of government services are expanded to empower people by utilizing ICT. It is highly helpful for economic development, job-creation, rural development and reducing poverty.ICT had a foremost involvement in changing the public sector units in India throughout mid 90's. ICT advanced civil society participation in the governing process, called e-governance which opens new ways of participation of citizens and societies. It empowers than to develop their self sufficiency. ICT assists in improving living measures in rural localities by providing important societal, educational, economical and health benefits to the community. In a developing country like India, the function of ICT in overall development becomes more significant. It helps in almost every area such as health, environment protection, education, human rights protection and agriculture etc. Particularly in rural context, it acts as a bridge between the government and the people.

The role of ICT is catalytic in the convoluted task of poverty reduction by controlling the consequences on earning prospects, on educational and health services, on high quality governance and on supporting democracy. Since exchange of information is part of almost every component of the finances, the influence of improvements in the capability for information

exchange will count critically on how the rest of the finances functions. According to a study carried out in India, Jamaica and South Africa the effectiveness of ICT in overcoming poverty depends on i) complementarities with other localized poverty reduction and development plans, ii) answering to the localized community requirements, and iii) engaging stakeholders in applications development. (Millar and Mansell 1999). The goal of utilizing ICT with marginalized groups, such as the poor, is not only reducing digital divide, but rather imposing and advancing the method of community inclusion, which is needed for transformation of the environment and social system that reproduces poverty.

The 'Gyandoot' community network, aimed at conceiving a cost effective, replicable, economically self-reliant network for taking advantages of Information Technology to the rural community, is an intranet mesh utilising Wireless in Local Loop (WLL) technology to set up in 5 blocks with 21 kiosks, each catering to about 15-20 villages in tribal Dhar district in Madhya Pradesh. The achievement of this network is mostly due to aiming at the information interest of the people: rates of agriculture make, land record privileges, computer teaching, caste certificates, online public grievance redressal, health services, e-mail, country e-auction, matrimonial alliances, information on government programmes, information for children, online paid work exchange, accessibility of applications for jobs, local climate report, e- report papers etc. Between January 2000 and June 200l, 68500 villagers used diverse services. The most frequently used services were grievance redressals (41%), market rates (25%), land-records (20%). Interestingly, one out every six users of the mesh was illiterate with no information of reading or writing. It is a disappointment that only 13 % of users are women. (Samiullah and Rao 2002).

Drishtee has evolved as a typical start-up. Without very considerable financial help, it has still coped up to expand and it has constructed an organization with strong competencies in what may be amply termed 'rural IT-based service delivery.' This judgment holds regardless of it's lack of any clear power in technologies, applications, partnerships or proficiency to scale. In all these dimensions, it is 'good enough,' but it seems to have constructed a powerful, low-cost organization from scratch, one that may be well matched to consigning at smallest some constituents of the overall service.(Nirvikar Singh 2004).It had its origins in Gyandoot, a

government project in Dhar locality of Madhya Pradesh, in central India. It has tried to take that model and rapidly reproduce it throughout the country. It has over 100 country Internet kiosks in some states, run by franchisees according to a profit sharing arrangement. It is a commercial organization, with exact societal objectives of aiming at advantages to the rural poor constructed into its idea and strategy. It has its own software development cell, but also takes help of various partners for software development. In some cases, other partners provide services for administration of district hubs to manage district hubs. Hence the model not only involves franchising different individual kiosks, but furthermore potentially franchising district hubs. Partnering with local locality hub 'channel partners' allows it to expand much quicker without conceiving a bulky association, state and local. It conspicuously remains restricted in its proficiency to advance the interior functioning of government. Nevertheless, it's approach can be viewed as accomplishing the right kind of 'embedded autonomy' at the local level, to use Peter Evans' quote, significance a societal structure with coherent institutions that are autonomous, but regardless connected through institutionalized passages for continual negotiation of goals and policies (Evans, 1995, p. 12).

National Rural Employment Guarantee Act (NREGA) aims at enhancing the livelihood security of people in rural areas by guaranteeing hundred days of wage-employment in a financial year to a rural household whose adult members volunteer to do unskilled manual work. It was enacted by legislation on 25 August, 2005. NREGA later renamed as the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) was launched on February 2, 2006 from Anantapur in Andhra Pradesh and initially covered 200 "poorest" districts of the country. It has promised work with minimum wages for all below the poverty line individuals. The project saw the rollout of new technologies like biometric identification and handheld data devices. This act was introduced with an aim of improving the purchasing power of the rural people, primarily semi or un-skilled work to people living in rural India, whether or not they are below the poverty line. Around one-third of the stipulated work force is women. The Act was implemented in phased manner – 130 districts were added in 2007–08. With its spread over 625 districts across the country, the flagship program of the UPA Government has the potential to increase the purchasing power of rural poor, reduce distress migration and to create useful assets in rural India. Also, it can foster social and gender equality as 23% workers under the scheme are

Scheduled Castes, 17% Scheduled Tribes and 50% women. In 2010–11, 41 million households were employed on NREGA worksites.

The end of twentieth century was the beginning of historic interventions of Information and Communication Technology. This period has witnessed massive and extraordinary transformations in every aspect of communication technology's policies, infrastructure development and services. The ICT outburst in India has already started altering the lives of Indian masses. The function of ICT in country's Empowerment should be perceived keeping in mind this changing scenario.

Challenges in realizing the potential of ICT

Keeping in mind the high population and higher incidence of poverty in rural India, implementation of ICT and e-governance to incorporate 135 million poor is a very complex task. As of now, there are more than 50 projects using ICT technology for developing India, but since no methodical study or evaluation has been conducted to use these ICT based projects so possibilities to discover the varied creative Indian experience so far remains solely wasted. Also current e-governance models are more technology centric and have been adopted from the west. So they do not make sure complete rural development in a developing country like India.

ICTs solely can't fetch rural development. Education is one of the elementary problem for functioning of ICT as 40% of India's community is not literate. All recent economies have demonstrated in the past that education is the first step to develop the capability which persons can then use. If the Indian economy develops at 5-6% per annum as it has been growing over last few years, then over 10-15 years the size of the Indian economy would have increased two-fold. Even with this level of development it will not by any means reduce disparities and eradicate poverty. Thus initiating ICTs solely will not rendezvous the development challenge. For ICTs to do well in India, education for all should be the first main concern.

It is, of course, significant to note that the proportion of the economy engaged in some or other form of adaptation or usage of ICT is still very little. The section of persons engaged in the ICT Industry, particularly in the rural areas is negligible. Therefore, another important action plan, for the benefits of ICT to trickle down as well as assist to the rural prosperity, would engage

setting up some rural and village level micro-enterprises. There are a number of significant components stopping village people in India from obtaining advantages of ICTs. Installing ICTs to empower poor and lead them to the road of prosperity can be achieved through governmental policies specially designed for the rural people rather than corporate-oriented policies. The elementary challenges that usage of ICT for rural empowerment are-

- Vast multitude of people is illiterate.
- Major power-cuts and 'brown-outs' affecting the country-side ranging from 5 to 12 hours every day. Even though uninterrupted power supply systems are used; yet they prove insufficient to cope up with the power breakdowns.
- Need to improve a serious issue of band-width and connectivity. There are technologies available to upgrade the band-width but enough resources are not available to change this scenario because of inadequate funding by the Government.
- The local grass root level institutions as well as by the state governments faces financing difficulties. Far-reaching steps are needed to inculcate funds for the development of the ICTs in the rural areas which can better be done by the participation of the private sector.
- Expert professionals, project leaders and guides are required who could ensure implementation of the ICTs at the grass root levels. Most professionals do not want to work in the urban areas where there are lack of opportunities available to them for growth as well as success. In the absence of these 'techno-catalytic' resources; growth of ICTs in the rural areas will always be very slow.

Care should be taken so that ICT programs are not just technology-driven but respond to the requirements of the poor, when it comes to content, dialect, abilities, design, and price. It is important to address the sectors and localities that are of direct relevance to poverty reduction and where the use of ICTs can make a difference. Local people should be engaged in the design of universal access programs through discussions, surveys and demand investigations. Hardware too could be developed in close discussion with the poor, and in line with the developing country conditions, answering to various constraints such as lack of mains power supply or interrupted supply. Systems such as voice mail translation of content and icon-based telephones could be utilised. India is evolving its own customized, low-cost IT terminals and devices. (ITU, Ibid). In

the long run, it is essential to evolve financing frameworks that appeal private investment. In India private sector involvement has reduced the mobile call rates. It is an indicator that the private sector - with the right goals and accompanying principles - can be an ally of the poor.

Alternative Approaches

Social methods in country regions need to be integrated in a holistic way with the widespread governance model to ensure development (Kanungo, 2004b; Pande, 2003). Establishing linkages with local populations and encouraging in-house development of e-governance plans (Heeks, 2002) would positively assist towards achievement of development objectives of a country. Rather than bringing or aping recent e-Governance models, the interfaces of ICT interventions deployed in rural localities, should be customized and the content duly localized to consign the proposed benefits to the rural beneficiaries. Jhunjhunwala, et al. (2006) underscore that the enterprise model for rural development should be based on collective partnerships and should incorporate the customary information available within local community.

Incorporation of traditional knowledge systems would also make sure participation and ownership of the rural beneficiaries themselves. The need to integrate inputs from indigenous schemes is significant not just because of their richness but furthermore because these systems have developed over millennia maintaining the communal balance in that area. In the Indian rural context, there are currently some boosting examples such as "Honey Bee Network" which is a database of grass root innovations and technologies and serves as an effective solution to difficulties of local development. International development communities too have amply worried incorporation of indigenous knowledge in prevailing models of governance.

Garai and Shadrach (2006), resolve that there is an urgent need to identify the importance of local knowledge in sustainable development. They also argue that interactions between community centric local bodies and development worker need to be improved to ensure achievement of progress. Since communities are closest to grassroots' troubles, they are the best evaluator to judge technology substitute and provide innovative solutions for the problems of their respective areas. This "from the inside out" and "bottom up" viewpoint to technology has

been supported by many socialists. (Lee, 2001). Such pattern of governance has habitually been preferred one and is mentioned as 'community governance' (Toole and Burdess, 2002). Community participation has been viewed by Yerramsetti (2005) as a key constituent of achievement of tele hubs in ushering development and communal change in rural localities. Misra and Vijayadita (2006) furthermore convey out the significance of community-focused approach for making sure the success ICT plans for Rural Governance. Taking a cue from all such studies, we can presume that there is a necessity of a community driven approach for sustained and successful e-Governance systems.

To conceive successful and maintained ICT based projects for rural governance with the same participation of the stakeholders especially the community, it is significant to consider the scheme as a "whole" rather than mutilating it in isolated parts. This would require an interdisciplinary schemes approach where interests and inputs of all particularly the people are taken into account in harmony with other stakeholders. Therefore, in a rapidly changing global environment, Governance also needs to evolve competitiveness through innovative response means. This needs a thoughtful balance between international demands and local precedences as well as a balancing of requirements of diverse stakeholders' that are embedded in the methods of the governance. By adoption of a holistic approach in conceiving of ICT interventions for governance using schemes idea, such inconsistent main concerns and diverse needs may easily be settled. ICT involvements in rural localities are capable of endowing the governance to accomplish rural development and their integration with the grassroots is critical for sustainability. An integrated structure for ICT interventions in rural localities is needed that could amicably combine community needs, information and inputs along with inputs of other stakeholders.

The ultimate beneficiaries of ICT schemes in rural localities are rural societies; consequently ICT schemes for rural areas should be people-centric. The design of ICT plans should contemplate community desires, aspirations, prevalent assets and information. To capture the same, community participation is a significant input to ICT schemes for sustained rural e-governance projects. To make community participation as a significant design input, indigenous information accessible with these communities requires to be integrated with ICT initiatives that

represent the common practices, systems, methods, indigenous information or constituents, existing at grassroots.

Conclusion

Information and Communication Technology has enormous relevance in today's world. If put into practice properly ICT can certainly fill the gap between economically and technologically backward and forward classes. With the IT rise in India, technology is effortlessly accessible to the government machineries with relevantly cheaper and befitting kind. Appropriate training and implementation of ICT programmes in easy way and dialect which is effortlessly understandable by the rural people can certainly bring about transformation in rural development.

ICT can assist to reduce poverty, if it is tailored to the needs of the poor and if it is utilized in the right way for right purposes and complemented with required restructures. Like all technologies, ICT boasts tools and applications but no solutions. The solutions to the problem of poverty are what they have usually been: economic development, facilitating good infrastructure, the creation of employment, social investment, education and healthcare, and adequately democratic government to ensure that financial advantages are not held at bay by the powerful elites. By supplying cheap and efficient devices for accessing information and exchange of ideas and knowledge, ICT can become a facilitator for wider socioeconomic growth. When correctly used, it can greatly increase the proficiency of the poor people to benefit from economic development and from development programs meant to help them. This paper emphasizes adoption of a more methodical approach, community participation for integrating traditional knowledge schemes and ICT inputs to ensure sustainability of rural empowerment.

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