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A Study on Application of ICT in Rural Development Opportunities and Challenges

Gurubalaji .S .R
MBA, Department of Management Studies
Bharath Institute of Science and Technology,
Selaiyur, Chennai, Tamil Nadu 600 073
Bharath Institute of Higher Education and Research

ABSTRACT

India is a country of villages and about 50% of the villages have very poor socio-economic conditions. Since the dawn of independence constant efforts have been made to emancipate the living standard of rural masses. The five-year plans of the central government also largely aim at Rural Development. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture, handicrafts, fisheries, poultry, and diary are the primary contributors to the rural business and economy. Rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. The present strategy of rural development mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programmes of wage and self-employment. ICT is the new tool for rural development. Information and Communication Technology, if used properly can be of great advantage for the development at grass root levels. At the same time challenge remains with the administration to capture the minds of the rural masses, mostly illiterate, to make them adapt the new technology which is completely alien to them. There are various Rural development schemes run by the government of India and also organizations are present to look after the implementations of these programmes.

RURAL DEVELOPMENT SCHEMES IN INDIA

- Pradhan Mantri Gram Sadak Yojana (PMGSY): This is a scheme launched and fully sponsored by the Central Government of India. The main objective of the scheme is to connect all the habitations with more than 500 individuals residing there, in the rural areas by the means of weatherproof paved roads.
- Swarnjayanti Gram Swarozgar Yojana (SGSY): This was implemented as a total package with all the characteristics of self employment such as proper training, development of infrastructure, planning of activities, financial aid, credit from banks, organizing self help groups, and subsidies.
- Sampoorna Gramin Rozgar Yojana (SGRY): This scheme aims at increasing the food protection by the means of wage employment in the rural areas which are affected by the calamities after the appraisal of the state government and the appraisal is accepted by the Ministry of Agriculture.
- Indira Awaas Yojana (Rural Housing): This scheme puts emphasis on providing housing benefits all over the rural areas in the country.

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RURAL DEVELOPMENT IN INDIA-ORGANIZATIONS

- Department of Rural Development in India: This department provides services such as training and research facilities, human resource development, functional assistance to the DRDA, oversees the execution of projects and schemes.
- Haryana State Cooperative Apex Bank Limited: The main purpose of the Haryana State Cooperative Apex Bank Limited is to financially assist the artisans in the rural areas, farmers and agrarian unskilled labor, small and big rural entrepreneurs of Haryana.
- National Bank for Agriculture and Rural Development: The main purpose of the National Bank for Agriculture and Rural Development is to provide credit for the development of handicrafts, agriculture, small scaled industries, village industries, rural crafts, cottage industries, and other related economic operations in the rural sector.
- Sindhanur Urban Souharda Co-operative Bank: The main purpose of the Sindhanur Urban Souharda Co-operative Bank is to provide financial support to the rural sector.
- Rural Business Hubs (RBH): RBH was set up with the purpose of developing agriculture. The Rural Business Hubs Core Groups helps in the smooth functioning of the Rural Business Hubs.
- Council for Advancement of People's Action and Rural Technology (CAPART): The main purpose of this organization is to promote and organize the joint venture, which is emerging between the Government of India and the voluntary organizations pertaining to the development of the rural sector.

1. SCOPE OF ICT IN RURAL DEVELOPMENT

Recent developments in Information and Communication Technology (ICT) have introduced a plethora of opportunities for development in every conceivable area. ICT as an enabler has broken all bounds of cost, distance and time. The fusion of computing and communications, especially through the internet has reduced the world indeed into global village creating new actors and new environments.

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 frame work of the country. Persuasive communication for rural development has been given highest priority for bringing about desirable social and behavioral change among the most vulnerable rural poor and women. Initially, the approach lacked gender sensitivity and empathy of the communicators and development agents who came from urban elite homes. Added to these constraints is political will that still influences the pace and progress of rural development. Technological changes further compounded the direction of rural development as information and communication technology (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

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every aspect of information dissemination, management & governance of development. While there are few shining examples of achievements of ICT in development, there are a large number of failures and unauthenticated claims.

The closing decade of twentieth century was the opening of historic information and communication technology interventions for development. This period has witnessed enormous and unprecedented changes in every aspect of communications technologies policies, infrastructure development and services. The ICT boom in India has already started changing the lives of Indian masses. The role of ICT in Rural Development must be viewed in this changing scenario.

EXPECTED ROLE OF ICT IN RURAL DEVELOPMENT

Since the dawn of independence, concerted efforts have been made to ameliorate the living standard of rural masses. So, rural development is an integrated concept of growth, and poverty elimination has been of paramount concern in all the five year plans. Rural Development (RD) programmes comprise of following:
Provision of basic infrastructure facilities in the rural areas e.g. schools, health facilities, roads, drinking water, electrification etc.

- Improving agricultural productivity in the rural areas.
- Provision of social services like health and education for socio-economic development.
- Implementing schemes for the promotion of rural industry increasing agriculture productivity, providing rural employment etc.
- Assistance to individual families and Self Help Groups (SHG) living below poverty line by providing productive resources through credit and subsidy.

Communication has been seen by a large number of development planners as a panacea for solving major social evils and problems. Apart from development, the introduction of communication in the educational process for open and distance learning is seen as step towards improving the quality of education and bridging the social and educational gap. ICT can be used towards betterment of education, agriculture, social awareness and health and hygiene.

EXPERIENCES AND EXPERIMENTS

Communication has been seen by a large number of development planners as a panacea for solving major social ills and problems. Apart from development, the introduction of communication in the educational process for open and distance learning is seen as step towards improving the quality of education and bridging the social and educational gap. However, experience indicates that those rich who could afford to have access to private resources have hogged the advantage whether development or education. In this respect it seems that communication technology has, in no way has helped the poor for improving their socio-economic condition. Primarily the responsibility of rural development remained with the government. In the pre-economic liberalization period, i.e. before 1992 broadcast media were used to reach the large rural population or target groups for the rural development projects. In the post economic liberalization period, rural development projects added information and communication technology (ICT) to provide individual need based information in broad development areas through Internet.

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ROLES OF ICT IN AGRICULTURE

Since the coming of the era of information & technology, ICT has played a great role in our society. The information Communication technology revolution has brought huge implication in both social and economic development in our world

Agriculture just like other sector has benefited from ICT revolution and the latest innovation in ICT has expanded the development of agriculture sector in different form. In large part of the world over millions house hold own TV and mobile phone which are used as the source of information to people in village and in the big cities, the use of ICT in agriculture range from advanced modern technologies, such as GPS navigation, satellite communication, and wireless connectivity, to older technologies such as radio and television.

However, the rural people still lack basic communication infrastructure in accessing crucial information in order to make timely decisions. The application of ICT in agriculture generates possibilities to solve problems of rural people and also to promote the agricultural production by providing scientific information timely and directly to farmers. Here are some benefits of ICT in agriculture

- Introduction of mobile phones has brought about a tremendous change in agriculture sector resulting into dramatic improvement in the efficiency and profitability of the agriculture industry. The spread of mobile phone service allow farmer to land their product timely and directly to the market where wholesalers are ready to purchase them without presence of middle man. This situation reduced waste from between 5-8 per cent of total product to close to zero and increased average profitability by around 8 per cent.
- Radio and television has been another input in communication technology used widely by many farmers, they have been used by farmers, entrepreneurs, extension workers and other stake holders to disseminate information on various innovation in agricultural technology
- The internet is also an emerging tool with potential to contribute in agriculture sector and in rural development. Internet enables rural communities stay up to date and to receive information about the market and other necessary information in the industry. Internet can facilitate dialogue among communities and help to share information between government planners, development agencies, researchers, and technical experts. The Internet has proven valuable for the development of agriculture in developing countries like Tanzania.

ICT AND E-GOVERNANCE FOR RURAL DEVELOPMENT

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. The Information and Communication Technologies (ICT) are being increasingly used by the governments to deliver its services at the locations convenient to the citizens. The rural ICT applications attempt to offer the services of central agencies (like district administration, cooperative union, and state and central government departments) to the citizens at their village door steps. These applications utilize the ICT in offering improved and affordable connectivity and processing solutions.

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Computerization of land records have been a great success in application of ICT in rural development. Land records are great importance to contemporary socio economic imperatives and their revision and updation are necessary for capturing the changes in rural social dynamics. Land records are an important part of rural development. The govt. of India started the centrally sponsored scheme of Computerization of Land Records (CoLR) in 1988-89 with main objectives of:

Creating database of basic records

- Facilitating the issues of copies of records
- Reducing work load by elimination of drudgery of paper work
- Minimizing the possibilities manipulation of land records, and
- Creating a land management information system

The farmers were largely benefited CoLR. The farmers can get all necessary records when they need it, these records are free from human arbitrations, the updating becomes easy, free from harassment and the farmers had direct access to information regarding their property.

CHALLENGES OF APPLICATION OF ICT IN RURAL DEVELOPMENT

ICTs alone can't bring about rural development. Education is one of the basic problem for application of ICT as 40% of India's population is illiterate. All modern economies have demonstrated in the past that education is the first step to building the capacity which people can then use. If the Indian economy grows at 5-6 per cent per annum as it has been growing over last 2-3 years, then over 10-15 years the size of the Indian economy would have doubled. Even with this level of growth it cannot by any means bridge disparities and eradicate poverty. Therefore introducing ICTs alone will not meet the development challenge. For ICTs to succeed in India, education for all must be the first priority.

It is, of course, important to note that the proportion of the economy involved in some or other form of adaptation or usage of ICT is still very small. The proportion of people involved in the ICT Industry, especially in the rural areas is negligible. Thus, another priority action, in order for the benefits of ICT to trickle down as well as contribute to the rural prosperity, would involve setting up several rural and village level micro-enterprises.

- The basic challenges that usage of ICT for rural development faces are-
- Illiteracy amongst the vast multitude of people
- 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
- Serious band-width issues and connectivity problems. Even though technology is available to upgrade the band-width; not enough resources have been budgeted by the Government to change this scenario. However once a few projects for the upgradation of the band-width on the anvil get commissioned, there should be a significant improvement in the connectivity

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- Financing difficulties encountered by the local grass root level institutions as well as by the state governments. Drastic steps are needed to inject funds for the development of the ICTs in the rural areas; increasingly by the participation of the private sector
- Acute shortage of project leaders and guides who could ensure implementation of the ICTs at the grass root levels. Unfortunately most professionals want to work in the urban areas where there are ample opportunities available to them for growth as well as prosperity. In the absence of these 'techno-catalytic' resources; development of ICTs in the rural areas will always be very slow.

Information and Communication Technology has great relevance in today's world. If implemented properly ICT can surely bridge the gap between economically and technology backward and forward classes. With the IT boom in India technology is easily accessible to the government machineries with relevantly cheaper and convenient manner. Proper training and implementation of ICT programmes in simple way and language which is easily understandable by the rural people can surely bring about revolution in rural development.

POLICY IMPLICATIONS FOR DEVELOPING COUNTRIES

- National and State Governments e-Agriculture Policy: National and state e-Agriculture policy need to be formulated. It should explore and outline the possibilities of leveraging ICT for the agricultural extension services provision.
- Human Resource Development: Creating awareness on ICT potentials, ICT using skill and capacity development among the extension personnel of the public and private extension systems and also among farmers and other stakeholders in the extension systems will facilitate better usage of ICTs.
- Strengthening ICT Infrastructure: Extension organisations and extension personnel need to be equipped with ICTs for facilitating farm information among the agricultural stakeholders.
- Localisation and Customisation of Content: Research, educational institutions and extension systems should continuously strive for the appropriate content localisation and customisation as per the demand of the farmers and other stakeholders.
- Integration of ICTs with Public-Private Extension System: Appropriate ICTs to be identified and deployed in the extension system to complement ongoing extension efforts of the public and private extension systems.
- Farm Research and Developmental Institutions Collaboration: Establishing strong working collaboration among the ICT initiatives of the research and developmental institutions (IT solution providers) should be initiated. The leading research and educational institutions in agriculture and information technology solution providers should join together to leverage ICT penetration for agricultural extension and they should also guide the other ICT initiatives for agricultural extension services provision.
- Convergence of Communication Methods & ICTs: For effective agricultural extension service delivery, the convergence of traditional extension communication methods (personal contact methods, print media, radio and TV) and new ICTs are to be appropriately used to reach farm stake holders.

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- ICTs & ICM: Integrating ICTs and Information and Communication Management (ICM) in agricultural extension will accelerate the knowledge facilitation among the agricultural stakeholders.
- Social networks & Open Source Materials: Promotion of appropriate use of social networks and open source material to disseminate information among agricultural stakeholders is needed to be emphasised.
- Promote Leadership and Find Champions: ICT interventions need leadership. The champions are needed to push projects forward and make them visible and interesting to the agricultural stakeholders. Theses leaders must operate from local to national level (World Bank, 2011; Szilagyi,2012).

2. CONCLUSION

In India, during the last one and half decade, hundreds of Grassroots ICT projects are implemented. Invariably, agriculture becomes one of the indispensable parts of the project service menu. However, we yet to get substantial results in increase of agricultural production because of deployment of ICTs. Most projects are implemented in smaller geographical area and covering few hundred farmers and hence, drawing generalizations may not appropriate. Much hyped ICT projects are yet to make any break through in agricultural information dissemination. Even though, ICTs are promising to make difference and also accelerating information access by some farmers, but, most of the ICT projects were taken as pilots projects, institutionalising of ICTs need to be given more emphasis. ICTs for agricultural extension projects need to be compared and evaluated objectively. Low cost ICT tools such as mobile phones having lot of promise for agricultural extension. At the same time, experiences are indicating that ICT are going to play greater role in private sector agribusiness, market information and market intelligence. Further, certain type of farm information (e.g. informing government schemes) and online monitoring of the progress of the governmental schemes are proved successful. Hence, it is high time to find out appropriate information to provide through ICTs. As indicated earlier, formulating National and State level e-Agriculture policy, human resource development, strengthening ICT infrastructure, localisation and customisation of appropriate content are to be taken-up to harvest the benefits of ICTs for agricultural extension services provision and agricultural development. Farmers now need information about trend and technology needed in farming so as to produce more and participate effectively in setting price of their product. To make all this possible huge utilization of ICT must be taken as the first priority.

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