

**“ICT AND RURAL DEVELOPMENT: CHALLENGES AND OPPORTUNITIES”****Dr. Vandana Pandey\* Dr. Prabha Shankar Pandey.\*\*and Dr. saheb dubey\*\*\***

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**ABSTRACT**

Information and communication technology is the powerful and productive systems that transform all human activities, including rural economy. ICT acts as a catalytic intervention for empowering rural India as it accelerates economic development in rural areas by helping the people in accessing the information in order to bridge the gap. In developing country like India, ICT revolution renders rural population to become an active participant in growth of our country. The purpose of this study is to explore the relevance of ICT on rural development ICTs stand for Information and Communication Technologies. ICTs refer to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums to enhance capabilities of people. The rural development is one of the important factors for the growth of Indian economy. Combining ICT in rural development can speed up the development process. Access to relevant information and knowledge is crucial and ICTs can be useful in this process to a great extent. . ICT has been seen as major tool for rural development as it has the potential to effectively address issues like health, Education, Agricultural productivity, Agribusinesses- Governance, risk management, access to knowledge, women empowerment etc. This paper focuses on scope and role of ICTs in rural development..

**Keywords:-** ICT, Rural development, Economy, Information Technology, Economic development.

**Introduction:-** 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.

✓ **OBJECTIVE OF THE STUDY**

- ✓ To analyse the role and scope of ICTs in rural development.
- ✓ To suggest course of actions that should be taken so as to utilise ICTs in better way for rural development.
- ✓ To study the ICT and its relevance to rural development.
- ✓ To examine the current status of ICT in India.
- ✓ To find out the conclusion and a suitable suggestion to a better implementation of ICT in rural areas.

**SCOPE OF ICTS IN RURAL DEVELOPMENT:**

We can encourage and enhance learning and their skills in rural people if we ensure communication in local languages, so that rural people can understand easily. The scope of ICTs is wide and it has the potential to play a vital role in the rural development as well as society.

**RESEARCH METHODOLOGY**

This research paper is carried out with the help of only secondary data collected from different sources. These online sources are various databases like Science Direct, Google Scholar, Emerald, and SSRN. Some information is also added from Internet search engine Google, and website like Ministry of rural development of Government of India and department of IT.

**LITERATURE REVIEW-**

(1) Indiresan (1989) The modern technology and computer dominated technology will rapidly replace the conventional production technologies but basically their value is as information processors and concluded that all development is rely on knowledge and as knowledge transmission and dissemination which is more difficult in rural areas as compared to cities, electronic and computer systems are a greater necessity for rural development than for urban development.

(2) **Neelameghan (1998)** published an article, "Information Technology and Rural development". This paper focus on the scope and issues relating to rural development and use of emerging information and communication technologies to support rural development, and related policies and strategies. In this article the author noted that the rural people has a three- purposes relating to information and communication, such as to enable them become more productive and efficient in their economic activities; to enhance their capacity to disseminate the valuable native knowledge they gain ; to facilitate reliable village data collection and analysis needed for development planning. And also author suggested that the rural communities and individuals need to be empowered by enhancing their capacity to access, select and use information as a basis for and in tandem with all other development efforts whether they relate to literacy, food, health and family welfare, population growth, environment, trade and employment.

(3) **Malik and Bhardwaj (2001)** made an inquiry on the strategy of using IT for rural development. According to the authors in the nineties Indian society has been witness of transformation of from an industrial society to an information society. This change made by Information Technology, telecommunication, computing and micro electronics. Increasing deployment of IT application which determining factor in social and economic issues, the boom in satellite and cable T V channels, introduction of Mobile phones, India world on internet the large international network connecting 30 lakh computers, all these are a sign that arrive information society in the country. The authors also said that these new information technologies can provide enormous possibilities in agriculture and Rural Development sector. Moreover the use of these technologies needs to be planned very accurately at the village level.

(4) **Gulati Archana (2008)** published a paper entitled as "Dialing in rural prosperity through universal cellular connectivity" and concluded that mobile connectivity has tremendous potential to transform rural India. The Mobile connectivity can improve rural productivity, reduce dependence and can ensure that rural schemes actually meet to their planed benefits and thus sustainable growth for our country is possible.

(5) **P. Syama Thrimurthy (2009)** published an article entitled as "Information communication technology for rural areas". In this paper, author made an attempt present the importance of ICT, initiatives of ICT for rural areas and the obstacles that are to be faced while implementing various ICT projects of different States & Union territories for enhancing employment generation, agriculture counseling, entrepreneurial activity, increase market access, education and knowledge, to addressing health challenges, rural empowerment, women empowerment of women, good governance, etc. to upward the rural live hood.

(6) **Sabharwal and Sidhu (2011)** conducted a study on "ICT IMPLEMENTATION IN RURAL INDIA". According to the authors the emergence of modern ICTs such as telephony; the Internet has tremendous opportunities for rural development. In this study the authors discussed some popular agricultural websites of the Government Departments, private profit-motivated as well as non-governmental organizations (NGOs), has information provision to serve peoples and to identify the barriers to communication.

**Information and Communication Technology (ICT)**

Information and communication Technology consists of hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information voice, data, text and images. Information and communication Technology (ICT) is the combination of three magic revolutionary words, „Information“, „Communication“ and „Technology“. „Information“ is disseminating and promoted using „Communication“ and transmitted through „Technology“. The term „Information and Communication Technologies“ (ICT) can be used to embrace a multitude of standalone media, including telephone, television, video, tele text, voice information systems and fax, as well as those requiring the use of a personal computer fitted with a modem. The latter can include direct dial-up services such as electronic banking, file exchange and closed information services.

### 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.

After independence, the government took upon itself the major responsibility of development. Hence, the central and state governments carried out development projects. Two such projects are briefly described.

Radio for Rural Development Popularly known as “Radio Farm Forum” was one of the earliest efforts in the use of radio for rural development. The experiment was carried out from February to April 1956 in five districts of Maharashtra State by All India Radio (AIR). Rural listener groups were organized, who would listen to radio broadcasts twice a week at 6.30p.m. for half an hour. “The group then stayed together for discussion of what they had heard, the discussion lasted usually, about half an hour, seldom less, frequently more”. The summative impact evaluation indicated positive outcome of radio rural forum. Impressive knowledge gains as a result of radio listening were reported across illiterates and literates, agriculturists and non-agriculturists, village leaders and others. However, over a period of time the project withered away.

Satellite Instructional Television Experiment - (SITE) is considered to be one of the biggest techno-social communication experiments in education and rural development. The one-year experiment (August 1975 - July1976) aimed to provide direct broadcasting of instructional and educational television in 2400 villages in states of Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa and Rajasthan. Over 500 conventional television sets spread over 335 villages in Kheda district, Gujarat was also part of SITE. Satellite technologists had called SITE as leap fogging from bullock cart stage to satellite communication, which did not discriminate between rural poor and urban rich for information and communication. It had given 50 years communication lead to rural poor of the country.

SITE provided telecast for rural primary school children in the age group 5 - 12 years studying in grades 1-5. Rural adults viewed television programmes on improved agricultural practices, health and family planning. They were also able to view news. Television was considered as window to the world. The telecast reliability was above 99 per cent during the experiment period. More than 90 per cent direct reception television sets were in working.

Both quantitative (survey) and qualitative in-depth (anthropological holistic study) evaluation indicated modest gains in some areas, whereas no gain or negative gain in other areas. The one-year duration was thought to be too little for any positive results. Based on the experiences and positive gains, INSAT satellite was launched in 1981. Since then a series of INSAT satellites have been launched and used for nationwide television telecast for education and development. The sad part is that, in spite of best efforts, satellite television has been used for entertainment more than rural development. I am sad that my prediction came true that satellite television will be used for entertainment and not rural development.

Communication Technology and Rural Development in India could not be operationalised for large-scale implementation in one form or the other. Lack of political will and indifference of bureaucracy killed the rural development project even before it could help poor to take advantage of radio broadcast.

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.

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.

#### **PROBLEMS IN IMPLEMENTING ICT SOLUTIONS-**

While implementing ICT, the first barrier is language. The information available on internet is in English as it is a world-wide accepted International language. So, education status is essentially needed to be improved. India is a prosperous nation in terms of resources. It may be then human resource, natural resources, etc.

- Management is the ultimate solution for it. Many industries can be developed in rural India like paper industry, handloom industries, etc. As such, the global ICT industry is fast changing as a result of emerging technologies, economic, social and business trends

- Connectivity is not available in most rural areas.- There are other problems too like electricity. We need to focus on this too because rural development is a very vast subject which covers all the socio-economic, cultural and technological development and that's what is the rural development. ICT does not include only the Internet but a gamut of other tools which could be used individually or in convergence with each other.

- Financial problems are faced by most of the rural families.- This is the root cause for poor standard of living. ICT platforms help in generating incomes through new ways of carrying out business, reducing cycle times or increasing productivity. Many government schemes are provided for those who want to start a new business, loan facilities are also available. The rural citizens should take benefits of such schemes. To implement ICT, computer literacy in fact, technical literacy is also essential. In business, entrepreneurs must not bring international branded products because the rural economy is not so strong. So, this mistake should be avoided.

- Problems in establishing network: This is a technical issue to establish a network. The first point is the large investments needed to establish a strong network along with infrastructure. To achieve the balance between rural and urban areas, communication is important. This communication is well established through internet. Access to the Internet as well as the telecommunications is confined mainly to the urban centers in India and the rural areas remain beyond the ambit of new technology. The facility of internet is not so costly to connect from one place to another.

- The rural area is neglected in this case. At start of the invention of mobiles and telephones, this technology was unknown to rural areas. One important reason is the prohibitive cost of connecting India's vast rural areas with Telecommunications. Once an Internet connection is established in villages, it can serve as a multipurpose platform for imaginative entrepreneurs.

- The projects have not adequately transferred capabilities to rural areas. By bridging distances, telephony and the internet, which fall under a broader category known as Information and Communication Technologies (ICTs), allow people living in remote areas unprecedented access to resources and opportunities.

#### **OVERCOMING OBSTACLES: PLAN OF ACTION**

The first success criterion of all analyzed projects is the great effort made to define objectives that take into consideration the socio-economic context of the target area. In order to implement ICT, we need to consider the following points:

LAN Connectivity: The local area network can be established in the low cost. Telephone connection and modem are required for wired network. Dongle is also the option for LAN connectivity.

User-friendly & inexpensive PCs: Desktop PCs are available at affordable cost. They are user-friendly too. We can provide the computer facilities in the schools. To impart technical education, language-friendly software are also essential. Learning systems on projector startup is the good step that government can implement.

Multinational companies should motivate youth by taking the seminars and provide them employment opportunities.

Teachers training: In rural areas, education system is not so good. Vision and plan are needed to be designed. We can encourage and enhance learning and their skills in rural people if we ensure communication in local languages, so that rural people can understand easily.

Designing the wireless network: Wireless Mesh Networks (WMN) emerges as a solution to realize the dream to connect rural regions to the rest of the world. Designing a reliable and low cost network is the aim to connect to the rural areas.

„Digital Divide“ is the popularly used phrase associating underdevelopment and lack of access to ICT and information. Till now, the network failed in terms of power, data loss, security and reliability. So, the network designers need to concentrate on the protocols and make the network highly efficient. The most common means of internet access is through fixed telephone lines using dial-up in areas where the telephone network has penetrated. The role of software developers in developing features using participatory interactive designing and agile methodologies is very crucial. For a developing country like India which has a population of 1.23 billion, connectivity is a key driver for growth.

Focus on the issue of hardware failure is important while designing a reliable network. Generally the literacy level in the rural communities is quite low so training and skill development of the people out there becomes indispensable for the effective implementation of any development project.

ICT is the fastest way of communication. The media's role in enhancing capability is to be reckoned as preminent in broadbasing the changes by extending knowledge to influence opinions. Transparent flow of information could play an important role in securing a degree of accountability in the delivery of services.

#### **SUGGESTIONS-**

•Following conclusions can be drawn from above description.

•Rural development is essential to contribute the nations' progress. This is the very important thing which we need to understand. The strength of laws will work definitely to achieve this. This will reduce the standard gap between rural and urban areas.

•The first and foremost thing to implement is education. The rural schools need to undergo a long development process. The talent is available on large scale in rural areas' students. The only thing is they need facilities.

•The mutual understanding between rural and urban areas is essentially to be exclusive. The existing gap between them is due to the standard of living, education, employment and the most important the facilities in urban areas. The both areas play the vital role in contributing nations' progress.

•Use of internet can cover this gap. This gap can be eliminated by online education, expert guidance how to improve the standard of living, etc. The youths migrate from rural to urban for education and employment purposes; but they are then not interested to go back again to rural areas. The major reason behind this is their approach changes, also their standard improves too.

•Internet is a valuable source of knowledge. ICT kiosks can be implemented for health and education, occupations, business, etc. the government is also active in making rural areas developing. Just the thing we need is to broaden our scope of thinking.

#### **CONCLUSION-**

ICTs can play a major role in environmentally sustainable rural development; rural community development. ICTs have remarkable contribution towards improvement of economic and social development in India and have positive impact on rural society. In the developing country like India, to create information rich societies, to empower poor people, to reduce digital divide, sustainable development of rural community's dissemination of ICT in grassroots level of villages is necessary.

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