

A Study of Information and Communication Technology for Rural Development

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Abstract: ICT has brought about the revolution that has transformed our lives. Our sages the world as a Global Village "Vasudhaiv Kutumbakam", which seems becoming a reality as communities and countries network and join up. Now what is really needed is the state of "Sarve Bhavantu Sukhinah". This paper explores various possibilities that ICT can take up in order to develop the rural areas. This paper throws light on the condition of the rural areas. It describes the thrust areas that need ICT implementation. The past, present and the future status of ICT is also addressed, with various case studies. "eNRICH" – an innovative ongoing pilot project of UNESCO and NIC finds special place in the papers. The paper concludes by mentioning a few challenges before us, which must be accepted and fulfilled to achieve rural development. A few important considerations in implementing ICT framework and its steps are discussed at the end.

Keywords: Information Technology, Communication, Rural Development, ICT framework.

INTRODUCTION

The buzzword in India these days is information and communication technology (ICT). It's all over the news, from stock exchanges to government corridors around the country. Everyone wishes to work in the field of information technology. This demand for ICT is being fueled by the ever-increasing media spotlight on success tales. The Internet and the World Wide Web are at the centre of this ICT boom (www) In general, there is an ICT-friendly environment in the country.

India has achieved a lot in IT. But then, a question arises; what all about the 70% of the population of India that still resides in areas that lag behind in their basic amenities and technological facilities - the "Agricultural Technology Management Agency (ATMA)" in rest of the parts? Friends, we are talking about the term 'Rural Area'. Development seems to be concentrated in some particular areas, which can be called as 'Urban' areas.

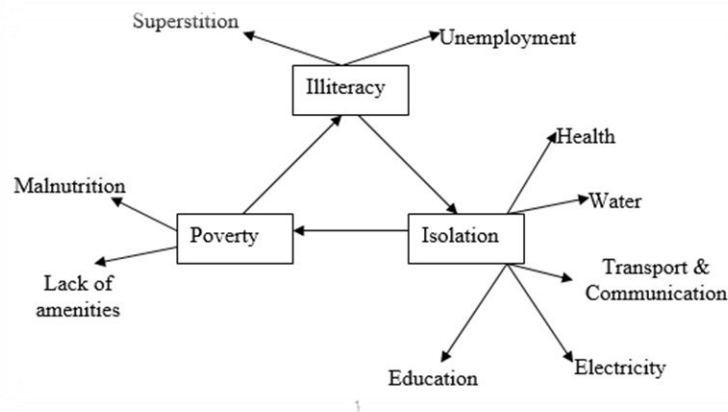


Figure 1- Conceptual Framework

Computer opponents have long claimed that computers can simply provide information, convey it from one location to another, and, with the advent of the Internet, facilitate rapid communication. However, it is unable to provide people with food, clean water, and treat diseases, among other things.

True, a computer isn't a magic wand that can fix all of our rural problems. Even if we consider the computer solely as a source of knowledge, it is an excellent facilitator. The naysayers overlook the fact that locals have their own information requirements. They must be informed about their village, district, natural resources in the area, seasons

and monsoons, market rates, and government programmes and policies. All of these "information pieces" are intimately linked to their lives and livelihoods. All of this and more may be accomplished with the help of a linked PC.

This lagging, between the urban and rural can be called as the "Digital Divide. The rural areas are many a time covered with one or the other problems. Majorities of these arise due to the "Worst Cycle". The villagers are trapped in this worst cycle.

The rural area has plenty of work force and natural gifts; but then due to the worst cycle, they do not make proper utilization of the available resources and remain unaware of the latest technological and commercial know-how. As an example, the natural products like Raisins, Honey and Cummins, are sold at a very cheap rate in such areas; whereas the rate of same products seems to appear 5 to 10 times prices in urban areas.

ICT and its application are bounded to change this situation from making people aware of the latest knowhow to changing their attitude towards commerce and trade. The worst cycle and other loopholes tend to be the major obstruction in implementing ICT in rural areas. The immediate solution to this can be educational and occupational awareness among the masses. This again, is the prime task of ICT

"THRUST AREAS IN ICT"- Scope of ICT implementation

- Health and medicine.
- Education.
- Transport and communication.
- Business and Banking.

ICT – PAST, PRESENT AND THE FUTURE

An attempt has always been made for the penetration of technology in the rural areas. Many experiments were carried out for poverty alleviation, micro level planning, improvement in educational and health services and so on.

Reviewing the past, awareness of the use of computers in rural development in India came during 1975 – 80. Some experiments regarding use of computers by district authorities for various reasons unknowingly built the foundation for setting up a nationwide network to boost the development in rural areas.

It was then in 1985, when a nationwide networking agency – NIC (National Informatics Centre) came into existence. This agency developed a District Information System (DIS) – to computerize all the district offices.

By 90's, each district was connected to the state computer via satellite network. The complete network came to be known as "NICNET" – NIC's Network. NICNET provided the gateway to EDI, i.e. Electronic Data Exchange. Various projects and software development work then took pace in NIC; in collaboration with various government agencies.

These projects opened new horizons for Rural Development. Some of the NIC's projects that need mention are –

- Training workshops on Computer Application for the employees of various Government agencies.
- Development and implementation of Payroll packages.
- Computerization of Land Records.
- Website development for various government agencies.
- Online passports.
- Computerization of Ex-Gratia schemes.
- Computerization of the Public Distribution System and many more.

NIC established E-bazaars and numerous commercial and business portals to promote rural items and to provide new commerce and trade channels for rural craftsmen and the general public. These and many other programmes are well-known instances of E-use Government's in rural development.

NIC's projects and services were mainly focused on improving public services and empowering citizens. Many ICT projects of NIC and some NGOs are on their way to build the ICT infrastructure for the development of rural areas.

UNESCO announced a new pilot project called eNRICH to innovate and investigate social and technological techniques, putting ICT to work in the hands of the poor, as part of the cross-cutting subject on poverty eradication. The emphasis is on the inventive use of technology to empower the poor with tools to transform their situations, rather than on technology itself.

It serves as a one-stop shop for community access and delivery. It offers quick access to important and validated information and is configurable in terms of local content generation. It allows for effective interactivity inside and between communities. The notion of community information centres is based on a people-centered approach in

which community members gather to identify and satisfy their information needs using whatever media is available to them.

Effective communication inside and among communities is a crucial component of community empowerment. Websites, on the other hand, almost often place a greater emphasis on information retrieval than on offering tools for community discussion. They don't have any provisions for community members to help construct the website. As a result, community members are passive rather than active participants in the process of community development. Even if data has been gathered, its accuracy and relevance cannot be determined instantly. The problem is exacerbated by a low standard of living and a lack of literacy. This can be overcome by eNRICH web-based solutions for CIC and knowledge. It is designed to –

- Enable efficient interactivity within and among communities.
- Allow easy access to relevant and authenticated information.
- Serves as a one-stop shop for community access and delivery.
- Have the ability to be customised in terms of local language and content.

eNRICH uses this interface to put ICT in the hands of the underprivileged. Its numerous features allow communities to not only find, build, and organise essential content, but also to communicate with and among themselves. This framework promotes communities to gather, preserve, and share indigenous knowledge.

ICTs have enormous potential that should be explored and exploited for the benefit of everyone. And eNRICH, as an ICT-based instrument for rural poor empowerment, is no exception. There are opportunities to improve eNRICH's ability to serve the impoverished.

The true challenge, however, is identifying the most appropriate, cost-effective technologies to address the rural masses' local needs and challenges. The way people interact with eNRICH is one such area where research is suggested.

Multimodal inputs and multimedia outputs, along with aided technologies and adaptive techniques, could improve the eNRICH interface and empower physically challenged and illiterate people. The user interface could be upgraded to the point where it is attentive enough to capture the visiting user's gesture/behavior, model it, deduce the implied requirement, and proactively offer support or required information, hence reinforcing the overall service delivery model.

Moving forward, some innovative ideas that can positively be viewed as "India's Tomorrow" include AAA Connectivity – Anytime, Anywhere, and Anyhow connectivity, One village – one computer, Computer Theaters, Community Computers, Community Technology Institutes, Community farming, E-farming, and many others.

These and many more ideas can be converted into reality to achieve the goal of Rural Development – to see our motherland a developed nation in the near future. All that we need is the help and support of the community. Thus, a majority of the projects are based on the community support.

LITERATURE REVIEW

A rapid and current review of the available literature is undertaken here. Its main goal is to fill a research gap by citing and following previous empirical research works' methodology, objectives, and limitations. While keeping the major issue of this research study in mind, the linked literature is reviewed.

Reddy (2003) conducted study to examine the potential and benefits of information and communication technologies (ICTs) for governments. In many sectors of government operations, ICT provides significant opportunity for the government to increase efficiency and meet problems and goals. The authors of a paper on the role of IT in government discussed how IT can be used to improve governance and provide cost-effective and quick discussions and meetings, as well as quick and speedy action based on timely and reliable information to the people.

Kumaresan and Chitra (2003) performed study in Tamil Nadu areas to determine the need for rural information centres. Villagers who rely on jobs other than agriculture for a living, according to the authors, do not have access to an information centre that fits their information demands. The authors looked at twenty villages in Tamil Nadu to investigate if rural information centres were needed.

In an article titled "Study of Information Communication Technology in Agriculture in Vidarbha Region of Maharashtra State of India," K. G. Jayade et al. stated that ICT had helped farmers improve their economic status. Information and communication technologies (ICT) are advanced instruments for communicating modern agricultural knowledge with farmers. ICT contributes to economic growth by increasing the efficiency, productivity, and competitiveness of the agricultural market.

Information and communication technology (ICT) is defined by Atul D et al. (2016) as the combination of three revolutionary words: "Information," "Communication," and "Technology." 'Information' is disseminated and

promoted through 'Communication,' which is then communicated by 'Technology.' The phrase "Information and Communication Technologies" (ICT) can refer to a variety of stand-alone media, such as telephones, televisions, video, teletext, voice information systems, and fax machines, as well as those that require the use of a personal computer with a modem. Electronic banking, file exchange, and closed information services are all instances of direct dial-up services.

According to Singh, K.M. and Singh, Pushpa (2018), the government's commitment to improving rural connectivity is evident in the National Alliance for Mission 2007 and the Common Service Centre Scheme to establish tele centres across India. One of the most pressing issues is guaranteeing long-term viability. Cost-sharing agreements are being formed by local stakeholders such as health institutions, farmers' organisations, schools, and local government agencies. Payments for local services can also help tele-centers stay solvent by generating cash. According to price information programmes, farmers in India are willing to pay for price information because of the benefits derived from having access to it. The rural information centre also serves as a training ground for farmer organisations, teaching them not just how to use digital technology, but also how to collaborate to solve problems that affect their livelihoods.

The use of ICT in the implementation of government-sponsored programmes for farmers and villagers in India was explained by Akram and Kumar (2017). The importance of information and communication technology (ICT) in financial inclusion and empowerment through various government initiatives is critical. The goal is to better understand how ICT can be used in various rural development programmes.

Ahamad and Pandery (2014) discuss the use of information and communication technology (ICT) as a crucial tool for rural development, addressing concerns such as education, health, agriculture production, rural capacity building, women empowerment, and access to knowledge.

The most fundamental and crucial application and implementation of ICT in countryside zones and rural areas is awareness and self-realization of the need to do something with new platforms and concepts. When compared to previous years, the improvement in country territories has accelerated. Ranchers are currently utilising ICT techniques and methodologies to improve their content and maintain the cost and quality of their products. Citizens can use ICT to promote their products on the internet and exchange data with the rural development administration. ICT also provides training to ranchers and women entrepreneurs who want to keep their small businesses afloat by obtaining credit from various banks. ICT also provides a variety of web/portable tools for agribusiness business inspiration. With the application of information and communication technologies Ranchers do not need to take their food grains and other products to business sectors to sell them; instead, they can use online applications, and buyers will be able to deal with them in no time. Villagers who register with an internet job portal might also find work/assignment opportunities thanks to ICT.

RESEARCH METHODOLOGY

This paper is conceptual study. This study is performed on literature-based papers designed from google, google scholar and UGC care digital databases.

The descriptive research design is used (Kitchenham et.al 2009). The paper with keywords Information Technology, Communication and Rural Development, from 2014 onwards.

CHALLENGES BEFORE US

Government to Do –

Govt should have a fixed budget to implement ICT infrastructure for rural development. New techniques being used by other countries, must be absorbed by making suitable modifications. Subsidies must be provided. Readiness to work with private institutes and companies must be prepared.

Private Sectors to Do –

Students and faculties in rural areas of the UK should be encouraged to adopt some villages to make them IT enabled. They should start some subsidiary firms or branches in this area. Earning money should not be their aim at all, but knowledge given should be perfect.

CONCLUSION

21st century started with the preamble of economic liberalisation and open world trade. With the advent of new technologies, world appears to be a global village. It is imperative that the benefits of technology should percolate down to the 70% of the population, which resides in villages. It is the need of the hour to provide new directions to Science and Technology, to solve the basic needs of the mankind. Media helps a lot in changing the psychology and attitude of the mankind; in accepting the particular technology. Infact, today, media has the high potential to bring about the computer literacy in rural areas.

"Light a candle ... instead of cursing the darkness" – goes a Chinese proverb. Thus, the objective lies in identifying and developing appropriate technology and to make it acceptable and adaptable by the rural artisans with the help of dissemination of information, propaganda and intention work through various mass media of communication. Adoption of new technology by rural sector will develop entrepreneurship among the rural people. New business horizons that reduce the unemployment problems of the rural youth will result in a drastic change in present change scenario of rural sector.

In India, ICT is still at a nascent stage. Many projects on rural development are yet to be implemented. For ICT to reach the masses, it should be cheap and intelligible. It should provide the rural localities with the latest technologies and facilities; so that the people in these areas do not leave their domain in search of knowledge and employment. Separate portals must be developed on agriculture and other rural occupations, health awareness, commerce and trade; etc. Internet and Computer penetration must grow in the rural areas. The prime factor is the spread of education amongst the masses, due to which a sense of cooperation and healthy competitiveness will grow amongst them.

The existing communication facilities and infrastructure must be reviewed and updated as and when necessary. Govt., again, has a major role in development of rural areas. Developing communication infrastructure, creating educational awareness, subsidies on rural products are a few "To Do's" on the government side.

Improvement in basic infrastructure, subsidies for ICT projects, improved education levels and high Internet penetration is a must so that the dream of our Father of the Nation will come true in the real sense.

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