

ICT: A Tool for sustainable Rural Development

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ABSTRACT

The major population of entire world lives in rural area and earns its live hood by agriculture and allied means. Rural area experiences hunger and poverty. The rural community is isolated from the world. They can't present themselves in front of the world.

Development in 21st century will determine to a large extent by the thought, action and imagination of people. Computers are reshaping human lives. In the rapidly changing scenario, the extensive use of computers advances in ICT making sustainable rural development possible.

The paper introduces the role of ICT for rural development. The paper addresses the issues associated with rural community's isolation. ICT can reduce digital divide between urban and rural community. In order to alleviating poverty in rural areas, ICT can be used.

ICT provides rural communities with existing possibilities for overcoming the disadvantages associated with countrymen's isolation and provides linkages upon opportunities for enhancements.

The paper concludes that effective use of ICT can demolish geographical boundaries and can bring rural communities closer to globe. ICT in right direction can play a vital role for betterment of society and the rural community. There is a critical need to channel the vast potential of information technology to underprivileged.

Categories and Subject Descriptors

J. Computer Applications, J.4 social and behavioral Sciences

Sociology.

General Terms

Human factors. Sociology. Miscellaneous.

Keywords

ICT, Poverty alleviation, digital divide, empowerment, cultural enrichment, kiosk, procurement.

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1 INTRODUCTION

Rural India: - "Just as the whole universe is contained in the Self, so India contained in the villages"... Mahatma Gandhi, the Father of our Nation and the visionary architect of India's Rural Development Programme have said this. The villages epitomize the soul of India. With more than 70% of the Indian population living in rural areas, rural India reflects the very essence of Indian culture and tradition. No wonder then that a holistic development of India as a Nation rests on a sustained and holistic development of rural India.

Today ICT is a unique technology, which is used universally in all span of life. ICT plays a predominant role in the creation and development of knowledge. Because of isolation rural communities are remains untouched by the ICT revolution. This study aims at improving the use of ICT for rural development, reducing digital gap, to develop curiosity of rural people and their world. The paper also focuses the issues, considerations and strategies for implementation of ICT in rural development.

2 DEFINITION OF SCOPE OF ICT

Information and communication technologies (ICT) comprise a complex and heterogeneous set of goods, applications and services used to produce, distribute, process and transform information. The ICT sector consists of segments as diverse as telecommunications, television and radio broadcasting, computer hardware and software, computer services and electronic media (e.g., the Internet, electronic mail, electronic commerce and computer games) as well as the content of these media.

According to UNDP- " ICTs are basically information-handling tools - a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the 'old' ICT of radio, television and telephone, and the 'new' ICT of computers, satellite and wireless technology and the Internet. With appropriate content and applications, these tools are now able to work together, and combine to form a 'networked world'- a massive infrastructure of interconnected telephone services, standardized computing hardware, the Internet, radio and television - which reaches into every corner of the globe."

3 ICT FOR DEVELOPMENT

The ICT opens new opportunities for economic growth and social development. While bringing important economic and social benefits, it can at the same time further widen disparities between and within countries. The majority of the Indian population still lives in poverty and remains untouched by the ICT revolution. Unless access to and use of ICT is broadened, the majority of

people, particularly those living in developing countries, will not enjoy the benefits of the information revolution.

ICT provide unique opportunities for economic growth and human development. They can shape and enhance a wide range of development applications — from electronic commerce to access to financial markets; from generating employment to providing opportunities for investment to entrepreneurs, in particular small and medium-sized enterprises; from improved agricultural and manufacturing productivity to the empowerment of rural society. The potential to help foster sustainable development, empower people, women and men, the young and old, reduce poverty, and enhance participation and informed decision-making at all levels.

3.1 ICT for Poverty alleviation

In the Human Development perspective poverty is defined as, “The denial of opportunities and choices most basic to human needs and forms the core tenet of the rights-based approach to development where Poor people themselves take control and action in their needs.”

Is the widening gap in the access to and provision of ICTs reason for concern? And is it relevant for the poor? Lack of access to information and ICT is hardly a characteristic that identifies the poor in the way that lack of food, or basic health care and shelter do. The poor suffer from material deprivation, as well as low levels of education and health; they are often powerless *vis a vis* political and social institution; and they have a limited ability to make choices and to lead the life that they value.

The poor have information, knowledge and communication needs but they are often unable to address them. Promoting ICTs access for the poor in rural and remote areas where they may have only a limited voice in the institutions, policies and processes. In this regard ICTs can play a significant role in supporting livelihoods through information on the better use of natural resources, markets, commodity prices, income generation activities, support services and so on.

Although Radio and Television play an important role in reaching people with information, they are not interactive and often fall short of addressing various information needs. The Internet is considered to be an effective tool that can reach the remotest and most excluded rural poor provided there is connectivity or other means of support to access information from a data or information source.

ICTs can play a significant role in fighting against rural and urban poverty and fostering sustainable development through creating information rich societies and supporting livelihoods. Development entails dissemination of modern, scientific and sophisticated knowledge to inform and uplift the rural people. The role of ICT in poverty reduction is not limited to reducing income poverty, but also includes non-economic dimensions - in particular empowerment.

Appropriately deployed and realized the differential needs of urban and rural people, ICTs can become powerful tools of economic, social and political empowerment.

3.2 ICT and economic empowerment and sustainable human development

The world economy is in the midst of profound transformation from an industrial society to a global economy for which ICT is an accelerating force. While globalization has brought opportunities in many places, it has also reinforced previous inequalities and created new ones.

ICT offers the potential for facilitating a diverse, inclusive globalization, with increased opportunities for rural masses. ICT is a social construction that can be remade to serve societal goals - increasing growth, improving social equity and strengthening democracy. The information society holds great promise for the economic empowerment of rural. Countrymen need to know the opportunities that ICT can bring and get beyond the fear of using it.

3.2.1 OPPORTUNITIES

ICT offer economic opportunities (both in salaried employment and entrepreneurship, in the ICT sector itself, and in jobs enabled by ICT in all sectors) at all levels. In developing countries there are growing possibilities for outsourced service-sector jobs. Globally IT-enabled communications businesses offer possibilities of entrepreneurial opportunities for rural. The technology inherently makes possible flexibility in time and place that offers great possibilities. The sector also gives the possibility for everywhere, despite their location, of connection to the global economy through e-commerce as producers and distributors of goods and services. ICT-enabled information access can break the isolation of rural, giving them the knowledge to make decisions to improve their economic situation. ICT provides virtual space and linkages that favor small-scale enterprises in rural areas.

3.3 Social empowerment through ICT

In the social and cultural arena, the particular opportunities that ICT provides are in education, e-learning, health, e-governance and cultural production.

3.3.1 E-GOVERNANCE

E-governance offers opportunities for the transformation of governance processes that could be key to rural's empowerment and the achievement of gender equality. It can also be a key approach to enhancing full and equal participation in public life, particularly for people living in rural or remote areas.

3.3.2 EDUCATION.

There is a dearth of information, research and codified knowledge on rural and the educational use of ICT in education worldwide. Furthermore, continuing restricted access to education particularly for rural women, budgetary cuts in education and limited infrastructure contribute towards a proliferating social crisis in education. The introduction of ICT into this context will increase the gender gap of ICT skills and knowledge.

3.3.3 E-LEARNING.

The opportunities provided by Internet-based e-learning in the developed world could undercut the achievements made by rural's in their participation in higher education in particular, but

with rural being disadvantaged in ICT access and skills, this limits their participation in e-learning.

3.3.4 HEALTH.

ICTs are being used in developing countries to facilitate remote consultation, diagnosis and treatment. Delivering health care with ICTs enables health care professionals and institutions to address the critical medical needs of rural communities; especially those in remote locations and those that lack qualified medical personnel and services. ICT could also be a critical tool in enhancing rural people access to information on all health-related issues.

3.4 ICT and Cultural enrichment

ICTs can be an opportunity to a culture. As with all successful applications of ICTs, adaptations in the behavior of individuals, groups and institutions is necessary before significant benefits can emerge from the deployment of ICTs. Existing institutions such as libraries and museums can assist in the process of democratizing ownership of cultural assets, provided they face up to the limitations of their traditional roles.

ICTs can be used to help rural indigenous and minority communities achieve custodial ownership and rights of interpretation and commercialization over their own cultural heritage. Rather than homogenizing culture, ICTs offer the opportunity to celebrate the diversity of culture.

3.5 Employment opportunities

Poor people in rural localities lack opportunities for employment because they often do not have access to information about them. One use of ICTs is to provide on-line services for job placement through electronic labor exchanges in public employment service or other placement agencies.

Two areas of employment opportunity arise from the deployment of ICTs. First, unemployed people can use ICTs to discover job opportunities, and second, they can become employed within new jobs that are created through the deployment of ICTs.

3.6 Defining the digital divide

The term digital divide was first coined by Lloyd Morrisett, president of the Markle Foundation (Hoffman, et al., 2001). According to Hoffman et al., Morrisett vaguely conceived of a divide between the information-haves and have-nots.

ICTs threaten to expand the already wide socio-economic gap between urban and rural populations in developing countries whilst simultaneously offering opportunities to reduce it. ICT implementation can be successfully adapted to the development challenges faced by rural communities and such implementations can be evaluated so that the often unexpected and desirable results that emerge can be revealed and accounted for. Novel approaches to system implementation methodologies for rural development and outcome evaluation that challenge traditional wisdom in the implementation of information systems.

But with all these technology adaptation by various developed countries, Digital divide is been created due to unbalanced distribution of resources. The strong commercial interest has pressurized the national resources to invest in infrastructure

mainly in urban area, which has further widened the digital divide.

3.7 Financial Services and Cash

Management:

Connectivity at the village level will make it possible to develop low cost channels of delivering basic banking services (deposit and withdrawal) to a larger number of people. If banking is understood as comprising of cash management and data base management, any agency or a collaboration of agencies capable of performing these two functions effectively can potentially deliver banking services. In such a scenario, the existing banks that have the capability of database management can collaborate with the emergent kiosk networks to use the latter as a front end for banking. Connectivity enables remote monitoring of bank accounts and database management. The use of Internet as a transaction channel significantly reduces the cost of transaction. Since a typical kiosk operates for around 8-10 hours a day, it also increases the time available for transactions. This brings banking facilities almost to the doorstep of the villager.

The kiosk also provides a fairly low-cost distribution infrastructure at the village level to the bank. The kiosk operator can facilitate the distribution of a variety of financial services including insurance, investment products and loans. The transaction fees and commissions earned through sale of these products also enhance his/her revenue streams.

3.8 Procurement:

The ITC e-Choupal experiment has been able to combine village level connectivity with crop-specific insights to deliver a value proposition to the Soya farmers in Madhya Pradesh. ITC analyzed the value chain of Soya to determine sources of value leakage to the farmer. It then created the e-Choupals as spokes around the hub, which is the procurement center (e-Choupals are in a 25 kilometers radius of the hub). The e-Choupal provides price information (Mandi and ITC prices), weather information, soil testing and crop specific extension services. A farmer who supplies through the choupal bypasses the mandi and supplies directly to the procurement center. The 'Sanchalak' provides a transaction slip to the farmer, which can be produced at the procurement hub. Therefore, some of the redundant handling costs in the earlier case (wherein the farmer off-loads at mandi, commission agent packages and transports to ITC, ITC unpacks and stores) are eliminated now wherein the farmer off-loads directly into the ITC silos.

The kiosk operator could be the first point of interaction between the procurement center and the farmer. The kiosk operator would in most cases assist the farmer to compare the prices at the mandis and refer him to a procurement center. Such services might help to decrease transportation and other costs incurred in moving the goods through different mandis. Experiences of the kiosks delivering such services exhibit an increase of efficiency of agricultural activities both in terms of productivity as well as in terms of monetary gains.

4 CHALLENGES

While ICT offer many new opportunities for rural masses, in order to take advantage of them we have to overcome significant obstacles.

4.1 Education and skills.

Countrymen's high rates of illiteracy and lack of ICT training prevent them from entering the information economy. The English-language dominance of ICT in software and in content affects more.

4.2 Access to infrastructure

In remote area infrastructure is poorly distributed or not available at all, such infrastructure imbalances may adversely affect from using the opportunities of ICT. The costs of technology and access also present barriers for using the technology for advancement.

4.3 Barriers

The barriers that currently limit the development of rural areas include Distance barriers: to access to administrative and governmental structures, Economic barriers: to access to wider business and labor markets, Social barriers: to information, education facilities, health and social services, Information barriers : many rural areas and their amenities are undiscovered, unknown for the outer world.

For successful implementation of E- rural development it is necessary to define ICT requirements and issues for rural areas like vision, policy, awareness, technology, Infrastructure, services, applications. It is extremely important to focus on all aspects of rural development. For introduction and implementation of E-rural policy it is necessary to establish cooperation of different sectors of government and on national level to introduce coherent E-rural policy, establish formal platform, supporting exchange information and knowledge which will join researchers, developers, regional and local government and which could coordinate research and implementation activity and which can also support E-rural policy

Harnessing ICTs for human development requires awareness raising and Constituency-building across all levels of society. The challenge for governments is to ensure the convergence of their initiatives and those taken up by various donors, multilateral, NGOs and other organizations and to address the digital divide.

5 PRIORITIES AND STRATEGIES

5.1 Priorities

Targeted strategies in a number of priority areas can bring rural into the mainstream of the information age.

- Increase educational opportunities for rural masses.
- Provide increased, strategic and focused investment in training for rural to enter the ICT sector and take advantage of ICT-driven economic opportunities.
- Encourage rural to acquire ICT skills to increase their economic competitiveness and productivity.
- Increase participation in the ICT sector:

- Develop locally appropriate and context-specific education, health content in local languages for dissemination via ICT.

ICTs can contribute to fostering empowerment and participation by:

- Making government processes more efficient and transparent by encouraging communication and information sharing among people and organizations, as well as within the government; and
- Participatory mechanisms such as electronic forums and bulletin boards that enable participation in decision-making, thereby making a democratic process possible. This is especially relevant for marginalized communities and groups such as ethnic minorities, women and youth. They can share and exchange information of mutual interest, strengthen their collective power and shape their own development solutions.

5.2 Strategies for ICT in Rural Development:

- Adopt one village one-computer scheme.
- Start Community learning and Information Centers (CLIC) centers.
- Establish Market Information Centers in remote areas.
- Establish Tele Centers in remote areas.
- Encourage the use of computers and Internet in rural areas..
- Establish Information Technology (IT) parks in remote areas.
- Government has to reduce taxation of ICT-related components, products and services.
- Establish partnerships with NGOs engaged in awareness and innovative for ICT4RD.
- Explore the use of Free and Open Source Software (FOSS).
- Explore the use of local language software.
- Promote the benefits of ICTs to private sector and academic institutions, and encourage computerization.
- Begin basic ICT skills workshops for all rural students at tertiary level.
- Encourage ICT awareness programmes, especially among primary and secondary school students in rural areas.
- Promote ICT-related courses at university/college/school level and expand the base of supportive certificate and diploma level at college level.

- Provide equitable remote access to resources in support of both distance education and the strengthening of local educational capacity.
- Connect schools, universities and research centers to national and international distance education facilities, national and international databases, libraries, research laboratories and computing facilities.
- Encourage assessment and promotion of civil servants to include ICT competency.
- Encourage ICT4D research and development and partnership with the private sector and international educational/research centers.
- Encourage the establishment of cyber cafes / telecenters.
- New partnerships are needed for the development of digital economic opportunities with new development partners such as academic institutions, private sector, and venture capital funds.

6 THE ROAD AHEAD

Rural Development forms an important agenda of the Government. However, the uptake of e-governance in the Rural Development sector has been relatively slow. The main reasons for this are poor ICT infrastructure in rural areas, poor ICT awareness among agency officials working in rural areas and local language issues. Efforts are, however, on to extend infrastructure up to village level. Already, many states have gone ahead to provide connectivity up to block level. This has helped in taking the e-governance efforts further closer to the people.

The important requirement of establishing infrastructure in rural areas is now being taken up as a high-agenda project after the President of India envisioned the idea of providing urban amenities in rural areas (PURA). PURA (Provision of urban amenities in Rural Areas) has been conceived as a scheme under MoRD and envisages to achieve its objective by bridging the various kinds of divide that exists between rural and urban areas by providing four major kinds of connectivity to rural areas: physical (road, power), electronic (telecommunication, internet), knowledge and market. With the provision of such connectivity, it is hoped that the benefits of e-governance in the Rural Development sector would reach its true beneficiaries.

Crucial success factors to realize this dream are strong political & administrative will, Government Process Reform, capacity building of provider (government functionaries) and consumer (rural citizens), utilization of ICTs as a medium to share information and deliver services that are demand-driven and people-centric.

7 CONCLUSION

ICTs can play a significant role in fighting rural and urban poverty and fostering sustainable development through creating information rich societies and supporting livelihoods. If ICTs are appropriately deployed and realized the differential needs of urban and rural people, it can become powerful tools of economic, social and political empowerment.

Creating information-rich society is a key element of poverty reduction and sustainable development. ICTs can be effective tools to tackle poverty but the spread of technology should not be an objective in itself. No single technology is a magic bullet or suitable to all needs. Each ICT (old or new) will be appropriate in different circumstances. It is important to mainstream the appropriate application of ICTs as tools in efforts to reduce poverty.

Efforts are to be applied to strengthen the vision of the need for Information Communication Technology (ICT), towards future achievements in the economies and other strategic areas. But unless we take concrete action to ensure that everyone has a chance to share in the benefits of the Digital Age, information technology could just as easily become another resource that is denied to the people who need it most.

The developing countries, particularly India is coping with the challenge of harnessing the ICT technologies in a very different way. In fact some of the most innovative usage of ICT is one of Internet based technologies in reaching its citizens. Internet is one of the technologies available for global resources and information haring. Internet has become a common resource of the whole mankind. Inquiring and sharing information become easier than ever. With Internet, geographical distance and state borders are eliminated.

Usage of information and communication technologies (ICT) is one of the way by which India's large population can effectively reached. ICT can also enable greater freedom and enrich people's lives through broadening their choices and supporting social, welfare and cultural activities.

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