

## ICT: A Super Highway to Reaching the Unreached Rural Communities of India

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**Abstract:** Since dawn of civilization Information played a catalyst role to transform societies into information-rich and knowledgeable societies. We have seen in the last few years that Information and Communication Technologies (ICTs) played an intrinsic role in overall development of the societies in developed and developing nations. Now ICT completely changes in all aspects of our life but unfortunately peoples of rural area still suffering to get massive benefits of Information and Communication Technology and hence they can't walk with the modern information-rich and knowledgeable societies. ICTs provide opportunities to individuals and communities to be not only consumers but also producers of Information. This paper introduces the initiatives of ICT for the development of rural community's of India as well as barriers and basic challenges for dissemination of ICTs amongst rural communities. This paper concluded that ICTs provides an opportunity for the development of rural communities by adopting and properly implementing ICT strategies in rural area.

**Keywords:** Digital Divide, ICT, Indian Rural Community, Rural Development

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### I. Introduction

This current age is known as information age. Now a day's information is the essential need of everyday life. In the recent years Information and Communication Technology (ICT) gives fruitful result in the development of different strata's of society of developing and developed countries. "Mahatma Gandhi" the father of our Nation and visionary architect of Indian rural development program said that "Just as whole universe is combined in the self, so is India contained in the villages". The villages are representing the Indian cultures and traditions. Rural villages are the soul of India. In India more than 65% of the population still residing in rural area and depends on Agriculture and allied income source. ICT and its applications can be useful for providing better services to citizens, improving their access to market, health, education, agriculture, etc. induction and diffusion of ICT in the root level of villagers is very necessary for the development and progress of Indian rural communities. The dissemination of ICT in root of villages which is actively promoted for bridging the digital divide, poverty alleviation, sustainable rural development, good and citizen centric governance, e-education, empowerment and employment opportunities.

### II. Information and Communication Technology

Information and communication Technology (ICT) is the combination of three magic revolutionary words these are 'Information', 'Communication' and 'Technology'. 'Information' is promoted using 'Communication' and transmitted through 'Technology'. According to World Bank Group (2002) ICT consists of hard-ware, software, networks, and media for collection, storage, processing, transmission, and presentation of information (voice, data, text, images). According to Warren M.F. (2002), 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. This article tends to concentrate on the more ubiquitous internet and its associated services, including electronic mail (email), electronic bulletin boards and the World-Wide Web (WWW). Information and Communication Technology is a system designed to gather, process, distribute information through electronic devices such as Computer, Internet, Mobile phones, television, radios, storage devices, etc. that means ICT is comprised of information technology, telephony, electronic media, and all types of process and transfer of audio and video signals, and all control and managing functions based on network technologies.

### III. Focus on Indian Rural Communities

Even After 69 years of India's independence, the rural communities of the country is still facing problems of infrastructures like roads, transport, power supply, clean drinking water, healthcare, education system, communication network, etc., further pushing them to poverty. Still remarkable population of the country is living under below poverty line. Table 1 shows rural-urban distribution of population in India and selected states (Census of India, 2011). Out of 1210 million (121.1 crore) population, 833 million (68.84%) live in rural areas and 377 million (31.16%) in urban areas.

**Table 1** Rural-Urban Distribution of Population – India and Select States

India/State/UT	Population			% Rural Population
	Total	Rural	Urban	
<b>INDIA</b>	<b>1,21,01,93,422</b>	<b>83,30,87,662</b>	<b>37,71,05,760</b>	<b>68.84</b>
JAMMU & KASHMIR	1,25,48,926	91,34,820	34,14,106	72.79
HIMACHAL PRADESH	68,56,509	61,67,805	6,88,704	89.96
PUNJAB	2,77,04,236	1,73,16,800	1,03,87,436	62.51
CHANDIGARH #	10,54,686	29,004	10,25,682	2.75
HARYANA	2,53,53,081	1,65,31,493	88,21,588	65.21
NCT OF DELHI #	1,67,53,235	4,19,319	1,63,33,916	2.5
RAJASTHAN	6,86,21,012	5,15,40,236	1,70,80,776	75.11
UTTAR PRADESH	19,95,81,477	15,51,11,022	4,44,70,455	77.72
BIHAR	10,38,04,637	9,20,75,028	1,17,29,609	88.7
ARUNACHAL PRADESH	13,82,611	10,69,165	3,13,446	77.33
NAGALAND	19,80,602	14,06,861	5,73,741	71.03
TRIPURA	36,71,032	27,10,051	9,60,981	73.82
MEGHALAYA	29,64,007	23,68,971	5,95,036	79.92
ASSAM	3,11,69,272	2,67,80,516	43,88,756	85.92
JHARKHAND	3,29,66,238	2,50,36,946	79,29,292	75.95
ORISSA	4,19,47,358	3,49,51,234	69,96,124	83.32
CHHATTISGARH	2,55,40,196	1,96,03,658	59,36,538	76.76
MADHYA PRADESH	7,25,97,565	5,25,37,899	2,00,59,666	72.37
GUJARAT	6,03,83,628	3,46,70,817	2,57,12,811	57.42
MAHARASHTRA	11,23,72,972	6,15,45,441	5,08,27,531	54.77
ANDHRA PRADESH	8,46,65,533	5,63,11,788	2,83,53,745	66.51
KARNATAKA	6,11,30,704	3,75,52,529	2,35,78,175	61.43
GOA	14,57,723	5,51,414	9,06,309	37.83
KERALA	3,33,87,677	1,74,55,506	1,59,32,171	52.28
TAMIL NADU	7,21,38,958	3,71,89,229	3,49,49,729	51.55

**Source:** <http://indiafacts.in/india-census-2011/urban-rural-population-o-india>

### IV. Internet and Mobile Phones

The Internet is the biggest achievement of ICT. The Internet is the global system of interconnected computer networks that use the Internet protocol suit (TCP/IP) to link devices worldwide. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. It is a very powerful medium to reaching the depth of everything. It is biggest source of information. The Internet is a technology for accessing global resource of information. It is most popular and significant ICT Tool plays very important role in development of rural communities and enables rural peoples to access and sharing information on millions of other computers. The Internet is used for various purposes such as email, searching of information, availing various Government services, marketing, advertising, purchase of products, online banking, etc. The Internet and mobile are the powerful forces which reducing geographic boundaries, increasing universal access to knowledge and connecting people around the world.

#### 4.1 Internet users in India (Per 100 People) 2005-2015

**Table 2** Internet users in India (Per 100 People)

Year	No. of Internet Users in India (Per 100 People) in %
2005	2.388
2006	2.805
2007	3.95
2008	4.38
2009	5.12
2010	7.5
2011	10.07
2012	12.58
2013	15.1
2014	21
2015	26

**Source:** Internet Live Stats <http://www.internetlivestats.com/internet-users>

Table No. 2 shows that fast evaluation of the Internet users in India per 100 peoples from 2005 to 2015. It is seen that there is rapid growth in the number of Internet users per 100 people in India per year. The number has reached up to 26% on 2015. This indicates that the increase in the IT literates population.

#### **4.2 Mobile cellular subscriptions in India (Per 100 people)**

**Table 3** Mobile Phone subscriptions (per 100 people)

Year	No. of Mobile Users in India (Per 100 People) in %
2005	7.997
2006	14.524
2007	20.155
2008	29.531
2009	44.12
2010	62.39
2011	73.198
2012	69.922
2013	70.783
2014	74.484
2015	78.841

**Source:** Internet Live Stats <http://www.internetlivestats.com/internet-users>

Table No. 3 shows that Number of Mobile Cellular users in India per 100 peoples from 2005 to 2015. It is seen that there is tremendous growth in the number of Mobile users per 100 people in India per year. The percentage has reached up to 78% on 2015. This indicates that increase mobile phone users and availed the Mobile oriented services. There is huge scope for development of rural community by providing Mobile oriented services.

### **V. Initiatives of ICT For Development Of Indian Rural Communities**

#### **5.1 Agriculture**

Information and Communication Technologies such as the Internet and Mobile phones are major source of getting timely and right information to the farmers within a minute and on single click about various farming activities like growing crops, weather, new farming techniques, soil conservation, fertility, pesticides as well as skill development, etc. ICT can be use to enhancing livelihood of farmers in India and reducing the distance among different communities of farmers in the world. Generally income of rural farmer communities depends on market access related issues such as current market price, transport arrangement and cost, location, as well as information of buyers, etc. traditionally these types of information provide by market committees to the farmers and hence they get very less price of their commodities. However establishing and expanding Information kiosks with Internet and provide mobile based services in rural areas help farmers to get accurate and reliable market information for decision making.

#### **5.2 Rural Banking**

In India majority of rural poor are unbanked. They do not use services of banking; either they have low income or do not have saving, believe in exist cash economy. Even when they do have sufficient regular income or saving still they are unfamiliar with the banking system. Moreover independent rural bank face many challenges such as untrained staff, efficient operational control, connectivity, etc. However ICTs can help to reach and improve banking services to rural poor communities by going through computerizing and networking. It helps to enhance operational and controlling capability of bank serving in remote area and provide fast, affordable services to the rural population, since majority of the rural stakeholder have Mobile phone so rural bank may provide its financial services through Mobile i.e. M-Banking to the rural community making participate in cashless economy.

#### **5.3 Economic Development**

Effective use of Information and communication Technology brings world closer, it reduces the geographical boundaries limits. ICTs play a very important role in connecting rural communities with the world for sharing and exchanging information as well as bring rural community closer to global economic system.

#### **5.4 Delivery of Government Services through e-Governance**

The major initiative of ICT in government sector is e-Governance used to delivering Governmental mandated services smoother and digitally to citizens at affordable cost and at their doorstep. The main objective of e-Governance is to bring more clarity and transparency into the Government system and establish citizen centric governance or e-Governance. ICT can improve the efficiency of Government through public finance process by reducing opportunities for corruption.

#### **5.5 Education**

Rural educational institutes or schools are still struggling to raise standards and manage the quality of output, or to raise teacher productivity, or to reduce costs through analyzing spending. ICTs are the potentially

powerful tool for extending educational opportunities and blended learning to the rural students and teachers as well as persons with disabilities. ICT make possible to connect each and every rural schools with the best district or world's schools and sharing current and innovative knowledge among the experts and students using e-Learning.

### 5.6 Women Empowerment

Empowerment of women involves many things - economic opportunity, social equality, and personal rights. In rural areas, women are generally not having any sufficient source income, and hence, they are mainly doing household duties and cheap labor. Various Information and Communication Technology Tools such as radio, television, mobile phone and internet are used for empowering the rural women via awareness, education and information.

### 5.7 Employment opportunities

Generally poor peoples of rural area have fewer opportunities of employment as compared to urban area populace because often they do not have access timely information related with employment. Moreover ICT provide online services for jobs placement through electronic labour exchanges in Government, Private and other placement agencies.

### 5.8 Bridging the digital divide

The concept of a digital divide between technological 'haves and have not's' has been a useful tool in efforts to bring greater, more equal access to powerful new information and communication technologies like the Internet. Information and Communication Technologies are one of the enabling tools to bridge digital divide in India.

## VI. Barriers and challenges

The major barriers that limit the dissemination of ICTs amongst rural communities include Education barriers: Illiteracy amongst the vast multitude of people, Distance barriers: to access to governmental services, Economic barriers: low income, unemployment, Social Barriers: education, health and social services, Information barrier: many rural communities are unknown for the outer world. The basic challenges are Illiteracy, Major power-cuts, band-width issues and connectivity problems, financing difficulties, acute shortage of project leaders and guides who take responsibility to implementation of the ICTs at the grass root levels.

## VII. Conclusion

The Government of India still needs to setup proper ICT infrastructure and promote ICT in rural areas by adopting and implementing ICT strategies for the development of rural area. The fundamental requirements for successful implementation of ICT initiatives in rural area are electricity, hardware, appropriate software, telephony, network connectivity and policy guidelines. 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 rural villages is necessary. By providing proper training and implementation of ICT programmes in simple way and local languages which is easily understandable by the rural people can surely bring about revolution in rural community development.

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