

Use of ICT and eGovernance in Rural Development

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Abstract

In the emerging knowledge based society and information revolution, rural population must not be kept aside. Rural development is mainly related with economic growth, social justice and better living standard of rural people. This can be achieved by providing adequate and quality social services better livelihood opportunities, basic amenities and infrastructural facilities. The poverty and deprivation exists not only due to lack of resources but also persist because of inefficient and malfunctioning institution. The digital governance creates better connections between people and government and encourages their participation in governance. This paper tries to review ICT and eGovernance efforts towards rural India by considering its benefits and highlighting focus area.

KEYWORDS- eGovernance, Transparency, Accountability, Agriculture, Rural Development

I. INTRODUCTION:

All over the world governments are attempting to manage electronic technology in a different way. Governments are capitalizing e-technology to improve people's lives. eGovernance is the application of information and communication technologies to transform the efficiency, effectiveness, transparency and accountability of information and transactional exchanges within government, between government and government agencies of National, State, Municipal and local levels, citizens and business and to empower citizens through access and use of information (Mrunalini Shah). eGovernance ensures good governance, transparency, right to information, control over cost and time, guaranteed quality and enhanced productivity. Government of India has started various eGovernance initiatives in collaboration with corporate and private sectors for the development of rural community.

Objectives:

This paper focuses on the role of ICT and eGovernance in the development of rural India, its present position, its benefits and challenges against its full flag development by addressing the following research aims-

- i) To elaborate the concept of ICT and eGovernance, its present position in India,
- ii) To study eGovernance initiatives in rural India, its benefits for villagers and problems faced by existing projects and citizens.

Methodology Adopted:

The present paper is essentially a library work based on published secondary data. Data collected from books, journals, reports, news papers & various websites. The secondary data obtained from above sources has been reframed, tabulated and analyzed. On the basis of analysis and interpretation researcher have been arrived at conclusion.

II. MEANING AND DEFINITION:

In a big country like India where cultural, traditional, and regional diversity exists, it was difficult task to deliver governance to remote areas in a meaningful and locally relevant manner. The administration setup has evolved by incorporating the age old institutions with the modern democratic organs and to meet this challenge Panchyat Raj came into existence in year 1992 through 73rd constitutional amendment at Village, Intermediate (Block Level) and District levels for rural development. Government of India also started a time bound action plan named Bharat Nirman in 2005. Bharat Nirman is mainly concerned with Water Supply, Housing, Telecommunication & Information Technology, Roads, Electrification and Irrigation.

Information and Communication Technologies (ICT) play important role in development and economic growth of rural India. Political, Cultural, Economic and Social developmental and behavioral decisions need to access, gather, analyze and utilize Information and Knowledge. ITC is the conduits that transmit information and knowledge to citizens to widen their choice for economic and social empowerment. In 1998, the National IT Task Force had set up a Citizen-IT Interface Working Group with the mandate of formulating projects as well as policy guidelines for promoting the beneficial impact of IT to deliver government services to citizens electronically. The Working Group identified area wise requirements of citizens to include public grievances, rural services, police, judiciary, social services, registration of licenses and certificates, public information, economically weak section (EWS) services, agriculture sector, utility payments/billing, commercial taxes & returns filing and government procurement. By the objective of transforming the citizen- government interaction at all levels, Government of India has adopted NATIONAL eGovernance Plan in 2003.

According to United Nations Development Program (UNDP), “ eGovernance is the information and communication technologies with the aim of improving information and service delivery, encouraging citizens participation in the decision making process and making government more accountable, transparent and effective.”

Orissa Computer Application Center (OCAC) defines eGovernance as, “eGovernance is the application of information and communication technology (ITC) for delivering government services, exchange of information, communication transactions, integration various standalone systems and services between government and citizens (G2C), Government and Business (G2B) as well as back office processes and interactions within the entire government frame work.”

III. STRUCTURE OF NATIONAL E-GOVERNANCE PLAN (NEGP):

The National eGovernance Plan contains three pillars infrastructure, i.e.

- i. State Wide Area Networks (SWAN),
- ii. National Data Bank/ State Data Centers (SDC) for secure, fail safe data storage &
- iii. Common Service Centers (CSC) or Kiosks

SDA appoints private SCA to implement and develop egovernance projects. Also there are several National Level and State Level Departmental eGovernance Projects (Income Tax, Excise etc), Public sector eGovernance Projects (LIC, State Transport etc) and Government Local Body Projects (Z.P., Panchayat etc.)

National eGovernance Plan(NeGP)

[Implementing Authority: Department of Informaion & Technology,

Government of India]



NLSA (National Level Service Agency)

Infrastructure Leasing & Financial Services Mumbai [IL & FS, Mumbai]

[To assist, DIT Govt. Of India, State Govt. SDA & SCA's]



eGovernance, Maharashtra State

[Implementing Authority: Department of Information & technology :
Government of Maharashtra State]



SDA (State Designated Agency)

SETU Maharashtra



SCA (Service Centre Agency)

Implementing eGovernance at divisional level of Maharashtra State.



CSC (Common Service Centers)

[Providing eGovernance service at bottom level / village level]

The eGovernance services at village levels are offered through internet portals hosted on web server. The information exchange between delivery server and government departments or public sector organizations takes place by the way of Internet or LAN, if department server exists. In some application, rural connectivity is accomplished directly from Intranet server without involving an ISP. Till today due to non computerization of back-end systems, transactions are manual or response data is keyed in manually through the nodes on the delivery server. In providing eGovernance services to citizens number of stages and several government and private agencies are involved, this process is given in the table no.1.

Table 1: Information Exchange in Rural eGovernance

Stage	Connectivity	Network & Transmission Technology	Information/ Service Agency
1	Related Departments to Central Servicing Agency	Manual or WAN/ Intranet/ LAN of individual departments	Individual department of central, state and district Government Officials
2	Central Servicing Agency to Delivery Server (web server)	LAN with or without Intranet	Coordination committee offering the service
3	Delivery Server (web server) to Internet Service Provider (ISP)	Leased or Dedicated Line / VSAT	Service Deployment Agency
4	Central Servicing Agency's ISP to Rural ISP	ISP Dedicated Lines/ BSNL/ VSNL/ Private Service Providers	Internet Service Proyder(s)

5	Rural- ISP to C.S.C. or Rural Kiosks	Dial Up Line/ Wireless (WLL)	Service Agents Panchayats, C.S.C., Village Entrepreneurs)	Delivery (Village Level)
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Elements of eGovernance in Rural Development:

- National eGovernance plan
- State Government eGovernance projects
- Online land records
- ePanchayats
- eGovernance in Rural Agricultural Developments
- Public Grievance Lodging and Monitoring
- eGovernance through CSC network
- Private ICT/ Online projects
- eLearning
- Online Healthcare consultation/Remote Diagnosis
- eBanking and ePayments

IV. SUPPORTIVE COMPONENTS FOR ICT AND E-GOVERNANCE INITIATIVES:

Government of India is trying to improve digital technology infrastructure, digital empowerment and e-governance services through ‘Digital India Programme’ launched in year 2015. Certainly there exists many supportive components in Indian digital environment.

1. Growth in Literacy Rate: The table no.2 infers that rural literacy rate grown up from 59.4% (year 2001) to 71% (year 2014). Percentage increase from year 2011 to 2014 is 3.2%, in urban area it is 1.9%. The overall increase in literacy rate from year 2001 to 2014 is 10.17%. These facts are supportive for computer awareness and digital literacy.

Table no. 2: Literacy rate in India

Year	Rural %	Urban %	Total %
2001	59.4	83.3	64.83
2011	67.8	84.1	74.04
2014	71	86	75

(Source: Census India and National Sample Survey Office 2015)

2. Increasing Computer Literacy: In India 8.8% of the rural population and 30.2% of urban population is computer literate. The urban computer literacy is nearly four times higher than rural computer literacy.

Table no. 3: Computer Literacy According to Rural and Urban Population

Sr. No.	State	Top Five Performers		Sr. No.	State	Bottom Five Performers	
		Rural %	Urban %			Rural %	Urban %
1.	Kerala	32.3	40.6	1.	Chhattisgarh	2.9	21.1

2.	Delhi	28.8	41.2	2.	Bihar	4.0	21.3
3.	Punjab	16.1	35.1	3.	Jharkhand	4.2	24
4.	Tamil Nadu	15.8	38.0	4.	Orissa	5.0	22.5
5.	Maharashtra	12.3	37.4	5.	M.P.	5.0	26.4

(Source: NSSO, 71st Round 2014)

The table no.3 shows that Kerala is having highest rural computer literacy of 32.3% and Delhi is having highest urban computer literacy of 41.2%. Similarly Bihar is having lowest rural computer literacy of 4% and Chhattisgarh is having lowest urban computer literacy.

- Growth of Internet Penetration in India: In early nineties internet services were launched in India. In 1995 VSNL introduced internet via dial up connections in six cities. There after 'National Telecom Policy 1999' paves up opportunities for many small and large internet service providers due to which services get improved and price declines. National Optical Fiber Network (NOFM) a project was initiated to ensure broadband connectivity to over two lakh (2, 00,000) Gram Panchyats of India by 2016. The table no.4 shows that internet penetration in year 2000 was only 0.3% , it was 3.6% in year 2005. In year 2012 internet penetration rate was 11.4%. This shows increasing trend of internet penetration rate in India.

Table no.4: Internet Penetration in India

Sr. No.	Year	Users (numbers)	% Penetration
1	2000	28,00,000	0.3%
2	2005	3,92,00,000	3.6%
3	2010	8,10,00,000	6.9%
4	2012	13,70,00,000	11.4%

(Source: www.etu.org)

- Increasing Use of Smartphone: Efforts have been made to create telecom infrastructure- 2G voice and data services covers nearly 97% of Indian population, and 3G/4G covers 68% of the Indian population. Among the internet users 87% accesses it on the smartphones. The table no. 5 shows the increasing use of smartphones. Hence mobile technology will continue to remain at the forefront of driving digital inclusion.

Table no.5: Mobile Phones and Smartphone Users in India (predictions)

Description	2014	2015	2016	2017	2018	2019
Mobile phone users* (millions)	581.1	638.4	684.1	730.7	775.5	813.2
--% of population	47.0%	51.0%	54.0%	57.0%	59.8%	62.0%
--% change	10.7%	9.9%	7.2%	6.8%	6.1%	4.9%
Smartphone users** (millions)	123.3	167.9%	204.1	243.8	279.2	317.1
--% of mobile phone users	21.2%	26.3%	29.8%	33.4%	36.0%	39.0%
--% change	62.1%	36.2%	21.5%	19.5%	14.5%	13.6%

Note: * Individuals of any age, who own at least one mobile phone and use the phone(s) at

least once per month,

** Individuals of any age who own at least one smartphone and use the smartphone(s) at least once per month,
(Source: eMarketer July 2015)

V. GOVERNMENT AND PRIVATE, ICT AND eGOVERNANCE INITIATIVES IN RURAL INDIA:

1. Computerized Rural Information System Project (CRISP): The Department of Rural Development under Ministry of Rural Development initiated CRISP in 1986 to facilitate the staff of District Rural Development Agencies (DRDAs) in monitoring a Computer Based Information System (CBIS). Since 1986 several versions of CRISP application software package have been designed and developed for DRDAs to process the data related to poverty alleviation schemes. User can get information on projects background, scope and present activity. Through Ruralsoft 2000, common man can access all information on government portals and it also enabled government to monitor working of various agencies. The latest Ruralsoft which is a scalable solution that helps in web based monitoring of the poverty alleviation schemes. It is used in 15 districts of the country, which have been wired using state of the art VSAT (satellite based) network by the ministry. CRISP is truly the beginning of eGovernance in India.
2. Bellandur Project: Bellandur Panchyat eGovernance Project was initiated by local people and is first (1998) egovernance project at gram panchayat level in India. Bellandur is 25km apart from Bangalore- Karnataka. Bellandur project provides services to 10,000 more people from five villages under Bellandur gram panchayat. This project issues computer generated birth and death certificates, property certificates, tax assessments, demand notices and water bills to the residents. Bellandur project has limited corruption practices and generated considerable increase in revenue for the panchayat. United nations organization has appreciated this project for egovernance and rural development. It serves as the model for other egovernance initiatives.
3. Mandi Project (AGMARKNET): It is a 'Speech Based Automated Commodity Prices Helpline'. As people from rural area are not able to use English language and as all digital transactions are dealt in English these people are digitally illiterate. So to overcome this problem seven institutions in India (IIT-M, IIT-K, IIT-B, IIT-G, IIIT-Hyd, TIFR & CDAC-Kol) in coordination with IIT Madras developed a speech based automated commodity prices helpline AGMARKNET in six different Indian languages. In this automated system farmers can inquire about the latest price of agricultural commodities in their own language.
4. mKisan SMS Portal: The Department of Agriculture and cooperation, Ministry of Agriculture, Government of India has developed a mobile based agriculture interactive advisory service consisting of agriculture advisory from experts. The need based information and knowledge sharing on crop and livestock such as insects, diseases, nutrition, agro bulletins, market information of crop prices and weather forecast are dealt with farmers, related persons and organizations. mKisan SMS portal for farmers enables all central and state government

organizations in agriculture and allied sectors to give information, services, advisories to farmers by SMS in their own language, preference of agricultural practices and location. (Website- <http://mkisan.gov.in/>)

5. Kisan Call Centers (KCC): Kisan call centers was started on January 21st 2004 by Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India. KCC aims to answer farmers queries on a telephone call in their own language. KCC are working in 14 different locations covering all states and union territories, in 22 local languages. A common eleven digit 'Toll Free' number 1800-180-1551 has been assigned for it. This number is accessible through mobile phones and landlines of all private and public telecom service providers.
6. E-Choupal: Agriculture sector is a dominant occupation and farming provides livelihood to about 50% of the workforce in India. E-Choupal is a Hindi word which means "village meeting place". International Business Division of Indian Tobacco Company (ITC-IBD) initiated E-Choupal in June 2000. Indian agriculture is characterized by fragmented farms, weak infrastructure and the involvement of intermediaries. In E-Choupal farmers and villagers link directly with company via internet for procurement of agricultural produce and aquaculture products like soyabeans, wheat, coffee, prawns etc. The purpose is to inform and empower farmers to improve the quality of agricultural goods and quality of life. Farmers can order supplies, learn about best agricultural practices, receive weather reports and read about pricing for crops. ITC plans digital E-Choupal 4.0 by the last quarter of 2018. The digital E-Choupal will offer a range of farm focused services such as crop management and farm mechanization as well as health care, banking and insurance.
7. Gyandoot: Gyandoot kiosks are also called as 'Soochanalayas'. Gyandoot means purveyor of knowledge in Hindi. It is internet based service portal. Madhya Pradesh state government set up a chain of computer kiosks to help provide better access to government information and services in January 2000. This initiative started in Dhar district in M.P. The services offered by Gyandoot encompass a wide range of government departments i.e. Zilha Parishad, Panchyat, Civil supplies, Transport office etc. These centers also provides services like- rural market for land, agriculture, machinery, livestock, rural matrimonial services, e-education etc. Gyandoot is a model for public-private partnership in providing the e-governance services to the citizens and for facilitating entrepreneurship among the rural mass through ownership of the information kiosks.
8. Tata Kisan Kendra (TKK): It is an initiative by Tata Chemicals Limited started in 1998 aiming towards improving the quality of life of Indian farmers. TKK provides the farmers crop seeds, fertilizers, pesticides (at affordable prices) lease out farm equipments and enable farmers to use modern machinery even if can't afford it. Also they provide agronomy services like soil testing, soil mapping, fertilizer testing. Training regarding health, hygiene, child care, agriculture and agro-education materials are also made available for rural families. TKK has made provisions for crop insurance and other credit facilities. TKK is currently working in Uttar Pradesh, Punjab and Haryana. It serves 48,000 villages through 800 franchisees and 40 more kiosks.

9. Akashganga: Akashganga is a registered brand name of 'Automated Milk Collection System installed in more than 3,252 milk processing units at Gujarat. This system is developed by Kamdhenu Eletronics Pvt. Ltd. Anand, Gujarat in 1990 for ensuring transparency, mutual faith and error free operations of milk collection by integrating electronic weighing scale with quality testing equipment (Electronic Milko Tester/Milk Analyzer) and data processor computer. When farmer arrive at Raw Milk Receiving Dock (RMRD) counter identification is done by ID card (plastic card) allotted by that unit. As the milk is emptied in weighing pan, weight and quality are automatically recorded in data processing computer, accounting and payment of bills are processed at the same time.
10. Jagriti E-Seva: Jagriti eSeva is a rural networking platform to give government and non government services. The Jagriti eSeva is a self sustainable project and each kiosk is operated on franchisee basis. Kiosks are established on prime locations or at commercial places to serve 25,000 to 30,000 people approximately or radius of 3km. Kiosks are allotted mainly to young graduates or ex-servicemen. The first Jagriti eSeva was inaugurated in March 2003 at Jalandhar- Punjab. Now a day it operates in Punjaqb, Haryana, Delhi, UP, J&K, Himachal Pradesh, Gujarat and Bihar. Jagriti eSeva provides services like mobile telecommunication services, internet services, travel services- ticket booking, tour operations, agricultural services- inputs, produce, contract farming, product marketing services- construction, durables and branded products. Jagriti conducts studies in rural and semi-urban areas about requirement of people and then add these products in its own model.
11. Rural Access to Services through Internet (RASI- Tamil Nadu Government Project): The pilot project was Sustainable Access in Rural India (SARI) implemented in Madurai district Tamil Nadu during 2003-04. It aims to bridge digital divide between urban and rural areas by setting up Internet Kiosks through public- private partnership. This project was renamed to Rural Access to Services through Internet (RASI) and implemented in 10 more districts. RASI provides internet and voice connectivity through touch screen internet kiosks to villagers. The network technology 'CorDECT' used by RASI was jointly developed by the "TeNet" group at IIT Madras, Analog Devices Inc. and Midas at Chennai. The access center of CorDECT is located near about 25km from the kiosks. Wireless in Local Loop (WLL) technology is used for Internet facility. Every kiosk is connected to the website containing information services like revenue department, document registrations, education, health care, agriculture, animal husbandry and rural development. For feasibility of kiosks computer education is provided to children.
12. N-Logue: N-Logue Communications Pvt. Ltd. Is a rural service provider of internet and voice services in semi urban and rural area in India. Its headquarter is located in Chennai, and has successfully enabled internet access in many rural areas. N-Logue is using CorDECT an advanced wireless access system for its operation. Service area under coverage of each center is near about a taluka. In collaboration with various state governments , rural development ministry, agriculture ministry and agrobased companies, N-Logue is providing various services i.e. telecommunication services, e-mail, video mail, internet connectivity,

computer based education, agriculture consultancy and veterinary services, healthcare consultation, remote diagnostics, entertainment, rural ATM and eGovernance. These services are provided through kiosks. Kiosk operator is a local entrepreneur with minimum 12th standard education. N-Logue is operating in Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh and Madhya Pradesh.

VI. BENEFITS OF ICT AND EGOVERNANCE IN RURAL DEVELOPMENT:

1. eGovernance projects, CSC's provides employment opportunity for village level entrepreneur as an operator of kiosks.
2. eGovernance minimizes transaction cost, saves time and provides quality services to rural people through effective and efficient use of ICT. Thus saves money, time and energy.
3. The use of ICT help farmers to know market prices of agricultural produce, abolish middlemen- agents and help to gain more income.
4. eGovernance reduces migration of rural population to urban area by providing access to better facilities and services available in cities.
5. ICT helps the rural mass to better utilize resources like H.R., energy, raw materials, natural resources .
6. People from rural area can better utilize funds available under various government schemes, plans and policies due to eGovernance initiatives.
7. CSC, kiosks acts as a information centers and it speedup the overall rural development process.
8. ICT and eGovernance aids in social wellbeing through various services like education, health care, agricultural consultancy, electrification (for CSCs) etc.

VII. CHALLENGES TO SUCCESSFULLY IMPLEMENT ICT AND EGOVERNANCE IN RURAL INDIA:

1. To bridge the digital divide and providing supporting infrastructure to rural areas is necessary.
2. To reduce the cost of project and application technologies for rural connectivity and information processing.
3. Efficiency and transparency must be stated clearly while implementing ICT and eGovernance initiatives for trust and confidence of citizens on service delivery process.
4. Reengineering of backend processes, end to end connectivity and change management for employee participation must be achieved properly.
5. Integration of backend process with front end service delivery process and web site should be done properly.
6. To create local content and regional language interfaces to facilitate the use of ITC and eGovernance.
7. Arrangement should be made for public private partnership in application development, service delivery to reduce the burden of project on the central servicing agency. PPP also bring expertise, cost effectiveness and timely implementation.
8. CSCs should be sustainable to attract private operators to earn sufficient profits. Also it will generate revenue for government agencies.

VIII. CONCLUSION:

In India near about 70% of the population lives in rural area. Inequalities in economic condition, social environment, improper work distribution and earnings makes rural people helpless. Moreover government and educational facilities, civil services and amenities and modern lifestyle and prosperity attracts them towards cities. To meet the gap between economic and social disparities, ICT and e-governance acts as a catalyst. ICT and e-governance fulfils much information requirements, provides government services, agriculture and healthcare services, various advisories at local level. We have seen many ICT and e-governance initiatives helping rural mass. The only need is to develop robust ICT network throughout India. Also more and more government and private services must be added in CSCs portfolio. PPP must be strengthened maintaining flexibility at project level. Though government of India is taking all the efforts to make digital India mission successful the main challenges are illiteracy, computer education and poverty.

IX. REFERENCES:

1. E- Governance at Panchyats Taking Shape, The Times of India, Dt. 16th April 2017,
2. Gianiuc C. Misuraca, (2007) e-governance in Africa, Africa World Press, Inc., ISBN (e-book) 978-1-55250-369-0
3. Rama Rao T.P., (2004) ICT and e-Governance for Rural Development Research Paper Presented in Symposium on ‘Governance in Development: Issues, Challenges and Strategies’, Organized by Institute of Rural Management, Anand, Gujarat Available online at
4. Satyanarayana J., (2006) e-Government- the science of the possible, Prentice- Hall of India Pvt. Ltd. New Delhi, ISBN-81-203-2608
5. Sharma Arpita, (2013) Rural E-Governance in India, Research Paper Yojana Vol.57 Published by the Ministry of Information and Broadcasting, Government of India Available online at
6. <http://www.akashganga.in/>
7. <http://www.tatakisansar.com/>
8. <http://agricoop.nic.in/policyincentives/kisancalldetail.htm>
9. <http://ruralinformatics.nic.in>
10. <http://www.emarketer.com>
11. <http://www.etu.org>
12. <http://mkisan.gov.in/>
13. www.mospi.gov.in/national-sample-survey