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Sustainable Rural Development through ICT & E-Governance in India

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Abstract—*India is a country of villages and to improve and sustain the overall prosperity, growth and development in the global competitive regime, Government has introduced National E-governance plan (NeGp) that seeks to lay the foundation with various projects, starting from the grass-root levels, and provide impetus for long-term e-governance within the country. In this direction, rural e-Governance applications implemented in the recent few years have been demonstrating the importance of Information and Communication Technologies (ICT) in the concerned areas of rural development. In this context, this paper presents a brief review of these technologies, the rural ICT projects and the relevant issues associated with the use of ICT for rural e-Governance applications, and suggest that the Public Private Partnership (PPP) approach could be more effective to achieve sustainable economic development.*

Keywords: *E-Governance, Information Communication Technology (ICT), Public Private Partnership (PPP), State Wide Area Network (SWAN), Sustainable Rural Development.*

1. INTRODUCTION

In the rural context, development does not mean the urbanization of far areas but it also involved optimum utilization of use of men (human resource), machine (technology), land (natural resource) and for sustainable economic growth and social development of the rural economies. The term rural development also represents improvement in quality of life of rural people in villages. As per Chambers (1983) "Rural Development is a strategy to enable a specific group of people, poor rural women and men, to gain for themselves and their children more of what they want and need." India is a developing country where still we have number of villages where basic infrastructure is awaited. For them government is armed with many E-governance projects to improve their living standard. "Sustainable Rural Development can make a powerful contribution to four critical goals of: poverty reduction, wider shared growth, household, national, and global food security, and sustainable natural resource management" (World Bank, 1997). Globally all countries are focusing more on rural development. Any improvement, in the social or economic status of rural areas would not just directly benefit rural poor but would also bring down the migration-pressures on cities and contribute by positive ripple effect in global stride towards development. (Malhotra et al., 2007)

2. ICT & GOVERNANCE

Information Communication Technologies (ICT) can be defined as "electronic means of capturing, processing, storing and communicating information. ICT may be computer hardware, software, and networks. They also include intermediate technologies like radio and television, literate technologies like books and newspapers and organic technologies based on human body like brain and sound waves" (Heeks, 2002). ICT is an essential for required development in rural area because whenever any government services comes in to our mind automatically we think of long queue, several visits to government offices and also sometimes "extra fees" for completion of task. Being developing country, India is in need of radical change in governance and this can only be achieved by reengineering existing governance process with the help of ICT. ICT applications can enhance poor people's opportunities by improving their access to markets, health, and education. Furthermore, ICT can empower the poor by expanding the use of government services, and reduce risks by widening access to micro finance (Cecchini and Scott, 2003). The uses of ICT can lead the nation to overall economic sustainable development.

3. E-GOVERNANCE FOR RURAL DEVELOPMENT

Since local government services are relatively weak in rural areas of India, Drishtee's initiative also has focused on a promising approach, of reducing the distance between government and people. (Kaushik and Singh, 2004). India lives in villages and to develop India, rural development must be consistent and continuous. In many of the far villages several government services are not available and people have to rush to nearby taluka or district to avail the same. The solution to this is to provide online services, which will reduce cost of citizen and of the government. Rural e-Governance can equip people with information about possible benefits and

services of government. ICT can improve living standards in remote and rural areas by providing important commercial, social and educational benefits (Share, 1993; Madden et al., 1997). In e- developing economy like India, ICT will improve the education system, the governance methods, and economic growth and other areas. An earlier research confirms that transaction costs have substantially reduced by adopting automated supply chain management models for selling agriculture produce (Annamalai and Rao, 2003). E-government projects are successful in rural India and rural citizens are using online services, even in many states of India land records are digitalized. Jhunjhunwala, et al. (2006) states that success stories of e-Governance in rural India are isolated cases, and says that "sum total of the Indian experience in terms of two important parameters *viz*. villages connected and lives transformed are yet too minimal". In last five years Indian government has implemented number of e-governance projects but only thing is lacking is systematic study. Government has taken Public Private Partnership (PPP) model in implementation and maintenance of e governance project. For example, in Gujarat, government is rendering many services in health sector with the help of private players which provides human resource and does field work. One more thing, the only implementation of ICT is not sufficient, rather every e-governance project must be actually used by people or citizens for whom crores of rupees has been invested by government. For example, with SWAN project, now every state is having internet access in even far villages, but if we ask rural people about online voting then? They may not trust, even in urban area very less number of people are voting online. It shows that though it is extremely good, transparent and cost effective, its usage is still low and that it is not effective for the poorest of poor in the rural regions. Existing e-governance models are more technology centric, which have been aped from west and thus do not completely assure rural development in context of developing countries like India (Bhatnagar and Schware, 2000). Such observations for ICT interventions in the rural context are generally true for other developing countries too. Emerging studies show that many of the claims that are being made about the potential of ICT for development are not supported, and point to the possible counter-productive effects of the use of ICT.

4. SUSTAINABLE RURAL DEVELOPMENT THROUGH E-GOVERNANCE

1. Sustainability is about protection of basic rights of citizens and creation of valued services for higher living standard.
2. Sustainability is requirement for genuine development.
3. Pursuit of sustainability relies on integration of many services by government and providing one-stop services to citizen of rural area.
4. Core requirements and general rules must be accompanied by context specific elaborations.
5. Efficiency is necessary.
6. Transparency and public engagement are key characteristics of decision making for sustainability.

5. NECESSITY FOR AN INTEGRATED APPROACH TO E-GOVERNANCE

ICT and e-governance can help far areas to develop as it provides knowledge about number of services to rural people and can render government services more effectively. Projects like E-gram panchayat has made communication easy as now government officials can be aware about exact situation of villages coming in to their work territory only by some clicks. An integrated framework for ICT interventions in rural areas is required that could amicably blend community needs, knowledge and inputs along with inputs of other stakeholders. (Malhotra, et. al.2007)

6. E-GOVERNANCE FOR RURAL DEVELOPMENT OF INDIA

The National e-Governance Plan (2003-2007) of Indian Government seeks to lay the foundation and provide the impetus for long-term growth of e-Governance within the country. The plan seeks to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implements a number of mission mode projects at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance. In 2005, the World Bank had shown its willingness to increase funding further (if required) for a range of e-governance initiatives in India as part of the first phase of the country's National e-Governance Plan (NeGP) (Shah, 2007) . Mission 2007 aimed every village to be a knowledge centre aimed to provide knowledge connectivity to every village of India by August 15, 2007, according to the policy of Indian government. The government had set this target according to national e-governance plan (2003-2007) and a National Alliance for Mission 2007 was formed in 2003. In case of Gujarat inter-state border check posts e-Governance causes reduction in corruption and increase in tax revenues. In Gujarat, a team of techno-savvy bureaucrats has finally succeeded in bringing corruption under check and consequently increasing state's tax revenues through the effective usage of computers and other electronic devices at some 10 remote inter-state border check posts

7. PUBLIC PRIVATE PARTNERSHIP (PPP) FOR E-GOVERNANCE

PPP is an arrangement between a public (government) entity and private (nongovernment) entity by which, services traditionally delivered by the public entity are now provided largely by private entity under a set of terms and conditions well defined at the outset. (Sharma and Seth, 2009). Community participation has been pointed out by Srinivas (2005) as a key component of success of telecentres in ushering development and social change in rural areas. PPP

helps government a lot, as it minimizes investment for the government fund & can help government to provide competent services with the help of private partner and government enjoys better liquidity for other important areas of spending in social development. PPP also accelerate the speed of implementation of e-governance projects and also helps a lot to provide speedy services to most rural area. Government can have benefit of effective services offerings and efficient use of public resources. E-governance has also offered many opportunities for employment in India. PPP in e-governance projects also nurture quality of services to citizens as they can have one window solution for their needs. Even rural people can access services by way of service kiosk as in entire India SWAN has been implemented. Citizens can have services at a very much law cost and at their convenience.

8. NATIONAL LEVEL E-GOVERNANCE PROJECTS

8.1 State Wide Area Network (SWAN)

State Wide Area Network (SWAN) is one of the infrastructure pillars for National E-governance Plan of Indian government. Government support for the establishment of such infrastructure up to the block level is provided by the Department of Information Technology in accordance with the published SWAN Guidelines. There are two Options for SWAN implementation as detailed below:

8.2. Public Private Partnership (PPP) Model

State identifies a suitable PPP model and selects an appropriate agency through a suitable competitive process for outsourcing the establishment, operation, and maintenance of the Network.

8.3. NIC Model

State designates NIC (National Informatics Centre) as the prime implementation agency for SWAN for establishment, operation and maintenance of the Network. In March 2005, Department of IT obtained Government Approval for the SWAN Scheme for an overall outlay of Rs. 3,334 Crores, with Dept. of IT, Grant in Aid component of Rs. 2,005 Crores to be expended in five years, which would establish Wide Area Networks in 29 States and 6 Union Territories across the country. Implementation of this Scheme is in full swing with individual project proposals have been approved for 33 States/ Union territories with total outlay of Rs. 1965 Crores1. With SWAN project implementation, even far areas are now connected via internet, and this project has played very much vital role in overall development or rural India. As on November 2010 , SWAN is operational in 23 States/UTs. If we focus on Gujarat, we find that Gujarat State Wide Area Network (GSWAN) has established a reliable horizontal and vertical communication corridor for within the state administration to achieve e-governance commitment, bring governance closer to public, and strengthen disaster management capacity

8.4. G-SWAN Network Architecture and Topology

First Tier Secretariat Center (SC) at state capital Gandhi nagar, where various departments and hundreds of subordinate offices located at the state capital are connected to SC horizontally through Secretariat Campus Area Network (SCAN). All districts and Taluka offices are vertically connected with SC (the hub of wide area network).

Second Tier Constitutes District Centers (DCs), located at district collector's office, and multiple district level connected with DC horizontally.

Third Tier Constitutes Talukas Centers (TCs), located at Taluka Mamlatdars office, and couple of Taluka level offices horizontally connected with TC.

9. MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT (MGNREGA)

MGNREGA is basically design to assist to Citizens, Workers, Gram Panchayats, Block Panchayats, Zila panchayats, Line departments executing works of NREGA, Administrator at Block and District level, State NREGA department, Ministry of Rural Development, Administrators in the Government.

9.1. Various Modules of the Software Beneficiary Management Module

The software captures registration, demand for work, work allocation and muster rolls on which a person worked.

9.2. Fund Management Module

Captures the fund transferred from States to Districts and then to Programme officers/ Panchayats and expenditure incurred by various implementing agencies on labor, material and contingency.

9.3. Works Management Module

Captures information about the various works undertaken under the scheme at various levels.

9.4. Grievance Redressal System

Allows a worker/Citizen to lodge complaint and trace the subsequent response.

9.5. Staffing Position Module

Captures name, telephone numbers etc. of all the officials, planning and implementing agencies from Gram Panchayat to Ministry of Rural Development involved in NREGA, thus strengthening communication and coordination among them.

9.6. Alerts

The software also gives alerts to implementing agencies about the various irregularities, important activities, and messages for funds to be received by the agencies. Public Private

Partnership in the implementation of NREGA is important from the following reasons:

a. PPP will ensure transparency and help in information propagation
b. PPP is required because the size of the programme is very large, not only from the geographical and financial perspective but from the perspective of the size of the target group of beneficiaries as well.
c. PPP facilitate online monitoring and evaluation of the programme. The timely feedback will help in timely corrective actions. There is colossal cost saving in issue of job card, pay slips etc. save amount and time in generating the registers need to keep at various locations. Rather than time saving it is mainly bringing the systems in place. Removing the bad practices like Kachha muster roll, part payments etc are the goals to be achieved. Locations where computer have reached in Gram Panchayat the system has helped in quickly generating the job cards and timely accepting the demand for work and issuing the acknowledgment of receipt of demand for work (Gupta et al., 2008)

10. ONLINE INCOME TAX AND CENTRAL EXCISE

E-payment the way to pay for something online, this scheme facilitates anytime, anywhere payment and an instant cyber receipt is generated once the transaction is complete. With this, government of India has enabled Indian citizens to file tax, central excise and service tax online. It can be seen from the following table that every day internet users are increasing. With the help of online tax filing citizens can have the following benefits?

i. Convenience – citizens can file tax at their convenient time.
ii. Security – System is very much secure and there is no risk of secrecy.
iii. Ease of use – Website gives instructions and guidelines in different languages allowing people to file returns in simple manner.
iv. Speed – Instead of standing in queue, tax can be filed within minutes. It saves lots of time and operational cost both citizens and government. Automation of Central Excise and Service Tax (ACES), a Mission Mode Project of the government of India under National e-Governance Plan is widely used through website (www.aces.gov.in) having hits over 31 crores and is aimed to reduce physical interface with department with reference to:

a. Online registration of central excise assesses and online amendment.
b. Online registration of service tax assesses and online amendment.
c. Electronic filing of central excise returns.
d. Electronic filing of service tax returns.
e. Electronic filing of claims, permissions, intimations.
f. Instant e-acknowledgement of documents with unique document identification number.
g. View, file and track status of documents filed online.

11. UNIQUE ID

Unique identification project was initially conceived by the Planning Commission as an initiative that would provide identification for each resident across the country and would be used primarily as the basis for efficient delivery of welfare services. Unique ID is now known as Aadhaar which is a 12 digit individual identification number issued by the Unique Identification Authority of India on behalf of the Government of India. This number will serve as a proof of identity and address, anywhere in India. In Aadhaar the basic demographic and biometric information – photograph, ten fingerprints and iris of eye are stored, and hence, take us close to do away with multiple identities. As this can be verified online in a cost-effective manner, this can be effectively used to target various public welfare schemes. It is widely acknowledged that an electronic national databank has the potential to improve the effectiveness and efficiency of government administration. Creating an identity card based national ID system might be a first step towards this objective. This will help government a lot for providing government service more efficiently.

12. STATE LEVEL E-GOVERNANCE PROJECTS

E-Seva is 'One-stop-shop' for over 66 G2C and B2C services. It facilitates citizens to avail all governmental services. E-seva centers have been established in over 200 villages and towns delivering services to citizens based on a low-cost networking model of the 46 bigger e-Seva Centers at mandal headquarters, E-Seva centers (with 400 service counters) spread over the Twin Cities and Ranga Reddy District. All service counters are facilitated with an electronic queuing system. Online services like e-Forms, e-Filing, e-Payments enables citizens to save time for standing in queues. Payments can be made by cash/cheque /DD/credit card/Internet. Online complaint registration allows citizens to complaint/issue online to district official. And also helps citizens to views status of complaint. With this, citizens are not required to run government offices to and fro helter-skelter. Mechanism of Online complaint registration has helped to increase transparency in government dealings. Prajavani is an e-governance initiative by the combined efforts of District Administration and National Informatics Centre in Rangareddy (Andhra Pradesh, India) in association with Web Services Division, NIC, Hyderabad and Andhra Pradesh State Center. Prajavani is a unique public private partnership program, which gives citizens an opportunity to interact with the government without coming to any government office. Bihar government has taken vial initiative to provide each gazette of government online, ensuring all relevant government records in .pdf (Acrobat format) format. Now government officials and citizens can have easy reach to required information just by some click on

website http://egazette.bih.nic.in/Gazette.aspx. With this website, have total 2433 published gazettes available. "Gyan Ganga" is the finest initiatives of Gujarat government to ensure wireless Internet connectivity to all 18,000 villages in Gujarat. At the heart of "Gyan Ganga" is corDECT- A technology based on Wireless in Local Loop (WLL) - specially developed by Indian Institute of Technology (IIT) Madras (Kokil, 2006). With the help of Gyan Ganda, citizens residing in far rural places can now view and access many online services agricultural, heath related and veterinary including land records, online job application portal i.e. www. ojas.guj.nic.in,can. They can also use email services and can contact consultants and can seek help for queries. State Wide Attention on Public Grievances by Application of Technology (SWAGAT), is mechanism where Gujarat's citizens can directly communicate with chief minister. In Gandhinagar, the fourth Thursday of every month is a SWAGAT day wherein the highest office in administration attends to the grievances of the average person. The grievances once registered, it travels the entire state online, and again reply comes back within 3-4 hours. The record is then preserved in the 'SWAGAT' database and a separate log is maintained for each case. SETU in Maharashtra is online portal from where citizens can have number of certificates like domicile, nationality, caste, age verification, solvency, character verification, income and occupation. SETU or the Citizen facilitation Centers act as a one-stop service centre for people who have to visit government offices for certificates, permits, authentication, affidavits, and other services. It saves time of government officers and of citizens, as these services are online. It has improved transparency and efficiency both at same time. The Bhoomi is extraordinarily successful project of online delivery of land records in Karnataka. Farmers can have land record online and it was to benefit rural populations need to recognize the high level of effort that is needed to make rural population aware of the reforms that have been instituted. Earlier farmers had to ask village accountant for copy of the Record of Rights, Tenancy, and Crops (RTC) – a document needed for many tasks such as obtaining bank loans. In addition, there was huge corruption as accountants where charging from illiterate farmers for providing such documents. Again rural accountant had to travel a lot for collection and delivery of land records. Land records kiosks have been made operational in all 177 taluks and 26 special taluks. Village accountants can no more issue copies of the manual records, as only computerised records are valid. (Chawla, 2007). Akshaya has become weapon in rural empowerment and economic development. The project is a channel in nurturing growth and creating direct and indirect employment in the State by focusing on the various facts of e-learning, e-transaction, e-governance etc. Thus, the project is having a long-standing impact on the social, economic and political scenario of the State. The Information Village Research Project (IVRP) was set up in 1998 in Pondicherry (a centrally administered territory in Southern India), by the M.S. Swaminathan Research Foundation (MSSRF), a nonprofit organization This project is basically for poor rural citizen, Information village shops are well equipped with computers, telephones, a printer, a wireless device, and a solar panel -- all latest IT infrastructure to provide rural people local news, latest prices of agricultural crops and inputs, weather reports, and government programs. This project is a huge success because the villagers attached trust and credibility to the information provided by the centers. IVRP has become a way to important information for rural people of Pondicherry. In the traditional manual methods the query of land record with all the related data is comparatively time consuming and back breaking. In Tamilnadu, with the help of online land record, citizens can view record of rights agriculture land record online. One of the important benefits in having online land records is it reduces opportunities for bribery. In addition, operators of the computerized record system are held accountable for their actions and decisions through a log of all transactions. Allows easy maintenance and prompt updating of land records.

a. Allowing rural farmers easy access to their records.
b. Assembling the information related to land revenue, cropping pattern, land use, etc.
c. Utilizing the data for planning and for formulating development programs.

This is for sure that with the help of such e-governance project, services of government have become very much trust worthy and even very much fast.

13. CONCLUDING REMARKS

Sustainable development is area development of a country like India. Indian government has planned, executed and controlled e-governance project to improve quality of government services. There are number of projects which specially focus on rural development and MGNREGA is one of the best. One must not forget that due to PPP, implementation and delivery of services has become very much speedy. It is observed that educational level in rural area is poor then compared to urban area, illiterate people were used to pay "Extra Money" for government services in certain department but, with the help of e-governance and ICT entire system has become very much transparent and trustworthy. Standing in long queue for hours has become history for many departments. Online land records and issuance of various certificates online has changed way of working of government officials as it also saves time and it reduces cumbersome work. Innovative projects as if SWAN has connected for rural places via internet and with kiosk machine; each and every service is at arm length for rural citizens. E-governance and development are becoming inextricably interwoven and the PPP approach appears to be more effective in this regard.

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