



Impact of Technology on Rural Development in India

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Abstract

Rural development is a strategy designed to improve the economic and social life of rural poor. It is a process, which aims at improving the wellbeing and self-realization of people living outside the urbanized areas through collective process. Rural Development is all about bringing change among rural community from the traditional way of living to progressive way of living. It is also expressed as a movement for progress. The latest developments in Indian Information technology must be applied for overall rural development. The most important aspect here is to use these technologies at various utilization levels, i.e. Government bodies and organization, agro-industries, educational and research institution, planning bodies and organization, agro industries, educational and research institutions development agencies and ultimately at the farm level for mutual exchange of information. With a view to achieving better results, these agencies can be operational in to a massive network connecting district, state, national and international levels. In this paper we would like to emphasis on the impact of science and information technology on rural development in India.

Keywords: Rural Development, Rural Development Programmes, Information Technology, e- Governance, Science and Technology.

Introduction

Rural development is the process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas. Rural Development is a process of change, by which the efforts of the people themselves are united, those of government authorities to improve their economic, social and cultural conditions of communities in to the life of the nation and to enable them to contribute fully to national programme. Rural development has traditionally centered on the

exploitation of land-intensive natural resources such as agriculture and forestry. However, changes in global production networks and increased urbanization have changed the character of rural areas. Increasingly tourism, niche manufacturers, and recreation have replaced resource extraction and agriculture as dominant economic drivers. The need for rural communities to approach development from a wider perspective has created more focus on a broad range of development goals rather than merely creating incentive for



agricultural or resource based businesses. Education, entrepreneurship, physical infrastructure, and social infrastructure all play an important role in developing rural regions. Rural development is also characterized by its emphasis on locally produced economic development strategies.

Information Technology in rural approach is concerned first and foremost to people. It seeks to gain an accurate and realistic understanding of people's strengths and how they develop into positive livelihood outcomes. It is important to note that IT can generate multiple benefits in providing better usage of natural resources, Enhance the economic status, Education and Employment, and Administration (Governance). Fortunately, India took to IT early compared to many other developing countries. The nationwide network of computers set up by the National Informatics Centre took the PC to every district in the country, making government level interaction and communication faster for planners. The internet has now given us an opportunity to take the PC to every village. It has a definite role to play in rural education, health and agriculture. In the Indian situation, a PC need not be a personal computer. It can be a community computer. In the day time, it can be used to educate children at primary and middle level in the village school. In the evening, the community computer can turn into a "cyber dhaba" for villagers, where they can access web-sites of their choice and get information that they can use.

Rural Development Programmes

The Department of Rural Development is implementing a number of programmes in rural areas through the

state Governments for poverty reduction, employment generation, rural infrastructure habitant development, provision of basic minimum services. The important programmes presently being implemented by the Department are:

- Pradhan Mantri Gram Sadak Yojana (PMGSY)
- Swarnjayanti Gram Swarozgar Yojana (SGSY)
- Rural Housing (Indira Awaas Yojana)
- DRDA Administration
- Training Schemes
- Promotion of Voluntary Schemes and Social Action Programme, organization of beneficiaries, advancement and dissemination of rural technology through CAPART
- Monitoring mechanism.

Keeping in view the fact that Rural Roads are vital to economic growth and measures for poverty alleviation in the village, Government have launched a 100% Centrally Sponsored Scheme called the **Pradhan Mantri Gram Sadak Yojana (PMGSY)**. The Programme seeks to provide connectivity to all unconnected habitations in the rural areas with a population of more than 500 persons through good All-weather roads by the end of the Tenth Plan Period. In respect of the Hill States (North-East, Sikkim, Himachal Pradesh, Jammu & Kashmir, Uttaranchal) and the Desert Areas, the objective would be to connect habitations with a population of 250 persons and above.

The **Swarnjayanti Gram Swarozgar Yojana (SGSY)** is the single self-employment programme for the rural poor. The Yojana which came in to effect from 1.4.1999, has been conceived as a



holistic programme covering all aspects of self-employment like organization of rural poor into Self Help Groups (SHGs) and their capacity building, training, planning of activity clusters, infrastructure development, financial assistance through bank credit and subsidy and marketing support etc.

Housing is one of the basic requirements for human survival. Therefore, construction of houses was included as one of the major activities under the National Rural Employment Programme which begun in 1980. Rural Landless Employment Guarantee Programme (RLEGP) begun in 1983. **Indira Awaas Yojana IAY** was launched during 1985-1986 as a sub scheme of RLEGP and thereafter it continued as a sub scheme of Jawahar Rozgar Yojana. From 1st January 1986 IAY was delinked from JRY and made an independent scheme. The Government of India, in 1998 announced a National Housing and Habitat policy which aims at providing "Housing for all" and facilitating the construction of 20 lakh additional housing units (13 lakh in rural areas and 7 in urban areas) with emphasis on standing benefits to the poor and the deprived. The intention is to end shelterlessness and ensure the conversion of all unserviceable kucca houses by pucca houses by the end of 11th plan period. The Action plan is being implemented through various programmes such as Indira Awaas Yojana (IAY), Credit cum Subsidy Scheme for Rural Housing, Innovative Scheme for Rural Housing and Habitat Development, Rural Building Centres, Equity Contribution by Ministry of Rural Development to HUDCO and National Mission for Rural Housing and Habitat.

Training schemes has gained an important position in rural development activities concerning various poverty alleviation programmes. As training, research and development are closely linked, continuing education of both policy makers and programme implementers is imperative. Towards facilitating this, National **Institute of Rural Development (NIRD)** has been conducting training programmes, workshops, seminars and international programmes. In addition, extensive support has been provided to a number of training and research institutions dealing with issues related to rural development.

In order to strengthen the DRDAs and to make them more professional and effective, a new centrally sponsored scheme, namely, **DRDA Administration** has been introduced from 1st April, 1999 based on the recommendations of an inter-ministerial committee known as the Shankar Committee. The scheme replaces the earlier practice of allocating percentage of programme funds to the administrative cost. Under this, a separate provision has been made to meet the administrative expenses of the DRDAs who are expected to effectively manage and implement the schemes.

Monitoring and Evaluation (M&E) of development activities provide various stakeholders in these activities with better means for learning from past experience, improving service delivery, planning and allocating resources, and demonstrating results as part of accountability to key stakeholders. A comprehensive multi-level, multi-tool system of Monitoring and Evaluation of the policy and implementation environments of the programmes of the Ministry has been evolved over the years. In view of the vast canvas for



implementation of the programmes of the Ministry, the monitoring of the programmes is taken up at various levels.

The overall monitoring of all the programmes at the national level is carried out by the Monitoring Divisions of the Ministry. The Programme Divisions monitor the respective programmes implemented by them. The Programmes of the Ministry are basically implemented by the State Implementing Agencies. At the State level, the Secretary/Commissioner dealing with the Programme monitors its implementation. The actual execution of the Programmes takes place at the District/Village level through DRDAs, Panchayati Raj Institutions (PRIs) and other implementing Agencies, who monitor the execution of the programmes at the grass root level.

In order that the programme implementation reflects the needs and aspirations of the local people the Panchayati Raj Institutions are considered as an important tool for the implementation of the programmes of the Ministry. As a step toward decentralization of the planning process and implementation of the programmes, strengthening of the Panchayati Raj Institutions has been envisaged through the Constitutional (73rd) Amendment Act, 1992 and with the passage of this Act, constitutional status has been provided to the Panchayati Raj Institutions (PRIs). Therefore, under most of the rural development programmes, a crucial role has been assigned to PRIs for programme implementation. Sustained efforts are being made to strengthen local governance, institutionalizing people's participation and empowering women through PRIs. The State governments

are being pursued for delegation of adequate administrative and financial powers to PRIs and a significant change has been noticed in this regard.

Under this department there are three autonomous bodies viz., **Council of Advancement of People's Action and Rural Technology (CAPART)**, National Institute of Rural Development (NIRD) and National Rural Road Development Agency (NRRDA). Council of Advancement of People's Action and Rural Technology (CAPART) has been set up to encourage participation of voluntary agencies in rural development and also to provide financial assistance to them in their rural development projects. CAPART directly deals with voluntary agencies and their projects.

National Institute of Rural Development NIRD is engaged in planning and coordination of national level training. For state and district level training, assistance is given to State Institutes of Rural Development (SIRD) and Extension Training Centres (ETC) respectively. National Rural Road Development Agency (NRRDA) recently registered under society registration Act, 1860, extends support to the Pradhan Mantri Gram Sadak Yojana (PMGSY) to advice on technical specification, project appraisal, appointment of part time quality control monitors, and management of Monitoring system and submits periodic reports to ministry.

Role of IT in Rural Development

Information technology or IT has become the buzzword in India these days. One hears about it everywhere – from stock markets to government corridors across the country. Everybody wants to do something connected with IT – be it a school student or a politician. They are



looking at IT as the ultimate panacea. The ever-growing media attention on success stories are fuelling this appetite for IT. And within this craze for IT, the focus is on the internet or the World Wide Web. Generally, there is an IT – friendly atmosphere in the country.

One of the key components of improving socio-economic status of people in villages is to ensure that their products find right kind of markets and reach these markets in minimum time without number of middle men involved in it. The reach of IT in rural areas will provide unique opportunities to producers of rural products, agriculture/agro-processing products, rural handicrafts etc. to have direct access to markets. Internet will enable advertising of rural products produced even in the remotest villages to global markets. The agriculture extension worker can access latest information on farm technology and products, and disseminate the same to villages. Health care is yet another area where IT can play a major role in rural areas. Doctor or the paramedic staff at the local PHC or sub-PHC can access latest information about health schemes and seek advice from specialists about diseases or ailments they cannot diagnose or treat. The village PC can be used as a surveillance system for diseases, and ultimately as node for tele-medicine.

Currently, a number of experiments are being attempted to take the PC and the Internet to villages. There has been a great amount of enthusiasm among people. Development of relevant content in local languages, availability of computers that can run on low power and sensitization of local government officials towards IT can go a long way in using IT for rural development in near future.

e- Governance Rural Development

India is a nation of villages. The rural mass in the nation comprises the core of Indian society and also represents the real India. According to the Census Data 2001, there are 638,387 villages in India that represent more than 72 per cent of the total population. So development of these rural mass is one of the key areas of consideration in the government policy formulation. Rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. The present strategy of rural development mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programmes of wage and self-employment etc.

The government of India has started many programmes aimed at improving the standard of living in villages or rural areas. To build rural infrastructure, the government launched a time-bound business plan for action called Bharat Nirman in 2005. Under Bharat Nirman, action is proposed in the areas of Water Supply, Housing, Telecommunication and Information Technology, Roads, Electrification and Irrigation. In view of the sheer size and diversity of our country, delivery of governance to the remote corners in a meaningful and locally relevant manner is a huge challenge. The administrative setup has evolved by incorporating our age old institutions with the modern democratic organs to meet this challenge.

To make this challenge easy Panchayati Raj came into existence. Panchayats have historically been an integral part of rural life in India, and the



Constitution (73rd Amendment) Act, 1992 has institutionalized the Panchayati Raj at the Village, Intermediate and the District levels, as the third tier of governance. In May 2004, the Ministry of Panchayati Raj was formed as the Nodal agency looking after the empowerment of Panchayati Raj Institutions in the country. The use of information - communication technology has made this challenge more convenient.

A. National e-Governance Plan

The National e-Governance Plan of Indian Government seeks to lay the foundation and provide the impetus for long-term growth of e-Governance within the country. The plans seeks to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implement 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.

B. Online Land Records

The Computerization of Land Records (CLR) is one of the earliest initiatives of e-Governance in India, at the grass-roots level. The focus of the entire operation has always been to employ state of the art Information Technology (IT) to galvanize and transform the existing land record system of the country.

This web enabled service would aim at:

- Ensuring efficient, accurate, transparent delivery mechanism and conflict resolution in ownership
- Providing electronic record of rights (ROR) to land owners at nominal rates

- Information empowerment of land owners
- Low cost and easily reproducible data for reliable and durable preservation
- Value addition and modernization in land administration
- Integration with other data sets towards comprehensive LIS

C. E-Governance in Rural Agricultural Development

There have been several initiatives by the State and Central Governments to meet the various challenges facing the agriculture sector in the country. The Agriculture MMP has been included in NEGP in an effort to consolidate the various learning from the past, integrate all the diverse and disparate efforts currently underway, and upscale them to cover the entire country. The online services include up to the Panchayat level.

D. e-Panchayats

The Panchayat represents the first-level of government interaction for over 60 per cent of the Indian populace, and provides a large number of basic services for millions of citizens living in rural locations across the nation. It is against this backdrop that the Panchayat MMP has been included in NeGP. The MMP aims to address and overcome the typical challenges faced in the villages, such as lack of reliable communication infrastructure, delay in delivery of services to citizens, low revenue mobilisation for implementing schemes at the Gram Panchayat level, and lack of monitoring mechanisms for schemes.

The MMP envisages implementation of various modules across the services and



management functions within Gram Panchayat, such as the following:

- Issue of trade licences and NoC
- House-related services
- Issue of certificates of Birth and Death, Income and Solvency
- Dissemination of internal process of Panchayat agenda, voting, and resolution
- Copy of proceedings of Gram Sabha and Action Taken Report (ATR)
- Receipt of funds/progress report
- Dissemination of BPL data

E. E-Governance in Developmental Schemes

E-Governance in Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

The Mahatma Gandhi National Rural Employment Guarantee Act 2005 (MGNREGA) aims at enhancing the livelihood security of people in rural areas by guaranteeing hundred days of wage-employment in a financial year to a rural household whose adult members volunteer to do unskilled manual work. The Central government in association with the state governments has been adding different e-governance initiatives in this scheme.

E-Governance in Indira Awaas Yojna

With a view to meeting the housing needs of the rural poor, Indira Awaas Yojana (IAY) was launched in May 1985 as a sub-scheme of the Jawahar Rozgar Yojana. It is being implemented as an independent scheme since 1 January 1996. The Indira Awaas Yojana aims at helping rural people below the poverty-line belonging to SCs/STs, freed

bonded labourers and non-SC/ST categories in construction of dwelling units and upgradation of existing unserviceable kutcha houses by providing grant-in-aid. From 1995-96, the IAY benefits have been extended to widows or next-of-kin of defence personnel killed in action. Benefits have also been extended to ex-servicemen and retired members of the paramilitary forces as long as they fulfill the normal eligibility conditions of the Indira Awaas Yojana.

CAPART

CAPART was formed by amalgamating two agencies, the 'Council for Advancement of Rural Technology' (CART) and People's Action for Development in India (PADI). CAPART is an autonomous body registered under the Societies Registration Act 1860, and is functioning under the aegis of the Ministry of Rural Development, Government of India. This agency is a major promoter of rural development in India, assisting over 12,000 voluntary organisations across the country in implementing a wide range of development initiatives.

National Social Assistance Programme (NSAP)

The National Social Assistance Programme (NSAP) which came into effect from 15th August, 1995 represents a significant step towards the fulfillment of the Directive Principles in Article 41 of the Constitution. The programme introduced a National Policy for Social Assistance for the poor and aims at ensuring minimum national standard for social assistance in addition to the benefits that states are currently providing or might provide in future.



Pradhan Mantri Gram Sadak Yojana (PMGSY)

The Pradhan Mantri Gram Sadak Yojana (PMGSY) is launched by the Government of India to provide connectivity to unconnected rural habitations as part of a poverty reduction strategy. Government of India is endeavouring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network.

Swarnjayanti Gram Swarozgar Yojana (SGSY)

Swarnjayanti Gram Swarozgar Yojana (SGSY) is to bring the assisted poor families (Swarozgaries) above the Poverty Line by ensuring appreciable sustained level of income over a period of time. This objective is to be achieved by inter alia organizing the rural poor into Self Help Groups (SHGs) through the process of social mobilization, their training and capacity building and provision of income generating assets. The SHG approach helps the poor to build their self-confidence through community action. Interactions in group meetings and collective decision making enable them to identify and priorities their needs and resources, this process ultimately leads to the strengthening and socioeconomic empowerment of the rural poor as well as improve their collective bargaining power.

Rural Business Hubs (RBH)

Rural Business Hubs (RBH) is aimed to eradicate rural poverty and create employment opportunity in rural India. The Ministry of Panchayati Raj has adopted the goal of "Haat to Hypermarket" as the overarching

objective of the Rural Business Hubs, initiative aimed at moving from more livelihood support to promoting rural prosperity, increasing rural non-farm incomes and augmenting rural employment.

Backward Regions Grant Fund (BRGF):

The Backward Regions Grant Fund (BRGF) is designed to redress regional imbalances in development. The fund will provide financial resources for supplementing and converging existing developmental inflows into 250 identified districts, so as to:

- Bridge critical gaps in local infrastructure and other development requirements that are not being adequately met through existing inflows.
- Strengthen, to this end Panchayat and Municipality level governance with more appropriate capacity building, to facilitate participatory planning, decision making, implementation and monitoring, to reflect local felt needs,
- Provide professional support to local bodies for planning, implementation and monitoring their plans.

F. E-Governance in Government to Government and Panchayat function

National Spatial Database (NSDB)

The National Spatial Database (NSDB) project aims at creation of Spatial Database up to the village level and is being carried out to bring together many existing Geospatial datasets. It was created and maintained to define common standards. The National Geospatial Framework, consisting of referencing system, is built around the Standard datasets with appropriate Institutional arrangements and



information developed for administrative boundaries viz. State, District, up to Village locations.

Efforts on the National Spatial Data Base (NSDB) development have been underway for quite some time with objective to meet requirements in various sectors. This work has been initiated around a standard reference framework at 250,000 scale. The spatial database creation up to the village level, as a point feature, has been completed. A number of NIC state units that include Maharashtra, Chhatisgarh, Assam, Punjab, Karnataka, Haryana, Tamil Nadu and Goa have extensively contributed in development of data at village levels.

MGNREGA Soft- MIS for Mahatma Gandhi National Rural Employment Guarantee Scheme

A transaction level work flow-based system for the NREGA is being implemented at Block/Gram Panchayat level across the country except in Andhra Pradesh. Panchayat Directory: Panchayat Directory is a database of summary report on different Panchayats across the country. Online Monitoring of Monthly Progress Report of Ministry of Rural Development: The online monitoring system is helpful in tracking Monthly Progress Report for different rural development projects. It is also provide data by State and District wise. State and District level Vigilance Monitoring system is also available. Online Submission of Proposal: Online Submission of Proposal on schemes like NREGA, Rural Housing, SGSY, by District level authorities.

Watershed Programmes Monitoring Information System: Fund release information, District-wise, State-

wise, Zilla Parishad-wise status report for Watershed Programmes Monitoring Information System. Under this system a list of all the projects and their fund-releases, sanctioned for the concerned district, is presented to the authenticated DRDA/ZP. The DRDA/ZP officials may compile QPR as per DoLR format by simply filling the related quarter's data of progress made.

The prepared QPR may then be printed and used for the purposes of circulation and/or documentation. Meanwhile, the process will maintain all the QPRs & projects in arranged order; and these will remain available on web for quick reference. Online Monitoring of water supply and rural sanitation: Online Monitoring of water supply and rural sanitation is a web based system for capturing the water supply sources and systems in the rural habitations of the country.

It also enables entry of urban water supply schemes which supply water to rural habitations. The endeavor is to generate a database of all water supply sources along with their locations and water quality parameter test reports.

Online Monitoring System for NGP (Nirmal Gram Puraskar)

Every year the Nirmal Gram Puraskar awards are given to those Gram Panchayats which have achieved 100% sanitation coverage and can be taken as ideal. This prestigious award is given away by His/Her Excellency, the President of India to these Panchayats. This has gone a long way in promoting sanitation and hygiene practices among the rural people by bringing about changes in the cultural practices. The online system for NGP is a web based system for capturing the complete



workflow right from the acceptance of applications, the various stages of processing of these applications and the awarding of the Panchayats.

Online progress monitoring system for Total Sanitation Campaign

Total Sanitation Campaign is a comprehensive programme to ensure sanitation facilities in rural areas with broader goal to eradicate the practice of open defecation. TSC as a part of reform principles was initiated in 1999 when Central Rural Sanitation Programme was restructured making it demand driven and people centered. It follows a principle of "low to no subsidy" where a nominal subsidy in the form of incentive is given to rural poor households for construction of toilets. TSC gives strong emphasis on Information, Education and Communication (IEC), Capacity Building and Hygiene Education for effective behaviour change with involvement of PRIs, CBOs, and NGOs etc.

e Seva in Andhra Pradesh

This project is designed to provide 'Government to Citizen' and 'e-Business to services'. Originally, it was implemented in the form of the Twin Cities Integrated Network Services (TWINS) project in 1999 in the twin cities of Hyderabad and Secunderabad. The highlight of the eSeva project is that all the services are delivered online to consumers/citizens by connecting them to the respective government departments and providing online information at the point of service delivery. The network architecture is designed as an Intranet on a Wide Area Network (WAN). The network is designed in three tiers, 38 each tier being physically located in different places. The first tier for the client-end is located at the eSeva centres.

The second tier consists of the data servers and the application servers. The third tier comprises of Departmental servers as the backend in the concerned departments (Electricity, Municipality, Passport Office, Transport Department, Registration, Commercial Tax, etc). These servers keep consolidated databases. Presently, eSeva is providing 'One-stop-shop' for over 66 G2C and B2C services in 46 eSeva centres in the twin cities and Ranga Reddy district. Centres have also been opened in 20 other districts. The services include online payment of utility bills, issuing certificates, issuing licenses & permits, e-forms etc. Payments can be made by cash/cheque/DD/credit card/Internet.

APSWAN - Andhra Pradesh State Wide Area Network

APSWAN - Andhra Pradesh State Wide Area Network is an initiative by the state Information and Technology department. It includes:

- Facilitates e-Governance, to improve services to the citizens through efficient and transparent administration.
- Catalyzes IT development in the State by facilitating "Anytime, Anywhere" service.
- Acts as the basic information highway for all IT related applications of the Government.

Conclusion

Rural Development in India is one of the most important factors for the growth of the Indian economy. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Rural development in India has witnessed



several changes over the years in its emphasis, approaches, strategies and programmes. A large number of governments, public and private non-government organizations are involved in developing technologies for rural areas. IT can be better applied to enhance the rural development, improve the standards of living as a whole, with concerns for commitment in health, education, and governance. The time to act to support Internet knowledge and communication systems in developing countries is now. Today we truly live in a global village, but it is a village with elite information "haves" and many information "have-nots." With the new technologies available to us we have an opportunity to change this.

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