The Comprehensive Function of ICT in Promoting Rural Development

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Abstract

India's advancement is fundamentally connected to the development of its rural regions. Genuine rural development is not confined to specific sectors but is comprehensive, targeting the overall enhancement of both the community and their surroundings. Following the economic liberalization of 1991, India's integration into the global economy has significantly altered its economic framework. A crucial factor in this transformation within the rural sector is Information and Communication Technology (ICT). The main goals of ICT are to promote efficiency, transparency, and community involvement in development initiatives, thus encouraging both qualitative and quantitative enhancements in rural living.

Keywords: *ICT, E-Governance, Rural Development, Empower*

Introduction

ICT has permeated society in this new era of liberalization, privatization, and globalization. In the contemporary world, technology has become essential. ICT serves as a mechanism that facilitates the execution of tasks in a rapid and efficient manner. Information and Communication Technology (ICT) acts as a catalyst for growth. The advantages of ICT have been acknowledged globally. Consequently, India, as a developing nation, is making efforts to formulate and execute policies that integrate ICT. Technology has impacted everyone's life. The entire world has transformed into a global village due to this phenomenon. With a population of 1.2 billion, India stands as the largest democracy in the world. Its vast population is also among the most diverse. Spanning 28 states and 9 union territories, and encompassing numerous languages and dialects, India exhibits diversity in socio-economic literacy and the urban-rural divide. The primary aim of this paper is to evaluate the influence of ICT on rural development and governance, as well as to comprehend the significance and relevance of ICT.

Review of Literature

The focus here is on the role and importance of ICTs in rural development. The context of rural development has changed rapidly in recent years (Ashley and Maxwell, 2002). Around three-

quarters of the world's poor still live in rural areas. In case of India rural development becomes most important because India is basically agriculture-based country and almost 70% of Indians live in rural areas. Comprehensive training in agriculture, livestock and natural resources through promotion of ICT for rural residents and optimizing their decision making, and above all of these their participation in developing programs seems essential (Naghavi, 2002, p.331). In 1986, National Informatics Centre introduced IT to facilitate planning, monitoring and exchange of information between various agencies in the area of Rural Development administration. Development is not simple or straight forward linear process. It is a multi-dimensional exercise that seeks to transform society by addressing the entire complex of interwoven strands, living impulses, which are part of an organic whole". (Haqqani 2003) Duncombe and Heeks (1999) describe ICTs as an "electronic means of capturing, processing, storing and disseminating information". Rural economies can be benefitted from ICT by focusing on social production, social consumption and social services in rural areas (Malhotra, 2001). However Sen (1999) argues persuasively that the development is not just about macroeconomic growth. He provides an alternative definition of development as an increase in the overall number and quality of choices available to the individuals in pursuing their lives and livelihoods

Objective of the Study

- To evaluate the function and extent of ICTs in rural development.
- To investigate the influence of ICT effectiveness on different aspects of Rural Development in India.
- To assess the present condition of ICT in India.
- To propose suitable strategies for improving the effectiveness of ICT in Rural Development.

Scope Of ICTS in Rural Development

The range of ICTs is extensive, and it possesses the capacity to significantly contribute to rural development and society at large. By facilitating communication in local languages, we can promote and improve the learning and skills of rural individuals, ensuring they can easily comprehend the information presented.

Research Methodology

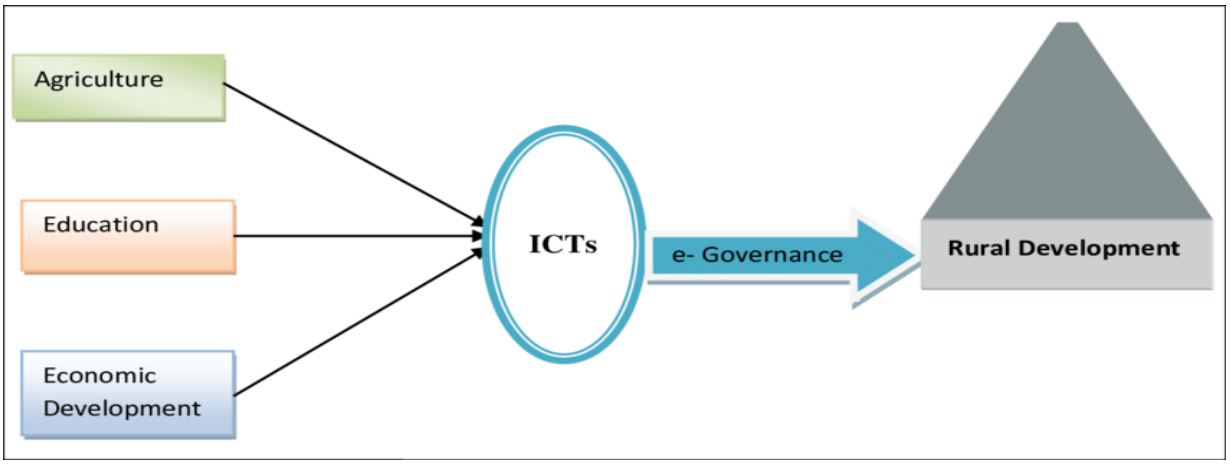
This research paper is conducted utilizing solely secondary data gathered from various sources. To achieve the study's objectives, the methodology primarily relies on the collection of secondary data, categorizing the research as descriptive in nature. The secondary data has been

sourced from a variety of materials, including articles, research papers, and government websites, among others.

The Role of Information and Communication Technologies in Rural Development

Recent advancements in Information and Communication Technology (ICT) have opened up numerous opportunities for development across various sectors. As an enabler, ICT has transcended limitations related to cost, distance, and time. The integration of computing and communications, particularly via the internet, has effectively transformed the world into a global village, giving rise to new participants and environments. The importance of addressing this divide in developing nations primarily arises from the reality that rural regions frequently lack or fall behind urban centers in critical infrastructure and services, including transportation, healthcare, education, and governmental services. This situation results in a politically and ethically unacceptable disparity in services and opportunities for rural communities, hindering their ability to engage fully and appropriately in the socio-economic and political spheres of the nation. Rural isolation and deprivation can adversely affect growth, and sustainable growth cannot be achieved unless it is inclusive. This is particularly relevant for a country like India, where over 70% of the population lives in rural areas and is predominantly involved in low-productivity agriculture and related activities. ICTs have the potential to alleviate many infrastructural challenges. By utilizing ICTs, individuals in rural areas can connect with local, regional, and national economies, gaining access to markets, banking and financial services, and job opportunities. Furthermore, ICTs function as a tool for raising awareness and providing feedback, empowering rural citizens to have a voice in the socio-political landscape of the nation. ICTs can also serve as a medium for delivering e-Government services, including those related to health and education.

Figure 1



A. The Role of ICTs in Agriculture

Agriculture is a crucial sector, with a significant portion of the rural population in developing nations relying on it. In the context of India, it is often stated that the country is predominantly rural, indicating that the farming and agriculture sector substantially contributes to the nation's GDP. Current literature indicates that agriculture serves as a livelihood for 86% of the rural populace in India. Furthermore, agriculture's contribution to GDP growth is considerably higher than that of other sectors. In recent years, the introduction of ICT tools has demonstrated their potential in achieving agricultural development goals and fostering broader economic, social, and institutional progress. The traditional agricultural methods, which have been in use for a long time, face numerous challenges regarding production, marketing, and profitability. Issues such as the management of agricultural products, selection of appropriate seeds, and the correct application of fertilizers require attention to improve production and ensure sustainable development. A well-performing agriculture sector is essential for India to progress towards becoming a developed nation with economic autonomy. The challenges posed by traditional agriculture can be effectively addressed through the use of information and communication technologies (ICT), which play a vital role in enhancing the livelihoods of the rural poor. ICT empowers impoverished and rural communities by providing improved access to natural resources, advanced agricultural technologies, effective production strategies, markets, banking and financial services, as well as local and national agricultural policies, among other benefits.

B. Current State of Education in Rural India

The Right to Education is a fundamental entitlement for every citizen of India, regardless of whether a child lives in an affluent community or a remote, underdeveloped village. According to Article 45 of the Indian Constitution, basic elementary education must be provided to all children up to the age of fourteen. Despite 64 years of independence, several states in India continue to face challenges in achieving universal enrollment, retention, and quality education. There are approximately 1,303,996 rural schools across 638,000 villages in India. These schools are established to enhance education and literacy levels in rural regions. The primary objective of these institutions is to improve literacy rates in these areas. Over 40 percent of India's population remains illiterate and unable to read or write. Schools in rural regions are often insufficient and can be considered nearly non-existent. The Indian educational system, particularly in sectors serving the rural poor, is burdened with numerous significant issues. Most residents in these areas are small or marginal farmers, while others augment their limited income by working in others' fields, fishing, gathering and selling forest products and firewood, crafting cane mats and baskets, and weaving

textiles. There are a few private schools in these impoverished regions, with the majority being government-operated. The villagers' commitment to educating their children is profoundly inspiring. Nearly every child is enrolled in school, eager to learn English, excel in their studies, pursue higher education (if financially feasible), and ultimately secure a well-paying job.

C. ICT and Rural Economic Development

During the past ten years, primarily due to the proliferation of mobile phone technology in rural regions, information and communication technologies (ICT) have shown a positive and substantial effect on economic development by enhancing the business climate in rural areas. ICT facilitates access to market and business information, delivers financial services directly to rural consumers, and assists local communities in organizing and connecting with one another, enabling the exchange of knowledge and ideas through these connections. In the rural regions of developing nations, the advancement of economic development is intricately tied to income generation. Opportunities for livelihoods are improved by enhancing the access of small-scale producers and small enterprises to markets for goods, services, and commodities, as well as to essential services (such as education, vocational training, or finance) and information regarding market conditions. Enhancing the business environment for rural producers in a manner that enables them to engage in and gain from local, national, and international markets is a crucial factor in driving rural economic development.

D. ICT & E-Governance

Information and Communication Technology (ICT) that enables the Government, its citizens, including government employees, marginalized groups, women, individuals residing in remote and challenging areas, as well as businesses, to conduct transactions with the government and its agencies online 24/7. There are numerous definitions of e-governance. Within this framework, e-governance is characterized as a significant application of Information Communication and Technology (ICT) aimed at enhancing governance and fostering effective communication between the government and various segments of society. E-governance is described as the utilization of electronic means in the interactions between government and citizens, government and businesses, and also in internal government operations, to streamline and enhance the democratic, governmental, and business facets of governance.

Government Schemes for Technology Enabled Rural Development

• **Technological Advancement for Rural Areas** (TARA): This initiative, part of the Skill Enhancement Education & Development Program (SEED), plays a vital role in offering sustained

core support to science-oriented voluntary organizations and field institutions located in rural and other underprivileged regions. Its purpose is to foster and develop these entities as "S&T Incubators" and "Active Field Laboratories" that can create and deliver technological solutions, thereby enhancing livelihood opportunities and societal advantages.

• **Ayushman Bharat Digital Mission**: The Ayushman Bharat Digital Mission (ABDM) is focused on establishing the necessary infrastructure to support an integrated digital healthcare system in India. It aims to utilize digital pathways to connect various stakeholders within the healthcare sector.

• **Ayushman Bharat Health Account** (ABHA): The foundation for safer and more efficient digital health records is established through ABHA. This digitally secure account allows for the access and sharing of health data with authorized healthcare providers and payers. Individuals wishing to participate in ABDM and possess digital health records must first register for an ABHA. Participants are identified, authenticated, and their health records are interconnected across multiple systems and stakeholders, all with their informed consent.

• **E-Shram**: E-Shram is a platform created by the Ministry of Labor and Employment aimed at assisting unorganized workers who are not members of the Employees' Provident Fund Organization (EPFO) or the Employees' State Insurance Corporation (ESIC). Enrolling in the Shramik Yojana and obtaining an e-Shram card provides access to numerous benefits. The government's endorsement of social security initiatives will further support these workers.

• **The National Optical Fibre Network** (NOFN) ensures that all state capitals, districts, and headquarters are connected via Optical Fibre Cable (OFC) down to the block level. The initiative aims to link the country's 250,000 gram panchayats. This will be achieved by utilizing existing fibres from Public Sector Undertakings (PSUs) such as BSNL, Railtel, and Power Grid, along with the installation of new fibre connections to the gram panchayats as required. The gram panchayats will gain from the enhanced bandwidth provided by the dark fibre network, which will be referred to as the National Optical Fibre Network (NOFN). Consequently, the connectivity gap between gram panchayats and blocks will be bridged.

• **The Common Service Centres** (CSC) initiative is a key project under the Digital India Programme. These centres act as access points for vital public utility services, social welfare

initiatives, healthcare, financial services, educational resources, agricultural services, and various business-to-consumer (B2C) offerings for citizens residing in rural and remote regions of the country. It represents a nationwide network that accommodates regional, geographic, linguistic, and cultural diversity, thereby enabling the government to achieve its goal of fostering a socially, fiscally, and technologically inclusive society.

• **The Digital India Programme** India's premier initiative aimed at transforming the nation into a knowledge-driven economy and a digitally empowered society. This programme encompasses three fundamental components: establishing digital infrastructure as a utility accessible to all citizens, enhancing governance and on-demand services, and empowering citizens through digital technology.

• **The Digital India Land Records Modernization Programme** (DILRMP) is a central sector scheme designed to capitalize on existing similarities in land records to create a suitable Integrated Land Information Management System (ILIMS). Additionally, individual states have the flexibility to incorporate state-specific requirements as they see fit.

ICT Empowering Rural Life

The primary function of ICT in empowerment is to furnish accurate and timely information that meets the necessary quality and cost standards. Furthermore, rural communities gain from enhanced access to credit and banking services tailored for rural areas. Recent initiatives in mobile banking contribute to cost reduction and invigorate local commerce. In India, nearly 70% of impoverished individuals reside in rural regions, with their livelihoods being directly or indirectly linked to agriculture. ICTs can provide valuable insights to farmers regarding agricultural practices such as crop management and animal husbandry, as well as information on fertilizers, feedstock, pest control, seed procurement, and market pricing. The level of education and literacy is a crucial determinant of development in rural settings. The effective integration of ICTs in classroom instruction significantly enhances the overall educational experience. It is essential to prioritize the implementation of ICT-enabled methodologies in rural educational institutions. Educators can gain access to a wider array of educational resources. Connectivity with the outside world is a fundamental requirement for economic advancement, and ICTs are instrumental in linking rural communities to external networks for information exchange. The judicious application of ICTs can facilitate the integration of rural populations into global economic frameworks. Information and communications technologies (ICTs) can significantly enhance healthcare delivery for both

individuals and communities. By offering innovative and efficient methods for accessing, communicating, and managing information, ICTs can help close the information gaps that exist in the health sector of developing nations—between healthcare providers and the communities they serve, as well as between health research producers and the practitioners who require that information. Additionally, through the creation of databases and various applications, ICTs can improve the efficiency of health systems and reduce the incidence of medical errors.

ICT in Capacity Building of Rural

Communities and farmers utilize ICTs to enhance their capabilities, leading to improved representation during negotiations regarding input and output prices, land claims, infrastructure projects, and more. ICT facilitates better interaction between rural communities and various stakeholders, as well as the broader world.

Conclusion

In a nation like India, where a significant portion of the population resides in rural areas, rural development is integral to the overall growth narrative of the country. The advancement of our rural sectors has consistently been a focal point, and the advent of digitization has further expedited this progress. Notably, the current development in Indian rural areas is characterized by its inclusivity and sustainability. Initiatives such as Jan Dhan Yojana have achieved remarkable success in rural India, and the shift towards modern, environmentally friendly agricultural practices underscores the inherent inclusivity and sustainability of this growth. This article aims to emphasize that technology is a key driver of rural development, and if we maintain this momentum, rural India is poised to lead new technological initiatives in the country in the near future.

The implementation of Communication Technology and Rural Development in India has faced challenges that hindered large-scale operationalization in various forms. The absence of political commitment and the apathy of bureaucratic structures undermined the rural development initiative before it could enable the impoverished to benefit from radio broadcasts. In today's world, Information and Communication Technology holds significant importance. When executed effectively, ICT has the potential to close the divide between economically disadvantaged and technologically advanced classes. With the rise of the IT sector in India, technology has become readily available to government agencies in a more affordable and convenient manner. By providing appropriate training and implementing ICT programs in a straightforward manner and language that

is easily comprehensible to rural populations, a transformative impact on rural development can undoubtedly be achieved.

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