

Cloud Computing & Rural Development

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Abstract: ICT are transforming all human activities, including agriculture which is the mainstay of rural India. ICT is a powerful and productive system which can accelerate economic and social development in rural areas. We discuss in this issue, how this new age technology is helping rural India live a better life. Cloud computing can be helpful for the rural development in terms of rural population in overcoming the huge costs incurred the infrastructure and software. It can be lead rural area development as well as economic progress of nation. In India 73% population lives in the rural areas and villages . The cloud computing to reduce price will create a world without poverty.

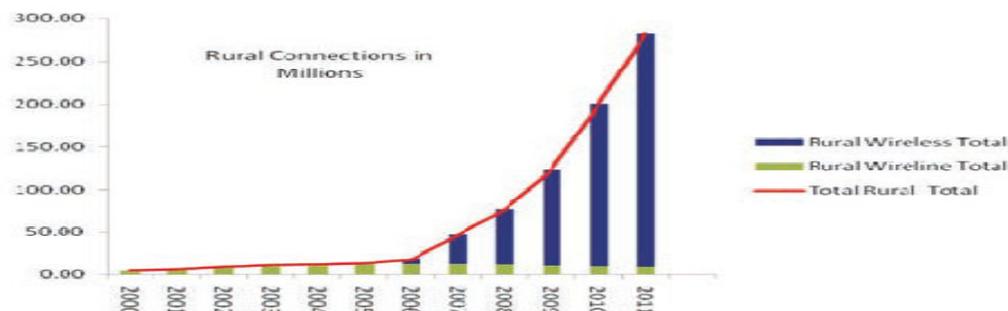
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1. Introduction

ICT is transmits information and knowledge to individual to widen their choices for economic and social empowerment. Importance of ICTs for Rural Development in national development, countries across the globe have put in place mechanisms such as Universal Service Funds and other forms of Government intervention to achieve Universal Access to ICTs. ICTs people in rural areas can connect with the local, regional and national economy and access markets, banking/financial services and employment opportunities. India still breathes in villages and this becomes obvious when the fact is taken into consideration that more than 700 million of its population reside in about 636 thousand villages of this country.

2. Growth in Rural Telecommunications

India have been seen a veritable telecommunications revolution which have effective regulatory and policy environment coupled with an enterprising telecommunications sector made of both public and private service providers. The growth of rural Teledensity is remarkable as it has risen to 36% as on 30th August 2011 from a mere 1.7% in 2004. In fact, today rural teledensity is growing at a much faster rate than urban teledensity. At the beginning of 2011, there were 282.29 million rural connections as compared to a mere 4.84 million (only landline) phones in the year 2000. Practically all growth has come from mobile telephony and the private sector has played a huge role in this expansion. Certainly the growth of rural telephony, especially mobile telephony has brought about improved connectivity. However, much more needs to be done if the benefits of telecommunications connectivity are to translate into overall rural development. Improving broadband penetration is one key focus area and this is being addressed actively by the Department of Telecommunications.



3. A Catalytic Intervention for Empowering Rural India

India still breathes in villages and this becomes obvious when the fact is taken into consideration that more than 700 million of its population reside in about 636 thousand villages of this country; but even after sixty years of independence, rural India is characterised by severe poverty, illiteracy, lack of health services, lack of employment opportunities and over all backwardness. To empower the rural communities with a sustainable approach, ICT has been one of the most effective instruments and the following table provides a better insight to this fact. ICT and Sustainable Rural Growth 1.Strengthening Rural Governance, 2.Encouraging Social Transformation,3.

Ensuring A Better Quality of Life, 4.Strengthening the Information-base of rural communities.,5.Intensifying Effort towards implementation of the rural development initiatives process

4. Rural Telephony for Rural Development

Information is critical to the social & economic activities that comprise the development process. Telecommunications, as a means of sharing information, is not simply a connection between people, but a link in the chain of the development process itself.” [Hudson 1995] India achieved substantial socio-economic development since independence. Unfortunately this development has not been shared equitably by all. Some sections of the society have been left out and some areas, like rural, tribal and remote areas, could not keep pace with urban areas in development. If vast sections of society and areas are left out, it breeds unrest and is not conducive to a sustainable development of the country. The Government has initiated several schemes to correct these anomalies: to restore equitability by reducing the rural-urban divide, to eradicate poverty and hunger from the rural landscape, to assure basic needs for the villagers, to improve their gainful employment, to improve the socioeconomic infrastructure in the rural areas and to safeguard and improve the fertility of land and other natural resources. Improvement of the socio-economic infrastructure in the rural areas for ensuring integrated development includes attention to roads, irrigation, housing, water supply, electricity, sanitation, natural resources development and Information and Communication Technology (I.C.T.). Indian telecom sector is more than 165 years old. The entire evolution of the telecom industry can be classified into three distinct phases:-Phase I- Pre-Liberalization Era (1980-89), Phase II- Post Liberalization Era (1990-99), Phase III- Post 2000

5. E-Governance for Rural Development

Rural e-Governance can provide timely information to the citizens and have the potential to spawn innovative means of wealth generation in rural context. ICT can improve living standards in remote and rural areas by providing important commercial, social and educational benefits. Electronic service centres have a pivotal role to play, especially in reaching out to the marginalized sections living in remote areas. In a developing economy like India, ICT has development applications in education, governance, environmental monitoring, health, human rights promotion, economic growth and other areas.

6. Definition of Cloud Computing in PaaS

“Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction”. Cloud computing is an emerging computing paradigm in which resources of the computing infrastructure are provided as services of the internet. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. Cloud computing can be categorized into three groups:1.Platform as a Service (PaaS) 2.Infrastructure as a Service (IaaS) 3.Software as a Service (SaaS) . Cloud computing has been include platforms for building and running custom applications, a concept known as Platform-as-a-Service. To develop a software you should buy databases, servers, networks, and a host of development tools. And then you needed the staff to install, optimize, and maintain it all. There are number of PaaS providers available today **AppEngine** from Google based on Python and Java. **Force.com** from SalesForce based on the SalesForce SaaS infrastructure and Apex language. **Bungee Connect** provides a Visual Development Studio based on Java. Platform as a Service (PaaS) provides infrastructure on which software developers can build new applications or extend existing applications without requiring the need to purchase development, QA, or production server infrastructure. PaaS is middleware which can include access management it specific vendors of PaaS include Force.com, Google, AppEngine and Coghead. The beneficial use of PaaS is the development of standardized software programs. In this model the cloud providers deliver a computing platform typically including operating system, programming language execution environment, database, and web server. Let’s assume you want to build an application but building and running on-premise applications has always been complex, expensive, and risky. Your application required hardware, an operating system, a database, middleware, Web servers, and other software. Once you assembled this stack and you need a team of developers to navigate complex programming models like J2EE or .NET. You also need a team of network, database, and system management experts to keep everything up and running.

7. Challenges

- Growth in Rural Telecommunications is Providing access to telecommunications services in rural areas continues to challenge policy makers and telecommunication operators alike. The problem is complex and solutions require an understanding of the technical issues as well as the policy instruments used to create incentives for rural service providers.
- A Catalytic Intervention for Empowering Rural India has made a substantial contribution to improving *rural* livelihoods in *India*.
- Rural Telephony for Rural Development Providing access to telecommunications services in rural areas continues to challenge policy makers and telecommunication operators alike. The problem is complex and solutions require an understanding of the technical issues as well as the policy instruments used to create incentives for rural service providers.
- E-Governance for Rural Development 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 institutionalised the Panchayati Raj at the Village, Intermediate and the District levels, as the third tier of governance.

8. Result And Discussion

ICTs also serve as a instrument of awareness creation and feedback giving rural people a voice in the nation's sociopolitical life. ICTs can act as a channel of delivery of e-Government services including health and education. Rural areas are often regarded as information-poor and information provision has always been a central component of rural development initiatives i.e Strengthening Rural Governance, Encouraging social transformation, Ensuring A Better Quality of Life ,Intensifying Effort towards implementation of the rural development initiatives, Enhancing people's participation in nationbuilding process, Strengthening the Information-base of rural communities. The major constraints for the low rural teledensity have been lack of investible resources, nonavailability of appropriate technology combined with difficult geographical terrain and continental size of the country. Achievement of India's rural telephony objectives needs to be approached in a holistic manner wherein not only due policy and regulatory glitches need to be ironed out, but also various procedural concerns also need to be addressed. ICT initiatives in rural development emphasise adoption of a more systematic approach for integrating Traditional Knowledge Systems and ICT inputs to ensure sustainability of rural e-governance. All the literature related to rural development and e-governance has indicated various issues impeding success of such initiatives. The main issues are lack of localization of content for rural communities and inadequate participation of rural communities in design of rural ICT initiatives.

9. References

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