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RURAL TELECOMMUNICATIONS IN INDIA

Even as India's telecom market grows at a fast pace, policy makers need to look at the figures closely and try to bridge the vast gap between the telecom services enjoyed by urbanites and the options available to those in rural areas.

The telecommunications revolution has indeed swept the country and prospects for the future look even more promising.

Telecom penetration across the vast rural parts of India has been viewed more from the point of view of profitability rather than as part of the process of building up a large telecom network in the country. The focus has been on the average number of calls that are made from rural telephones but this approach, adopted in urban areas, cannot be duplicated in the rural market. A rural-specific strategy would require to be worked out taking into account the main economic activities, migration patterns, population density, geography, distance from the nearest town/city, economic linkages with the adjoining rural areas, local education facilities, available technology, etc.

The International Telecommunication Union (ITU) has estimated that a 1 per cent (of GDP) investment in telecommunication results in a 3 per cent increase in gross domestic product (GDP), which confirms the linkages between tele-density and GDP. The tele-density in India, i.e., the number of telephone lines for every 100 people, is abysmally low.

Tele-density in rural India is only 0.5 and one third of India's 600,000 villages are still without a village public telephone (VPT), the presence of which could save villagers transport costs and time. VPTs have several benefits such as reducing the migration from rural to urban areas, providing communication assistance during disasters, and enabling relief and rescue operations.

The overall tele-density in India stands at 3.8, whereas China has a tele-density of 9. Across the world, telephones were to be available on demand by 2001, but in many developing countries, the waiting lists are long, and so are the waiting periods. The deregulations of the telecom industry and the legal wrangles associated with Internet telephony have received greater attention than proposals for rural telephony.

The evolution of mobile technology

Mobile technology refers to technology that is portable. In this sense of the term, it includes mobile phones, smartphones, high-end phones with more advanced capabilities, laptops, global positioning system (GPS) devices, and so on. Such mobile de-

vices enable working from home or while on the move. This technology helps one to get connected to others at home, the office and to create a shared environment.

Mobile communications is the assisted transmission of signals over a distance for the purpose of communication, to or from a mobile device. From its early beginnings in the late 1970s and early 1980s, mobile communication technology has undergone many changes. In this process of evolution, it has undergone certain distinctive stages known as 'generations of mobile telecommunication technology,' which are defined in terms of technical features and the standards of services delivered to consumers.

In the 1980s, the mobile communication system was an analogue-based offering like the advanced mobile phone system (AMPS) and the Nordic mobile phone telephone (NMT) that supported basic voice services to the users. The second-generation (2G) mobile network was based on GSM (global system for mobile network) technology and had the capacity for a higher quality of voice calls, basic short messaging services (SMS) and very low-speed data connectivity. With the introduction of technologies such as enhanced data rates for GSM evolution (EDGE), code-division multiple access (CDMA) and digital advanced mobile phone services (DAMPS) in the 1990s, mobile systems evolved to accommodate higher speeds of data transfer, going up to 384 kB/sec. The system of digitally encrypted phone conversations made the 2G mobile system significantly more efficient on the spectrum, allowing far greater mobile phone penetration levels.

Mobile phone initiatives

In Pondicherry, the information village project of the M.S. Swaminathan Research Foundation has con- nected ten villages by a hybrid wired and wireless network, consisting of PCS telephones and VHF duplex radio devices. E-mail connectivity is available through dial-up telephone lines, which facilitates both voice and data transfer, and has enabled the villagers to get information that they need and can use.

In West Bengal, in certain remote villages, enterprising villagers are already running mobile PCOs, visiting a particular village on a fixed day.

In Andhra Pradesh, a unique Gram Phone project using an ultra-low-cost solution has been successfully executed in Kalleda—a remote village in Warangal district—by the Hyderabad-based Rural Telecom Foundation (RTF), a non-profit organisation. This project has been able to cover 70 of the households in the village within a short span of two months.

Telecommunication connectivity

The Bharat Nirman Programme aims to ensure that 66,822 revenue villages in India that have not yet been provided with village public telecommunication shall be covered. Of these villages, public connectivity in 14,183 of the most remote and far flung ones will be provided through digital satellite phone terminals.

A National Sample Survey Organisation study reveals that 71 per cent of farmers do not even know about the government's minimum support price scheme that is offered for their harvested crops. The need for multimedia content and communication is much more important in the rural context on account of low literacy levels, and the urgent connectivity requirements of rural tele-medicine and e-education.

Growth in India's mobile sector, from a humble start in the mid-1990s, has really picked up pace in recent years, aided by higher sub-

Mobile PCO

scriber volumes, lower tariffs and falling handset prices. It is now home to a clutch of global operators working with local companies.

The Universal Service Obligation Fund (USOF)

The USOF has been set up with the objective of meeting the Universal Service Obligation, which is defined as the obligation to provide access to telecom services to people in rural and remote areas at affordable prices. The problem in India is that tele-density in urban areas has reached saturation point while remaining abysmally low in rural areas. The plan now is to increase the rural tele-density four-fold to 40 per cent within the next five years and ensure that every *panchayat* is connected to a broadband network in the next three years.

Kisan Call Centre (KCC) Services

The central and state governments as well as private players are

increasingly tapping into mobile phone-based services. An example is the KCC services recently launched by the Directorate of Extension, Department of Agriculture and Cooperation, which offers expert advice on agriculture related problems and queries. In the private sector, a good example is Bharti IFFCo's joint venture that offers cheap mobile handsets costing less than Rs 2000, bundled with mobile value-added services such as free daily voice messages on market prices for agri-produce, farming technology, weather forecasts and fertiliser availability.

Rural broadband kiosks

Various studies have shown that there is a healthy demand for both mobile and broadband content from villagers for the purposes of agriculture, marketing, tele-education and e-health services. The desire to learn English and other subjects through mobile/Internet applications is particularly strong and has a significant revenue potential in rural India.

Recognising that relevant content in local languages is necessary to make rural broadband services meaningful, USOF has encouraged the adoption of a franchisee model in partnership with professional content aggregators for the subsidised broadband kiosks being rolled out by BSNL under USOF's wired-line broadband scheme. Under its agreement with USOF, BSNL is to roll out about 28,000 rural broadband kiosks for access to basic browsing and various types of commercial value-added

ReMeDi telemedicine setup used in the remotest rural areas for conducting different types of medical tests

services including entertainment, information, tele-education and telemedicine.

Telecommunications in health

Telemedicine is emerging as the most effective method to provide specialty care in rural areas, where people do not have the financial means or the access to medical services. Hence, in India, telemedicine will help people in remote geographical areas get the attention of a medical specialist in real time. Telemedicine is not a panacea for all the challenges facing rural patients and community health providers, but it can bring hope and better healthcare to millions of people across the country, ensuring that a heartbeat in a secluded village can be heard clearly,

even in a busy city.

The high penetration of mobile phones suggests that they have a significant social and economic impact. But for a technology to evolve and become better adapted to its users, they need to appropriate it, make it their own and embed it in their lives, rather than merely adopting it. And for the vast majority of Indians, this can only happen when value-added services are offered in regional languages, and when the services themselves are tailor-made to the needs of rural folk.

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