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Mobile Phone One of the Icts Intitiative and Technology of the Choice of Indian Farmer"

Home Science

KEYWORDS : Mobile phone, ICT, ICTs Initiatives in Agriculture, Mobile technology for farmers.

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ABSTRACT

The service role of ICTs can enhance rural communities' opportunities by improving their access to market information and lower transaction costs for poor farmers and traders. Rural scenario has become more complex; farmers' access to a reliable, timely and relevant information source has become increasingly important. Telecommunication, especially mobile phones have the potential to provide solution to the existing information asymmetry in various sectors like agriculture. Mobile telephony has emerged as the technology of the choice of the masses, be it in the rural or urban areas. Mobile phones are being used for a variety of purposes for information, education and entertainment. It was found that most of the population in China have been using mobile phone as an information tool. Today India is second largest country over other countries in the world where large number of mobile phones are being used as a source of information because it is less expensive and easy to reach among rural community (Wikipedia, the free encyclopedia, 2013-14). Further, total mobile phone subscriber base in India stands at 97,21,79,316 of which share of GSM service is 81.02 per cent and CDMA's share is 18.98 per cent (India Cellular.com, 2015). Mobile phone can be used to reach the widely scattered and diverse farming community. It can overcome the constraints of time space and scared human resources. On the other hand, farmers are also capable and open to used mobile phones. In addition, mobile phone are also be useful for agricultural marketing, mobile banking to obtain agriculture credit, etc which are still unexplored. Hence, Service of mobile phone will provide research based evidence, roadmap and policy framework to all such awaited initiatives to plan their future endeavours and usher-in a new wave of sustainable agriculture development initiatives utilizing the potentials of mobile telephony.

INTRODUCTION

Agriculture is one of the most important sectors in India, and constitutes a major livelihoods sector. Most of the rural poor depend on rain-fed agriculture and fragile forests for their livelihoods. Farmers in rural areas have to deal with failed crops and animal illness frequently and due to limited communication facilities, solutions to their problems remain out of reach (World Bank, 2009). The service role of ICTs can enhance rural communities' opportunities by improving their access to market information and lower transaction costs for poor farmers and traders. Rural scenario has become more complex; farmers' access to a *reliable*, *timely* and *relevant* information source has become increasingly important. Farmers require access to more varied, multisource and context-specific information related not only to best practices and technologies for crop production, weather forecasts but also to information about post harvest aspects including processing, marketing, storage and handling (Van den Ban, 1998). Thus, generalized content might not help farmers in different regions, which have their own crops, times and agro ecological specificities. Information that is context specific rather than generic could have important impacts on the adoption of technologies and could increase farm productivity for marginal and small agricultural landholders (Samaddar, 2006).

Despite the potential cost and time associated with generating localized content, access to locally contextualized quality content is more relevant for the poor and more useful to their information needs (Cecchini and Scott, 2003). Reliable, easily available, quality content that is relevant for farmers' decision-making could also reduce information-seeking and learning costs (Llewellyn, 2007). Therefore, content and delivery mechanisms need to be developed with the target range of farmer characteristics in mind, such as the socio demographic profile, gender, landholding size, or agro climatic zone of the user groups (Rivera, W.M., 1996). A number of factors and attributes of farmers influence information-seeking behaviours, access to information sources, channels and learning costs.

In present scenario, timely, relevant and high quality of information is needed by farmers but one barrier in this field is lack of appropriate ICT infrastructure. In the rural areas people have low level of education, due to which they do not have adequate knowledge about proper handling of advanced tools like Computer or Internet. Rural people cannot easily afford these advanced ICT tools. Therefore, question comes in mind which type of information tool can be most appropriate for reaching the unreached population; especially remote rural areas.

Telecommunication, especially mobile phones have the potential to provide solution to the existing information asymmetry in various sectors like agriculture. India's agriculture sector suffers from low growth rates and low productivity. Issues in access to information are weak points at every stage of the agri-supply chain. For small farmer-based economy like India, access to information can possibly enable better incomes and productivity to the farmers (Mittal and Tripathi, 2009).

Mobile telephony has emerged as the technology of the choice of the masses, be it in the rural or urban area. Cutting across the socio-economic spectrum of the society, mobile phone are being used for a variety of purposes – for information, education, entertainment. From being a status symbol, the possession of mobile has become a necessity in the contemporary society irrespective of age, income groups or place of residence.

Mobile phone: One of the ICT tools: Historical perspective

Mobile phone, money and time saving device. It is one of the ICT tools which can be used for literate as well as illiterate community.

The basic concept of mobile phone began in 1947, when researchers looked at mobile car phones and realized that by using small cells (range of service area) with frequency reuse, they could increase the traffic capacity of mobile phones substantially. However, at that time the technology to do so was not available. Anything to do with broadcasting and sending a radio or television message over the airwaves comes under the control of Federal Communications Commission (FCC) Regulation of the United States. A mobile phone is a type of two-way radio.

In 1947, AT&T (American Telephone & Telegraph) proposed that the FCC allocates a large number of radio-spectrum frequen-

cies so that widespread mobile telephone service would become feasible and AT&T would have an incentive to research the new technology. The FCC decided to limit the number of frequencies available in 1947, the limits made only twenty-three phone conversations possible simultaneously in the same service area.

AT&T and Bell laboratories proposed a mobile phone system to the FCC of many small, low-powered, broadcast towers, each covering a 'cell' a few miles in radius and collectively covering a larger area. Each tower would use only a few of the total frequencies allocated to the system. As the phones travel across the area, calls would be passed from tower to tower (Rastogi, 2004).

Martin Cooper, a former General Manager for the systems division at Motorola, is considered the inventor of the first modern portable handset. Bell Laboratories introduced the idea of cell phone communications in 1947 with the police car technology. However, Motorola was the first to incorporate the technology into a portable device that was designed for use outside an automobile.

By 1977, AT&T and Bell Laboratories had constructed a prototype cellular system. A year later, public trials of the new system were started in Chicago with over 2000 trial customers. In 1979, in a separate venture, the first commercial cell phone system began its operation in Tokyo. In 1981, Motorola and American Radio Telephone started a second U.S. cell phone radio-telephone system test in the Washington/Baltimore area.

Further, 1982, the slow-moving FCC finally authorized commercial cellular service for USA. A year later, the first American commercial analog cell phone service or Advanced Mobile Phone Service (AMPS) was made available in Chicago by Ameritech. Despite the incredible demand, it took 37 years for cell phone services to become commercially available in the United States. Consumer demand quickly outstripped the 1982 system standards (Colle, R. D. & Roman, R., 2002).

List of 10 top ranking countries are shown in the table 1 where large number of mobile phones are being used. It is best and accessible ICTs initiative to overcome the communication gap among literate as well as illiterate population. The worldwide number of mobile phone subscribers surpassed 6 billion in 2013-14, up from 2 billion in 2005 and 750 million in 2000.Country wise top mobile phone subscribers' are given table 1.

Table 1: Mobile Phone Subscribers' Top Ranking Countries

Sl. No.	Rank	Country or Region	Number of Mobile phones	Population	Mobile phones as % of Population(till 2013-14)
1	**1**	China	1,276,660,000	1,369,811,000	93.2
2	**2**	India	970,955,980	1,267,402,000	77.58
3	**3**	United States	327,577,529	317,874,628	103.1
4	**4**	Brazil	278,480,000	201,032,714	137.14
5	**5**	Russia	256,116,000	142,905,200	155.5
6	**6**	Indonesia	236,800,000	237,556,363	99.68
7	**7**	Nigeria	167,371,945	177,155,754	94.5
8	**8**	Pakistan	140,000,000	180,854,781	77
9	**9**	Japan	121,246,700	127,628,095	95.1
10	**10**	Bangladesh	167,371,945	157,497,000	77.37

***(Source:** From Wikipedia, the free encyclopedia, 2013-14)*

It was found that most of the populations in China have been using mobile phone as an information tool. Today India is second largest country over other countries in the world where large number of mobile phones are being used as a source of information because it is less expensive and easy to reach among rural community.

In 1992 telecommunication sector in India was liberalized to bridge the gap through government spending and to provide additional resources for the nation's telecom target. Private sector was allowed participation. In the beginning years, impact as well as penetration of mobile phone was slow and confined to urban areas only. The government of India established business relationship with other developed countries.

Further in 1993, the telecom industry got an annual foreign investment of Rs. 20.6 millions. License for providing mobile phone services was granted by the Government of India in 1994 for the metropolitan cities of Delhi, Mumbai, Kolkata and Chennai. Mobile phone service became duopoly (i.e. not more than two mobile phone operators could be licensed in each telecom circle) under a fixed license fee regime for 10 years. In the year of 1995, nineteen more telecom circles got mobile licenses and Kolkata became the first metro with a mobile phone network.

Telecom Regulatory Authority of India (TRAI) was set up in 1997 as an independent regulator of the telecommunications business in India. During 1998 annual foreign investment in telecom increased to Rs. 17,756.4 million but in 1999 FDI inflow into telecom sector fell by almost 90 per cent to Rs. 2126.7 millions. To encounter this negative growth tariff rebalancing exercise got initiated in 1999. Besides, the policy of telecom was also announced in 1999 at national level. FDI inflow dropped further down to Rs. 918 millions, which led amendment of Telecom Regulatory Authority of India in 2000.

Mobile Service in India

Many states of India are actively using mobile phone for variety of purposes. Mobile phone handsets are easily available in the market of many mobile service providers/ companies. There are so many mobile service companies such as BSNL, Airtel, Idea, Vodafone, Aircel, Uninor, *etc.* which provides SIM cards to subscribers for receiving mobile phone services. Subscribers choose service on the basis of their economic status and network signal/connectivity in their residential area. Company wise mobile phone services being used by the subscribers are given below Table 2.

Table: 2 Company wise market share of service used in India (2015)

Group Company	No. of Subscribers	Market Share (GSM+CDMA)
Airtel (GSM)	22,00,50,698	22.635%
Vodafone (GSM)	18,04,94,231	18.566%
IDEA(GSM)	15,27,55,295	15.713%
Reliance (CDMA + GSM)	10,66,08,748	10.966%
BSNL(GSM)	9,71,72,146	9.995%
Aircel(GSM)	7,96,15,899	8.189%
Tata (CDMA)	6,64,67,449	6.837%
MTS (CDMA)	88,92,943	0.915%
Videocon (GSM)	66,25,515	0.682%
MTNL(GSM)	33,85,394	0.348%
Loop Mobile(GSM)	30,28,539	0.312%
QUARDRANT (CDMA)	25,93,759	0.267%
Total (All India)	**97,21,79,316**	

(Source: India Cellular.com, 2015)

The data presented above indicated that Indian mobile market, Airtel has emerged as the first choice (market share = 22.63 per cent) followed by Vodafone (18.56 per cent), Idea (15.71 per cent) and Reliance (10.96 per cent). Further, total mobile phone

subscriber base in India stands at 97,21,79,316 of which share of Global System for Mobile Communication (GSM) service is 81.02 per cent and CDMA's share is 18.98 per cent.

Mobile phone and its various features such as voice SMS service and call are mostly used by the subscribers. Padmaiah *et al.* (2009) found that majority (65 per cent) opined that mobile phone and its SMS Alerts service were useful in getting depth knowledge about castor production technology, high majority of them opined the possibility of getting in the technical advice stage by stage from researcher, AOs, AEOs and related agencies. They have also expressed the desire for getting information through mobile phones about availability of inputs at various places besides market rates.

CONCLUSION

Mobile phone can be used to reach the widely scattered and diverse farming community. It can overcome the constraints of time space and scared human resources. On the other hand, farmers are also capable and open to used mobile phones. In addition, mobile phone are also be for agricultural marketing, mobile banking to obtain agriculture credit, etc which are still unexplored. The use of mobile phone technology is still in ancient stage. To enhance the use of mobile phones by the farmers especially belonging to low income groups, there is need to subsidize the cost aspects related to mobile phones.

SCOPE OF THE SERVICE

ICTs can accelerate agriculture development by facilitating knowledge management and integrating the networks of information dissemination and meeting the information needs of farming community effectively and efficiently. Farmers can take full advantages of a number of innovative and imaginative ICT applications developed by a number of public and private service providers for increasing productivity and profitability. Timely access to the desired information can help farmers in decision making about various aspects of farming, be it decision making about various aspects of farming or be it decision about market price or input costs and availability.

Information asymmetry at farm level has been identified by many research studies to be a critical factor in productivity enhancements. The timely access to information and services can help the farmers informed in decision making. The wide range of information needs of the farming community are not being effectively met by the existing extension functionaries. Due to various constraints (Sulaiman and van den Ban, 2000), the extension functionaries are neither ready nor empowered to meet these challenges. Consequently, a number of private corporate sector are ready to step-in to plug this gap. Mahindra & Mahindra's Samridhi Centre, DSCI's *Hariyali Kisan Bazar*, *Tata's Kisan Sanchar*, *etc.* are planning to enter this sector with very big ambitions. Hence, Service of mobile phone will provide research based evidence, roadmap and policy framework to all such awaited initiatives to plan their future endeavours and usher-in a new wave of sustainable agriculture development initiatives utilizing the potentials of mobile telephony.

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