



## ICT AND SOCIO-ECONOMIC EMPOWERMENT OF RURAL WOMEN: CASE OF MOBILE PHONE IN INDIA

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### Abstract

*The concept of gender empowerment is a common concern all over the World. This issue has now acquired new dimensions with the advent of Information and Communication Technology (ICT) in development countries like India. It has potential to empower women through by overcoming their physical boundaries and access to better economic & business opportunities and education & health services. This paper aims to study the impact of mobile phone access and usage by women from rural areas who are hitherto deprived and isolated due to various social and economic reasons. In total, 200 women (100 users and 100 non-users) were interviewed in two villages in backward or poor districts of Uttar Pradesh. The women interviewees described their experiences, their access & uses of mobile phone and its impact on their lives and barriers or obstacles of accessing.*

### Key words:

Women Empowerment, ICT, Mobile Phone, Rural Women, Mobile Impact, Logic Framework

### JEL Codes:

M41

### 1. Introduction

Around 70 per cent of India's and 12 per cent of the global population lives in rural area, where poverty is always significantly higher than urban areas (Sharma, 2009). This makes socio-economic development of rural poor a central issue and focal point for policy makers (Sarin & Jain, 2009). One of the most serious and far reaching barriers for poverty eradication is argued existence of gender inequality, which has long-term consequences on economic growth and human development (Costa & Silva, 2008). Hence, the promotion of gender equality and women's empowerment was one of the key target objectives of Millennium Development Goals. But the lack of access to relevant information and knowledge is considered to be major obstacles for women empowerment in rural India (Stark, 2010). There is widespread consensus that information and communication technology (ICT) present the best solution to this problem with mobile phone showing a particular promise.

In many regions of Africa and Asia, mobile phones are the first form of electronic communication technology to be widely used. Since mobile networks are cheaper to build than landline networks. Communication through phone does not require literacy; mobile phones are now increasingly adopted in regions with no extensive prior

form of such technology. The rate of mobile phone subscribers has been record breaking since the introduction of mobile phone in 1995 (Tenhunen, 2008). With the arrival of fourth-generation and increasing penetration in rural areas, mobile phone subscribers have crossed 900 million<sup>1</sup> by March, 2014 (Telecom Regulatory Authority of India, 2014). The government favorable policy and regulatory environment encouraged competition and consequently reduced tariff and rise in subscribers (Rai, 2006, Kalba, 2008). It is often argued that this high penetration of mobile phone can directly benefit the lives of women. The use of mobile phone can empower them by overcoming their physical boundaries, access of better economic & business opportunities and health & education facilities (Lee Dayoung, 2009). This has also potential to empower women from rural areas, who are deprived and isolated due to various socio-economic reasons. Hence, an attempt has been made in this paper to understand impact of access to mobile phone on women in rural areas. This background raises questions that how the rapid penetration of mobile phone in rural area has helped empowerment of women?; what are the key determinants of ownership and access of mobile phone?; what are the main uses of mobile phone?; what are the impacts of mobile

phones access and use?; and what are the challenges/barriers women faces in access and use of mobile phones?

This evidence-based study would help considerably to identify policy intervention and formulation by government policy-makers, business organizations, civil society and the international donor community to ensure that women are empowered and ultimately benefits from the information revolution. This study focuses of backward and poor regions of India and the finding will be relevant for many other emerging region of the world facing similar problems and cannot be generalized.

## 2. Literature review

The telecommunication studies done in the past were mainly concentrated on landline phone and other modes of communications. However, after the advent of mobile or wireless phone, especially its rapid growth in developing countries, it is not surprising that studies on mobile phone have become one of the focused areas in ICT literature. There are three major category of studies, one those assess impact of mobile phone (Forestier, *et al.*, 2002; Goodman, 2005; Souter, *et al.*, 2005; Geser, 2005; Waverman, 2005; Sridhar and Sridhar, 2006; Vodafone, 2005; 2009) and another those assess determinants of mobile phone adoption (Banerjee and Ross, 2004; Dholakia *et al.*, 2004; Srivastava and Sinha, 2001; Kaba *et al.*, 2006; Kumar *et al.*, 2007; Varadharajan, 2007; Barrantes, 2008) and third focuses on interrelationship between mobile phone and users (Kumar and Mukherjee 2002; Donner, 2004; Samuel *et al.*, 2005; Abraham, 2006; Chawdhury, 2006; Kumar and Thomas, 2006; Roger *et al.*, 2006). Claude Fischer, in the historical study of *America Calling (1992)*, a study of the early US landline telephone, lays out a similar typology. He contrasts –impact studies of the telephone (exhibiting various degrees of technological determinism) with what he sees as a more fruitful set of studies in which the causality is less clear, and the interrelationships between technologies and human systems are complex.

In the context of present study reviews focuses more on access, use and impact of mobile phone. The general perception and existing literature have highlighted that economically better off households have higher access and ownership of mobile phone compared to low-income (Souter, *et al.*, 2005; Samuel, *et al.*, 2005; Zainudeen, *et al.*, 2007; Barrantes, 2008;

Chabossou, *et al.*, 2008). The ownership is largely limited to earning male or head of the households and women mostly shared the mobile phone. Due to status, power and freedom the rural society may not ready to impart similar rights to the women yet and this could be impacting the gender skew in ownership of mobile phone (Sharma, 2009). Studies also found that majority of the users were educated and belong to young age category (Alampay, 2006; Shaffril *et al.* 2009; Sarin & Jain, 2009). Barrantes (2008) argues that the economic activity and type of work is much more critical in ownership and access of mobile phone. Users are more likely to be involved in self employment or regular wage activities (Sarin and Jain, 2009).

Regarding the use and impact of mobile phone, Souter, *et al.* (2005) and de Silva, *et al.* (2007) in their studies have claimed that social networking as the primary reason for using mobile phones. In addition, some evidence of maintaining both strong and weak ties—those related to outside the immediate family and immediate social groups also found (Samuel, *et al.*, 2005; Goodman, 2005; Vodafone, 2009). Some cases of women empowerment have been widely discussed in literature as Grameen Bank Project in Bangladesh offered women to borrow money from bank to obtain mobile phone, which they used to find market information related to agriculture production and have also provided them access to the police and legislators. Similarly, women micro-entrepreneurial trained in marketing by Foundation of Occupational Development (FOOD), Chennai in India provided mobile phone have increased their earning and empowered them to take new initiatives (Tenhunen, 2008). Coyle (2005) in his study of Tanzania, South Africa and Egypt also found that mobile phone has helped women in accessing market information, save time, discover job and educational opportunities and bring security.

Few other studies have found that the use of mobile phones helped in search for better information and reduce transaction costs in business, either due to the reduced need to travel or/and better information (Jensen, 2007; Aker, 2008; Donner, 2005). In rural areas, mobile phones also facilitate migration for work and mitigating the disruption of social networks and helping to maintain or increase social capital (Tiam-Tong, 1996). Frissen(1995), Rakow, (1998) and Dayong,(2009) revealed that mobile phone serve as 'liberators' for women and mitigate the fear of isolation, loneliness and boredom by helping them to cope better with commitment at home and physical separation from

their own family members and friends. However, several challenges in ownership and access to mobile phone have been highlighted in the studies. The major barriers in rural areas were discussed cost of calls and unavailability of SMS in local languages and lack of electricity and high cost of mobile phone handset (Sharma, 2009).

The above literature shows adoption of mobile phone by individual, household and communities, who have hitherto lacked any comparable means of communication. The use of mobile phone has transformative effect on their social and economic status. However, the impact of mobile phone on women empowerment in rural areas has never been studied comprehensively. Therefore, the investigation of mobile phone use on women empowerment in backward rural areas has been worth to study. Combining available literature and the socio-economic characteristics of mobile users, the following research design has been adopted.

#### 4. Framework and methodology of research

##### 4.1 Conceptual Framework

The concept of empowerment has a long history and rooted in various academic and development discourses. It is a concept that so many different meanings and a single catch phrase definition seems inappropriate. For most social activists and development agencies, it is used as local, grassroots endeavor, concerned with inspiring the poor to challenge the status quo or upset the established power structures and replace them with more equitable communities. The concept is understood as having “the ability to change the World to overcome opposition (Raj, 2007)” and is commonly seen as transformative in nature.

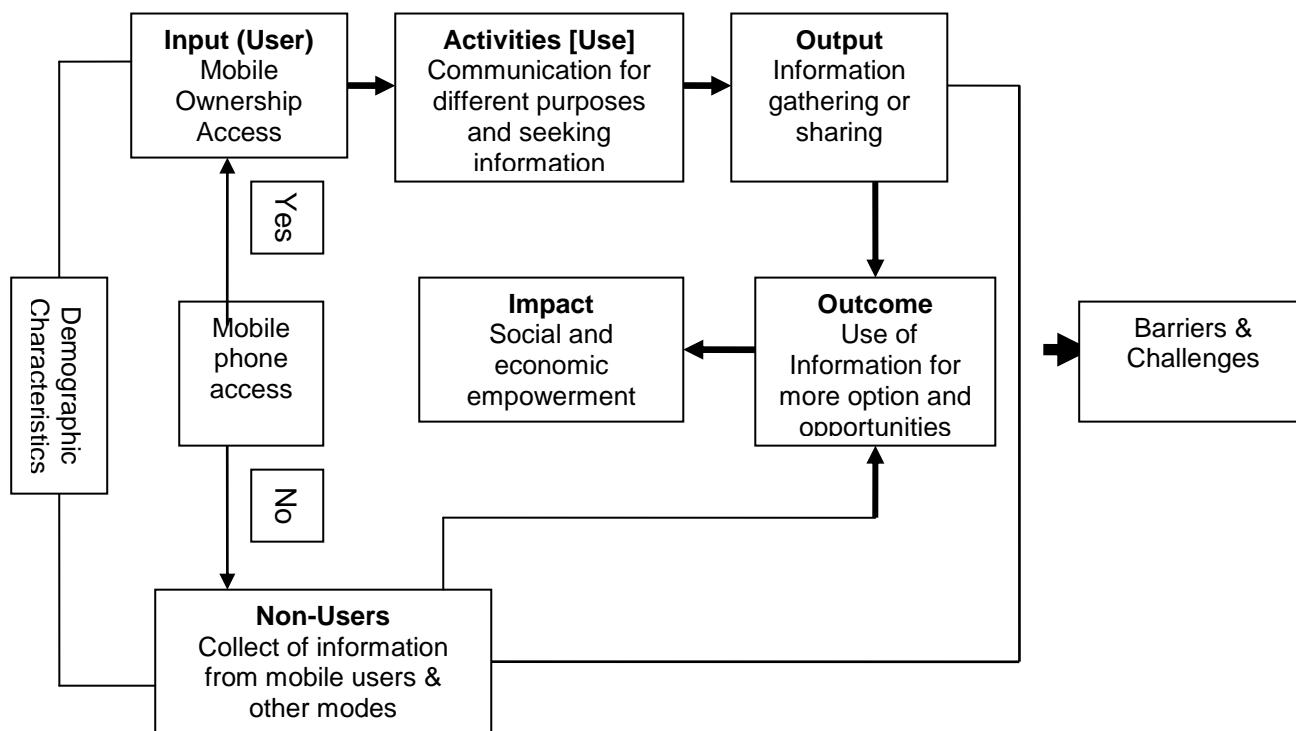
Feminists have contributed important insights into the concepts of power and empowerment. Because power relationships in many societies generally marginalized women, feminists have embraced the concept as naturally more relevant to women’s issues and problems. The Third World feminist regards the issue of *participation as central to empowerment*. Participation in the process of challenging hegemonic discourse has been seen as often leading to deeper understanding of the self, which often empower individuals and inspire political action in both their private and public lives (Rai, 2007). The NGO’s working on women’s issue, feminist

interpretations of power and empowerment as participatory in nature have influenced their thinking and practice. These NGOs have intended to focus on local communities and have been deeply influenced by participatory, people–first approach to development of Robert chambers (1997). Amartya Sen (1990) specifically focuses on individual development, and sees women empowerment as both a means and an end. Empowerment is seen as a process of developing (“empowering”) individual capacities such as education, skills and information in order to improve the life-chances of individuals and make or “empower” them to have a better quality of life (Rai 2007).

The study utilizes the concept of empowerment by looking the way as Sen has described as *both a process and outcome in which women experience as well as challenge and subvert power relationship*. As a process, empowerment takes place through mediations such as education, skills, and information building through the participatory approach and opportunities provided by such as ICT tools like mobile phone. As an outcome, empowerment can be measured against expected accomplishments (Kabeer, 1999). Empowerment is an outcome comes from the individual, self subjective analysis of his/her agency and power in maximizing his/her opportunities and options (Askew, 2002).

The theory of change, logic framework has been used to understand this process and type of variables to be assessed (Figure 1). The logic framework includes *Input*, implying the mobile phone ownership and access. This leads to *Activities or Use* of mobile phone for different purposes for seeking information. The *Output*, from these activities includes information building or sharing with others on various social and economic issues. The *Outcome* is the application of the collected information for better quality of life, and finally the *Impact*, which is conspicuous by the enhanced social and economic empowerment in the form of increased income and employment opportunities, health and educational access, more knowledge, enhance social status and autonomy, among other things. For measuring the impact on different socio-economic indicators individual perception (perceived impact) on important issues due to mobile phone use during more than last one year was asked to the respondents.

Figure 1. Logic Framework



Source: Adopted from Becker S et al (2010)

In addition, the demographic characteristics like age, education, activity status and income are essential to understand not only difference among mobile phone users but also between users and non-users. Lastly, the barriers and challenges for mobile access are also important for better policy formulation and implementation.

In this paper an attempt has been made to compare the notions of empowerment by those who have access to mobile phone and those who do not have. The study has pointed out the process and outcome qualities of empowerment and revealed the role of mobile phone in increasing options and opportunities for women in rural areas. It has tried to investigate how notion of empowerment differ between those who have mobile access from those who do not have in order to find out whether women have greater sense of empowerment from having access to mobile phone.

#### 4.2 Methodology

For the selection of respondents a multi stage sampling technique was used. At first, a backward region or state, Uttar Pradesh was selected, which is one of the poorest state in the northern part of India, where women have very low levels of literacy, and work participation rates and high mortality rates, also indicating the existence of a significant degree of

gender inequality (Planning Commission, 2010; Dyson and Moore, 1983). At second stage, two backward districts in the state i.e. Fatehpur and Chandauli (According to the *Food Security Report of Uttar Pradesh, 2010*) were selected. At third stage, selection of villages was done on the basis of distance from nearest urban centre, i.e. more than 5 kms as distance reflects the backwardness of the village. The households within the selected village constituted the fourth stage sampling unit. A list of households with women having access to mobile phone was prepared and used for the selection of final sample or respondents.

In total, 200 respondents (100 users and 100 non-users) were interview with equal coverage (50 users and 50 non-users) in both villages. In the villages, systematic circular random sampling method was used to select the final sample after listing and identified user and non-user of mobile phone women in the households. While doing the survey some of the women did not agree to participate in the survey such women were replaced by next women in the list who were willing to participate in the interview. The survey was conducted in Jan-Feb, 2011.

## 5. Results

### 5.1 Profile of Respondents

In the rural areas of UP, mobile phone was popular among women belongs to young & middle-aged, higher social groups<sup>2</sup> and educated classes. However,

majority of non-users women were illiterate and from socially backward groups (Table 1). This clearly indicates that social background and education play a key role in women's accessing and use of mobile phone.

Table 1. Demographic Distribution (%)

		User	Non-User
Age Category	Young (18-34)	44	52
	Middle-age (35-59)	52	48
	Old (60+)	4	0
Social Category	SC/ST	19	52
	Others	81	48
Education	Illiterate	14	62
	Up to Primary Level	22	14
	Middle Level	10	6
	Secondary Level and above	54	18
Total (N)		100	100

Source: Field Survey, 2011

Previous research shows that household income plays a major role in the ownership and usage of mobile phones (Souter, *et al.*, 2005; Samuel, *et al.*, 2005). This study also corroborate with earlier findings and reveals that mobile phone users women were belong to economically better off compared to non-users (Table

2). Additionally, the gap in per capita monthly households' income between users and non-users also explains this disparity. The per capita monthly income of households (Rs 3000/-) where women use mobile phone access was three times higher than those of non-users (Rs 1000/-).

Table 2. Income Quintile-wise (Household) Distribution (%)

Income Quintile HH (Q)	User	Non-user
Q <sub>1</sub> (Poorest)	11	40
Q <sub>2</sub> (Poor)	20	22
Q <sub>3</sub> (Medium)	18	18
Q <sub>4</sub> (Rich)	21	14
Q <sub>5</sub> (Richest)	30	6
Total (N)	100	100

Source: Field Survey, 2011

The households and women's occupation or activity indicate that users were involved in better jobs, (i.e. regular salaried jobs & self-employment) in comparison to non-users, who were mainly involved in low paid casual work or non-economic activities (only household work) (Table 3). Occupations or activities of women has not directly relate to mobile phone access and use as those who stay at home also needs to regular contact

with their family members. This reflecting from survey as second highest female mobile phone users were women those who stay at home and involved in households activities only. On the other hand, almost all salaried and self employment women in non-farm activities had access to mobile phone showed that income or better quality employment matters a lot.

Table 3. Occupational Distribution (%)

	Users	Non-users
<i>Household Occupation</i>		
Self-employed in Farm and Related Activities	37	24
Self-employed in Non-farm Activities and Trading	16	10
Casual Labourers	16	50
Salaried	29	14
Others	2	2
<i>Self Occupation</i>		
Self-employed in Farm and Related Activities	25	14
Self employed in Non-farm Activities and Trading	14	2
Casual Labourers	13	22
Salaried	19	0
Household Work	22	60
Others	7	2
N	100	100

Source: Field Survey, 2011

## 5.2. Ownership of Mobile Phone

The access and ownership of mobile phone among women reveals a different picture. Ownership of mobile phone shows higher degree of confidence compared to just access to it. The results of ownership of mobile presented in Table 4 reveals interesting results as ownership of mobile phones was higher among the

women belongs to socially backward groups and economically better off households. This result shows that not only affordability of mobile phone but importance of mobile phone play a major role in mobile ownership. The women belong SC/STs were more economically active, so their ownership of mobile phone set was higher compared to others.

Table 4. Ownership of Mobile Phone (%)

		Self	Spouse	Children	Others	All
Income Quintile HH (Q)	Q <sub>1</sub> (Poorest)	83	0	0	17	100
	Q <sub>2</sub> (Poor)	80	5	0	15	100
	Q <sub>3</sub> (Medium)	78	11	6	6	100
	Q <sub>4</sub> (Rich)	86	0	0	14	100
	Q <sub>5</sub> (Richest)	93	0	3	3	100
Social Group	SC/STs	84	3	2	11	100
	Others	74	11	0	16	100
Total		84	3	2	11	100

Note: Others include parents, brothers, sisters and other close relatives.

Source: Field Survey, 2011

The purchase of mobile phone set further clearly indicate that self purchase by majority of the poor and SC/STs women shows their high autonomy in financial decision making compared to other women. One the other hand, relatively higher number of women belongs

to economically better off households and socially higher classes got the mobile handset from their spouses and children. is because poor women were more economically active.

Table 5. Purchase of Mobile Phones by Income Quintiles (%)

		Self	Spouse	Others	All
Income Quintile HH (Q)	Q <sub>1</sub> (Poorest)	91	0	9	100
	Q <sub>2</sub> (Poor)	85	5	10	100
	Q <sub>3</sub> (Medium)	78	11	11	100
	Q <sub>4</sub> (Rich)	86	5	10	100
	Q <sub>5</sub> (Richest)	77	17	7	100
Social Group	SC/ST	90	9	1	100
	Others	64	21	15	100
Total		82	9	9	100

Note: Others include parents, brother, sisters and other close relatives  
 Source: Field Survey, 2011

### 5.3. Usage of Mobile Phone

As mentioned in previous studies, women in rural UP were also using mobile phone for maximum for social networking followed by economic (work & business) activities, communication with family members and employment, education, health and others (entertainment and emergency). The encouraging sign

is that women have started using mobile phone for not only their work related purposes but also gathering information on employment, education and health facilities (Table 6). In rural areas, where these facilities are still far behind that the urban, the access to such facilities shows an encouraging sign for women empowerment.

Table 6. Usage of Mobile Phone (%)

Usage of Mobile Phone*	All
Social Networking	71
Work-related	26
Communication with Spouse	24
Business Related	20
Communication with Parents	17
Communication with Other Household Members	13
Information on Employment	10
Information on Education	8
Information on Health	8
Entertainment	4
Emergency	4
Total	100

Note: \*Multiple answers  
 Source: Field Survey, 2011

This phenomenon has further examined by the usage patterns of mobile phone in terms of the average frequency of use per week. The frequency reflects that relatively higher numbers of calls were made by women for work (average 7 per week) and business activities (average 5 per week) than others purposes (average 2 calls per week). These results indicating higher significance of mobile phone among economically active women compared to others.

### 5.4. Impact of Mobile Phone Usage

The majority of mobile phone users had perceived<sup>3</sup> very high impact on their personal relationship, education

and health followed by moderate impact on social networking, economic opportunities and higher autonomy in decision-making (Table 7). The discussion with women entrepreneurs revealed that due to the use of mobile phone they were able to get more customers and less travel, easy access to market, resulted in more revenue or income from their respective trades. Few casual wage earners told that usage of mobile phone enables them to find work directly or through referral from their social network, whereas in the case of non-users, middlemen or third party intermediaries were still the primary sources of finding a work. Women respondents also said about marginal impact upon

fighting against social evils like dowry, domestic violence, discrimination and child selection (preference for the boy child), etc. In contrast to mobile users, a majority of the non-users reported some improvement in their socio-economic condition after the advent of using mobile phones, due to positive externalities derived by the mobile phone users. This happens

because the information collected by the users also gets disseminated to the non-users in social gatherings or informal chats among them. The community members also strongly agreed that usage of mobile phone has improved the ability of women to plan, coordinate and search for better information in comparison to non-users.

Table 7. Distribution of Perceived Impact (over more the last one year)

	High		Medium		Low		No		Total
	U	NU	U	NU	U	NU	U	NU	
Support from Husband and Family Members	91	0	5	0	3	0	2	0	100
Education Information/Access	65	25	16	12	8	17	11	46	100
Health Information/Access	15	8	28	22	15	5	42	65	100
Social Networking ( <i>Relatives/Friends</i> )	22	0	9	0	22	0	47	0	100
Employment Information/Access	19	5	22	12	11	28	48	55	100
Business Information/Income	18	9	16	10	22	5	44	76	100
Autonomy in Decision-making	28	0	12	0	15	0	45	0	100
Fighting against Social Evils ( <i>Dowry, Discrimination, Child Selection, etc</i> )	3	4	10	15	5	12	82	69	100
Government Services Information/Access	5	0	16	0	18	0	61	0	100

Note: High—High Impact; Medium—Medium; Low—Some Impact; - No Change.

U-User; NU-Non User

Source: Field Survey, 2011

Overall, majority of the women mobile users believe that their socio- economic status has improved because of using mobile phones. Women mobile phone users informed that this has helped them to enhance their knowledge of welfare and the whereabouts of their friends and relatives (through social network, as reported in the earlier section). It is well documented that if the women or mothers in the household get educated, it has far better consequences in terms of the welfare, education and health, of their children in particular, and that of society welfare, in general. In contrast, only a few women non-user of mobile phone informed that they were more informed about education, health and employment, during the last few years. Interestingly, this rise in social networking among mobile phone users seems to be accompanied

by a slight decrease in the frequency with which they actually meet personally.

### 5.3. Challenges and Barriers

The main barrier informed by women respondents was poor communication infrastructure and services in their areas (Table 8). Although there has been a drastic downfall in the prices of hand sets and cost of calls, still majority of them informed about high cost of the handset, low income, high call cost as barriers in accessing mobile phone facilities. Some women also revealed difficulty in using mobile phones due to languages and operational problem. Although, around one-fifth of non-user informed that they did not need mobile phone as most of their relatives and work is local or situated nearby.

Table 8. Barriers and Challenges (%)

Barriers*	User	Non-user
Poor Infrastructure and Services	70	70
High Cost of Hand Set	45	86
Low Income	51	56
High Cost of Calls	44	42
Difficulty in Operating Mobile	14	14
No Need	0	22
Total	100	100

Note: \*Multiple answers

Source: Field Survey, 2011



## 6. Conclusions and recommendations

The analysis clearly reveals that the use of mobile phone has significantly contributing to empowerment of women from rural areas. The government should encourage private mobile operators by providing tax exemptions and other benefits to facilitate them for better mobile infrastructure and services in rural areas. There should be some subsidy or waiver also in the mobile sets given to rural people, especially women, in order to encourage and give them the opportunity to participate in the mainstream development. For facilitating better reach for development schemes, one should disseminate information through mobile phones to the users, which would enhance the value of the mobile and reach of the programmes. There are a few women who can afford to buy a mobile phone but cannot operate it due to illiteracy and lack of awareness. Therefore, there is a need for some training programmes or more campaigns or workshops to enable women to make better usage of mobile phones like information on access to education, credit facility for entrepreneurship, employment opportunities, health and other government welfare schemes. This would not only help in improving the overall status of women in rural society but also have a long-term impact on their overall empowerment and development of the community.

However, we recognized that no technology can be the cause for complete social or economic transformation. Similarly, in the case of the mobile phone also it cannot be uniquely responsible for certain large scale or mega trends in society, but can be a strong facilitator for this transformation.

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<sup>1</sup> Subscribers' statistics are not generally based on individual users, but rather on individual subscription accounts, so there is some degree of double counting (Kalba, 2008)

<sup>2</sup> According the social system in India, Schedule Caste (SC) and Schedule Tribes (ST) are regarded as backward social category and others, higher social category.

<sup>3</sup> Asked to both mobile phone users and non-users about how their major socio-economic factors had changed over the period, more than last one year.