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Situational analysis on use of ICT in agriculture and allied sectors by gender

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Abstract

India is mainly an agrarian country with about 70 per cent rural population earning their livelihood from agriculture sector. Indian government has taken up many flagship programmes for doubling the farmers' income by 2020. Role of extension machinery to percolate down the modern cultivation practices, processing as well as marketing intelligence is very much important in achieving the targeted goal. Information and Communication Technology (ICT) may play a major role as one of the extension machineries in this regard. For women the world over, information and communication technologies (ICT) can be leveraged for personal security, better access to education and jobs, financial inclusion or to access basic healthcare information. But these benefits are not accessed due to several factors, including affordability, relevant content, skills and security (ICC report, 2017). For these reasons United Nation's Sustainable Development Goal-5 aims to achieve gender equality and empower all women and girls and also calls for enhanced use of enabling technology – ICTs in particular – to promote the empowerment of women. Keeping this in view, a study was undertaken to conduct the situational analysis of rural people by gender in terms of ownership, availability, knowledge and use of ICT. One hundred rural men and one hundred rural women were selected randomly from five villages of Jorhat district of Assam and the data revealed that Television was available for 70% rural women and 73% rural men, but accessibility was almost half for rural women (59%) than rural men (100%). All the male respondents owned own mobile phone, while, 72 per cent female respondents owned mobile phone. 82% rural women and 43.30% rural men were aware about the call facilities of mobile phone but its use was restricted to only 38.70% rural women. It was revealed that 76.38% and 80.00% rural women and rural men respectively could read the SMS they receive in their mobile. 70% rural women and all the rural men used to answer all the calls whereas remaining respondents used to answer only known calls. ICT tools were mainly used for family connectivity and social networking. 90 % rural women watched television only for entertainment and 100% rural men used it for social welfare. The present study concludes that a strategic programme may be launched categorically to teach the rural poor on proper use of ICT depending upon the resource availability in that particular locality, should make them aware off different apps and programmes running on different ICT tools, in order to keep them in touch with recent developments of agricultural sector which in turn will lead them for increasing farm income.

Keywords: ICT in agriculture, allied sectors, Information and Communication Technology

Introduction

India is an agrarian country and its economy mainly based on agricultural sector. About 70 per cent rural population of this country rely on agriculture for their livelihood. But still, the financial position of Indian farmers, particularly in the north eastern states is not strong. Lack of knowledge on modern, improved cultivation practices of crops is considered as a major factor for socio-economic upliftment of this community. Government of India therefore, targeted to double the income of Indian farmers by 2020. Many flagship programmes have been launched by the government to reach this target. The role of extension system is very important in promoting agricultural development and increasing food production. Several emerging challenges confront Indian farmers. These include limited land and water availability, which is further influenced by degradation of natural resources; climate changes; changes in demand and consumption patterns, moving toward high-value agriculture; increasing population pressure; and liberalization of trade (Lele *et al.*, 2010). Now the time has

Come when there is a need for closer interaction between public and private investment in the field of agriculture. Despite the variety of agricultural extension approaches that operate in parallel and sometimes duplicate one another, majority of farmers in India do not have access to any source of information. This severely limits their ability to increase their productivity and income and thereby reduce poverty (Glendenning, 2010) [5]. However, information and communication may be considered as one of the driving force in increasing the farmer's income by enabling them to gathering knowledge on recent development in technologies in agricultural and marketing sectors. Information and communication technologies (ICTs), which include the internet, computers, and mobile phones, have great potential to empower women worldwide. ICTs provide access to training and market information that can help women's and men's businesses succeed. ICTs have been promoted by international organisations such as United Nations Educational, Scientific and Cultural Organization, the World Bank and the FAO as a poverty reduction strategy with the additional benefit of empowering women in developing countries (a news report by ICC). Women make up more than 50% of the world's population; they also represent 70% of the world's poor. According to research, women reinvest 80% of every dollar made back into her family, meaning that practical support for the economic empowerment of women is a crucial step towards eradicating poverty and promoting prosperity. For women the world over, information and communication technologies (ICT) can be leveraged for personal security, better access to education and jobs, financial inclusion or to access basic healthcare information. But these benefits are not accessed due to several factors, including affordability, relevant content, skills and security (ICC report, 2017) [2-3]. For these reasons United Nations started Sustainable Development Goal-5 aims to achieve gender equality and

empower all women and girls and calls for enhanced use of enabling technology – ICTs in particular – to promote the empowerment of women. The present study was conducted

- To explore on ownership and access to ICT tools by gender
- To find out the awareness and use of ICT tools by gender
- To study the pattern of using mobile phone by gender
- To study the purpose of using ICT tools by gender

Methodology

The study was conducted in Jorhat district of Assam. The respondents were randomly selected from five different villages of Koliapani block of Jorhat district. From each village 20 male members and 20 female members were selected randomly for the study. Data on socio personal profile, ownership, availability, accessibility and use of ICT in agriculture and allied sectors was collected from 100 rural men and 100 rural women using a structured interview schedule through a combination of PRA techniques. As mobile being one of the recent ICT tools where one can access all types of information provided having an internet connection, handy and comparatively cheap than other ICT tools, hence the emphasis was given mainly on ownership, availability and accessibility of mobile phone as ICT tool for accessing the information by the respondents. The data was computed and analysed using appropriate statistical methods such as Mean and SD.

Results and discussion

To draw a conclusion and for making any recommendation, socio personal characteristics such as age, caste, education, marital status, family type and size, occupation and organizational membership were studied and presented in brief.

Table 1: Socio personal characteristics of the respondents by gender (N=100 rural men +100 rural women)

Sl. No.	Characteristics/Attributes	Category	Rural women	Rural men
1	Age	Young (18-35 yrs.)	23.30	47.00
		Middle (36-50 yrs.)	53.30	49.00
		Upper middle (50 yrs. and above)	23.30	4.00
2	Caste	OBC	100	100
3	Education	Up to class X	35.00	26.60
		HSLC passed	24.00	30.00
		Higher secondary passed	22.00	0.00
		Graduate	8.00	20.00
4	Occupation	Farming	62.00	50.00
		Service	15.00	20.00
		Farm allied	4.00	20.00
5	Type of family	Nuclear	69.00	50.00
		Joint	31.00	50.00
6	Size of family	Small (upto 4 member)	80.00	76.60
		Medium (5-7 members)	16.00	13.30
7	Organizational membership	Member	80.00	70.00
		Office bearer	20.00	30.00

Fifty three per cent rural women and 49 per cent rural men respondents belonged to middle age group (between 36 to 50 years of age). Data pertaining to educational qualification revealed that 35 per cent of the female respondents had education upto tenth standards which were higher than male respondents (26.60%), but in case of higher education, gender disparity was clearly reflected as only 8% rural women were graduate against 20 per cent rural men. These data were consistent with evidence reported by the World Bank (2007),

according to which, during 2005, 83 out of 106 developing countries had met Millennium Development Goal 3 regarding gender parity in access to education. Sixty two per cent rural women dwelled on farming and 50 per cent of the rural men took farming as a main occupation, 69 per cent respondents had nuclear family with small family size (80%). All respondents were belonged to other backward caste (OBC) due to geographical area selected for the study. For organizational membership, almost similar trends for both the

gender were observed i.e. 80 per cent rural women and 70 per cent rural men were general member and 20 per cent rural women and 30 per cent rural men were office bearer to different social organizations.

Ownership of different ICT tools and their accessibility by both rural women and rural men were studied and presented in Table 2.

Table 2: Ownership and access to ICT tools by gender (N=100 rural men +100 rural women)

ICTs hardware	Ownership			Access to ICT tools					
	Rural Men	Rural Women	Gender differences	Complete			Partial		
				Rural Men	Rural Women	Gender differences	Rural Men	Rural Women	Gender differences
Television	73.30	70.00	3.30	100.00	59.00	41.00	-	5.00	5.00
Radio	53.30	25.00	28.30	60.00	18.00	42.00	40.00	3.00	37.00
Mobile	100.00	72.00	28.00	73.30	57.00	16.30	26.60	11.00	15.60
Computer	36.60	4.00	32.60	-	1.00	1.00	36.60	3.00	33.60
Internet	36.60	2.00	34.60	23.30	-	23.30	33.30	2.00	31.30
e- mail	36.60	-	36.60	-	-	-	36.60	0.00	36.6
News paper	26.60	11.00	15.60	16.60	12.00	2.60	73.30	-	73.30
Magazines	13.30	5.00	8.30	13.30	-	13.30	86.60	4.00	82.60

Data in table 2 revealed that there was not much variation in ownership of television between both the genders (70 per cent rural women and 73 per cent rural men), it might be due to the fact that the rural women were becoming economically empowered through membership in SHG, which served as a source of income for rural women. Though the ownership of television was almost same for both rural men and rural women, but accessibility was almost half for rural women (59%) than rural men (100%), it might be due to the fact that women were very busy with multifarious house hold activities that they could not manage time for watching television. All the male respondents owned mobile phones while it was 72 percent for women respondents but 73.3 per cent rural men and 57 per cent rural women were accessing the mobile. This might be due to the fact that rural women were not sole owner

of her mobiles as they had to share their mobiles with their husband and children. Radio was available for 53.30 per cent rural men and 25 per cent rural women, but its accessibility was very less for rural women (18%) than rural men (60.00%). Computer was available to 36.60 per cent rural men and a very negligible percentage of rural women (4.00%), but they did not have internet facilities. News paper and magazine subscription and their accessibility was very low in comparison with television and mobile (table 2) for both the gender.

Further as mentioned in the methodology, information and findings on awareness and use of different functions, pattern and purpose of using mobile phone was presented in details. Information regarding awareness and use of mobile with different functions were collected and presented in table 3.

Table 3: Awareness & use of different functions of mobile by gender (N=100 farm women +100 men)

ICT tools and services	Awareness			Use		
	Rural men	Rural women	Gender differences	Rural men	Rural women	Gender differences
Use of mobile with internet						
Calling	43.30	82.00	38.70	76.60	37.00	39.60
SMS	26.60	72.00	45.40	53.30	28.00	25.30
WhatsApp	50.00	10.00	40.00	50.00	8.00	42.00
Facebook	56.60	3.00	53.60	50.00	1.00	49.00
Games/ movies/- songs	36.60	4.00	32.40	30.00	3.00	27.00
Accessing different internet sites	30.00	2.00	28.00	30.00	2.00	28.00

In case of awareness of different ICT tools and services along with their use, data were collected to know the frequency of respondents that are aware of various ICT tools, various apps and how many of them were using it and data presented in Table 3 revealed that though 82 per cent rural women were aware of calling facility in mobile than 43 per cent of rural men but only 37 per cent rural women used to make phone calls, whereas 76.60 per cent rural men used mobile phones to make calls. This might be due to low in complete accessibility of the mobile (Table 2). There was a gender gap (39.60%) seen in the study and the data was consistent with Mobile Gender Gap report, 2019; where it was reported that Indian men usage 80 per cent mobile while only 59 per cent women

usage it.

Information regarding use of mobile for answering calls, sending or receiving SMS was collected from all the respondents to know whether they used to answer all the calls coming in mobile or only known calls, whether they could read and write the messages themselves or other family members/friends read for them and were presented in Table 4. Data revealed from the table that 70 per cent rural women and all the rural men used to answer all the calls whereas remaining respondents used to answer only known calls. The respondents who used to answer all the calls opined that they picked up the calls only due to curiosity.

Table 4: Pattern of using mobile by gender (N=100 farm women +100 men)

Sl. No	.	Pattern of using mobile	Rural women	Rural men
1	Answering Calls	All calls	100.00	70.00
		Known calls	16.66	30.00
2	SMS received	Yes	76.38	80.00
		No	23.61	29.00
a.	If yes	Read all messages	40.27	70.00
		Read messages from known numbers	59.72	30.00
b.	If No, who reads for you	Husband	52.00	6.90
c.	Voice messages	Children	17.00	93.10
		Relatives	1.38	15.00
		Friends	0.00	22.00
d.	Written messages	Husband/wife	55.56	1.00
		Children	1.38	3.00
		Relatives	5.55	15.00
		Friends	4.17	25.00
		KVK	0.00	4.00
e.	Video messages	Agriculture deptt.	5.00	27.00
		Children	33.33	1.00
d.	SMS sent	Can write messages	77.78	82.30
		Cannot write messages	22.22	17.70
e.	If No, who writes for you	Husband	12.50	0.00
		Children	43.75	70.00

Data showed that more than one-third respondents (76.38% rural women and 80% rural men) could read the SMS they receive in their mobile and remaining respondents could not read the SMS. Respondents who could not read the message expressed that their husband, wife or children used to read the messages for them.

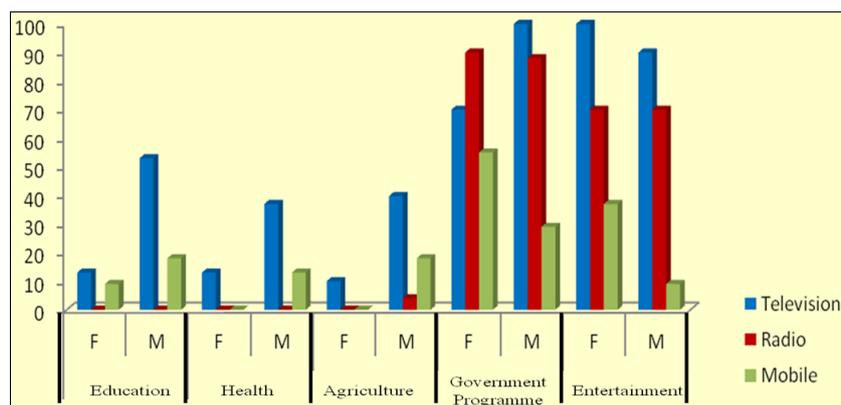
Findings also revealed that majority of the rural men (70%) read all the messages they received while 59.72 per cent rural women were reading messages from known numbers which was higher than those women that were reading all the messages (40%). Regarding source and type of messages, 55.56 per cent rural women used to get written messages from their husband, 5 per cent from relatives, 1.38 per cent from children and 5 per cent from agriculture department. Thirty seven per cent rural women used to get messages from other

sources such as banks, companies etc. (Table 4).

Data presented in Table 4 also showed that the percentage of rural men that could write the message was higher than the rural women (82.30% and 77.78%, respectively). Those respondents that were not able to write messages, their husband /wife, children, relatives and friends used to write messages for them.

It can be interpreted from the findings that majority of rural women and men were using mobile phones mainly for answering all the call. Regarding messaging, two third rural women and men were able to read the messages.

Respondents were asked about the purpose of using ICTs, which included education or gaining knowledge regarding health issues, business, agriculture, government programme, entertainment or any other purpose.

**Fig 2:** Purpose of using ICTs by gender

In this regard, data revealed from the figure 2 that 90 per cent rural women were using television mainly for entertainment i.e. watching serials, on the other hand all the rural men (100%) watching different government programmes broadcasted on television. Both male and female respondents used radio to listen different government programmes broadcasted in radio, more than 70 per cent rural men were using radio for entertainment, 55 % women used mobile phones for different government programmes, use of radio was not reported by rural women but few male respondents

used for gathering information related to agriculture.

Conclusion

The findings of the study revealed that ownership, access to and use of ICT tools and services and pattern of using mobile phones indicated that there was a variation in the gender. Rural women had less ownership and accessibility of ICT tools than rural Men. In case of awareness of common function of mobile phones mainly calling and SMS, rural women had more knowledge than rural men but use was not

as much by rural women than rural men, most of the respondents of both the gender used the ICT tools only for entertainment and communication with friends and family members. Very few respondents used for gathering information on agriculture and allied sectors.

Based on the findings of the study, following recommendations can be made:

1. Need to organize training, awareness programmes or workshop for rural men and women about different easily available ICTs tools and services and their use.
2. Need to establish linkage between agricultural state departments, research organizations and its allied departments with the rural people in order to increase the confidence, competence and skill in using ICTs for development.
3. Establishment of Community Information Centre in the villages is an important aspect for upliftment of rural people through ICT.

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