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Constraints and Suggestions Perceived by KVK Scientists in Utilization of ICT for Agricultural Extension

Rajiv Baliram Kale^{1*}, M.S. Meena² and S.K. Singh³

ICAR-Agricultural Technology Application Research Institute, Zone-VI, CAZRI Campus, Jodhpur-342005, Rajasthan

ABSTRACT

The present study explored the constraints and suggestions perceived by the KVK scientists for effective utilization of ICTs in agricultural extension activities. The study was conducted in KVKs of Rajasthan and Gujarat states. Responses from the 87 respondents from scientific staff of KVKs were collected through mailed questionnaire. It was revealed that the lack of expertise to use ICT, slow functioning of internet, lack of trainings related to ICT use, lack of awareness among the farmers regarding ICT use for educational and agriculture purpose were the major constraints in ICT use. All these constraints can be overcome by implementing suggestions by respondents like; proper and improved infrastructural facilities at KVKs as well as village level, skill development and updating with trainings, creating awareness regarding use of ICTs for educational and agricultural purpose.

Keywords: Agricultural extension, Constraints, Information and Communication Technology, Krishi Vigyan Kendra

INTRODUCTION

The advent of Information and Communication Technology (ICT) is considered as one of the driving forces of globalization. Integration of ICT is rapidly transforming the way of agricultural technology transfer. The ICT enabled extension systems are acting as a key agent for changing agrarian situation and farmers' lives by improving access to information and sharing knowledge. ICT in agricultural extension can lead to the emergence of knowledge workers that will result in the realization of a bottom-up, demand driven paradigm for technology generation, assessment, refinement and transfer (Meera, 2003). A strong agricultural extension linkage complimented by flawless information flow enhanced by the effective use ICTs will significantly boost agricultural production and improve rural livelihoods in developing countries (Arokoyo, 2005). Recent study by Kale *et al.* (2016a) reported that experts of the KVKs had positive perception towards ICTs for the extension work. Experiences of integration of ICTs in the agricultural institutes have been showing encouraging results and also complementing

conventional communication methods (Bisht *et al.*, 2010; Kale *et al.*, 2015a). At the same time, it is also a challenge to place rural ICT infrastructure, developing appropriate content, ensuring sustainability and scaling-up (Sawant, 2010). KVK system is the main public sector agency for agriculture extension in India. KVK Scientists are using ICT for various activities of agricultural extension. Similar to any other technology, use of ICT in agricultural extension is also having constraints; and the constraints of any communication system can be assessed through involvement of its real users. Looking at this aspect, this study was undertaken to elicit the constraints perceived by the KVK scientists of Rajasthan and Gujarat while using ICTs in the process of dissemination of agricultural technologies.

MATERIALS AND METHODS

The KVKs are managed and functional under Indian Council of Agricultural Research (ICAR) in the eight zones in India. The present study was carried out in sixth zone of India comprising two states, viz., Rajasthan and Gujarat, purposively. Total 57 KVKs (32

*Corresponding author email id: rkrajivndri@gmail.com

in Rajasthan and 25 in Gujarat) with full-fledged activities were working till the March 2012 in the Zone-VI. Proportionate random sampling technique was applied to select KVKs. So, total 29 KVKs, 16 KVKs from Rajasthan and 13 from Gujarat were selected for present study. Three respondents from the scientific staff of each KVK were selected randomly. Therefore, total 87 respondents were selected from these KVKs. The study was undertaken on ex-post-facto research design. Perceived constraints and suggestions by scientists for effective utilization of ICT for agricultural technology transfer were studied. Constraint in present study was operationalized as any condition or factor, which might hinder or restrict the use of ICTs with full potential in the KVKs. The four categories of constraints were included in the present study, which were organizational, personal, technological and farmers' level constraints. The data were collected by using structured, pretested questionnaire through mailed questionnaire technique. The data collected were coded, compiled and analyzed using frequencies, percentages and rank.

RESULTS AND DISCUSSION

Perceived organization level constraints regarding ICTs utilization: The organizational level constraints faced by KVK scientists are depicted in Table 1. According to rank wise ordering based on frequency and percentage, among the four organization level constraints lack of training facilities to learn ICT (75.86 %) was the major constraint faced by the scientists followed by lack of fund for ICT (66.67%), poor ICT based infrastructure facilities at the KVK (56.32%) and lack of technical support from organization (55.17%),

respectively. ICT skills are required to operate the ICT tools; hence, the agricultural scientists need to be trained to harness the maximum benefits of ICT for extension work.

Perceived personal constraints regarding ICT utilization: According to the data presented in the table 2, it was found that, among the personal constraints faced by scientists, lack of expertise to use ICT was ranked first (62.07%) followed by time management problems in learning to use ICT (47.13%), lack of learner motivation towards using ICTs (28.74%), use of ICT cause health problems like; eye pain, body pain etc. (27.59%) and lack of confidence to use, respectively (16.09%). Similar finding were reported by Parida (2010) as lack of proper training played a major problem, while eye pain, back ache and head ache played regular physiological problem (17.39%) for staff of SAUs

Perceived Technical constraints regarding ICT utilization: Technical constraints faced by respondents are presented in Table 3. Contents of Table 3 revealed that among the technical constraints slow functioning of internet/server break down (81.61%) was the most frequently faced constraint followed by lack of useful software (67.82%). Irregular supply of electricity (63.22%), no network coverage for mobile (59.77%), and high threat of virus (55.17%) were other constraints in order of severity. Most of the KVKs are functioning in the rural areas and the network and signal are weak in these areas because of poor infrastructure. The basic ICT based infrastructure need to be upgraded to overcome the technical constraints. The capacity building of agricultural extension functionaries and scientists through training on ICT skills is necessary to

Table 1: Perceived organization level constraint regarding ICTs utilization (n=87)

Organization level constraint	Frequency	Percentage	Rank
Lack of training facilities to learn ICT	66	75.86	1
Lack of fund for ICT	58	66.67	2
Poor ICT based infrastructure facilities at the KVK	49	56.32	3
Lack of technical support from organization.	48	55.17	4

Table 2: Perceived personal constraints regarding ICTs utilization (n=87)

Personal constraints	Frequency	Percentage	Rank
Lack of expertise to use ICT	54	62.07	1
Time management problems in learning to use ICT	41	47.13	2
Lack of learner motivation towards using ICT	25	28.74	3
Use of ICT cause Health problems like eye pain, body pain etc	24	27.59	4
Lack of confidence to use ICT	14	16.09	5

Table 3: Perceived technical constraints regarding ICTs utilization (n=87)

Technical constraints	Frequency	Percentage	Rank
Slow functioning of internet/server break down	71	81.61	1
Lack of useful software	59	67.82	2
Irregular supply of electricity	55	63.22	3
No network coverage for mobile	52	59.77	4
High threat of virus	48	55.17	5

win their trust in the system and ensure continuous updating on latest technologies (Kale *et al.*, 2015b).

Perceived Farmers' level constraints regarding ICTs utilization: Constraints perceived by KVK scientists at farmers' level are presented in table 4 and it was found that lack of awareness regarding the ICT use for educational and agricultural purpose (89.66%) among the farmers was the major constraint followed by lack of access to ICT at village level (87.36%), illiteracy among farmers (83.91%), lack of content in local language on internet (82.76%) and reluctance to use of ICT (60.92%) respectively. Constraint of illiteracy in general and IT illiteracy in particular among the farmers for use of ICT are also observed by Afroz *et al.* (2014).

Suggestions for effective utilization of ICTs: The suggestions for effective utilization of ICTs as perceived by the respondents are shown in Table 5. Findings from the Table 5 revealed that as majority of the respondents (91.95%) expressed their desire to provide village level

information kiosk and it was ranked first. It was followed by the suggestion to provide training regarding the various use of ICT in agriculture (88.51%) and need to have Management information System (MIS) to reduce the paper work and reporting burden (83.91%). Around 82.76 % respondents also suggested for provision of voice messages on mobile to be send to illiterate farmers followed by provides ICT facilities at individual level (79.31%) and there should be alternate power source for electricity (74.71%). Kale *et al.*, (2016b) also suggested to provide training related to ICT to the scientists of KVKs to enhance their skill and productivity.

As the KVK scientists are engaged in transfer of agricultural technology to the farmers, they needs keep themselves as well as farmers updated with current technologies to be competent in this globalised era. Hence this might be the probable reason to give suggestions for improvement in utilization of ICT tools by respondents. It indicates that if these suggestions are

Table 4: Perceived farmer's level constraint regarding ICTs utilization (n=87)

Farmer's level constraints	Frequency	Percentage	Rank
Lack of awareness regarding the ICT use for educational and agricultural purpose	78	89.66	1
Lack of access to ICT at village level	76	87.36	2
Illiteracy among farmers	73	83.91	3
Lack of content in local language on internet	72	82.76	4
Reluctance to use of ICT	53	60.92	5

Table 5: Suggestions for effective utilization of ICTs (n=87)

Items	Frequency	Percentage	Rank
At village level information KIOSK should be developed	80	91.95	1
Provide training regarding the various use of ICT in agriculture	77	88.51	2
There should be Management information System (MIS) to reduce the paper work and reporting burden	73	83.91	3
There should be provision of voice messages on mobile to be send to illiterate farmers	72	82.76	4
Provide ICT facilities at individual level	69	79.31	5
There should be alternate power source for electricity	65	74.71	6

taken care off, then, the respondents could utilize the ICT services in a more effective and efficient way.

CONCLUSION

Every technology in the world is like two sides of coin, each and everything has benefits as well as constraints. It is beyond any doubt that Information and Communication Technology is the gift of science. Along with all the benefits, there are certain problems, which the user faces in his or her day to day life. Results of the study indicated that KVK personnel perceived constraints of different types in varying degrees. Majority of them face lower expertise and training facilities for ICTs, slow functioning of internet and lack of awareness among farmers about use of ICTs for educational and agricultural purpose. All these constraints could be overcome through implementing suggestions by respondents like; proper and improved infrastructural facilities at KVKs as well as village level, skill development updating with trainings, creating awareness regarding use of ICTs for educational and agricultural purpose.

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