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Constraints Experienced by Agricultural Scientists and Extension Personnel in Rice Knowledge Management and its Delivery

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ABSTRACT

Rice being staple crop, cultivated in almost all over India. In order to provide probable solution about rice cultivation to all the stakeholders, the Indian Institute of Rice Research, Hyderabad launched Rice Knowledge Management Portal (RKMP). The present study was undertaken with an objective to analyse the constraints experienced by agricultural scientists and extension personnel in rice knowledge management and its delivery. The results showed that agricultural scientists and extension personnel faced technological, social, economical and psychological constraints more severely. Under the technological constraints, lack of updated information and technical and Infrastructure problems while using information and communication technologies (ICTs), poor maintenance of ICT tools were major constraints. In case of social constraints, restriction to promote organization information followed by less networking among extension personnel found to be most limiting factor for using portal information. In case of psychological factors, benefits given to particular group of people was found most severe and techno-phobia was found least affecting to respondents for utilizing information. In case of economic constraints, high cost of internet and cost of computer/smart phones were limiting the use of information provided by RKMP. These findings will help in restructuring and necessary modifications for reaching the unreach for information dissemination and making portal more effective for users to ensure timely and relevant information.

Key Words: Constraints, Economical. Friedman test, Psychological, Social, Technological, ICT.

INTRODUCTION

In the recent era of globalization, knowledge has been recognized as a valuable organizational resource from a strategic perspective and an important factor for competitive advantage, effective organizational performance and success (Rai, 2011). Hence, Knowledge management (KM) is considered to be very difficult task in Indian agriculture and become one of the foremost agendas in many research institutions and organizations (Tan and Wong, 2015). It constitute of dynamic and continuous set of the process which enables the organization enhancement and expands their innovation processes. In this process, information is collected from various sources and dissemined to many, so that it can be acquired at the right time in the right format by any user (Mondal, 2013). The Indian agriculture is a complex enterprise which involves millions of small and marginal farmers. Many of these small and marginal farmers are illiterate and have little or no access to resources to access modern technology in agriculture (Yadav *et al,* 2015). Therefore, KM in agriculture has an immense scope and challenge for managing agricultural knowledge in public, private and non-government organizations in India (Venkatasubramanian and Mahalakshmi, 2012). The goal of information and communication technology (ICT) is to provide the benefits of information revolution to the rural masses by enhancing farming efficiency, farm productivity and farmers' income (Sangeetha *et al,* 2015). Various ICT tools have been deployed for

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agriculture knowledge management which includes organizational web portals created for specific commodities, sectors, and enterprise and for e-commerce activities (Sulaiman, 2012). A careful analysis of these websites and portals indicates that these are mostly used for disseminating generic information and poor in quality (Yadav *et al,* 2015).

Agricultural portal share specially designed single access points to information collected from diverse sources related to crops and its entities. It acts as a gateway to information and an aggregator of knowledge gathered from various sources for various stakeholders such as farmers, extension workers and scientists. Agricultural portal may be private or public; but it depends upon the hosting organization. An effort was made by Indian institute of rice research (IIRR) Hyderabad along with consortium partners to develop such a portal which can cater all the rice related information of all the stakeholders of agriculture. The rice knowledge management portal (RKMP) serves as an information highway for rice sector for farmers, researchers, extension professionals, policy makers, students etc. The RKMP provides many queries for rice research and cultivation, as queries related to variety selection, disease management, pest and site specific frequently asked questions (Das *et al,* 2013). Hence, an attempt was made to analyze the technological, social, economical and psychological constraints that limit the knowledge management and information delivery system.

MATERIALS AND METHODS

The investigation was conducted in Nalgonda of Telangana and West Godavari of Andhra Pradesh districts because the RKMP project has been implemented in these districts since its beginning and rice is cultivated through year. From each district, fifteen agricultural scientists and fifteen extension personnel were selected through simple random sampling technique for interview. Thus, total sixty respondents were selected. In this study, *ex-post* facto research design was used, as the manifestation of the variables has already occurred and having no scope of further manipulation. The data were collected using semi structured interview schedule and a three point continuum of severity was used for getting responses. To find out the most important constraint within each group, a two way analysis of variance using Friedman's test, a non-parametric test, was used. The test statistic was calculated as follows;

$$\mathsf{F}_r = \frac{12}{nk(k+1)} \sum_{j=1}^{k} \left[\overline{r}_{+j} - (k+1)/2\right]^2.$$

The law of probability of this test statistic is approximated by the chi-square distribution with k − 1 degrees of freedom.

RESULTS AND DISCUSSION

Constraints faced by the scientists

The data (Table 1) depict that among technological constraints, lack of updated information (6.388), poor maintenance of ICT tools (5.350) was the major problem faced by scientists. Technical and infrastructural problems while using ICTs (4.281) was also affecting the use of modern technology to access the information. Too many steps to get information (3.813), low quality of content (3.775), and lack of relevant content in the portal (3.725) were found to least affect the use of information from the portal. These findings were similar to the finding of Balakrishnan *et al* (2012).

In case of scientists, economic constraints like high cost of internet (1.471) and cost of computer/ smart phones (1.532) were not found to limit the use of information provided by RKMP (Table 1). In case of social constraints, restriction to promote organization information in which they are working (3.731) was the major constraint followed by the lack of coordination from senior people (3.631). Apart from these constraints, less networking among scientists (2.813), lack of institutional support (2.763) and lack of acceptability in internet information (2.063) were the other major constraints. Under the psychological constraints,

Table 1. Constraints perceived by the scientists.

Sr. No.	Constraint	Mean of ranks	Groups		
A	**Technological**				
1.	Lack of relevant content in the portal	3.725	A		
2.	Poor quality of content	3.775	A		
3.	Too many steps to get information	3.813	A		
4.	Non availability of computer	3.838	A	B	
5.	Technical and Infrastructure problems while using ICTs	4.281	A	B	
6.	Problems of maintenance/ Poor maintenance of ICT tools	5.350		B	C
7.	Lack of updated information	6.388			C
	Chi –square value	16.681			
B	**Economical**				
8.	High cost of internet connection	1.532	A		
9.	Cost of computer/mobile	1.471	A		
	Chi –square value	0.2			
C	**Social**				
10.	Lack of acceptability for internet information	2.063	A		
11.	Lack of institutional support	2.763		B	
12.	Less networking among scientist	2.813		B	
13.	Lack of coordination from senior people	3.631			C
14.	Restriction to promote organization information in which they work	3.731			C
	Chi –square value	19.623			
D	**Psychological**				
15	Lack of motivation	1.794	A		
16.	Techno-phobia	1.988	A	B	
17.	Benefits given to particular group of people	2.219		B	
	Chi –square value	0.816			

benefits given to particular group of people (2.219) had significant influence on the use of RKMP information, whereas techno phobia (1.988) and lack of motivation (1.794) were the other important constraints.

Constraints faced by extension personnel

Under the technological constraints , technical and infrastructure problems while using ICTs (5.20) , lack of updated information (5.0), poor maintenance of ICT tools (4.98) were the major problem and non availability of computer (4.45) was also affecting the use of modern technology to access the information. The quality of content was low (3.93), lack of relevant content in the portal (3.68), too many steps to get information (3.65) were the least significant problems limiting the use of information from the portal.

The high cost of internet (1.43) and cost of computer/smart phones (1.57) were not limiting the use of information provided by RKMP whereas in case of social constraints, restriction to promote organization information in which they were working (3.43) was the major constraint found followed by the less networking among extension personnel (3.33). Apart from these constraints, lack of institutional support (3.23), lack of coordination

Table 2. Constraints perceived by the extension personnel.

Sr. No.	Constraint	Mean of ranks	Groups		
A	**Technological**				
1.	Too many steps to get information	3.65	A		
2.	Lack of relevant content in the portal	3.68	A		
3.	Poor quality of content	3.93	A	B	
4.	Non availability of computer	4.45	A	B	
5.	Problems of maintenance/ Poor maintenance of ICT tools	4.98	A	B	C
6.	Lack of updated information	5.00		B	C
7.	Technical and Infrastructure problems while using ICTs	5.20			C
	Chi –square value	18.482			
B	**Economical**				
8.	High cost of internet connection	1.43	A		
9.	Cost of computer/mobile	1.57	A		
	Chi –square value	1.0			
C	**Social**				
10.	Lack of acceptability for internet information	2.35	A		
11.	Lack of coordination from senior persons	2.65		B	
12.	Lack of institutional support	3.23		B	
13.	Less networking among extension personnel	3.33			C
14.	Restriction to promote organization information in which they work	3.43			C
	Chi –square value	14.092			
D	**Psychological**				
15.	Benefits given to particular group of people	1.77	A		
16	Lack of motivation	1.90	A	B	
17	Techno-phobia	2.33		B	
	Chi –square value	2.182			

from senior persons (2.65) and lack of acceptability for internet information (2.35) were the other significant constraints for extension personnel. In case of psychological constraints, techno phobia (2.33) was having noteworthy influence on the use of RKMP information, whereas lack of motivation (1.90) and benefits given to particular group of people (1.77) were the other constraints faced by the extension personnel (Table 2).

CONCLUSION

In the present study it was found that scientists and extension personnel faced the technological constraints lack of updated information and poor maintenance of ICT tools and technical and Infrastructure problems while using ICTs were considered to be limiting technological factor for utilizing the information. To prevail over these constraints RKMP needs to be updated information regularly and good and regular maintenance of ICT tools is needed. Similarly scientists and extension personnel faced social constraints like, restriction to promote organization information in which they work was the most limiting factor. Similarly, the benefits given to particular group of people was also affecting the use of information. To overcome these

constrains a low cost technology in the form of RKMP mobile app can be provided through which all information of rice can be accessed. A link should be with state department to use this information for better sharing and utilizing portal resources effectively. RKMP needs to be promoted all over the country more intensively. The finding will help in restructuring and necessary modifications needed for reaching to un reach for disseminating information and making portal more effective for farmers for timely and relevant information.

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REFERENCES

Balaji V (2009). The fate of agriculture. Available at http://www.indiaseminar.

Das D R, Pandey P S, Mishra A K and Meera S N (2013). Rice Knowledge Management Portal for Technology Dissemination: A Case Study for Haryana, Punjab And Uttarakhand States. *Indian J Ext Edu* **49**(1and2) : 88-92.

Mondal S (2013). Text book of agricultural extension with global innovations. Kalyani Publishers, New Delhi. pp-106.

Rai R K (2011). Knowledge management and organizational culture: a theoretical integrative framework. *J knowledge Manage* **15**(5):779-801.

Sangeetha V, Burman R R, Dubey S K, Sharma J P and Singh I (2015). Attitude of Agricultural Stakeholders on Use of Short Message Service (SMS) in Transfer of Technology. *Indian J Ext Edu* **51**(1and2): 60-65.

Sulaiman R V, Andy Hall, Kalaivani NJ, Kumuda Dorai and Vamsidhar Reddy T S (2012). Necessary, but not sufficient: Critiquing the role of information and communication technology in putting knowledge into use. *J Agril Edu and Ext* **18**(4): 331-346.

Tan L P and Wong K Y (2015). Linkage between knowledge management and manufacturing performance: a structural equation modeling approach. *J knowledge* M*anage* **19**(4):814-835.

Venkatasubramanian V and Mahalakshmi P (2012). *Innovative institutional approaches for Agricultural Knowledge System management in India in OECD,* : Improving Agricultural Knowledge and Innovation Systems: OECD Conference Proceedings, OECD Publishing.

Yadav K, Rasheed Sulaiman V, Yaduraju N, Balaji V and Prabhakar T (2015). ICTs in knowledge management: the case of the Agropedia platform for Indian agriculture. *Knowledge Manage for Develop J **11***(2).

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