Original Research Article

Identification of the constraints from organizations perspective in agricultural knowledge creation, information management and technology delivery system in Bundelkhand regionof U.P

Abstract

The present study was conducted to delineate the various constraints faced by the institutions which are working in the process of agricultural knowledge creation, information management, and technology delivery.The Bundelkhand region of U.P. was purposively chosen for study. The major institutes present in this region areIndian Grassland and Fodder Research Institute (IGFRI), Central Agroforestry Research Institute and agricultural universities located in Banda and Jhansi, ICAR KVKs, state government line departments ,ATMA and many of the NGOs. The constraints faced by the organizations in the process of knowledge creation, information management and technology delivery process are collected through the study of secondary data. The major constraints were sorted out with the help of experts. The data was collected from officials of every organization through direct personal interviews and focussed group discussions. The total sample size was 50. The constraints were grouped into three categories. These are constraints in knowledge creation, constraints in information management, and constraints in technology delivery. Rank Based Quotient (RBQ) method was followed to quantify the responses and thus find the major constraints which are affecting severely. Findings of the study revealed that there is a for a need for knowledge experts to train the work-force periodically in order to update the skill of the scientists, lack of digitalization hindering the effective management of information, poor coordination among different organizations leading to duplicative efforts or missing of efforts.

Keywords: Rank Based Quotient; the need for training: lack of digitalization: poor co-ordination

Introduction

Agriculture is the fundamental sector of Indian economy. Even though the contribution of this sector towards the Gross Domestic Product (GDP) is showing a declining trend from about 30 percent in the year 1990 - 1991 to less than 15 percent in the year 2011 -2012, the agricultural sector still forms the mainstay of our country's development. Indian agriculture, mainly constitutes millions of small and marginal farmers and a majority of them are illiterate and have very limited access or no access to modern technologies and information (Yadav et al, 2015). The 'Task Force on India as Knowledge Superpower' (GOI, 2001) highlights the necessity for the development of the capacity to generate, absorb, disseminate and protect knowledge and to use it as a powerful tool to derive societal transformation. In India, multi-prolonged institutional arrangement along with NGOs and non-profit organizations and even farmers themselves involved in these various activities like creating the knowledge and disseminating the information. ICAR institutes like research institutes, KVKs, agricultural universities, line departments, and progressive farmers also stand in the front line. These are mainly involved in the functions like generating the knowledge that is knowledge creation, converting and storing the knowledge into a digestible form that is information management

and finally disseminating that information and technologies to the farmers successfully. The ICAR institutes have generated a number of technologies and information through concentrated research efforts. But still a considerable proportion of information not crossing the confines of research institutes due to some reasons, mainly it's the poor linkages between research and extension systems (Reddy et al, 2005).

In Bundelkhand region also some of the ICAR institutions like Indian Grassland and Fodder Research Institute (IGFRI), Central Agroforestry Research Institute and agricultural universities located in Banda and Jhansi respectively. ICAR KVKs, state government line departments, ATMA and many of the NGOs working in creation and dissemination of the technologies and information. But the information is not reaching to farmers in this region successfully. The poor agricultural situation in Bundelkhand is hitting the newspaper headlines frequently. Hence it is very essential to study the factors which are hindering the process of knowledge creation, information management, and technology delivery process. It is necessary to rate the constraints from organization people to get an overall view of the constraints faced by the organizations.

Material and methods

Among the seven districts of Bundelkhand region of U.P, Jhansi and Banda districts are purposively selected for study purpose due to the location of ICAR research institutes and agricultural universities. The data was collected from IGFRI, CAFRI, RLBCAU, BAUT and ATMA and NGO officials. The total sample size was 50. The data was collected from officials from various institutes through personal interview and focussed group discussion. Initially, a list of constraints was collected through review of the literature and sorted out with the help of experts. Then the constraints were grouped into three categories like constraints in knowledge creation, constraints in information management, and constraints in technology delivery. The officials were asked to rank the constraints according to the severity felt by them. The listed constraints were then quantified through Rank Based Quotient technique (RBQ) (Sabarathnam, 1988), which is as follows:

$$RBQ = \frac{\sum f_i \ (n + 1 - i)}{N \times n} \times 100$$

Fi = Frequency of farmers for the ith rank of the problem

n = Total number of ranks

i = Rank given by the respondents

N = Total number of respondents contacted

Results and Discussion

The constraints perceived by the officials in the process of knowledge creation, information management and technology delivery namely are discussed below.

Constraints in Knowledge creation

It is clear from the table no.1 that the major constraint identified in knowledge creation was the want for knowledge experts to train the work-force periodically (RBQ score 100.26). To increase the capacity and skill of scientists working in the institute, efficient master trainers were found very essential. The second severe most constraint was underinvestment in IT infrastructure (RBQ score 75.2). Because IT can enable data-intensive research with the provision of the specialized staff and infrastructure that facilitate collaboration, efficiency, and data storage. The third severe constraint,most of the institutes felt was the lack of learning opportunities and lack of horizontal integration (RBQ score 54.31).In today's knowledge economy, knowledge sharing is equally crucial as creation. The least severe constraint identified was learning from project failures (RBQ score 4.17).

Table no.1-constraints in knowledge creation

	Particulars	**RBQ Score**	**Rank**
Constraints in Knowledge creation	1. Underinvestment in IT infrastructure	75.2	2
	2. Bureaucratic interference	37.6	4
	3. Hoarding of knowledge by knowledge-experts	37.6	4
	4. Want for knowledge experts to train the work-force periodically	100.26	1
	5. Lack of learning opportunities	54.31	3
	6. Inefficient systematic knowledge capture	20.88	5
	7. Lack of horizontal integration; e.g., between the management, the workforce and the external environment (project-clientele exposure, lack of"engagement",etc.)	54.31	3
	8. Learning from project failures	4.17	6

Constraints in information management

Among constraints related to information management, lack of digitalization was perceived as a severe constraint (RBQ score 91.91). Easy handling and storing of information are possible through digitalization. But the present situation prevailing among the Agri-KITS is not conducive for easy data management. The second most severe constraint was a high volume of research information and lack of tools for proper storage. The least severe constraint found was lack of accuracy and authenticity (RBQ score 20.88). Many of the institutions were using authentic data for the technology creation and information delivery. Hence this constraint was less severe as compared with others.

Table no.2-constraints in information management

r m at	1. Lack of institutional policies	33.42	3

	2. High volume of research information and lack of tools	50.13	2
	3. Lack of digitalization	91.91	1
	4. Lack of space and maintenance	29.24	4
	5. Lack of security for information and knowledge	33.42	3
	6. Lack of accuracy and authenticity	20.88	5
	7. Unskilled record managers	29.24	4

Constraints in technology delivery

Among the constraints related to technology delivery, poor coordination among different organizations (RBQ score 87.73) was found as most severe. Even though many institutes are working in the same area there was no proper coordination among them which was leading to duplication of efforts and also sometimes no efforts at all in particular area. The second most severe constraint felt by organizations was insufficiency of fund (RBQ score 83.55). Finance is the basic requirement which drives all other facilities. To carry out the institutional activities efficiently, finance was necessary. The least severe constraint was a high level of illiteracy among the farmers (RBQ score37.6).Illiteracy among farers was not perceived as a serious constraint for technology delivery by the institutional officials.

Table no.3-constraints in technology delivery

Constraints in technology delivery	1. Untimely supply of necessary technologies required due to logistic problems	41.77778	5
	2. Lack of clear vision in the farmers due to multiple organization intervention	45.95556	4
	3. Reduction of linkages between organizations and farmers	79.37778	3
	4. Insufficient finance availability	83.55556	2
	5. Poor coordination among different organizations	87.73333	1
	6. Farmers lack of interest in participating in extension programs	45.95556	4
	7. High level of illiteracy among the farmers	37.6	6

To resolve these constraints, some of the strategies suggested were:-
•Robust training and skill development program ensures that staff is well-versed and equipped with knowledge of recent advances in technology. It enhances the skill and knowledge of scientists, thus helps for increasing the productivity of an organization. Hence

to train this workforce regularly, training sessions and workshops by master trainers like experts and subject matter specialists have to be conducted.

• IT infrastructure plays an important role in automating complex function by introduction of user-friendly easy solutions. Hence attention should be given to improving infrastructure by adopting modern IT tools.

• To overcome the problem of a large volume of research information, the adoption of proper tools is needed for storing, processing and disseminating research information.

• There should be an increased extent of digitalization of the available information as it helps for easy access of information and data storage. Through digitalization, information can be successfully delivered to end users who are located in remote areas and can be retrieved easily.

• The research tie-ups, workshops and collaborations between different organizations are needed as it creates the synergistic effect in the research and facilitates easy sharing of resources and innovative ideas.

• The government has to give priority to R and D sector in agriculture by providing finance to research institutions at the right time. An institutional level arrangement can be done through some innovative ideas like tie-up with local private organizations for information support, selling the institutionalproducts like nursery samplings, seeds and magazines.

References

- Demiryurek, K., Erdem, H., Ceyhan, V., Atasever, S., & Uysal, O. (2008). Agricultural information systems and communication networks: the case of dairy farmers in Samsun province of Turkey. Information Research, **13(**2):
- GOI (2001). 'Report of Prime Minister's Task Force on India as Knowledge Superpower'. Planning Commission, Government of India, New Delhi.
- Jones, G. E., & Garforth, C. (1997). The history, development, and future of agricultural extension in Swanson. *B."Improving Agricultural Extension: A Reference Manual (3rd Edition)" FAO*, 45-56.
- Reddy, P.K. and Ankaiah, R. (2005). A framework of information technology-based agriculture information disseminationsystem to improve crop productivity, *Current Science*, **88** (12):1905-1913.
- Sabarathnam, V. E. (1988). Manuals of field experience training for ARS Scientists. *NAARM, Hyderabad, 21*.
- Yadav, K.; Rasheed Sulaiman, V.; Yaduraju, N.; Balaji, V. and Prabhakar, T. (2015). ICTs in knowledge management: the case ofthe Agropedia platform for Indian agriculture. *Knowledge Mgt. for Dev. J.,* **11**(2).