



## Research Article

# Mapping the Training Needs: A Skill Gap Analysis of KVK-Extension Professionals in Haryana and Punjab

Naila M. Bhat<sup>1</sup>, Ananthan P.S.<sup>2\*</sup>, Neha W. Qureshi<sup>3</sup>, Shivaji Argade<sup>4</sup>, Ponnusamy K.<sup>5</sup>, Ashish Murai<sup>6</sup>, Deboshmita Dey<sup>1</sup> and Shakir Ahmad Mir<sup>1</sup>

<sup>1,2,3,4,7</sup>ICAR-Central Institute of Fisheries Education, Mumbai-400061, Maharashtra

<sup>5</sup>ICAR-National Dairy Research Institute, Karnal-132001, Haryana

<sup>6</sup>ICAR-ATARI, Ludhiana-141004, Punjab

## ABSTRACT

Well-trained human resource is the backbone for the success of any extension organization. Due to the rapid changes in technology, it is necessary to update and upgrade human resource skills. Thus, this study attempted to identify the training needs of KVK Subject Matter Specialist in Haryana and Punjab. A structured questionnaire was built into an online survey and sent to SMS of 41 KVKs. Responses about general profile and training needs were received from 54.4 per cent of SMS in Haryana and 47 per cent in Punjab. These responses were collected on 3-point Likert scale. Besides descriptive statistics, Weighted Sum Method was used for training need assessment. The majority of SMS in both the states were males, had Ph.D. as their qualification. The use of ICT (0.58) in Haryana and training on managerial skills (0.59) in Punjab were the top extension-related training needs. Among Fisheries related training needs, Better Management Practices ranked first, with a score of 0.33, in Haryana and 0.24, in Punjab. The SMS with specialization other than fisheries had less interest in related training needs, stressing upon the need of allotting fisheries SMS in districts with high potential for fisheries. It is recommended to design the training as per the identified needs of SMS so that the KVK system in the country becomes more robust and client-oriented.

**Keywords:** Training need assessment, KVK, SMS, Haryana, Punjab

## INTRODUCTION

The development of the sector cannot be achieved without an efficient and effective extension system (Koyenikan, 2008). The extension contributes to improving the welfare of farmers/fishers as extension advisory services and programs forge to strengthen the farmer's capacity to innovate by providing access to knowledge and information. The extension is crucial to support sustainable agriculture, which moves from production to a broader set of sustainability (Sallam, 1994). The quality of human resources in an agricultural extension organization determines its success or failure (Ghosh and Vijayaragavan, 2003). To be a successful extension staff, one must be competent in technical matters and areas of management, programming

communication, human relations, and leadership (Graham 2009; Gonzalez, 1982). The effectiveness of extension services is also highly dependent on the ability of competent extension workers as the whole extension process is dependent on them to transfer information from extension organizations to the clients (Ali *et al.*, 2012).

The Subject Matter Specialist (SMS) is a resource person in Krishi Vigyan Kendras (KVKs) for agricultural knowledge management and information/experience sharing with the farming community. SMSs of the KVKs must be competent to perform such multi-dimensional tasks and improve their work effectiveness, making the Indian frontline extension system more visible, vibrant, demand-driven and client-

\*Corresponding author email id: ananthan@cife.edu.in

oriented. The capacity building of KVK professionals is crucial to increase the visibility and vibrancy of the KVK system (Patil and Kokate, 2011). Tshering *et al.* (2007) observed that the lack of technical competency by extension agents resulted in the problems of extension non-performance and ineffective delivery of services. Thus, it is necessary to identify the training needs of KVK-SMSs so that they lead to better performance delivery of extension services for sustainable rural development. This study assessed the extension and fisheries-related training needs of KVK-SMSs of Haryana and Punjab.

### MATERIALS AND METHODS

The study was conducted in all the 22 KVKs of Punjab and 19 KVKs of Haryana. KVKs of Haryana come under ATARI- Jodhpur and KVKs of Punjab come under ATARI-Ludhiana. All the KVK SMS in position in these two states, were the target respondents (205). A structured questionnaire was used. The questionnaire was built into an online survey using a customised Google Form with questions about general profile, time spent, sources of information and training needs.

The online form was sent to all the KVK SMS in Haryana and Punjab through respective ATARIs and host institutes. Of the 205 SMSs, responses received were 48 (54.4%) in Haryana and 55 (47%) in Punjab. Repeated follow-up with respective Heads of KVKs and Director of Extension of Host institutes helped to obtain responses covering all the KVKs in both states. Thus, at least one response from each KVK was ensured and responses from these questionnaires were tabulated and analysed further to arrive at meaningful conclusions. The responses were collected on 3 – point Likert scale. Percentage analysis, which is a descriptive, analytical tool was mainly used in the analysis. The training needs were calculated by Weighted Sum Method for each of the thematic area identified.

WSM Score = ((Number of MP ×3) + (Number of P ×2) + (Number of LP ×1)) / (Total Number of MP+P+LP)

where (MP) Mostly Preferred, (P) Preferred and (LP) Least Preferred. The scores were then normalized.

The relationship of the general profile and perceived training needs of the SMS were determined using the Spearman rank co-efficient of correlation.

$$r = 1 - \frac{\sigma \sum d^2}{n(n^2 - 1)}$$

where,  $r$  = coefficient of correlation

$d$  = differences of ranks between paired samples

$n$  = no. of pairs of observations

Mann Whitney U test was used to test whether there was a significant difference in training need of SMS between the two states.

### RESULTS AND DISCUSSION

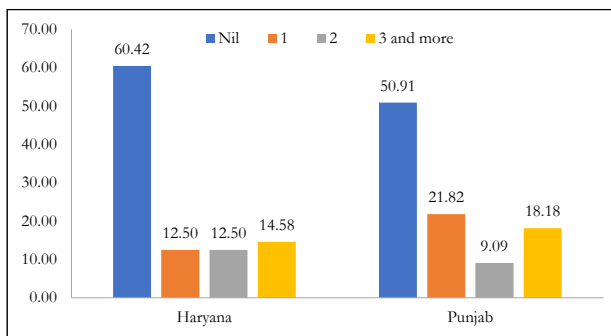
KVKs have a multidisciplinary expert team, SMS, who work in participative mode with different farming communities. The general profile of KVK-SMS of Haryana and Punjab is given in Table 1.

**Table 1: Profile of KVK-SMS**

	Haryana n= 48 (%)	Punjab n=55 (%)
<b>Gender</b>		
Male	39 (82.98)	33 (60)
Female	8 (17.02)	22(40)
<b>Educational qualification</b>		
Masters	11 (22.92)	10 (18.18)
Ph.D.	37 (77.80)	45(81.82)
Experience (years)	10.63	10.07
Fisheries as Specialization (years)	1(2.08)	1(1.81)

In Haryana, 82.98 per cent and in Punjab 60 per cent of SMSs were males. Sinha *et al.* (2021) and Padmaja and Prabhakar (2011) reported that majority of SMS were males. About 78 percent SMSs in Haryana and 82 per cent in Punjab had Ph.D. as their educational qualification. Dey *et al.* (2023) reported that in West Bengal, the majority (57%) of the SMS were Ph.D. holders. The average experience of KVK-SMS of both states was about 10 years. Of the 48 responses in Haryana, only 2.08 per cent SMS and out of 55 responses from Punjab 1.81 per cent SMS had fisheries as their specialization. Bashir *et al.* (2016) in Tamil Nadu and Kerala reported that about 5 per cent of the SMS working in KVK's of two states had specialization in fisheries. Sinha *et al.* (2021) also reported that only 3.25 per cent of SMS in Bihar and Jharkhand had fisheries as specialization. This implies that KVKs are short of fisheries professionals.

**Skill development programs attended by KVK-SMS:** SMS must be competent enough to perform the multidimensional tasks effectively. Thus, attending skill development programs becomes crucial. Extension programmes must adapt to modern agricultural trends and aid farmers by improving their management and decision-making skills (Singh *et al.*, 2018; Singh *et al.*, 2020). The number of skill development programs attended by SMS of Haryana and Punjab during 2019-2022 are given below in the Figure 1



**Figure 1: Number of Skill Development programs attended by KVK SMS**

Majority of SMS in both states (60.42% in Haryana and 50.91% in Punjab) did not attend any skill development/training program during 2019-20 to 2021-22. Only 18.18 per cent of SMS in Punjab and 14.58 per cent in Haryana attended more than three skill development programs. Thus, more programs can be designed for the training of KVK-SMS based on the need. Nongtdu *et al.* (2012) suggested that necessary steps should be taken to identify the unmet needs of the extension personnel to strengthen their knowledge,

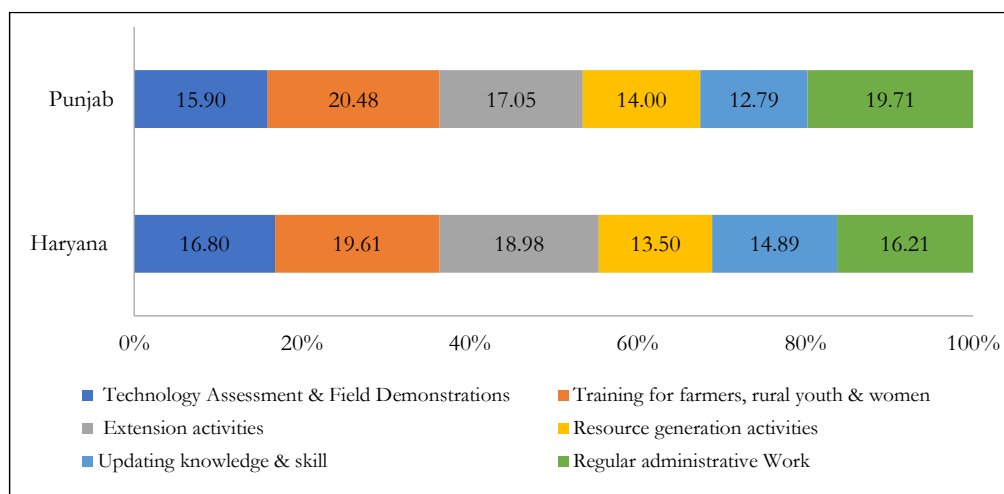
skills and attitude required for performing their job efficiently.

**Time spent on different activities:** The time allocation of SMS across various activities can greatly influence how productive they are and how well they fulfill their roles. Generally, the amount of time KVK SMS dedicate to their duties can differ depending on the specific tasks they're assigned and the requirements of their job descriptions.

In Haryana, KVK SMS spent 19.61 percent of time on conducting training for farmers, rural youth and women, 18.98 per cent on conducting extension activities such as Kisan Mela, exhibition, field visits etc. However, in Punjab, KVK SMS spent 20.48 per cent of time on conducting training for farmers, rural youth and women, and 19.71 per cent of time on regular administrative work (including file work, reporting & non-core activities).

Thus, in Haryana, SMS spent 68.89 per cent of time and in Punjab 67.43 per cent of time on extension work and resource generation activities. About 16 percent of time of SMS in Haryana and 20 per cent of time of SMS in Punjab was spent on administrative works. So, it could be concluded that SMS have adequate time for extension related activities and were not burdened with administrative works.

**Sources of Information:** SMS source their information from multiple sources and give varying importance to the primacy of each source.



**Figure 2: Percentage of time spent by SMSs on different activities**

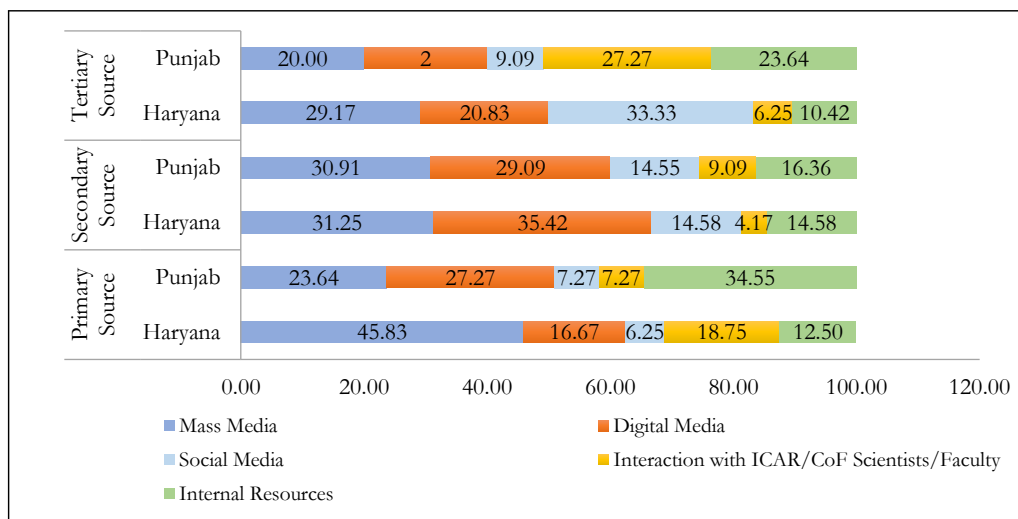


Figure 3: Sources of information for SMS

It is evident from the Figure 3 that SMS use various sources to avail information. Mass media (45.83%) was the first most important primary source of information. Digital media i.e., e-books/web portals/internet (35.42%) was the most important secondary source of information. Social media i.e., Facebook/YouTube/ WhatsApp (33.33%) was the most important tertiary source of information. The majority of the KVK scientists in South India used WhatsApp for seeking and dissemination of information, followed by Facebook (James *et al.*, 2022).

In Punjab, internal resources i.e., interaction/meetings/ publications/ circulars (34.55%) were the first most important primary source of information, which is a good indication. Mass media i.e., newspaper/magazine/ books/ radio/ T.V. (30.91%) was the most secondary source of information. Interaction with ICAR/CoF scientists/ faculty (27%) was the most important tertiary source of information.

**Training need assessment of KVK-SMS:** SMS must be competent to perform extension related activities efficiently and effectively. They must have multidimensional skills to improve knowledge and skills of farmers. Thus, there is a need to identify the training needs of SMS as per the contemporary issues in the world. The extension and fisheries related training needs have been assessed.

**Extension related training needs:** The extension related training needs of KVK SMSs and their weighted scores are given in Table 2

It is evident from the Table 2 that the use of ICT / social media for development (0.58) and success story documentation / preparing extension literature (0.57) were the top extension related training needs of KVK-SMS in Haryana. Managerial skills / team work with score of 0.59 ranked top extension related training needs of KVK-SMS in Punjab followed by use of GIS tools for agriculture development with score of 0.55. Patil and Kokate (2011) indicated 78.42 per cent of SMS working in KVKs need training. Top training needs of SMS were observed towards agricultural engineering (82.71%), agricultural finance, marketing and exports (82.08%) and Integrated Nutrient Management (80.83%). The results indicated that 80.33 per cent of SMS were interested in trainings on Extension Education and 75.06 per cent were interested in training on Animal, Dairy, Veterinary and Fisheries. Augustine (2020) found that SMS mostly needed training in promotion of rural youth activities followed by organisation of farm and farm women for agricultural production programmes.

It is evident from Table 3, that Better Management Practices / Good Aquaculture Practices ranked first in both the states. In Haryana, top fisheries related training needs were Best Management Practices (0.33), followed by recent technologies in aquaculture (0.31) and fish nutrition and feed technology (0.30). Whereas, in Punjab, top fisheries related training needs were Best Management Practices (0.24), recent technologies in aquaculture (0.24) followed by conservation of fisheries resources (0.23). Thus, in both states demands with

**Table 2: Extension related training needs**

Extension related training needs	Haryana (n=48)		Punjab (n=55)	
	Scores	Rank	Scores	Rank
Managerial Skills	0.51	7	0.59	1
Use of GIS Tools for Agriculture Development	0.54	4	0.55	2
Success Story Documentation / Preparing Extension Literature	0.57	2	0.54	3
Data Analysis	0.40	12	0.54	3
Project Management	0.50	8	0.51	4
Market-let Extension	0.49	9	0.51	4
Entrepreneurship Development	0.55	3	0.51	4
Use of ICT / social media for Development	0.58	1	0.51	4
Making Videos on Technologies	0.48	10	0.46	5
Participatory Technology Development	0.48	10	0.45	6
Formation of FPOs	0.53	5	0.43	7
Market Information System	0.46	11	0.42	8
Gender Issues	0.52	6	0.42	8
Internet Radio	0.33	13	0.36	9

**Table 3: Fisheries related training needs**

Fisheries Related Training needs	Haryana		Punjab	
	Score	Rank	Score	Rank
Better Management Practices	0.33	1	0.24	1
Recent Technologies in Aquaculture	0.31	2	0.24	1
Conservation of Fisheries Resources	0.26	6	0.23	2
Ornamental Fish Rearing	0.25	7	0.20	3
Fish Nutrition and Feed Technology	0.30	3	0.19	4
Fish Health Management	0.29	4	0.19	4
Fish Breeding and Seed Production / Seed Rearing	0.25	7	0.18	5
Fisheries Marketing / Value Addition	0.28	5	0.17	6

regard to fisheries related training needs were very low. This indicates that SMS with specialization other than fisheries have less interest in such trainings and stresses upon the need of allotting fisheries SMS in districts with high potential for fisheries. Scores of Haryana were better than that of Punjab indicating SMS of Punjab have less interest in fisheries. Dey *et al.* (2023) reported SMSs have shown keen interest to get maximum training in the areas of Entrepreneurship Development, Success Story Documentation, Best Management Practices whereas, Training on Ornamental Fish Rearing/Aquarium Management, Gender dimension and mainstreaming and Conservation of Fisheries Resources were relatively least preferred.

From the Figure 4, it is clear that there is there is very weak correlation between extension related

training needs with age, gender, education, specialization present working condition and infrastructure. Similarly, there is a weak correlation between fisheries related training needs with age, gender, education, specialization present working condition and infrastructure. Thus, these variables need not to be considered while planning the training programs for capacity development of KVK SMS. These results are contrary to findings of Kalita (1992) which revealed significant correlation between age, service experience and training needs.

Results Mann Whitney U statistics showed that there was no significant difference between two states in terms of extension and fisheries related training needs. Thus, similar types of training programs can be designed for the SMS of both the states

Figure 4: Correlation of extension and fisheries related training needs with general profile of SMS

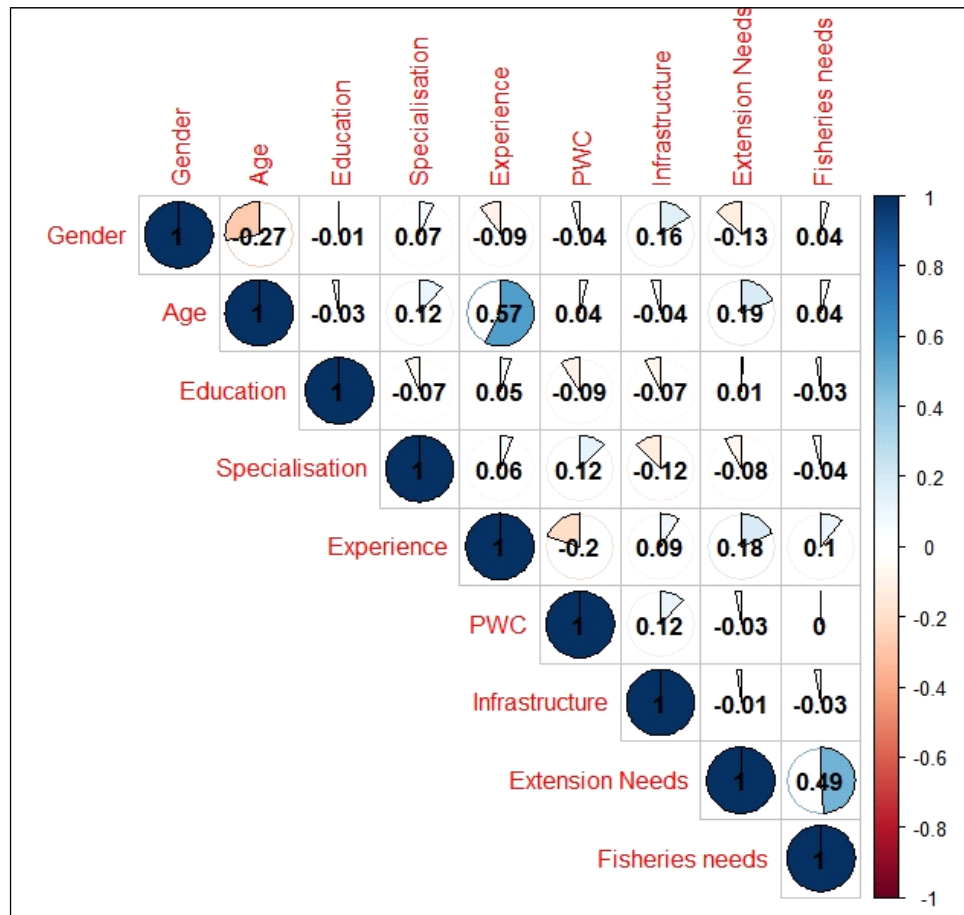
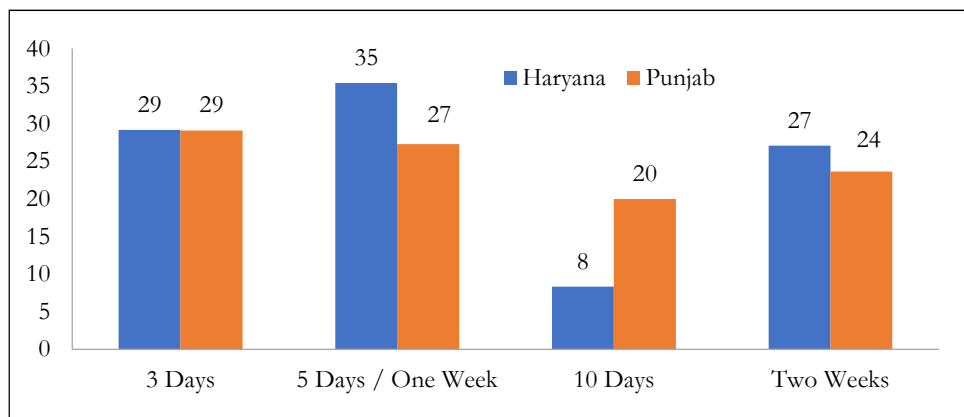


Figure 5: Duration of training program preferred by KVK SMS



**Duration of training program preferred by KVK SMS:** SMS were asked about their preferred duration of training program. Figure 5 represents that 35 per cent of SMS preferred training programs of 5 days / one week duration in Haryana where as 29 per cent of SMS in both states preferred training programs of 3 days duration. Thus, training programs can be designed accordingly for the prioritized areas of training.

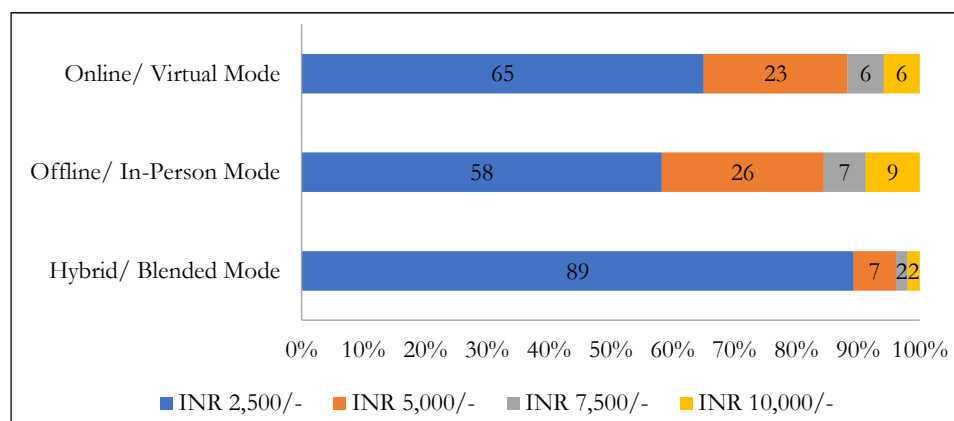
**Fee structure for a one- week customised training program:** Figure 6 indicated that majority of the SMS

(65%) were willing to pay Rs 2500/- for attending online/ virtual training program. Whereas, 58 per cent respondents were willing to pay Rs 2500/- for In-person training and 89 per cent were willing to pay Rs 2500/- for Hybrid/ Blended mode. Thus, it indicates SMS don't want to spend more of skill development training irrespective of the mode of training.

### CONCLUSION

Skilled SMS are the valuable assets to the KVKs and they must be competent enough, as the success of any

**Figure 6: Fee structure preferred by KVK SMS (n=103)**



organization depends upon the quality of its human resource. KVK SMS train farmers and rural youth about modern agricultural technologies and practices. Thus, they need to update new skills regularly to strength their crucial role in agrarian development. KVKs can prove to be an important tool for fisheries development in areas with high potential for fisheries. Training needs assessment should be done on a regular basis due to rapid changes in technology. The training needs of KVK SMS should be identified and need-based training modules need to be designed, which will lead to robust and client oriented KVK system in the country.

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