AEXTJ
AGRICULTURAL EXTENSION JOURNAL
ISSN 2582- 564X

Available Online at www.aextj.com
Agricultural Extension Journal 2022; 6(4):109-118

RESEARCH ARTICLE

Performance of Farmer Call Center: A Case of Nepal

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Received: 20-07-2022; Revised: 30-08-2022; Accepted: 05-10-2022

ABSTRACT

Large population of farming community is not in the access of extension services in Nepal. Therefore, agricultural extension service has remained the pressing priority since long. One of the ways to minimize the existing gap between farmers and extension agents could be the use of ICT. Realizing the facts, Government of Nepal started Farmer Call Centre (FCC) to provide extension advisory services to the wider mass of the farmers. However, in the Nepalese context, the status, performance, and user's perception on FCC based on the users' gratification are still unexplored. A qualitative study was commissioned to assess the performance of FCCs' operations in Nepal. The data set maintained at FCC operated by Agriculture Information and Training Centre was used as the secondary source of information, while key informants interviews and focused group discussions were the primary sources of information. Result showed that farmers' queries were diverse in nature. Many remote districts were not reached out by FCC services. Similarly, majority of farming communities were out of FCC's access. Operation modality of FCCs was found traditional and incompatible to the farmers. Management issues were prominent and FCCs were found operated as a side responsibility by the concerned institutions. Many FCCs initiated by different institutions were not found in operational stage. The study concludes that the government should review the existing FCC operation modality and the ways it gratifies the users. An umbrella policy measure, quality control mechanism, and adequate budget allocation along with the nationwide awareness campaign as an entry point would be the immediate areas of intervention.

Key words: Extension, Farmer Call Center, farmers, queries

INTRODUCTION

Information and Communication Technology (ICT) comprises a good deal of roles in agricultural development in Nepal. The selection of communication devices and uses of selected communication devices may vary based on how satisfied the users are. Nepal has experienced increased affordability and access to communication devices and services. Mobile phone users in the country have exceeded cent percent, with more than 60% smartphone penetration.[1] This advancement of telecommunication services has minimized the physical barriers for agricultural extension services. Farmers need a range of information for their farm businesses. With the help of modern technological information, they can improve their farming practices which in turn increase their production and productivity. Similarly, the information related to management and the market can help the farmers receive their product's price.[2] All these information help raise farmers' income that ultimately contributes

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to the country's food security. With this view, the Ministry of Agriculture and Livestock Development (MoALD) has been disseminating agricultural information to farmers through different approaches including ICT measures. On February 28, 2016, the ministry officially introduced Farmer Call Centre (FCC), popularly known as the Kisan Call Center (KCC), at the central level to provide the farmers with different farm-related information.[3] Since then, government offices, academic institutions, and private sectors have been operating FCC in different forms.

The gratifications from FCC based information among the users determine the destiny of FCC in Nepal. There remain various pragmatic issues in implementing Farmer Call Centers. An example is the closure of FCC operated by Agriculture and Forestry University (AFU), Rampur.[4] Tribhuvan University, Institute of Agriculture and Animal Sciences (TU/IAAS) has also been trying to establish FCC. However, it has not been materialized yet. On the other hand, there seems to be a poor connection between farmers and FCC presently operating in the country. From the Agriculture Information and Training Center (AITC) record, FCC received only 1946 calls in the fiscal year 2020/21. In the same year, FCC operated by Nepal Agriculture Research Council (NARC) received just 564 calls.[5] Despite the large number of small and commercial farmers seeking for extension services throughout the country, the recorded number is markedly low.

Extension coverage in the context of Nepal is very limited. It is dominantly covered by government extension system. The public institutions have covered around 18% of farmers through their formal channels.[6] Similarly, the farmer to field extension technician ratio in agriculture is too low, which was 1:1199 in 2018.[7] After the country's transformation in the federal structure, extension services have been the subject of local government. Unfortunately, agricultural human resource in the local government is an acute problem. Report says that it has very limited agricultural staff on board in the local bodies. Similarly, the provincial governments are also implementing agricultural programs with far limited human resources.[8]

Harsh geology, remoteness, limited human resources, and a huge number of farmers call for the effective use of the ICT approach to cater the extension services.[9] FCC, an ICT based platform, is emerging as an important tool for technology dissemination in agriculture and allied sectors. It is a trustworthy and accessible platform that even ordinary people can use without specific training.[10] Therefore, the role of FCC seems highly significant in Nepal. Six years have already been completed since the government launched the FCC in the country. In this context, it is necessary to review the performance of the FCC in the areas of quality service, coverage and sustainability. Therefore, the general objective of the study was to analyze the performance of the Farmer Call Center in Nepal. Specific objectives were:

a. To assess the coverage and nature of farmers' queries in FCC in Nepal,
b. To determine the implementation and management issues of FCC in Nepal, and
c. To assess the policy gaps in operating FCC.

METHODOLOGY

The call record of the Farmer Call Center maintained by AITC in the fiscal year 2020/21 was taken as the source of information to assess the coverage of services and nature of the farmers' queries. The coverage was assessed in terms of number of farmers, sector (e.g., agriculture, and livestock), subsector (e.g., cereal, vegetable, goat, and cattle), districts, and nature of queries.

To explore the information on FCC implementation and management, FGDs were conducted with the call center management teams of AITC, NARC, Agricare Nepal Private Limited, Chitwan, Agriculture and Forestry University (AFU), and TU/IAAS Paklihawa campus. Both virtual and in-person discussions were organized for the FGD. FGD with the farmers were done in four districts: Chitwan, (Bharatpur Municipality, Kalyanpur), Lalitpur (Godawari Municipality, Chapagaun), Dang (Lamahi Municipality, Bangaun), and Mahottari (Bardibas Municipality, Hattilet). Besides, key informant surveys were conducted with FCC user farmers, extension experts and government officials for the study. A checklist was used to collect the information during Focused Group Discussions and Key Informant Surveys. Overall, a descriptive analysis was performed using SPSS (version 26)

based on the primary and secondary data. However, the orientation of this research was qualitative.

The research was based on the Use and Gratification Theory (UGT) of media. This theory considers media users as active entities, and asserts that people are driven and engaged in the media they decide to use.[11] The establishment of sufficient number of FCCs was suggested by literatures as it is overlooked in Nepalese context.[12] Extension programs are benefited in a supportive way by extension practitioners' gratification with delivery of messages and their human interactions using farmer call center. FCC is useful for offering a variety of gratifications because of the messages that extension workers deliver. This has a bearing on farmers' tendency towards the use of FCC. In addition, individual differences of the users also shape the orientation toward FCC use. Scientific orientation, risk orientation, schooling, income, landholding, etc., influence the attitude of users towards FCC use.[13]

RESULTS AND DISCUSSION

FCC Operating in Nepal

Based on the available literature, the first FCC in Nepal was officially inaugurated in the District Agriculture Development Office (DADO), Banke on July 12, 2015. Similarly, at the central level, FCC was launched at AITC on February 28, 2016. FCC was established in the Communication, Publication and Documentation Division (CPDD), NARC on March 19, 2018. Nepal Pilot Program for Climate Resilience (PPCR) project supported 50 district-based agriculture and livestock offices of 25 project districts to set up FCC including in AITC and NARC.[14] Before the FCC operation, district-level agriculture and livestock offices operated toll-free telephone services to the surrounding farmers. Telephone services of those district based offices can be considered as the initial form of FCC. Later, after the restructuring of the country into federalism, the district based FCCs were not found functioning.[14] During the survey, the FCC operators also revealed that most FCCs were not functional, except few instances. At the local level government, very few cases of establishment of FCC were observed such as that of Ratnanagar municipality, Chitwan, which was also found not functioning presently. Besides, universities, non-governmental organizations, and private organizations were also found once operating FCC. However, FCC owned by AITC, NARC, and Agricare Nepal Private Limited, Chitwan, were some examples operating in a well-maintained way.

The trend of the farmers calls received over three years (2018–2021) in FCCs operated by AITC and NARC were analyzed. The numbers were found in increasing trends for both the FCCs. However, the number of calls in FCC operated by AITC was found declined in fiscal year 2019/2020. It was learnt that the FCC remained shut for some months in that fiscal year due to the global COVID-19 pandemic. The increasing trend of the calls was found very less against the total number of farm families (3831 thousand) of the country [Figure 1].[15-17]

Agricare Nepal Private Limited - FCC

Agricare Nepal Private Limited, Chitwan is an agricultural input manufacturer in Nepal. It claimed that it is one of the pioneer organizations operating FCC by private sector. It has a database of 5102 farmers who took the services from its' FCC. Besides receiving the calls, the center itself contacts the commercial farmers to provide technical services. It was found that this company was running FCC as a form of embedded services to its clients. Besides toll-free numbers (1660-5652999; time 10 am to 4:30 pm), the company provides farmers with the extension services through WhatsApp, Viber, and Facebook messenger, where farmers can share their field problems in the forms of texts, audios, pictures, and videos.

Nepal Agricultural Research Council - FCC

NARC is one of the public institutions operating FCC. At present, National Agricultural Technology Information Centre (NATIC) of NARC is running

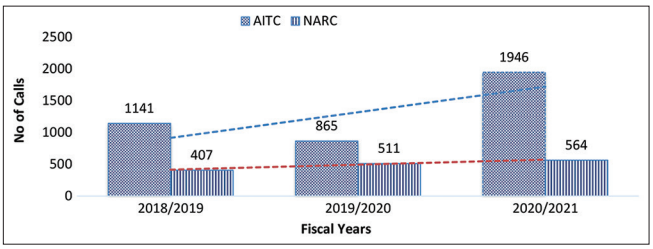

Figure 1: Number of calls received by Farmer Call Centre in Agriculture Information and Training Center and Nepal Agriculture Research Council (2018–2021)

the FCC from Kathmandu. It provides the service with toll-free number of 1135. It operates every week on Monday from 2:00 pm to 4:00 pm. Farmers are allowed a maximum of 10 min per a call for their queries. A group of scientists from the NARC responds the queries of the farmers. The details of calls such as queries, names of the farmers, addresses, and contact numbers are recorded on the registers. At present, the center is providing the service by single telephone line through audio medium only.

Agriculture Information and Training Centre (AITC) - FCC

The FCC operated by AITC, under the ministry of agriculture and livestock development, was found in the functioning state with the larger reach of the farmers. The center operates with the toll-free number 16600195000 from 11 am to 4 pm, 6 days a week (except Saturdays). Mostly, retired government agricultural officials were found working as operators and experts. Presently, only one telephone line receives the calls at a time. Farmers can talk for a maximum of 10 min at a time and have to make another call if the queries are unfinished. The names, addresses, contact numbers, and the queries of the farmers are recorded in a register and saved electronically in the set. The number of calls, districts, and the subject of inquiries made by farmers in AITC managed FCC in fiscal year 2020/21 are presented below in detail.

Telephone Call and Geography Coverage by FCC

Based on the AITC record, 1946 calls were received in fiscal year 2020/21. This covered 76 districts of the country with Manang district having no any single call. Farmers from province number one made the highest calls (22.4%) while those of Gandaki province made the least calls (8.7%) among the seven provinces of the country. On the same year, FCC in NARC received the highest calls from Bagmati province followed by Lumbini and province number one respectively. Similarly, the least number of calls were received from Karnali Province followed by Sudurpaschim Province [Figure 2].[16]

Moving to the data relating to individual districts, FCC received the highest calls from Taplejung (107) district, followed by Kailali (95), Rautahat (82), Baitadi (60), and Kathmandu (57) districts, respectively. Similarly, Humla (1), Mustang (1), Bajura (3), Dolpa (4), Parbat (5), and Siraha (5) were districts from which FCC received the least calls. Details of the calls received from the different districts are presented in Table 1.

Review on district-wise linkages of FCC depicted that many remote districts were still not in the reach of FCC. This might be due to poor communication infrastructures, the subsistence nature of farming, and lack of awareness about FCC services. However, FCC received a substantial number of calls from Baitadi, Rolpa, and Taplejung district though they are one of the remote districts of Nepal.

Characteristics of Farmer's Queries

The findings under this heading are based on the FCC service from the AITC as it provides the largest coverage on FCC in Nepal. The queries from the farmers' calls were analyzed in sector and issue areas. They were divided in two sectors: Agriculture

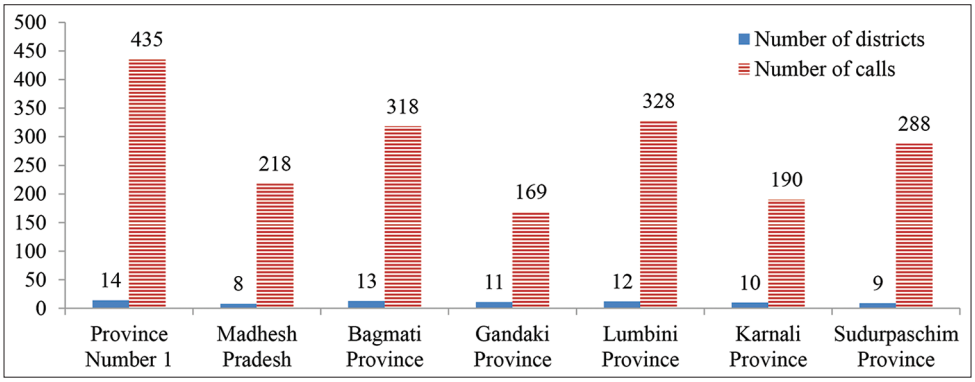

Figure 2: Number of calls received from different provinces by Farmer Call Centre at Agriculture Information and Training Center in FY 2020/21

sector and Livestock sector. A detailed analysis is presented below.

Agriculture Sector

Agriculture sector covered more than two-third (67.6%) of total calls/queries of FCC. These queries were divided in eight subsectors as presented in Table 2. Highest queries were from vegetable subsector (25.8%), with fruit and flower (19.9%) as second and cereal (17.4%) as the third subsector. The detail of the subsectors and major commodities under the queries are presented in the Table 2.

In economic entomology subsector, almost 99% of the farmers made queries on honeybee (53%) and mushroom (46%). More than two fifth (41%) of the issues in honey bee were non-specific and about general bee keeping practices. Similarly, Around 32% of the issues were on management of bee colony, and laying workers and queen. The disease, parasite, and insect problem issues were raised by around 16% of the farmers while 11% of them inquired on the training and subsidy part of honeybee specifically. In case of mushroom area, majority (74%) of the farmers' queries were of general type like the farming practices, best climate and location, and so on. More than one fourth of the queries (26%) were related to seed, its availability, varieties, and diseases and their management. Farmers were found interested in shiitake, button, and oyster types of mushroom.

Soil and fertilizer subsectors were the areas which were enquired by the farmers directly without referring to any particular crop. Fertilizer issues were the most prominent area of enquiry in this subsector where most of the calls (43%) were on the subject of chemical fertilizer, and about one fifth of the calls (22%) were related to organic fertilizer. In the area of chemical fertilizers, most of the issues were on fertilizer unavailability, their methods of application and the trading. On the other hand, compost making, decomposer and different sources of organic fertilizers were the major issues related to organic fertilizers. Similarly, more than one-third of the queries (35%) were related to the soil where

Table 1: Distribution of telephone calls to FCC at AITC according to districts

Number of calls			
<15	**15–29**	**30–44**	**45 and above**
Humla, Mustang, Bajura, Bajhang, Dolpa, Dailekh, Doti, Mugu, Parbat, Myagdi, Nuwakot, Rasuwa, Achham, Sankhuwasabha, Pyuthan, Dadeldhura, Dolakha, Ilam, Saptari, Siraha, Kapilvastu, Kaski, Tanahu, Tehrathum, Khotang, Kavre, Panchthar	Sindhupalchok, Salyan, Sindhuli, Chitwan, Bara, Mahottari, Bhaktapur, Kalikot, Jumla, Banke, Rukum East, Dang, Okhaldhunga, , Morang, Parsa, Syangja, Gorkha, Dhanusha, Palpa, Dhading, Rupandehi, Solukhumbu, Nawalparasi East	Jajarkot, Jhapa, Bardiya, Darchula, Sarlahi, Gulmi, Baglung, Lamjung, Arghakhanchi, Rukum West, Nawalparasi West, Surkhet, Dhankuta, Udaypur, Lalitpur, Ramechap	Taplejung, Sunsari, Kanchanpur, Kailali, Baitadi, Rolpa, Rautahat, Bhojpur, Makawanpur, Kathmandu

Source: AITC record, FY 2020/21. FCC: Farmer Call Centre, AITC: Agriculture Information and Technology Centre

Table 2: Subsector of queries under the agriculture sector

S. No.	Agriculture	Frequency	Percent	Major commodities covered
1	Vegetable	339	25.8	Tomato (30%), Potato (19%), Cauli/Cabbage (13%), Cucumber & Beans (12%), Others (26%)
2	Fruit and Flower	262	19.9	Mango (17%), Orange (15%), Lemon (12%), Banana (12%), Kiwi (10%), Walnut (5%), Apple (4%), Avocado (4%), Flowers (2%), Others (19%)
3	Cereal	229	17.4	Rice (65%), Maize (28%), Wheat (5%), Others (2%)
4	Economic Entomology	177	13.4	Honeybee (53%), Mushroom (46%), Others (1%)
5	Spice and Condiments	138	10.5	Onion (36%), Chilly (33%), Ginger (10%), Garlic (9%), Timur, and Others (12%)
6	Soil and Fertilizer	65	4.9	Soil related (35%), Chemical Fertilizer related (43%), Organic Fertilizer related (22%)
7	Crops (others)	31	2.4	Oil crops (35%), Pulse (20%), Agroforestry (19%), Others
8	Others	75	5.7	General technical (21%); General non-technical (79%): Information on FCC, AITC, Institutions and their Knowledge, Products and Services (28%), Loan, Subsidy, Training (19%), Registration process of firm (11%), Others (21%)
	Total	1316	100.0	

Source: AITC record, FY 2020/21

soil improvement, sampling and testing were the major issues.

General technical and non-technical queries which were not specific to above-mentioned seven subsectors were included in a separate category. "Others." This covered about 5.7% of the total queries related to agricultural sector.

Issues of queries in agriculture sector

The queries of the farmers under agriculture sector (excluding economic entomology) were further analyzed in detail. The issues of the queries were divided into five groups as shown in Table 3. Most of the queries were related to the plant protection group (38.0%). Production and management issues were the second highest group (30.2%) followed by seed, sapling and variety (13.5%), and soil and fertilizer (9.7%), respectively. The non-technical and post production issues were grouped in the "others" which had the least percent (8.5%) of coverage. Majority of the queries on the "others" group were about the information on agriculture related institutions, AITC, FCC, agriculture calendar and diaries, publications (26.3%), training, subsidy and loans (20%), storage and processing (12.6%), marketing (10.5%), farm registration process (9.5%), mechanization (5.3%), and others (15.8%).

Table 3: Issue groups under the agriculture sector

S. No.	Issues	Frequency	Percent
1	Plant protection	433	38.0
2	Production and management	344	30.2
3	Seed, saplings and varieties	154	13.5
4	Soil and Fertilizer	111	9.7
5	Others	97	8.5
	Total	1139	100.0

Source: AITC record, FY 2020/21

Livestock and fishery sector

The data revealed that livestock and fishery sector covered around one third (32.4%) of the total queries from the farmers on FCC. The queries were further divided into five subsectors as presented in Table 4. Most of the queries were asked on the goat-sheep subsector (38.7%), followed by cattle-buffalo (23%), fish (17.6%), birds (14.1%), and others (6.5%), respectively. Buffalo (52%) and cattle (48%) group had almost same numbers of queries in cattle-buffalo subsector. Similarly, around 90% queries on birds' group were related to poultry. In "others" group, pig and dog related queries and other non-technical queries were asked by the farmers.

In fishery sector, FCC in NARC was also found to have similar percent of calls (16.57%).[16]

Issues of queries in livestock and fishery sector

Different issues were detected while analyzing the queries in the livestock sector excluding the fish subsector. Health-medicine issue was the most prominent (51.1%), followed by production-management (20.8%), breeding-reproduction (10.8%), nutrition-fodder (10%), and other (7.3%). In the group of others, the issues were mostly related to the subsidy, insurance, loan, and trainings. Similarly, in case of fish subsector, general production practices, pond related issues (e.g., plastic pond, pond suitability, small pond, and low land), feed related issues, and supply and availability of seedling/hatchling were the major. Furthermore, farmers placed the issue of Magur fish from different perspectives [Table 5].

FCC in NARC was also found to have the highest calls in health related issues (around 44%). Similarly, production and breeding issues were in similar

Table 4: Subsector of queries under livestock and fishery sector

S. No.	Livestock and fishery	Frequency	Percent	Major livestock coverage
1	Goat-Sheep	244	38.7	Goat (94%) and Sheep (6%)
2	Cattle-Buffalo	145	23.0	Cow (48%) and Buffalo (52%)
3	Fish	111	17.6	Fish (100%)
4	Birds	89	14.1	Poultry (87%), Kalij and Others (13%)
5	Others	41	6.5	Pig, Dogs, and Subsidy, Loans, and Trainings
	Total	630	100.0	

Source: AITC record, FY 2020/21

Table 5: Issue groups under the livestock sector (without Fish)

S. No.	Issues	Frequency	Percent
1	Health-medicine	265	51.1
2	Production-management	108	20.8
3	Breeding-reproduction	56	10.8
4	Nutrition-fodder	52	10.0
5	Others	38	7.3
	Total	519	100.0

Source: AITC record, FY 2020/21

word-proportion (around 30%), and nutrition-fodder issues were found in around 10%.[16]

Farmers' Concern in FCC Services

Farmers were interacted about FCC facility and its' operation during the FGD. The FCC user-farmers were also contacted through telephone to illicit their opinion. Based on the discussion of four FGDs and key informant interviews, the major issues and concerns raised are summarized as below.

Awareness on FCC

Majority of farmers during the discussions were found unaware about the FCC facility. It implies that FCC facilities are still at the distance from the farmers. It can be said that there is a dire need for awareness campaign about the facilities provided by FCCs.

Time and day of operation

The farmers complained about the time and days of operations of FCC. They suggested extending the duration of the operations from early morning to the late evening. They demanded to operate the FCC services all the 7 days of the week.

Quality of service

Most of the farmers argued that they were not getting the exact solutions to their problems. Since one of the prominent concerns of farmers was plant diseases and disorders, farmer expressed their less satisfaction on the response service of FCC. However, farmers were found more satisfied on the veterinary related issues in comparison to plant related issues. The reason behind this may be that veterinary science is more specialized and professional sector than the plant clinical science.

Telephone lines and networks

Farmers raised the issues that telephone toll free lines get busy and were limited. Similarly, the farmers complained about telephone service network problems while contacting with FCC. Farmers said that telephone talk duration given to share their problems was insufficient. They suggested increasing the number of toll free lines along with the multiple subject matter experts.

Management Issues of FCC Operation

Focused group discussions were made with FCC operating teams of AITC, AFU, NARC, IAAS (to operate soon), and Agricare Nepal on their effective operations and farmers' coverage. The major findings of the discussions are summarized as follows.

Motivations and incentives

The incentives to operators and experts for the service delivery were found less. In some institutions, the operators worked voluntarily as a side responsibility.

Budget resource

FCC operating institutions were found allocating low or no budget for operating the FCC, particularly in AFU and IAAS. This could be one of the reasons for not functioning of the FCC at AFU and IAAS. However, AITC was found in a better position regarding budget allocation and physical arrangement.

Physical setup and digital system

In most FCCs, there was not sufficient space for operation. Similarly, FCCs were found lacking in basic ICT facilities such as intercom connection, display board, voice recorder, and dedicated software system. The visual sharing facilities and mechanisms were found lacking. This may be the major bottleneck in proper communication between farmers and experts regarding the queries.

Similarly, integration of social media such as Facebook, Viber, WhatsApp, and other customized Apps with service delivery mechanism were found lacking except in some FCCs operated by private sectors.

Capacity building

The provision for the trainings and orientations to the operators for effective communication and proper service delivery is vital for the effective operation of FCC, which was found lacking in all the FCCs. It was suggested that the operators and experts should be oriented and updated in modern agricultural technologies and ICT tools for the effective service delivery.

Less priority

The operators and the management teams shared their discontent with the priority given by their organizations to the FCC. Participants said that the organizations had not realized the significance of FCC and its potential to address the problems of broader mass of the farming community. This was cited in the discussion as the main reason for FCCs not being operated properly in its true essence in most institutions.

Overall, there was the gap in farmers' coverage and quality service delivery from the FCCs. Therefore, the institutions need to consider filling up these gaps for the efficient operation of the FCCs. Further, innovative ICT systems with the integrated use of visual medium, global positioning system, Google earth engine, geographical information system, and artificial intelligence have the opportunity to enhance the service quality of FCC. Similarly, the connection of FCCs with social media, FM, and TV channels would provide wider and more inclusive coverage to the farmers. Most importantly, to keep all the above mentioned things driving, the motivated human resources with the required budget should be considered.

Policy and Program

Policy documents and literature related to FCC were reviewed. Based on the review and key informant surveys with the government officials working in agricultural policy formulation, the following issues were identified.

Monitoring and supervision

Monitoring of service quality of FCC was found lacking. A mechanism for monitoring and supervision of service delivery of FCC was deemed necessary.

Coordination and collaboration

Even in public institutions, coordination and collaborations were found lacking while operating FCCs. All MoALD, NARC, provincial government, local government, and universities were operating FCCs with differential priorities and formats. This led to a state of resource duplication resulting in increased cost of FCC operation. This has raised the issues of quality concern and institutional sustainability of FCC. A functional linkage among research, extension, and educational institutions could minimize the resource duplication and create a synergistic impact on quality service delivery.

National protocol

Every FCC was found operating in different standards and formats. The standard operational procedure was found lacking in all FCCs. There were no protocols that guided the minimum standard of the service delivery. Since extension service is a specialized area of services, there should be an umbrella protocol that every FCC should follow. The protocols should include the operators' qualifications and experiences, basic physical infrastructure requirements, basic standard of quality services, effective linkages with research, extension and educational institutions, and minimum arrangements for two-way interaction between the farmers and operators.

An Indian Experience

Nepalese and Indian farmers share similar socio-cultural settings.[18] Therefore, Nepal can learn many things from Indian experience of FCC operations and management. During FGDs, few respondents also shared the Indian FCC operational mechanism. Literature says that India started the

KCC scheme in 2004, and it has a separate system of operation and management. FCC is managed with the coordination and collaboration of research, extension, and educational institutions. The operation mechanism has three levels of service operator where the farmers' general query in the first level is addressed by an agricultural graduate with a rural background and knowledge of the local language. Advanced queries are passed to the second level, where subject matter specialists from workplaces such as universities, research stations, and KrishiVigyanKendras (KVKs) address the farmers' queries. Finally, the special queries beyond the second level are forwarded to the third level, where a dedicated team at the nodal office addresses them.[10] The government of India also awards the service contract for the first-level service to the private sector every year.

Nepal also needs to think up on the model of its FCC operation. At the moment, the FCCs are running through the single channel (level) model where all the problems are responded by the experts hired by the management through the same channel. Based on the secondary data, the study argues that the existing single channel model may increase economic liability affecting quality services and reaching out the mass coverage in the future. Thus, the study proposes a two-channel model of FCC service delivery in Nepal where the general queries are responded by junior level human resources (e.g., trained and certified graduate) and specialized queries are addressed by the experts working in the NARC, government farm centers and universities.

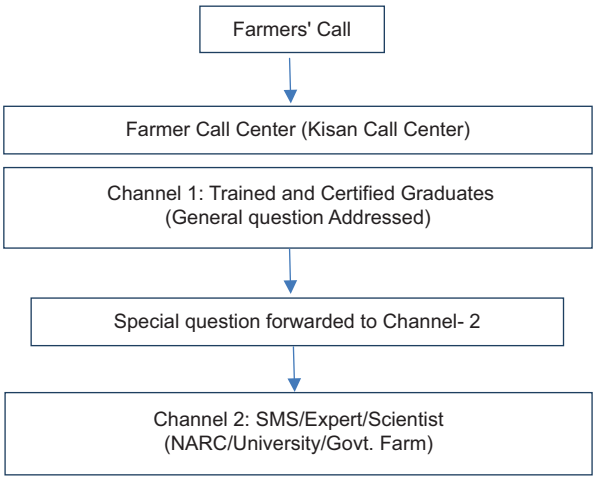

Figure 3: Proposed two-channel model of Farmer Call Centre operation in Nepal

Application of this model can also create jobs to the energetic and young university graduates to enrich their knowledge. The proposed two-channel model of service delivery of FCC is shown in Figure 3.

CONCLUSION

Farmer call center is a potential tool for delivering agricultural extension services to the farmers. Especially, in the diverse geological setup of Nepal, FCC has high potential to reach out a broader population of the farming community. This study shows that a large part of the farming community is still away from this platform. Many remote districts are almost out of its access. The characteristics of the queries of the farmers are diverse. This calls for a multi-expert team to respond the problem-specific solutions from FCC. Especially, the queries were related to commodities such as cereals, vegetables, goat and cattle, and these areas should be given high priority by the FCCs.

Recent FCC operation system in Nepal is mostly based on the traditional two-way telephonic conversation with very limited use of modern ICT tools, and internet facility lacking visual mechanism. The operational modality of FCC is based on single channel mechanism. Similarly, different institutions are running FCCs with differential priority and formats. The quality service and information of FCCs are the prominent issues from the farmers' perspective. Government lacks the proper policy guidelines for its standard operations and quality control. There seems the presence of ambiguity in running the FCC among the institutions with limited human and financial resources.

This paper concludes that the performance of FCC is poor from the aspects like its coverage and quality service which is not likely to fulfill the national objective of agricultural extension. Thus, government needs to review the operational modality of the FCC, in terms of their quality and coverage considering the proposed two-channel model of FCC in this study. Especially, policy-level interventions with appropriate protocols, monitoring mechanisms and budget allocation are urgently needed. Most importantly, national level awareness campaigns would be the entry point to achieve the success of FCC through the coordinated

efforts of the private sectors, research, extension, and educational institutions.

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