AGRICULTURAL INFORMATION AND COMMUNICATION CENTER IN DISSEMINATING AGRICULTURAL INFORMATION: EFFECTS, PROBLEMS AND SUGGESTIONS

ABSTRACT

The government of Bangladesh established Agricultural Information and Communication Centre (AICC) to communicate with mass farmers quickly. This paper aimed at examining the direct and indirect effects of farmers selected characteristics on the effectiveness of AICC in disseminating agricultural information and identifying problem faced by the farmers in getting service from AICC and probable suggestions to overcome the problems. Data were collected from randomly selected 90 farmers of Faridpur district, Bangladesh using a pre-tested interview schedule. Path analysis was applied to assess the direct and indirect effects of farmers' selected characteristics on the effectiveness of AICC. On the other hand, Problem Faced Index (PFI) and Frequency of response was used to identify problem and suggestions. The analysis showed that farmers' use of ICT had the highest direct effect (0.345) in the positive direction followed by ICT using experience (0.245) and ICT using confidence (0.237) on the effectiveness of AICC. The other variables have direct and indirect effects were ICT using confidence and ICT using experience. Limited availability of ICT tools and technology in AICC were most severe problem followed by technical problems of different ICT based media in AICC and low bandwidth speed of internet. The study provided suggestions to increase the efficiency of the AICC in communicating agricultural information.

Keywords: Effects, AICC, Path Analysis, ICT Tools, Problems and Suggestions

1. INTRODUCTION

Knowledge and information are effectively improved agricultural and rural development (Gregg and Irani, 2004). Now-a-days it is easy to disseminate agricultural information using ICT. Use of ICT as a source of information dissemination could regard as both a driver and an enabler (Sultana et al., 2019). ICT has impact on all aspects of life by reducing time, distance and the information gap.

Especially agricultural sector is facing many problems in obtain new information about market price, weather updates and other related issues (Man and Sadiya, 2009). Agricultural Information and Communication Center (AICC) is considered as an Information and Communication Technology (ICT) innovation of Agriculture Information Service (AIS). It plays vital role in presenting technological thoughts, ideas and information to the farmers. AICC spreads information and knowledge in rural areas of the developing countries.

Use of AICC may help for greater and faster interaction within different groups of people from different societies especially among farmers. Therefore, a number of AICC established in Bangladesh to facilitating agricultural information to the farmers. This is a project-based approach and a new initiative in Bangladesh. The purpose of this innovation is to provide information to the farmers based on digital tool. The personnel of AICC got some instrument from the government like laptop, internet connection, printer, and photocopier and so on. They utilize these instruments to search, collect and store various information to solve agricultural problem. The AICC office fix up some farmers and serve them through provide problem solving information with the help of ICT tools (Setu, 2021).

There are available studies on using ICT tools in agricultural development. However, studies on factors influencing effectiveness of AICC, problem and suggestions to solve those problems are not found. In this context, the present study has been undertaken to fulfill the following objectives:

1. To determine direct and indirect effects of farmers selected characteristics on the effectiveness of AICC in disseminating agricultural information and

2.To determine and compare the problems faced by the farmers in getting advisory services from AICC and drawing suggestions to minimize the problems.

2. METHODOLOGY

AICC has been established in some selected district of Bangladesh based on project support. Faridpur district is one of them where AICC exist. The study was conducted in this district. There were 439 member farmers of AICC which constituted population for the study. Considering time, budget and other logistic support 90 farmers (20% of population) were randomly selected as sample from the study (Haque et. Al., 2016; Mishuk et al., 2021).

Data were collected through an interview survey with the selected farmers. The interview was held following a pre-tested structured questionnaire. The questionnaire had three sections. In the first section, farmers' socio-economic characteristics were highlighted. The study considered seven characteristics such as farmers' age, educational level, annual income, ICT ownership, ICT using experience, Use of ICT and ICT using confidence. Problem face by the farmers in getting information from AICC was putted in the second section. The third section covered suggestions to overcome the farmers' problem.

Effectiveness of AICC was considered as dependent variable and farmers' seven selected socio-economic characteristics were considered as independent variables of this study. A measuring technique of these variables is mentioned in the Table 1.

Table 1. Measuring techniques of the variables

Name of variables	**Measuring techniques**
Independent variables	
Age	Actual years
Educational level	1 for 1 year of schooling
Annual family income	Total yearly income by the family members in *BDT
ICT ownership	A score of 2, 1 and 0 were assigned to self, shared access and no access respectively for each ICT device
ICT using experience	1 for 1 year of using experience
Use of ICT	A score of 4, 3, 2, 1 and 0 were assigned for highly, fairly, little and no use respectively
ICT using confidence	A score of 3, 2, 1 and 0 were assigned for highly, fairly, little

	and no confidence respectively
Dependent variable	
Effectiveness of AICC	Four point rating scale. Highly effective (3), moderate effective (2), less effective (1) and not at all effective (0).

*BDT = Bangadeshi Taka (Currency). 1USD = 95 BDT

Problem faced in getting advisory services from AICC was measured in score (Alam et al., 2018; Talukder et al., 2021). Problem was measured on the basis of 10 statements regarding the problems faced in getting advisory services from AICC. The responses were measured based on a 4 - point rating scale. The scale was 'severe problem', 'moderate problem', 'low problem', and 'no problem', respectively. The score for these responses were 3, 2, 1 and 0 respectively. Later a Problem Faced Index (PFI) was computed for each problem to compare the severity of the problems by using the following formulae:

$PFI = f_s \times 3 + f_m \times 2 + f_l \times 1 + f_n \times 0$

Where, PFI= Problem Faced Index

F_S = Frequency of respondents perceived severe problem

f_m= Frequency of respondents perceived moderate problem

f_l= Frequency of respondents perceived low problem

f_n= Frequency of respondents perceived no problem

For collecting suggestions, farmers were asked to mention some means and ways to overcome the problems. They mentioned suggestions based on the specific problem. Finally, frequency of response or common suggestions to overcome the problems was listed.

Effectiveness of AICC is considered as dependent variable and farmers' selected seven socio-economic characteristics were considered as independent variable for the study. To assess the direct effect, indirect effect and total effect of the independent variables on the dependent variable, path analysis was done. Descriptive statistics such as frequency, number, percentage, mean and standard deviation was used to describe problem faced by the farmers in getting advisory services from AICC and suggestions to overcome the problems.

3. RESULTS AND DISCUSSION

3.1 Direct and indirect effects of farmers' selected characteristics on the effectiveness of AICC in disseminating agricultural information

Farmers' seven characteristics were initially considered to test their effects on the effectiveness or performance of AICC in disseminating agricultural information. It was found through path analysis that out of seven characteristics, three had significant effects on the effectiveness of AICC. These characteristics or independent variables are use of ICT, ICT using experience and ICT using confidence. These characteristics had direct and indirect effects on the performance of AICC (Table 2). Direct effect is the value of standardized partial 'b' coefficient of the independent variables having significant contribution to the effectiveness of AICC. On the other hand, indirect effects are the value which comes through other variables.

Table2. Path coefficients showing the direct and indirect effects of selected characteristics of farmers on the effectiveness of AICC

Independent variables	Variables through which indirect effects are channeled	Indirect Effects	Total indirect Effect	Direct Effect
Use of ICT	ICT using experience	0.178	0.358	0.345
	ICT using confidence	0.180		
ICT using experience	Use of ICT	0.251	0.413	0.245
	ICT using confidence	0.162		
ICT using confidence	Use of ICT	0.262	0.507	0.237
	ICT using experience	0.245		

ICT using confidence: Path analysis showed that attitude towards confidence of using ICT had the highest total indirect effect (0.507) and a positive direct effect of 0.237 on the effectiveness of AICC. The indirect effect was mostly channeled positively through the use of ICT and ICT using experience.

ICT using experience: The analysis showed that ICT using experience had the 2nd highest total indirect effect (0.413) and a positive direct effect of 0.245 on the effectiveness of AICC. The indirect effect was mostly and positively channeled through the use of ICT and ICT using confidence.

Use of ICT: Path analysis revealed that use of ICT use had the 3rd highest total indirect effect (0.358) in descending order and highest positive direct effect of 0.345 on the effectiveness of AICC. The indirect effect was mostly and positively channeled through ICT use experience and ICT use confidence.

From the above findings it is observed that ICT using confidence, length of experience in using ICT and frequency of ICT use have direct effects as well as indirect effects through another two variables on the performance or effectiveness of AICC in disseminating agricultural information. It is found that the farmers who have more confidence, experience and use of ICT were benefited more from the AICC than the farmers who have less involvement with ICT. The findings are quite rational as using ICT helped farmers to understand and communicate better with AICC personnel regarding agricultural information (Sultana et al., 2019).

3.2 Problems faced by the farmers in getting advisory service from AICC

Problems faced in getting advisory service from AICC means unwanted situation generated during getting advisory service from AICC by the farmers. The observed Problem Faced Index (PFI) of the problems ranged from 4.07 to 89.25% against the possible range of 0-100. Problem Faced Index (PFI) of the selected problems is shown in Table 3 with the rank order of the problems.

Table 3. Problem Faced Index (PFI) with Rank Order

Sl No.	Problems	Number of farmers based on extent of problems faced					PFI	Rank Order
		Severe problem	Moderate problem	Low problem	No problem	Total		
1	Lack of operational knowledge of computer	21	19	38	12	90	139	5th
2	Lack of training facilities on ICT among farmers	33	23	16	18	90	161	4th
3	Low awareness among rural farmers about AICC	2	10	36	42	90	62	8th
4	Lack of adequate skill among service providers in AICC	7	24	47	12	90	116	7th
5	Shyness/Scared of using ICT based media	0	1	26	63	90	28	9th
6	Low bandwidth speed of internet in AICC	25	35	19	11	90	164	3rd
7	Technical problems of different ICT based media in AICC	19	51	20	0	90	179	2nd
8	Limited availability of ICT tools & technology in AICC	68	15	7	0	90	241	1st
9	Lack of management of AICC activities	5	36	36	13	90	123	6th
10	Cost of using ICT services from AICC	0	0	11	79	90	11	10th

On the basis of PFI value, it was observed that "limited availability of ICT tools and technology in AICC ranked most severe problem followed by technical problems of different ICT based media in AICC and low bandwidth speed of internet in AICC. The cost of using ICT services from AICC was the least important barrier.

AICC is a new concept or approach in Bangladesh to disseminate agricultural information to the farmers. The purpose is to reach information to the large number of farmers quickly. It is started with limited ICT tools like smartphone, desktop, laptop and internet connection. There was also raised various technical problem while giving support to the farmers. Besides, internet speed was acted as a barrier to provide smoothly and timely information to the farmers. The AICC personnel faced these problems to disseminate agricultural information among the farmers.

Suggestions to minimize the problems

An attempt was also made to seek suggestions from the respondent AICC members to minimize the problems. Based on their responses, important suggestions are gathered and shown in the following Table. Farmers' suggested Government should provide all necessary ICT tools to the AICC and Budget should be increased for buying ICT tools to reduce the most important barrier namely limited availability of ICT tools and technology in AICC. Likewise, they mentioned several suggestions to reduce other problems (Table 4).

Table 4.Suggestions to minimize the problems as opined by the AICC members

Sl. No.	Problems	Suggestions
1	Limited availability of ICT tools and technology in AICC	• Government should provide all necessary ICT tools to the AICC. • Budget should be increased for buying ICT tools.
2	Technical problems of different ICT based media in AICC	• Proper internet connection should be assured. • Maintenance of ICT tools should be followed.
3	Low bandwidth speed of internet in AICC	• Bandwidth speed of internet should be confirmed.
4	Lack of training facilities on ICT among farmers	• Frequent training should be arranged for the farmers. • Technical assistance should be ensured for properly training arrangement.
5	Lack of operational knowledge of computer	• ICT based training program should be arranged. • Various workshop, seminar etc. should be arranged for enhancing ICT knowledge.
6	Lack of management of AICC activities	• Leadership of AICC should be based on experience and skill. • Active member of AICC should be assigned for responsibility.
7	Lack of adequate skill among service providers in AICC	• Service providers of AICC should be trained up properly.
8	Low awareness among rural farmers about AICC	• Arrange group meeting with the local leader. • Arrange focus group discussion with local leader.
9	Scared of using ICT based media	• To emphasize the importance of using ICT.
10	Cost of using ICT services from AICC	• The government should provide necessary subsidy to run AICC activities.

4. Conclusions and Recommendations

In Bangladesh, till the ratio between extension agent and farmers are very poor. Therefore, government has always concern on how information can reach to a large number of farmers. In this context, a variety of ICT based approach has been established to give support to the farmers. AICC is one of them. The study attempted to get answer of several questions like what are the factors that affect to increase the effectiveness of AICC; what are the problems faced by the farmers while getting advisory services from AICC and how those problems can be minimized. It was observed through analysis that the use of ICT, ICT using experience and ICT using confidence had effects to increase the effectiveness of AICC for disseminating agricultural information. Farmers having more use of ICT tools, long experience and confidence got more support from AICC. There were some problems that hinder the activities of AICC. Among those limited availability of ICT tools and technology in AICC ranked first problem followed by technical problems of different ICT based media in AICC and low bandwidth speed of internet in AICC. Therefore, it may be concluded that still there is scope to enhance the effectiveness of AICC by minimizing the sever and moderate problems of the farmers. Government should increase budget to purchase more ICT tools and mitigate technical problems. At the same time area coverage by AICC should be increased for the betterment of the farmers.

REFERENCES

Alam, M. Z. Islam, M. S. and Kabir, M.H. **(**2018**).** Problems faced by the bean farmer in selected areas of Pabna district in Bangladesh. Research in Agriculture, Livestock and Fisheries, 5(1): 11-18.

Gregg, A. and S. Irani. (2004). Role of communication technologies in rural Development. Journal of Regional Science. 15 (2): 109-120.

Haque, M.M., Kabir, M.H. and Nishi, N. A. (2016)**.** Determinants of Rice farmers' adoption of integrated pest management practices in Bangladesh. Journal of Experimental Agriculture International, 14(4): 1-6.

Man, J.W. and Sadiya, L. (2009). Role of communication technologies in Eradication of Rural Poverty. 15 (2): 109-120.

Mishuk, P. S., Kabir, M. H. and M. M. Alam. (2021). Assessing the Effectiveness of Department of Agricultural Extension (DAE) Services to Increase Farmers' Skill. Asian Journal of Agricultural Extension, Economics & Sociology, 39(6):68-75.

Setu, S.B. (2021). Effectiveness of Agricultural Information and Communication Centre in disseminating agricultural information. MS Thesis. Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh.

Sultana. M. S., Ali. M. S., Islam. M. R., Kabir. M. H. and Hasnat, M. K. **(**2019). Effectiveness of Krisoker Janala in Disseminating Agricultural Information: An Innovative Tool. Open Journal of Social Sciences, 7: 272-280.

Talukder, M. S., Kabir, M. H., and Haque, M.Z. (2021). Problem assessment: a case study of catfish culture in Mymensingh district, Bangladesh. Research in Agriculture Livestock and Fisheries, 8 (2), 241-248.