

**EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL  
EXTENSION (DAE) REGARDING AGRICULTURAL  
ADVISORY SERVICES**

**PARITOSH SARKER MISHUK**



**DEPARTMENT OF  
AGRICULTURAL EXTENSION & INFORMATION SYSTEM  
SHER-E-BANGLA AGRICULTURAL UNIVERSITY  
SHER-E-BANGLA NAGAR, DHAKA-1207**

**JUNE, 2020**

**EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL  
(DAE) EXTENSION REGARDING AGRICULTURAL  
ADVISORY SERVICES**

BY

**PARITOSH SARKER MISHUK**

**REGISTRATION NO.: 12-04987**

**A Thesis**

Submitted to the Faculty of Agriculture,  
Sher-e-Bangla Agricultural University, Dhaka,  
in Partial fulfillment of the requirements  
for the degree of

**MASTER OF SCIENCE (MS)**

IN

**AGRICULTURAL EXTENSION**

**SEMESTER: JANUARY-JUNE, 2020.**

**Approved by**

.....  
**Dr. Muhammad Humayun Kabir**  
Professor & Supervisor  
Dept. of Agricultural Extension and  
Information System  
Sher-e-Bangla Agricultural University,  
Dhaka -1207

.....  
**Md. Mahbubul Alam, PhD**  
Professor & Co-Supervisor  
Dept. of Agricultural Extension and  
Information System  
Sher-e-Bangla Agricultural University,  
Dhaka -1207

.....  
**Dr. Muhammad Humayun Kabir**  
Professor & Chairman  
Department of Agricultural Extension & Information System  
Sher-e-Bangla Agricultural University, Dhaka -1207



Department of Agricultural Extension and Information System

**Sher-Bangla Agricultural University**

Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh

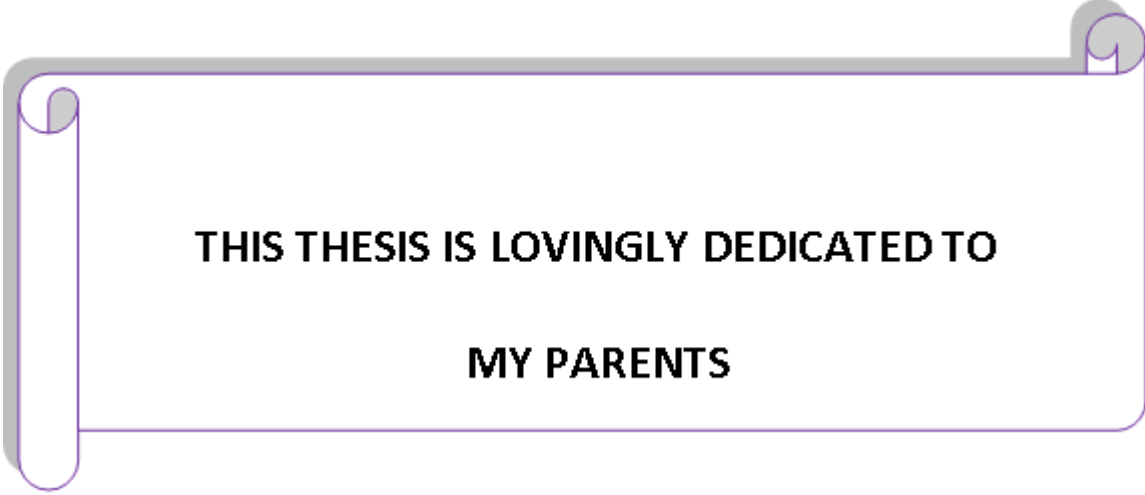
## CERTIFICATE

This is to certify that the thesis entitled “**EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL EXTENSION (DAE) REGARDING AGRICULTURAL ADVISORY SERVICES**” submitted to the department of Agricultural Extension and Information System, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka in partial fulfilment of the requirements for the degree of **Master of Science (MS) in Agricultural Extension**, embodies the result of a piece of bona fide research work carried out by **PARITOSH SARKER MISHUK, Registration No. 12-04987** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, as has been availed of during the course of this investigation has been duly acknowledged by the Author.

Dated: June, 2020  
Dhaka, Bangladesh

.....  
**Supervisor**  
**Dr. Muhammad Humayun Kabir**  
Professor  
Dept. of Agricultural Extension  
and Information System  
Sher-e-Bangla Agricultural University,  
Dhaka -1207



**THIS THESIS IS LOVINGLY DEDICATED TO  
MY PARENTS**

## ACKNOWLEDGEMENT

*All praises are due to the 'Almighty God' the merciful, Omnipotent and Omnipresent who enabled the author to pursue for the successful completion of this research work. The author would like to express his heartiest respect, deepest sense of gratitude, profound appreciation to his honorable Supervisor & Chairman **Prof. Dr. Muhammad Humayun Kabir**, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University (SAU), Dhaka for his sincere guidance, scholastic supervision, constructive criticism and constant inspiration throughout the course and in preparation of the manuscript of the thesis.*

*The author would like to express his heartiest respect and profound appreciation to his honorable Co-supervisor, **Prof. Dr. Md. Mahbulul Alam**, Department of Agricultural Extension And Information System, Sher-e-Bangla Agricultural University (SAU), Dhaka for his utmost cooperation and constructive suggestions to conduct the research work as well as preparation of the thesis.*

*It is also a great pleasure for the author to express hearty appreciation and regard to all teachers of Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka for their affectionate feelings and valuable suggestions during the research work.*

*The author deeply acknowledges the cooperation and sincere help of Upazila Agriculture Extension Officer and SAAOs of Nawabganj upazila. The author expresses his heartfelt gratitude to the respondents of the study area who patiently provided the information during the interview with the author.*

*The author also expresses his thanks and gratefulness to all of his well-wishers and friends.*

*Last but not the least, the author expresses his heartfelt gratitude and indebtedness to his father & teacher **Mr. Sukumar sarker** and mother **Mst. Jaba rani**, brothers and relatives for their encouragement, blessings and sacrifices that enabled him to complete the thesis.*

**June, 2020**

**The Author**

## LIST OF CONTENTS

<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE</b>
	ACKNOWLEDGEMENT	i.
	LIST OF CONTENTS	ii- v
	LIST OF TABLES	vi
	LIST OF FIGURES	vii
	LIST OF APPENDICES	vii
	ABREVIATIONS	viii
	ABSTRACT	ix
<b>CHAPTER I</b>	<b>INTRODUCTION</b>	<b>01-10</b>
1.1	General Background	01-04
1.2	Statement of the problem	04-05
1.3	Specific Objectives	05-06
1.4	Scope of the Study	06
1.5	Limitations of the Study	07
1.6	Assumptions of the Study	08
1.7	Definition of key Terms	08-10
<b>CHAPTER II</b>	<b>REVIEW OF LITERATURE</b>	<b>11-25</b>
2.1	Review of literature on general content of effectiveness of Agricultural Extension regarding advisory services	11-16
2.2	Relationship between Farmers' Characteristics with effectiveness of DAE regarding advisory services	16
2.2.1	Age and effectiveness of organizational services	16
2.2.2	Education and effectiveness of organizational services	17-18

2.2.3	Family size and effectiveness of organizational services	19
2.2.4	Times spent in farming and effectiveness of organizational services	19
2.2.5	Distance from home to Upazila agriculture office and effectiveness of organizational services	20
2.2.6	Experience in farming and effectiveness of organizational services	20
2.2.7	Farm size and effectiveness of organizational services	20
2.2.8	Annual family income and effectiveness of organizational services	21
2.2.9	Organizational participation and effectiveness of organizational services	22-23
2.2.10	Cosmopolitaness and effectiveness of organizational services	23
2.3	Conceptual Framework of the Study	24-25
<b>CHAPTER III</b>	<b>METHODOLOGY</b>	<b>26-38</b>
3.1	Locale of the Study	26-29
3.2	Population and Sample of the Study	30
3.3	Data Collecting Instrument	30-31
3.4	Collection of Data	31
3.5	Variables of the study	31-32
3.6	Measurement of Variables	32
3.6.1	Measurement of Independent Variables	32
3.6.1.1	Age	33
3.6.1.2	Level of education	33
3.6.1.3	Family size	33
3.6.1.4	Time spend in farming	33
3.6.1.5	Distance of home to Upazila Agriculture office	34

3.6.1.6	Experience in farming	34
3.6.1.7	Farm size	34-35
3.6.1.8	Annual family income	35
3.6.1.9	Organizational participation	35
3.6.1.10	Cosmopolitaness	35-36
3.7	Measurement of Dependent Variable	36
3.8	Statement of the Hypotheses	36
3.8.1	Research hypotheses	36
3.8.2	Null hypotheses	37
3.9	Data Processing	37
3.9.1	Editing	37
3.9.2	Coding and tabulation	37
3.9.3	Categorization of data	37-38
3.10	Statistical Analysis	38
<b>CHAPTER IV</b>	<b>RESULTS AND DISCUSSION</b>	<b>39-56</b>
4.1	Characteristics of the Farmers	39-40
4.1.1	Age	41
4.1.2	Level of Education	42
4.1.3	Family size	43
4.1.4	Time spend in farming	43-44
4.1.5	Distance of home to Upazila Agriculture office	44-45
4.1.6	Experience in farming	45
4.1.7	Farm size	46
4.1.8	Annual family income	46-47
4.1.9	Organizational participation	47-48
4.1.10	Cosmopolitaness	48-49



4.2	Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services	49-50
4.3	The Contribution of the selected characteristics of the respondents on <b>effectiveness of DAE</b> regarding Agricultural advisory services.	51-52
4.3.1	Significant contribution of organizational participation on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services	53
4.3.2	Significant contribution of cosmopolitanism on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services	54
4.3.3	Contribution of education on the farmers' effectiveness of DAE regarding Agricultural advisory services	55
4.3.4	Contribution of time spent in farming on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services	56
<b>CHAPTER V</b>	<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS</b>	<b>57-63</b>
5.1	Summary of findings	57
5.1.1	Selected characteristics of the farmers	57-59
5.1.2	Effectiveness of Department of Agricultural extension regarding Agricultural advisory services	59
5.1.3	Contribution of the selected characteristics on effectiveness of DAE regarding Agricultural advisory services	60
5.2	Conclusion	60-62
5.3	Recommendations	62
5.3.1	Recommendations for policy implication	62-63
5.3.2	Recommendations for further study	63
	<b>REFERENCES</b>	<b>64-71</b>

## LIST OF TABLES

TABLE	TITLE	PAGE
3.1.	Distribution of the population and sample of the respondents in two village of Nawabganj with reserve list	30
3.2	Nature of participation of the respondents in different organization	35
4.1	Characteristics profile of the respondents	40
4.2	Distribution of the farmers according to their age	41
4.3	Distribution of the farmers according to their level of education	42
4.4	Distribution of the farmers according to their family size	43
4.5	Classification of the respondents according to time spend in farming	44
4.6	Distribution of the farmer according to their Distance	44
4.7	Classification of the respondents according to their farming experiences	45
4.8	Distribution of the farmers according to their farm size	46
4.9	Distribution of the farmers according to their family income	47
4.10	Distribution of the farmers according to their organizational participation	48
4.11	Distribution of the farmers according to their Cosmopolitaness	49
4.12	Distribution of the farmers according to the effectiveness of DAE regarding Agricultural advisory services	50
4.13	Multiple regression coefficients of the contributing variables related to effectiveness of DAE regarding Agricultural advisory services	51

## LIST OF FIGURES

<b>FIGURE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Conceptual framework of the study	25
3.1	Map of Bangladesh showing Dinajpur district(Study area)	27
3.2	Map of Dinajpur district showing Nawabganj Upazila	28
3.3	Map of Nawabganj upazila showing two villages	29

## LIST OF APPENDICES

<b>APPENDIX</b>	<b>TITLE</b>	<b>PAGE</b>
<b>APPENDIX-A</b>	<b>An Interview Schedule on “EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL EXTENSION (DAE) REGARDING AGRICULTURAL ADVISORY SERVICES”</b>	<i>72-77</i>

## ABBREVIATIONS AND ACRONYMS

DAE	=	Department of Agricultural Extension
BBS	=	Bangladesh Bureau of Statistics
SPSS	=	Statistical Package for Social Science
NGO	=	Non-Government Organization
FAO	=	Food and Agricultural Organization
AEO	=	Agricultural Extension Officer
WB	=	World Bank
BIRRI	=	Bangladesh Rice Research Institute
SAAO	=	Sub-assistant agriculture officer
DAES	=	Department of Agricultural Ext. Services
SAU	=	Sher-e- Bangla Agricultural University
GDP	=	Gross Domestic Product
%	=	Percent
MOA	=	Ministry of Agriculture
BARI	=	Bangladesh Agricultural Research Institute
“000” Taka	=	Thousand Taka
*	=	Correlation is significant at the 0.05 level
**	=	Correlation is significant at the 0.01 level
etc.	=	et cetera (and the rest)
et al.	=	And others

# **EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL EXTENSION (DAE) REGARDING AGRICULTURAL ADVISORY SERVICES**

## **ABSTRACT**

The objectives of this study were to determine the extent of effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services and determine the contribution of the selected characteristics of the farmers on effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services. Data were collected from two villages of two unions at Nawabganj Upazila in Dinajpur district, through using a structured interview schedule. Appropriate scales were developed in order to measure the concerned variables. SPSS was used to analyze the data and multiple regression analysis. The findings revealed that the majority (70.2 percent) of the farmers belonged to the moderate effective category and the lowest (7.7 percent) in less effective category followed by high effective categories (22.1 percent) of DAE regarding Agricultural advisory services. The statistical analysis also revealed that farmers' education, organizational participation, cosmopolitanism and time spent in farming had positive and significant contribution with effectiveness of DAE regarding Agricultural advisory services. However, age, family size, time spent in farming, distance of home to Upazila Ag. Office, experience in farming, farm size and annual family income of the farmers had no significant contribution with effectiveness of DAE regarding Agricultural advisory services. So, the policy makers should consider these important factors to increase effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services.

# CHAPTER I

## INTRODUCTION

### 1.1. General Background

In Bangladesh, agriculture accounts for 17% of the gross domestic product, employs more than 60% of the labor force and provides a major source of livelihood for rural people, who make up about 78% of the total population of Bangladesh (FAO, 2018). Despite a comparatively low contribution in the national income, the influence of this sector is still very crucial from the point of its role to employment generation and poverty reduction. In addition, the agricultural sector is a most crucial crux in Bangladeshi economy, providing food for people, raw materials for industries, and the market for various commodities (BBS, 2018).

Extension is defined by Food & Agricultural organization (FAO) as; “systems that should facilitate the access of farmers, their organizations and other market actors to knowledge, information and technology; facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and assist them to develop their own technical, organizational and management skills and practices”.

The Agricultural Extension System can be defined as an agricultural information exchange system which shows the actors, people and institutions, their interactions and communication networks between these actors to coordinate the information related processes (Demiryurek, 1999).

The role of agricultural extension service has traditionally been to provide the important link between agricultural research and farming communities, especially for technology transfer in support of agricultural and rural development (FAO, 2004).

The development of agriculture greatly depends on provision of quality extension services (Agholor et al., 2013; Qamar, 2005; Hanyani-Mlambo, 2002). As a core organization under the Ministry of Agriculture, the DAE has a profound role in the improvement of livelihood of rural people. However, the DAE is under constant criticism for delivering a poor and backdated extension service (Uddin and Gao, 2013), along with handicapped skill (Hoque and Usami, 2008).

Farmers are highly dependent on effective extension services to provide advice on commercial and technical opportunities to improve their livelihoods. On account of that the Department of Agricultural Extension (DAE) plays the key role to meet the new challenges in Agricultural sector to fulfill the goal for being a middle income country in 2021 and the developed country in 2041.

At present, The Department of Agricultural Extension (DAE) is a service oriented government agency under the Ministry of Agriculture. It has nearly 25,000 working personnel. Thus, the Department of Agricultural Extension has been offering its services in consideration of the Agro-climatic condition of the farmer; farmers need & market demand of the agricultural product.

**The following services are being provided by the Department of Agricultural Extension**

- ❖ Motivation of the farmer regarding the modern technologies and varieties of crops through demonstration plot, field days, farmers meeting and farm rally.
- ❖ Decentralization of agriculture extension program planning process and providing the need based extension services to the farmer.
- ❖ Maintaining liaisons with the agricultural research institutions and disseminating the technologies to the farmer.
- ❖ Training farmers on specific agricultural issues.
- ❖ Promotes use different extension methods to disseminate technologies to the farmer.
- ❖ Provides e-agricultural extension services through ICT initiatives.
- ❖ Promotes soil health management practices through demonstration and training.
- ❖ Provides technical and advisory service to the urban farmer for roof gardening, establishing horticultural nursery warning to the farmer on pest infestation and natural disasters.
- ❖ Helping quality seed production, storage and exchange among the farmers.
- ❖ Monitoring supply and marketing of fertilizers and pesticides etc.

The terms agricultural advisory services and agricultural extension refer to the entire set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills and technologies to improve their livelihoods.

Agricultural advisory services are a vital element of Agricultural development that provides critical flows of information that can improve rural farmers' welfare. The services provided by agricultural extension have significant public-good attributes. It is, therefore, not surprising that there are more than half a billion official extension workers worldwide (World Bank, 2006)

While the continuing and evolving need for agricultural advisory services is well established, the challenge is to devise systems for providing and financing these services in a cost-effective and sustainable way that fits country-specific frame conditions (Leeuwis, 2004)

Thereupon, the Department of Agricultural Extension provides necessary information for the farmers to help them change their way of cultivation from traditional to modern one. Increase of per unit yield of any crop cannot be attained without a sound effective communication system. So, the Department of Agricultural Extension plays an important role especially in the awareness and interest stages to create a channel with the farmers.

Now-a-days, in Bangladesh, various organizations are working on the area of education agriculture, sustainable agriculture forestry, environment, farm management, public health, adult learning, family planning etc. Moreover, The DAE provides efforts only for the betterment of farmers. In view of the effectiveness of the Department of Agricultural Extension under agriculture, no research work has so far been undertaken; the researcher undertook a study entitled "Effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services ".



## **1.2 Statement of the Problem**

“Effective extension work requires management and operational procedures that reinforce the organizational structure. These must contribute to a favorable work environment and result in systematic and expeditious handling of the many administrative tasks of the organization. Inadequacies in any of these areas can seriously impair the performance of an extension service” (FAO, 1984). The actual effectiveness of a specific organization is determined by the degree to which it realizes its goals (Etzioni, 1964).

Although the Bangladesh government has established a number of development organizations since 1971, the Department of Agricultural extension is working one of the supreme organizations with the aim of reducing poverty. In Bangladesh, it is possible to reduce rural poverty and raise the living standard of common people by establishing agriculture as a profitable sector. It is, therefore, necessary to reorganize and develop the agricultural production system into a more dynamic and commercially profitable sector. In this context, the primary goal of the National Agriculture Policy of DAE is to modernize and diversify the crop sector, in other words the entire agricultural system, through initiation and implementation of a well-organized and well- coordinated development plan.

The DAE has been struggling to support farmers by applying various strategies and approaches in our country. Several significant positive results in agricultural rural development have been achieved, as shown by previous reports. Nevertheless, serious points of criticism have been raised by many researchers referring to the non-sustainability and inefficacy of DAE. Many reasons have been mentioned for the ineffectiveness of DAE such as: financial shortages, the frequent encumbrance of extension agents with public duties beyond those related to knowledge transfer, lack of linkage between research and extension, attention to big-farmers instead of small farmers, large scale and complexity of extension operations, non-participatory approaches, shortage of training, incentives and inadequate competencies of extension employees, low percentage of farmers who have contact with DAE personnel and difficulties in access to poor farmers. Hence, there is a need to investigate the farmer’s perceptions about the effectiveness of Department of Agricultural Extension as an organization and the key challenges militating against their effective functioning.

With a view to have an understanding on the extents of effectiveness of Department of Agricultural Extension, the researcher undertook a research study entitled “Effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services.” The purpose of the study was to determine the extent of effectiveness of Department of Agricultural Extension regarding Agricultural advisory services and also to explore the contribution of the selected characteristics of the farmers on the effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. The present investigation is concerned with the effectiveness of Department of Agricultural Extension regarding Agricultural advisory services which is a major concern in extension organizations. This was done by seeking answer to the following questions:

1. What are the characteristics of the rural farmers?
2. What are the extents of The Department of Agricultural Extension regarding Agricultural advisory services?
3. What are the contributions of the selected characteristics of the farmers on the effectiveness of Department of Agricultural extension regarding Agricultural advisory services?

### **1.3 Specific Objectives**

Based on the aforementioned discussions ,the research work entitled "Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services of the farmers" has been undertaken .The following specific objectives have been formulated to conduct the research work:

1. To describe the selected characteristics of the farmers. The selected characteristics:
  - Age
  - Level of education
  - Family size
  - Time spent in farming
  - Distance from home to Upazila Agricultural office

- Experience in farming
  - Farm size
  - Annual family income
  - Organizational participation
  - Cosmopolitaness
2. To determine the extent of effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.
  3. To assess the contributions of the selected characteristics of the farmers on the effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.

#### **1.4 Scope of the Study**

The study was conducted in Nawabganj Upazilla in Dinajpur district. The research study was carried in order to have an idea about how effectively the Department of Agricultural Extension interacts with the farmers about diffusion of innovation. Furthermore, the study will seek to determine how the Department of Agricultural Extension process the information and report on its system for solution of different crop production problems so that it may be passed on to other farmers.

It is expected that the findings of this study will help both the extension workers and farmers to communicate different production technology among them. It will also specify the roles of intra and inter-system communication highlight the bottlenecks in effective transformation of initiatives of the DAE. To the academicians, it may help in further conceptualization or the systems model for analyzing the Department of Agricultural extension based performances worked in field level.

Thus the findings are expected to be the useful to the extension workers and planners for preparation of programs on effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. The findings may also be helpful to the field workers of different nation building department or organization including NGO's to improve their technique and strategy of action for effective working with the rural people.

## **1.5 Limitations of the Study**

In order to make the study manageable and meaningful from the research point of view, it was necessary to impose certain limitations as follows:

1. The study was confined to Binodnagar and Kushdaha villages under Binodnagar and Kushdaha union of Nawabganj Upazilla in Dinajpur district.
2. The study was confined mainly to effectiveness of DAE regarding Agricultural advisory services.
3. The study was confined only with the information related to agricultural extension services and their dissemination to the farmers.
4. Characteristics of farmers are many and varied but only ten were selected for investigation in this study as stated in the objectives. This was done to complete the study within limited resources.
5. For information about the study, the researcher depended on the data as furnished by the selected farmers during their interview with him.
6. Facts and figures were collected by the investigator applied to the present situation in the selected area.
7. Some respondents did not want to give their accurate information.
8. The study was a new dimension in Bangladesh. The researcher could not equip sufficient evidence in preparing his study report with relevant literature reviews.

## **1.6 Assumptions of the Study**

An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence (Goode and Hatt, 1952).

The following assumptions were made in conducting the study:

1. The respondents included in the sample for this study were competent enough to furnish proper responses to the queries included in the interview schedule.
2. The responses furnished by the respondents were valid, acceptable and reliable. They expressed the truth about convictions and opinions.
3. No partiality was happened when collecting data.
4. Information furnished by the respondents was a representation of the whole population of the study area.
5. Data were normally and independently distributed with their means and standard deviation.
6. The findings of the study will have general application to other parts of the country with similar personal, socioeconomic and cultural conditions of the study area.

## **1.7 Definition of the Key Terms**

Certain terms have been used in this research which are defined and interpreted as follows for clarity of understanding:

### **Effectiveness:**

Effectiveness means the usefulness or efficiency for the specific initiatives with viewing specific objectives.

### **Effectiveness of DAE regarding Agricultural advisory services:**

Effectiveness of DAE regarding Agricultural advisory services means the degree to which DAE regarding Agricultural advisory services achieved its objectives.

**Age:**

Age of a respondent refers to the period of time in complete years from the time of birth to the date of interview. It was measured in terms of year.

**Education:**

Education is measured on the basis of classes passed from a formal educational institution by the farmers.

**Family size:**

Family size of a farmer is defined as the number of individuals in his family including himself, his wife, children and other dependent members.

**Time spent in farming:**

Time spent in farming refers that the family members who are directly and indirectly related to his/her own agricultural production and how many times they spent in agricultural activities in a week.

**Experience in farming:**

Practical knowledge, skill, or practice derived from direct observation of or participation in events or in a particular activity in farm.

**Farm size:**

Farm size refers to the total area on which a farmer's family carries farming operation. The area was estimated in terms of full benefit to the farmer's family. Farm size was measured in terms of hectares.

**Annual family income:**

Annual income refers to the total annual earnings of all the family members of a respondent from agriculture, livestock, fisheries and other accessible sources (business, service, daily working etc) during a year.

**Organizational participation:**

Organizational participation of an individual refers to his direct contact with various organizations within a specific period of time. An individual could take part in various activities of organization as ordinary member, executive committee member or officer president, secretary etc.

**Cosmopolitaness :**

It refers to the degree to which an individual's orientation is external to his own social system.

**Extension Services:**

Extension services help to farming communities to help themselves recognize and scrutinize their production difficulties and come to be attentive of the opportunities for development.

**Agricultural advisory services:**

Agricultural advisory services refer to the entire set of Agricultural Extension organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills and technologies to improve their livelihoods.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

Review of literature gives the direction of the researcher to carry out the research program. And so, the rationale of this chapter is to review the literature having consequence to the present study. The research program is concerned with effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services. No research has been conducted on effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services. So, related literature was not readily available for this study. Therefore, the findings of such studies related to the extent of and other partial studies have been reviewed in this chapter. The reviews are accessibly existed here based on the major objectives of the study. This chapter consists of three sections. The first section deals with the general effect of various services related to agricultural extension reconciled by the farmers; the second section contains the review of past studies in connection with the relationships of selected characteristics and coordinates the DAE perception and their trend of effectiveness and third section deals with the conceptual framework of the study.

#### **2.1 Review of literature on general content of effectiveness of Agricultural Extension regarding Agricultural advisory services**

Scharmerhorn et al. (1988) added that effectiveness may be defined as the degree to which a group or social system achieve its goal. An effective group is one that shows high level of both task performance and human resource maintenance overtime.

Jamilah *et al.* (2010) added that effectiveness may be defined as the degree to which a group or social system achieve its goal. An effective group is one that shows high level of both task performance and human resource maintenance overtime.

Mohanani (1992) told that extension starts with knowledge management and ends up with human enrichment. Agricultural extension by its nature has an important role in promoting the adoption of new technologies and innovations.



Bembridge (1979) defined agricultural extension as a chain of fixed communicative mediations that are meant, among others, to improve and/or encourage improvements which supposedly assist to resolve (usually multi-actor) challenging circumstances.

Mears (1981) stated that an organization or group effectiveness depends upon the performances of numerous small group or members which function and interact within the overall organizational or group system.

Coutts et al. (2005) defined Agricultural advisory services also increase the abilities and resources of persons, communities and organizations to manage change.

Maunder (1972) defined that Agricultural extension is an informal education process that assists farmers in improving their agricultural practices and approaches, increasing production efficiency and income, bettering their standard of living and lifting their social and educational standards.

Van den Ban and Hawkins (1996) also added that it includes the sensible use of communication of information to assist farming community creating sound ideas and making good choices.

Agricultural extension stabilises communication networks between the farmers and the agricultural support services which include research institutes, input supplies agencies, marketing departments and credit organization. On the other hand, extension had a vital role in resolving the agro-economic and social production problems which they are facing (Benor et al, 1984).

Swanson (2014) argued that extension service goes beyond technology transfer to general community development through human and social capital development, improving skills and knowledge for production and processing, facilitating access to markets and trade, organizing farmers and producer groups, and working with farmers towards sustainable natural resource management. Where market failures such as limited access to credit and non-competitive market structures that provide a disincentive to farmers to produce exist, extension services tend to provide solutions.

Qamar (1999) found that Agricultural Extension Service aims to educate the people of farming community in order to improve their quality of life through dissemination of knowledge, technologies, techniques, methods, ideas and useful information through extension system. It assists farm people through educational process, in improving farm, production methods and techniques, increasing production efficiency and

income, improving their levels of living and lifting the social and educational standard of rural life. Agricultural extension services, which encompass public and private sectors, NGOs, research and academic institutions and also the farmers, are the main forces in the processes of technology transfer. The information usually flows from researchers to extension agents and from extension agents to farmers in one direction and from farmers to extension agents and then to the researchers, in the other direction. As such, agricultural extension services, which are almost now more than one hundred years old, have become the most real life information system for technology transfer.

Haga (1999) added that technology transfer system has two streams. One flow from farms or farmers to the research stations through extension activity and the other from research stations to the farmers through the extension activity.

Sulaiman (2000) found that the main objective of agricultural extension organizations is to bring about all-round development of rural people that is, assisting rural people in all spheres of their development. All-round development includes socio economic, educational, and political development.

Bese (2010) attested to that by saying agricultural extension organizations brought change in the behavior, in the work capacity and in the attitude in a wider context.

Chauhan (2007) agreed that the aim of agricultural extension organizations like social, economic and political change was automatically achieved by bringing about educational changes. He added that agricultural extension organizations should be flexible and dynamic enough to control and facilitate the learning processes, and thus lead to empowerment of extension officers and ultimately the community.

Mears (1981) stated that organization or group effectiveness depends upon the performance of numerous small group or members, which function and interact within the overall organizational or group system.

Suryanarayana et al. (1990) revealed that age group of contact farmers has a significant negative relationship with the effectiveness of contact farmers in influencing the adoption behavior of other fellow farmers.

Steven and Ntai (2011) found that agricultural extension over the years has been used as a tool for facilitating agricultural and rural development.

Fabusoro, Awotunde & Alarima (2008) reported that Agricultural extension remains the most important source of information used by farmers. Extension is basically an educational function. Its job may vary considerably from country to country, but without exception it is expected to inform, advise and educate in a practical manner. Agricultural extension services are established for the purpose of changing the knowledge, skills, practices and attitude of masses of rural people, school pupils, suppliers and buyers of agricultural products and many other institutions involved in activities affecting rural people. Same result was founded by Oyegbami (2014).

Richardson (2003) expressed that extension organizations therefore play an important role in rural development in developing countries. However, in the past two decades, agricultural extension services in developing countries have been under increasing pressure from globalization, liberalization of agricultural markets, environmental changes, AIDS and food insecurity, to reform and respond to the needs of their clients. In response to these changes, agricultural extension organizations are shifting their principal focus from agricultural productivity towards sustainable development, where participatory processes, action learning- that is, the human dimension of agricultural and natural resource management is given importance.

Suryanarayana et al. (1990) revealed that 65 percent of the contact farmers were effective in influencing other fellow farmers, 23 percent of the contact farmers were more effective, and 12 percent were less effective. It was particularly observed that the contact farmers who effectively used extension teaching methods were significantly successful in extension knowledge on improved technology to other farmers in the area of their operation.

Singh and Vijayaragavan (1997) found that extension organizations have an important part in brokering among communication expertise, providers of those expertise and services, and the client groups they serve.

Nitsch (1982) reported that in recent years there have been many debates about the appropriate role of the agricultural extension services. These debates reflected on drastic changes that happened for the period of the last few decades in agricultural production and in the characteristics of farmers.

Kwarteng & Towler (1994) found that the primary objective of both research and extension is to increase agricultural productivity and enhance farm income. Attaining

this objective requires communication between research and extension, such that technical production packages generated by research reach the farmers and are profitably used by them.

Oyebanji (2000) also found that in the past, lack of effective linkage between research and extension had been largely responsible for non-adoption of recommended practices. Omidiji (1994) reported that the gaps in crop yield between those obtained by scientists on their research farms and those recorded by farmers in their fields had remained very wide.

Farmers according to Mchombu (1992) have two information systems, which have become uncoupled; the indigenous knowledge system and the external knowledge system. It was indicated that both were closely connected. The provision of information to farmers was a responsibility fragmented among several government ministries, non-governmental agencies and parastatal.

Buford *et al.* (1995) opined that Perceiving knowledge management as a condition of organizational success makes it crucial for agricultural extension experts to embrace and engage in it. As agricultural practitioners face the challenge of learning new skills to sustain their ability or become fit for promotions, the significance of an effective staff training program for agricultural practitioners becomes evident.

Metaxiotis and Hansen *et al.* (2005) observed that these agencies assisted to offer valuable information to the end-users. It is now acknowledged that effective organizations are those that create new innovation, distribute it broadly throughout the organizations, and represent it into new skills and products.

Hasan (1996) found in his study that the highest proportion (44 percent) of the respondents perceived the existence of medium use, compared to 26 percent low use and 3 percent high use in respect of selected agricultural technologies.

Paul (1989) observed that as regards effectiveness of result demonstration 74 percent farmers opined it as high comparison to 21 percent medium and only 5 percent low. In other words, 95 percent of the farmers considered result demonstration either as medium or high in respect of effectiveness.

## **2.2 Relationship between Farmers' Characteristics with effectiveness of DAE regarding Agricultural advisory services**

Relationship between farmers characteristics with effectiveness of DAE regarding Agricultural advisory services are given below under the following headings:

### **2.2.1 Age and effectiveness of organizational services**

Mohanan (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with their age.

Islam (2014) implied that there is no significant relationship between age and awareness on agricultural extension activities.

Hossain (1999) did not find any significant relationship between age and effectiveness of agricultural development activities.

Paul (1989) in his study found the effectiveness of result demonstration was significantly related with age of the farmers. This means that older farmers viewed result demonstration to be more effective than younger farmers. This was probably because the extension personnel in whose farmer's demonstrations are generally tried out more frequently selected older farmers. Due to more access to result demonstration by the older people, its effectiveness was also more for them.

Hossain (1999) did not find any significant relationship between age and effectiveness of agricultural development activities.

Shankaraiah and Swamy (2012) concluded that age of the farmers had no significant relationship with attitude of farmers and scientists towards dissemination of technologies.

Kim and lee (2017) found that the age of the farmers had a significant positive relationship with the effects of agricultural extension service on farm productivity.

Paul (1989) in his study found the effectiveness of result demonstration was significantly related with age of the farmers.

Majdyan (1996) appeared that age shows a consistent finding on the effectiveness of the media. These indicated that the relationships were all significant and there existed a negative trend.

Sarker (1996) observed that there was no relationship between the age of the farmers and their opinion on effectiveness of information disseminated through ARPs to the farmers.

Kidanemariam and Gebrehiwot (2006) found that the age of the farmers had no significant relationship with the impact of agricultural extension on farmers' technical efficiencies.

### **2.2.2 Education and effectiveness of organizational services**

Mohanan (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with their education.

Chaudhry *et al.* (2006) explained that the education of the farmers had a significant positive relationship with the effects of agricultural extension.

Kim and lee (2017) found that the education of the farmers had a significant positive relationship with the effects of agricultural extension service on farm productivity.

Mendola (2007) also found that the positive and significant impact of household heads level of schooling on the probability of joining the extension program is consistent with the notion that farmers with better human capital are among the early adopters.

Sinkaiye (2005) added that agricultural extension brings about changes through education and communication in farmers attitude, knowledge and skills. The role of agricultural extension involves dissemination of information; building capacity of farmers through the use of a variety of communication methods and help farmers make informed decisions.

Salem (1994) found that the extension services can play a crucial role in providing information on sustainable agricultural education. Thus, the role of extension is very important to support sustainable agriculture which is moving from production to a wider set of sustainability.

Suryanaryana *et al.* (1990) reported that there was a positive significant relationship between education level of the contact farmers and their effectiveness in influencing the adoption behavior of other farmers. It was, therefore, concluded that the higher

level of education of contact farmers more influences the adoption behavior of other fellow farmers.

Shankaraiah and Swamy (2012) concluded that education of the farmers had a positively significant relationship with Attitude of Farmers and Scientists towards Dissemination of Technologies.

Islam (2014) implied that a positively significant relationship between education and awareness on agricultural extension activities.

Kidanemariam and Gebrehiwot (2006) found that the education of the farmers had a significant positive relationship with the impact of agricultural extension on farmers' technical efficiencies.

Ray et al. (1995) stated that more of education in the family provides better opportunity to the farmers to be in contact with the outside world. This helped to absorb new ideas and information, which increased the effectiveness of group farmers.

Hossain (1999) also found a significant relationship between education and effectiveness of agricultural development activities.

Norman et al. (1988) noticed that education approaches had a significant and obvious relationship with effectiveness of agricultural extension services.

Pudasaini (1983) also noted that as education level increases, the rate of productivity declines hence there is diminishing marginal productivity with regards to education.

### **2.2.3 Family Size and effectiveness of organizational services**

Kim and lee (2017) found that the family size of the farmers had a significant positive relationship with the effects of agricultural extension service on farm productivity.

Mohanan (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with their family size.

Islam (2014) explained that a negative correlation between family size of rural women and their awareness on extension activities meant that big family size may hinder one's exposure to matters outside household and in this case it might negatively contribute to the rural women's awareness on extension activities.

Zimmerer (2004) found that Human population and natural environment research in the past two decades has focused on household level population dynamics and their relationships, through livelihood strategies, to environmental change, particularly in the rural areas of developing countries. In agriculture, research is fast shifting to the relationship between household size and agricultural intensification processes.

Shankaraiah and Swamy (2012) concluded that family size of the farmers had no significant relationship with Attitude of Farmers and Scientists towards Dissemination of Technologies.

Uzeh et al. (2008) argued that the house hold population had a significant influence on cropping systems and practices.

Adeniyi (1990) revealed that Family members provide the potential labor for agricultural intensification.

Abate (2007) found that family size of the farmers had no relationship with the effectiveness of agricultural extension initiatives.

Kidanemariam and Gebrehiwot (2006) found that the household population of the farmers had a significant positive relationship with the impact of agricultural extension on farmers' technical efficiencies.

### **2.2.4 Time spent in farming and effectiveness of organizational services**

No previous review of literature was found in relation with time spent in farming and effectiveness of organizational services.



### **2.2.5 Distance and effectiveness of organizational services**

Mendola (2007) found that distance to local agricultural office had a positive appearance related to technology adoption.

Jan et al. (2008) found that the coefficient of distance between home and agricultural office has negative but statistically significant effects with Agricultural extension services.

Genius et al (2006) found that distance to local agricultural office had a positive appearance related to technology adoption.

Barrett (2008) found that the coefficient of distance between home and agricultural office has negative significant effects with extension services.

### **2.2.6 Experience in farming and effectiveness of organizational services**

Mohanan (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with experience in farming.

Kim and lee (2017) found that the experience of farming had a significant positive relationship with the effects of agricultural extension service on farm productivity.

### **2.2.7 Farm size and effectiveness of organizational services**

Taslim (1989) found a significant relationship between the farm size of the beneficiaries and effectiveness of agricultural development activities.

Bardhan (1973) also found a significant relationship between the farm size of the beneficiaries and effectiveness of agricultural development activities

Shankaraiah and Swamy (2012) concluded that farm size of the farmers had a positively significant relationship with Attitude of Farmers and Scientists to Dissemination of Technologies

Heltberg and Dyer (1998) revealed that the farm size of the farmers had a significant and definite relationship with agricultural productivity.

Haque (1982) and Altman *et al.* (1985) found a significant relationship between the farm size of the beneficiaries and effectiveness of agricultural development activities.

Rao and Chotigeat (1981) found that the agricultural development activities had positive impact on farm size of farmers.

Haq (2004) revealed that farm size of the farmers had a significant and positive relationship with effectiveness of an agricultural organization.

Haq et al. (2003) found that the extension contact had positive impact on the income of farmers.

Sen (1962) found that farm size of the farmers had a significant and positive relationship with effectiveness of agricultural development activities.

Mohanani (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with their farm size.

### **2.2.8 Annual family income and effectiveness of organizational services**

Owens et al. (2003) realized that the importance of agricultural extension services have been increasing over time with rising income throughout the world.

Haq et al. (2003) found that the extension contact had a positive impact on the income of farmers.

Hossain (1999) found a positive significant relationship between family income and effectiveness of agricultural development activities.

Kim and lee (2017) found that annual income of the farmers had a significant positive relationship with the effects of agricultural extension service on farm productivity.

Evenson and Mwangi (2001) observed that there was a positive relationship between annual income from field crop and effectiveness of agricultural extension services.

Paul (1989) observed that there was a positive significant relationship between the income of the farmers and their opinion on the effectiveness of result demonstration.

Dercon et al. (2009) found that the annual income had positive significant relationship with contribution of agricultural extension to productivity.

Shankaraiah and Swamy (2012) concluded that annual family income of the farmers had a positively significant relationship with Attitude of Farmers and Scientists towards Dissemination of Technologies.

Mohanani (1992) stated that in Gambhira collective farming co-operative group member's effectiveness has no significant relationship with the annual income of the farmers.

### **2.2.9 Organizational participation and effectiveness of organizational services**

Arodokoun et al. (2003) concluded that organizational participation of the farmers had a significant relationship with effectiveness of agricultural extension services.

Paul (1989) concluded that the organizational participation did not show any significant relationship with the effectiveness of result demonstration although it showed a positive trend. It implies that participation in organizational activities and effectiveness of result demonstration are independent of each other.

Suryanarayana et al. (1990) observed a positive significant relationship between social participation of contact farmers and their effectiveness in influencing adoption behavior of other farmers. This means that more social participation of contact farmers more influence in adoption behavior of other farmers.

Kumar et al. (1991) found that there was a significant relationship between effectiveness and social participation of farmers.

Paine et al. (2007) cited strong links between organizational participation and agricultural extension initiatives.

Hosseini.e.al. (2009) founded that Financial, social, human and organizational sustainability should be achieved over time and policies that provide affordable access to information need to be carefully identified and examined.

Shankaraiah and Swamy (2012) concluded that organizational participation of the farmers had a positively significant relationship with Attitude of Farmers and Scientists towards Dissemination of Technologies.

Antholt, (1994) found that extension need to involve farmers themselves in the process of extension. Participation if it is to become part of extension must clearly be interactive and empowering. Any pretence to participation will result in little change.

Allowing farmers just to come to meetings or letting a few representatives sit on committees will be insufficient.

Islam (2002) conducted a study on farmers' knowledge and use of ecological agricultural practices under the supervision of Proshika. He found that agricultural training experience of the farmers had no significant relationship with their use of ecological agricultural practices.

Moyo (2002) noted that participation by the civil society organizations contributes the obvious relationship to democratization processes by empowering citizens in with the state agricultural institutions.

Bosc et al. (2003) modified Participation of farmer can fulfill several roles and thereby contribute to the functions for agricultural innovation and enhance its effectiveness.

Bembridge, (1999) expressed that farmer participation in extension requires prioritizing farmers or giving them real ownership and accountability of public extension management.

Agbarevo & Obinne, (2010) found that poor participation of farmers in research-extension-farmer linkage activities has been attributed to top-down approach in contrast to participatory approach to mainstream the resource-poor farmers into research extension activities.

#### **2.2.10 Cosmopolitanism and effectiveness of organizational services**

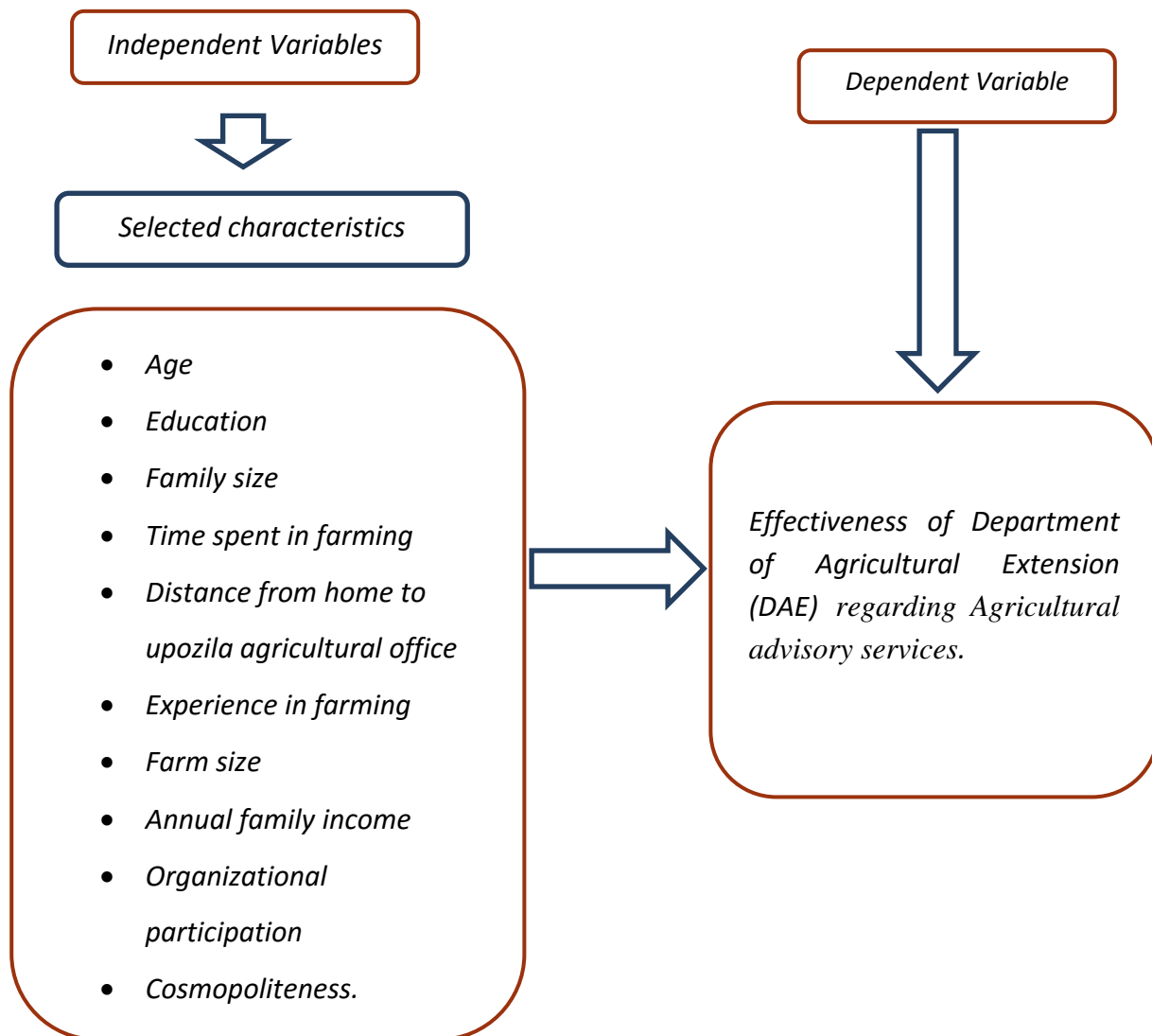
Islam (2014) found that cosmopolitanism had a positive impact on one's awareness on agricultural extension activities.

Afroz (2014) reported that there was no relationship between cosmopolitanism of the Boro rice farmers with their effectiveness of result demonstration program in the transfer of BRRI dhan 50.

Shankaraiah and Swamy (2012) concluded that cosmopolitanism of the farmers had a positively significant relationship with attitude of farmers and scientists towards dissemination of technologies.

### **2.3 The Conceptual Framework of the Study**

Conceptual framework is the representation of the variables. In research, selection and measurement of variables constitute an important task. The hypothesis of a research while constructed properly contains at least two important elements i.e. "a dependent variable" and "an independent variable". A dependent variable is that factors which appears, disappears or varies as the researcher introduces, removes or varies the independent variable (Townsend, 1953). An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. In view of prime findings of review of literature, the researcher constructed a conceptual model of the study, which is self-explanatory and is presented in Figure 2.1.



***Fig.2.1 Conceptual Framework of the Study***

## **CHAPTER III**

### **MATERIALS AND MEHODS**

In a research study, methodological issue is one of the prime considerations for yielding of valid and reliable findings. Appropriate methodology enables the researcher to collect valid and reliable information and to analyze the information properly in order to arrive at correct conclusions. Methodology describes the procedure of scientific and empirical research. Importantly it gives necessary direction to the researcher to achieve objectives of the study step by step. Any empirical research whether it is natural or social needs valid and reliable data. To ensure the beneficial output of the research a number of preconditions to be set to run the study smoothly. However, the methods and operational procedures followed in conducting this study has been described in the subsequent sections of this chapter.

#### **3.1 Locale of the Study**

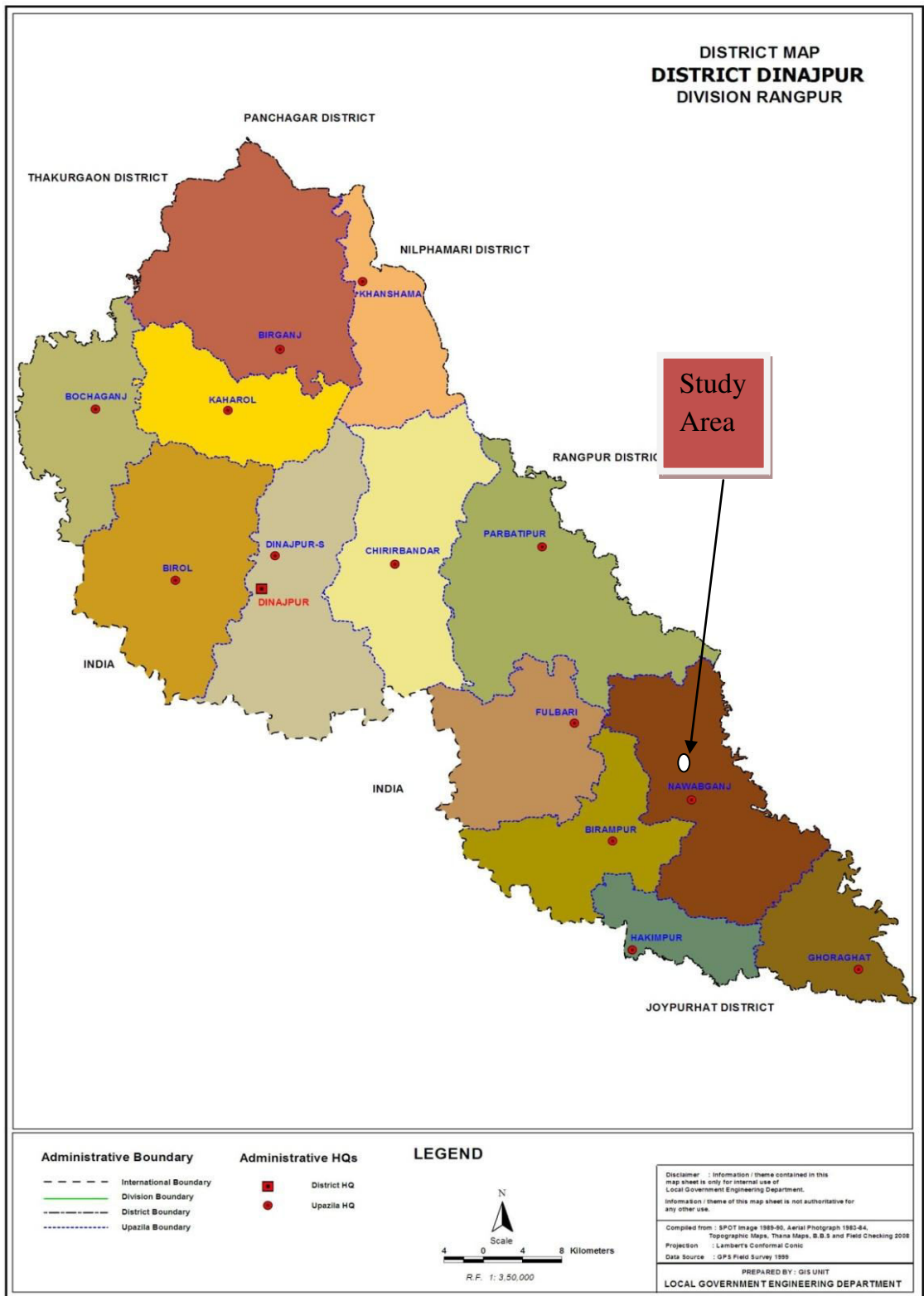
The study was conducted at Nawabganj under Dinajpur district. Nawabganj is located at 25<sup>0</sup>25' N -89.5°E. It has 32999 units of household and a total area of 314.68km<sup>2</sup>. It is bounded by Parbatipur and Badarganj upazilas on the north, Ghoraghat and Hakimpur upazila on the south, Mithapukur and Pirganj of Rangpur on the east and Birampur and Phulbari upazilas on the west.

Dinajpur was purposively selected as the locale of the study. There are 13 upazilas in the district. Among those Nawabganj was selected randomly for this study. Only two village (Binodnagar and Kushdaha) were selected randomly as the locale of the study. The researcher is very familiar with the local of the study area from his childhood. The map of Nawabganj Upazila under Dinajpur district showing the study area is presented in fig 3.1, 3.2 and 3.3.



**Fig: 3.1 Map of Bangladesh showing Dinajpur district (study area).**





**Fig: 3.2 Map of Dinajpur district showing the study Nawabganj upazila**

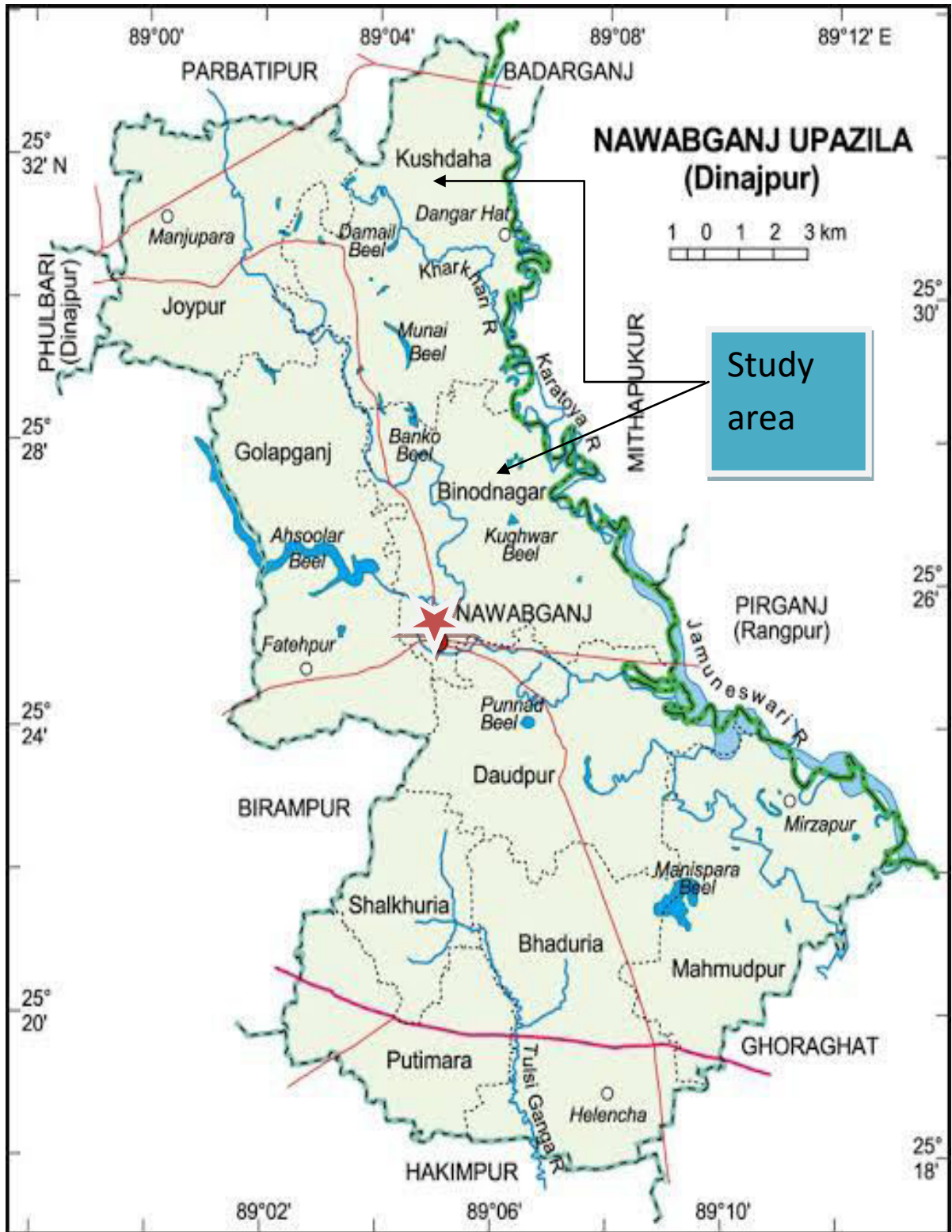


Figure: 3.3 Map of Nawabganj upazila showing two Villages where data were collected.

### 3.2 Population and Sample of the Study

The target population is the total group of individuals from which the sample might be drawn. A sample is the group of people who take part in the investigation. A population is a complete set of elements (persons or objects) that possess some common characteristic defined by the sampling criteria established by the researcher.

Two separate lists of farmers of the selected two villages were prepared by the researcher himself with the help of the Sub-Assistant Agriculture Officer (SAAO) of Upazila Agriculture Office (UAO), Nawabganj. The list comprised a total of 525 farmers from which 320 farm family heads from Binodnagar village and 205 from Kushdaha village under the upazila of Nawabganj which constituted the population of the study.

**Table 3.1 Distribution of the population and sample of the respondents in two villages of Nawabganj with reserve list.**

Name of the villages	Population (No. of total farmers)	Sample Size	Reserve list
Binodnagar	320	64	5
Kushdaha	205	41	5
Total	525	105	10

Out of related 525 farmers, a sample of 105 (20% of 525) were selected randomly as the sample of the study. Besides this, a reserved list of 10 (10% of total sample) farmers was prepared taking proportionate randomly for each village for use when the farmers under samples were not available during data collection. The distributions of the farmers constituting the population, Sample and reserve lists are shown in table 3.1.

### 3.3 Data Collecting Instrument

In a social research to collect relevant information, preparation of an interview schedule for collection of information with very careful consideration is necessary. Regarding this fact in mind the researcher prepared an interview schedule carefully for collecting

data from the respondents. Objectives of the study were kept in view while preparing the interview schedule. The initially prepared interview schedule was pre-tested among 10 respondents of the study area. The pre-test was helpful to find out gaps and to locate faulty questions and statements. Alterations and adjustments were made in the schedule on the basis of experience of the pretest. The English version of the interview schedule was enclosed in Appendix-A.

### **3.4 Collection of Data**

Data were collected by the researcher himself with the help of the local leader, farmer and Sub-Assistant Agricultural Officer (SSAO) through interview schedule. Before starting collection of data, the researchers met with the local SAAOs of the respective blocks in order to explain the objectives of the study and requested them to provide necessary help and cooperation in collection of data. The local leaders of the area were also approached to render essential help. As a result of all these a good working atmosphere was created in the study area which was very helpful for collection of data by the researcher.

Before going to the respondents for interview they were informed earlier, so that they would be available in their respective area. The interviews were held individually in the house or farms of the respective respondent. The researcher established adequate rapport so that the respondents did not feel hesitant to provide actual information. Whenever any respondent faced difficulty in understanding a particular question, the researcher took care to explain the same clearly. No serious constraints were faced by the researcher in collecting data. Collection of data took 30 days from 9<sup>th</sup> November to 9<sup>th</sup> December, 2019.

### **3.5 Variables of the study**

A variable is any characteristics which can assume varying or different values in successive individual cases (Ezekiel and Fox, 1959). An organized piece of research usually contains at least two important elements viz. independent and dependent variables. An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationships to an observed phenomenon. A dependent

variable is that factor which appears, disappears or varies as an effect of the independent variables (Townsend, 1953).

The successful selections of variables ensure the successful research. In appropriate and inconsistent selection of variables may lead to faulty results .But, it is very difficult to deal with all the factors in a single study. So, the researcher employed adequate care in selecting the variables of the study.

For selection of variables the researcher went through the past related literature as far as possible and had discussion with the faculty members, experts, researchers and related fields and then variables were selected. Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services was considered as the dependent variable of the study. The researcher selected ten characteristics of the respondent as the independent variables. The characteristics includes age, education, family size, time spent in farming ,distance from home to upazila agricultural office , experience in farming, farm size, annual family income, organizational participation and cosmopolitaness.

### **3.6 Measurement of Variables**

In order to conduct the study in accordance with the objectives, it was necessary to measure the selected variables. This section contains procedures for measurement of both independent as well as dependent variables of the study. The procedures followed in measuring the variables are presented below:

#### **3.6.1 Measurement of Independent Variables**

The selected characteristics of the respondent farmers constituted the independent variables of the study. To keep the research within the manageable sphere, ten independent variables were selected for the study. The procedures of measurement of the selected variables were as follows:

### **3.6.1.1 Age**

Age of a respondent was measured in terms of years from his birth to the time of interview which was recorded on the basis of respondents (Azad, 2014). A score of one (1) was assigned for each year of age. Question regarding this variable appears in item no.1 in the interview schedule (Appendix-A).

### **3.6.1.2 Level of education**

Education was measured in terms of one's year of schooling. One score was given for passing each year in an educational institution (Amin, 2004). For example, if the respondent passed the S.S.C. examination, his education score was given as 10, if passed the final examination of class Seven (VII), his education scores was given as 7. If the respondent did not know how to read and write, his education score was given as '0' (zero). A score of 0.5 (half) was given to that respondent who could sign his/her name only. Question regarding this variable appears in the item no. 2 in the interview schedule (Appendix-A).

### **3.6.1.3 Family size**

The family size was measured by the total number of members in the family of a respondent. The family members included family head and other dependent members like husband/wife, children, etc. who lived and ate together. A unit score 1 was assigned for each member of the family. If a respondent had five members in his/her family, his/her family size score was given as 5 (Khan, 2004). Question regarding this variable appears in the item no. 3 in the interview schedule (Appendix-A).

### **3.6.1.4 Time spend in farming**

Time spend in farming by the farmers was measured by total hours spend in farming activities per week. This variable appears in item number 4 in the interview schedule as presented in Appendix-A.

### **3.6.1.5 Distance from home to agricultural extension office**

Distance from home to agricultural extension office was marked by asking the question “what is the distance to agricultural extension office from your home”. The respondents replied based on their assumption. This variable was measured by the actual figure (kilometer). A score of 1 was assigned for each kilometer. This variable appears in item number five (5) in the interview schedule as presented in Appendix-A.

### **3.6.1.6 Experience in farming**

Experience in farming of the respondent was measured by the number of years a respondent engaged in farming. The measurement included from the year of starting of first farming till the year of data collection. A score of one (1) was assigned for each year of experience. This variable appears in item number six (6) in the interview schedule as presented in Appendix-A.

### **3.6.1.7 Farm size**

Farm size of a respondent referred to the total area of land on which his family carried out the farming operation, the area being in terms of full benefit to the family. The term refers to the cultivated area either owned by the respondent or cultivated on share-cropping, lease or taking from other including homestead area. It was measured in hectares for each respondent using the following formula (Khan, 2004):

$$FS = A + B + 1/2(C + D) + E$$

*Where,*

FS = Farm size,

A = Homestead area including garden and pond,

B = Own land under own cultivation,

C = Land taken from others as borga

D = Land given to other as borga,

E = Land taken from others on lease,

The data was first recorded in terms of local measurement unit i.e. decimal and then converted into hectare. The total area, thus, obtained is considered as his farm size score (assigning a score of one for each hectare of land). This variable appears in item number seven (7) in the interview schedule as presented in Appendix-A.

### **3.6.1.8 Annual family income**

Annual income of a respondent was measured in ‘000’ BDT on the basis of total yearly earning from agricultural and non-agricultural sources by the respondent himself and other family members . This variable appears in item number eight (8) in the interview schedule as presented in Appendix-A.

### **3.6.1.9 Organizational participation**

Organizational participation means respondent’s participation in any organization like: government, non-government, krishi club etc. For measuring participation in any organization, the respondents were asked to choose one answer among four nature namely not involved, ordinary member, executive member and president. The coding was 0 to 3 for their responses respectfully. This variable appears in item number nine (9) in the interview schedule as presented in Appendix-A. Scores were assigned for all extension media in the following manner:

**Table 3.2 Nature of participation of the respondents in different organization**

Name of the organizational participation	Assigned score
Not involved	0
Ordinary member	1
Executive member	2
President	3

### **3.6.1.10 Cosmopolitaness**

The Cosmopolitaness of a respondent was measured with seven selected places of visit. A scale was developed arranging the weights for 0, 1, 2 and 3 for the responses for not at all, rarely, occasionally and regularly contact with places of visit respectively.



This variable appears in item number ten (10) in the interview schedule as presented in Appendix-A.

### **3.7 Measurement of effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services was the dependent variable of the study. To measure the dependent variable, a list of nine advisory services used by the DAE to the farmers of the study area was selected. Furthermore, they were asked how many number of services used was followed by the farmers.

The Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services of a respondent was measured with four points likert scale. A scale was developed arranging the weights for 0, 1, 2 and 3 for the responses for not effective, less effective, moderate and high effective of Department of Agricultural extension regarding Agricultural advisory services respectively. This variable appears in item number ten in the interview schedule as presented in Appendix-A.

### **3.8 Statement of the Hypotheses**

Hypothesis is a tentative prediction or explanation of the relationship between two variables .It implies that there is a systematic relationship between an independent and a dependent variable. As defined by Goode and Hatt (1952) a hypothesis is “a proposition which can be put to test to determine its validity. It may seem contrary to, or in accord with common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test.”

#### **3.8.1 Research hypotheses**

In the light of the objectives of the study and variables selected, the following research hypotheses were formulated to test them in. The research hypotheses were stated in positive form, the hypotheses were as follows:

*“Each of the selected characteristics of the farmers had an effective contribution to Agricultural advisory services by the DAE.”*

### **3.8.2 Null hypotheses**

In order to conduct statistical tests, the research hypotheses were converted to null form. Hence, the null hypotheses were as follows:

*“There was no contribution between farmers selected characteristics and DAE regarding Agricultural advisory services.”*

## **3.9 Data Processing**

### **3.9.1 Editing**

The collected raw data were examined thoroughly to detect errors and omissions. As a matter of fact the researcher made a careful scrutiny of the completed interview schedule to make sure that necessary data were entered as complete as possible and well arranged to facilitate coding and tabulation. Very minor mistakes were detected by doing this, which were corrected promptly.

### **3.9.2 Coding and tabulation**

Having consulted with the research supervisor and co-supervisor, the investigator prepared a detailed coding plan. In case of qualitative data, suitable scoring techniques were followed by putting proper weight age against each of the traits to transform the data into quantitative forms. These were then tabulated in accordance with the objective of the study.

### **3.9.3 Categorization of data**

Following coding operation, the collected raw data as well as the respondents were classified into various categories to facilitate the description of the independent and

dependent variables. These categories were developed for each of the variables by considering the nature of distribution of the data and extensive literature review. The procedures for categorization have been discussed while describing the variables under consideration in chapter IV.

### **3.10 Statistical Analysis**

Data collected from the respondents were compiled, tabulated and analyzed in accordance with the objective of the study. The analysis of data was performed using statistical treatment with SPSS (Statistical Package for Social Science) computer program, version 20. The statistical measures such as range, mean, standard deviation, percentage, rank order were used for describing both the independent and dependent variables. Tables were also used in presenting data for clarity of understanding. Initially, multiple regressions analysis was run to determine effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services. Five percent (0.05) level of probability was used as the basis for rejection of a null hypothesis throughout the study. Co-efficient values significant at 0.05 level is indicated by one asterisk (\*) and that at 0.01 level by two asterisks (\*\*).

## **CHAPTER IV**

### **FINDINGS AND DISCUSSION**

This chapter deals with the result and discussion of present research work. Necessary explanations and appropriate interpretations have also been made showing possible and logical basis of the findings. However, for convenience of the discussions, the findings are systematically presented in the following sections.

#### **4.1 Characteristics of the Farmers**

This section deals with the selected characteristics of farmers which were assumed to be associated with effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services. Different farmers possess different characteristics which are focused by his/her behaviour. In this section ten characteristics have been discussed. The selected characteristics of the farmers were; age, education, family size, time spent in farming ,distance from home to upazila agricultural office, experience in farming, farm size , annual family income, organizational participation and cosmopolitaness. Measuring unit, range, mean and standard deviations of those characteristics of farmers were described in this section. Table 4.1 provides a summary profile of farmer characteristics.

**Table 4.1 Characteristics profile of the respondents**

Characteristics(with measuring unit)	Range		Mean	SD
	Possible	Observed		
Age (years)	Unknown	24–72	46.86	11.685
Level of education (schooling years)	Unknown	0.0 – 16	6.0762	5.355
Family size (number of person)	Unknown	02-11	4.88	1.95
Time spent in farming (Hours/Week)	Unknown	10–50	30.8	9.2
Distance from home to upazila agricultural office (km)	Unknown	0.25-10	4.993	2.011
Experience in farming (years)	Unknown	04–45	18.31	9.021
Farm size (hectare)	Unknown	0.02–0.80	0.2184	0.174
Annual family income ('000'BDT)	Unknown	105–705	283.7	119.85
Organizational Participation	0-15	0-12	4.9	2.55
Cosmopolitaness	0-21	4-18	9.32	3.11
Effectiveness of DAE regarding Agricultural advisory services	0-27	9-23	18.61	2.63

### 4.1.1 Age

Age of the respondents varied from 24 to 72 years, the average being 46.86 years with the standard deviation of 11.68. According to their age, the respondents were classified into three categories as “young aged”, “middle aged” and “old aged”. The distribution of the farmers according to their age is shown in Table 4.2.

**Table 4.2 Distribution of the farmers according to their age**

Categories	Basis of categorization (year)	Respondents	
		Numbers	Percent
Young aged	Up to 35	20	19.05
Middle aged	36-50	47	44.75
Old aged	Above 50	38	36.2
Total		105	100

Data represented in Table 4.2 indicate that the middle aged farmer comprised the highest proportion (44.75 percent) followed by old aged category (36.2 percent) and the lowest proportion were made by the young aged category (19.05 percent). Data also indicate that the middle to old aged respondents constitute almost 80.95 percent of total respondents. So, the middle and old aged respondents were generally more involved in effectiveness of DAE regarding Agricultural advisory services than the young aged.

### 4.1.2 Level of Education

Education level of the respondents ranged from 0-16 in accordance with year of schooling. The average education score of the respondents was 6.07 with a standard deviation of 5.35. On the basis of their level of education, the farmers were classified into five categories as shown in Table 4.3.

**Table 4.3 Distribution of the farmers according to their level of education**

Categories	Basis of Categorization (schooling years)	Respondents	
		Number	Percent
Illiterate	0	12	11.4
Can sign only	0.5	30	28.6
Primary	1-5	09	8.6
Secondary	6-10	32	30.5
Above secondary	Above 10	22	20.9
Total		105	100

Data shown in the Table 4.3 indicates that respondent secondary level of education constitute the highest proportion (30.5 percent) followed by illiterate category (11.4 percent). On the other hand, the lowest proportion (8.6 percent) in Primary education category followed by Can sign only category (28.6 percent) and above secondary (20.9 percent).

Education broadens the horizon of outlook of farmers and expands their ability to analyze any situation related to effectiveness of Department of Agricultural extension regarding Agricultural advisory services. An educated farmer is likely to be more responsive to the modern facts, ideas, technology and information of Department of Agricultural extension.

### 4.1.3 Family Size

Family size of the farmers ranged from 2 to 11 with an average of 4.88 and standard deviation is 1.95. On the basis of the family size the respondents have been classified into 3 categories, such as small, medium and large family (Table 4.4).

**Table 4.4 Distribution of the respondents according to their family size**

Categories	Basis of categorization (Number)	Respondents	
		Numbers	Percent
Small family	Up to 3	28	26.67
Medium family	4-7	64	60.9
Large family	Above 7	13	12.44
Total		105	100

Data presented in the above table 4.4 shows that highest proportions (60.9%) of the farmers belong to the medium family size category. And proportion (26.67%) of the farmers had fallen under small family size. Only a small portion of the respondents (12.44%) had large family size with above 7 members. The average family size was being 4.88 a little higher than national average 4.5 (BBS, 2018). The smallest is the Beauty. In nucleus family people feel more secured and economically solvent which helps to take important decision as well as risk oriented activities.

### 4.1.4 Time spend in farming

Time spend in farming by the farmers varied from 10 to 50 hrs per week with an average of 30.89 and standard deviation of 9.24. Based on their time spends in farming, the farmers were classified into three categories namely less time spend (up to 21), moderate time spend (22 to 40) and high time spend (above 40). The distribution of the farmers according to their time spend in farming is presented in Table 4.5.



**Table 4.5 Classification of the respondents according to their time spends in farming**

Categories	Basis of categorization (hrs/week)	Respondents	
		Number	Percent
Less time spend	Up to 21	23	22
Moderate time	22–40	67	63.8
High time spend	Above 40	15	14.2
Total		105	100

Data presented in Table 4.5 indicates that majority (63.8 percent) of the respondents had moderate time spend against 14.2 percent of the respondents had high time spend and 22 percent had less time spend in farming. Time spends in farming is helpful to increase knowledge, improve skill and change attitude of the farmers. It also builds confidence of the farmers for making appropriate decisions at the time of need. Generally, time spends in farming helps to cope with any problematic situation as well as increase skill.

#### **4.1.5 Distance from home to Upazila agriculture office**

Distance from home to Upazila agriculture office by the farmers varied from 0.25 to 10 km with an average of 4.99 and standard deviation of 2.01 Based on their distance from home to Upazila agriculture office , the farmers were classified into three categories namely short distance (up to 3), medium distance (3.01-07) and long distance (above 07). The distribution of the farmers according to their distance is presented in Table 4.6.

**Table 4.6 Classification of the respondents according to their distance**

Categories	Basis of categorization (km)	Respondents	
		Number	Percent
Short distance	Up to 3	21	20
Medium distance	3.01– 7	80	76.2
Long distance	Above 7	04	3.8
Total		105	100

Data presented in Table 4.6 indicates that majority (76.2 percent) of the respondents had medium distance from home to Upazila agriculture office against 20 percent of the respondents had short distance and 3.8 percent had long distance from home to local market. Overwhelming the majority (96.2%) of the farmers had short to medium distance between their homes to the Upazila agriculture office. Here, the lower the distance, the better the way to get opportunities to communicate with the Agricultural Extension personnel.

#### 4.1.6 Experience in farming

Computed scores of the farmers about experience in Crop production ranged from 4 to 45 years with a mean of 18.31 and standard deviation of 9.02. On the basis of farming experience, the respondents were classified into three categories as follows in Table 4.7.

**Table 4.7 Distribution of the farmers according to their farming experience**

Categories (year)	Basis of categorization (Years)	Respondents	
		Number	Percent
Short farming experience	Up to 9	06	5.7
Medium farming experience	10-27	84	80
Long farming experience	Above 27	15	14.3
Total		105	100

Data contained in Table 4.7 showing that 80 percent of the farmers had medium farming experience, where as 5.7 percent had short farming experience and 14.3 percent had long farming experience. Farming experience is helpful to increase knowledge, improve skill and change attitude of the farmers. It also builds confidence of the farmers for making appropriate decisions at the time of need. Above five fourth (85.7 percent) of the farmers had short to medium farming experience.

#### 4.1.7 Farm Size

Farm size of the respondents ranged from 0.02 hectare to 0.80 hectares with the mean of 0.22 and standard deviation of 0.17. On the basis of their farm size, the farmers were classified into four categories followed by DAE (1999) as shown in Table 4.8.

**Table 4.8 Distribution of the farmers according to their farm size**

Categories	Basis of categorization (ha)	Respondents	
		Number	Percent
Marginal farm	Up to 0.2	65	61.9
Small farm	0.21 – 1.0	40	38.1
Medium farm	1.01 – 3.0	0	0
Large farm	Above 3	0	0
Total		105	100

Data presented in the Table 4.8 demonstrated that highest proportion (61.9 percent) of the farmers had marginal farm compared to 38.1 percent having small farm and zero percent farmers had medium and large farm. In Bangladesh, most of the farmers live on below a subsistence level. This in one of the vital reasons for not adopting improved farming practices in their farm as well as having lower skill.

#### 4.1.8 Annual family income

Annual family income ranged from 105 to 705. The mean was 283.7 score and standard deviation was 119.85. On the basis of annual family income, the respondents were categorized into three groups as shown in Table 4.9.

**Table 4.9 Distribution of the farmer according to their annual family income**

<b>Categories</b>	<b>Basis of categorization (‘000’ BDT)</b>	<b>Number</b>	<b>Percent</b>
Low income	Up to 163	14	13.33
Medium income	164-403	76	72.4
High income	Above 403	15	14.27
Total		105	100

Data shown in Table 4.9 presented that the highest proportion (72.4 percent) of the respondents had medium family income while 13.33 and 14.27 percent of the respondents had low and high annual family income respectively.

The gross annual family income of a farmer is an important indicator of how much the parson can invest in his farming. Generally higher income encourages one’s integrity to achieve better performance and to show own individual better status in the society.

#### **4.1.9 Organizational participation**

Organizational participation of the farmers was determined on the basis of their nature and duration of membership in different organizations. The maximum organizational participation score of the respondents was 15 and the minimum score was 0. However, the average was 4.9 and the standard deviation was 2.55. Based on their organizational participation scores, the respondents were classified into three categories as shown in Table 4.10.

**Table 4.10 Distribution of the respondents according to their organizational participation**

Categories	Basis of categorization (score)	Respondents	
		Number	Percent
Low participation	1-2	11	10.48
Medium participation	3-7	84	80.0
High participation	Above 7	10	9.52
Total		105	100

Data contained in Table 4.10 indicate that the highest proportion (80%) of the farmers had medium organizational participation while 9.52% had high organizational participation and only 10.48% had low organizational participation. The findings revealed that an overwhelming majority (90.48%) of the farmers had low to medium organizational participation in the study area. The extent of organizational participation in the study area was very poor. Probably, most of the respondents were involved only to their own occupation. That is why; their organizational participation scores were not satisfactory.

#### **4.1.10 Cosmopolitaness**

The extent of orientation of an individual external to her/his own social system is referred to as cosmopolitaness. The maximum cosmopolitaness score of the respondents was 24 and the minimum score was 3 against the possible range of 0 to 24. However, the average was 7.30 and the standard deviation was 2.40. Based on their cosmopolitaness scores, the respondents were classified into three categories as shown in Table 4.11.

**Table 4.11 Distribution of the respondents according to their cosmopolitaness.**

Categories	Basis of categorization (Score)	Respondents	
		Number	Percent
Low cosmopolite	Up to 06	19	18.1
Medium cosmopolite	07-12	69	65.7
High cosmopolite	Above 12	17	16.2
Total		105	100

Data contained in Table 4.11 indicate that the highest proportion (65.7%) of the farmers were medium cosmopolite as compared to 18.1 percent low cosmopolite and 16.2 percent high cosmopolite. The findings revealed that more than four fifth (84.4%) of the trained farmers were low to medium cosmopolite in the study area. Cosmopolitan habit of a person increases his/her knowledge about DAE regarding Agricultural advisory services and change attitude by time.

#### **4.2 Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

The scores of effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services of the respondents ranged from 9 to 23 against the possible range of 0 to 27 with an average of 18.61 and standard deviation of 2.63. Based on the observed scores of effectiveness of DAE services, the respondents were classified into the three categories i.e. less effective services, Medium effective services and High effective services. The distribution has been shown in Table 4.12.

**Table 4.12 Distribution of the farmers according to the effectiveness of DAE regarding Agricultural advisory services.**

Categories (Extent of effectiveness)	Basis of categorization (Score)	Respondents	
		Number	Percent
Less effective	Up to 16	23	7.7
Moderate effective	17-21	71	70.2
High effective	Above 21	11	22.1
Total		105	100.0

Data of Table 4.12 show that among the respondents, the highest 70.2 percent farmers belong to the group of moderate effective level and the lowest 7.7 percent in less effective level of DAE regarding Agricultural advisory services followed by high effective level practices (22.1) percent by the farmers. In the aftermath of the analysis, most of the farmers (92.3 percent) have avouched to moderate to very effective level in view of effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. These findings indicate that the effectiveness of the Department of Agricultural Extension (DAE) regarding Agricultural advisory services were moderate level in this regard.

## 4.2 The Contribution of the selected characteristics of the respondents on effectiveness of DAE regarding Agricultural advisory services

In order to estimate the capacity building of the farmer, the multiple regression analysis was used which is shown in the Table 4.13.

**Table 4.13 multiple regression coefficients of the contributing variables related to the effectiveness of DAE regarding Agricultural advisory services.**

Dependent variable	Independent Variable	$\beta$	P	$R^2$	Adj. $R^2$	F
<i>Effectiveness of DAE regarding Agricultural advisory services</i>	Age	0.050	0.569	0.553	0.505	11.63
	Level of education	0.176	0.039*			
	Family size	0.043	0.582			
	Time spent in farming	0.182	0.046*			
	Distance of home to Upazila Ag. office	-0.030	0.689			
	Experience in farming	0.043	0.675			
	Farm size	0.005	0.956			
	Annual family income	0.182	0.412			
	Organizational participation	0.265	0.000**			
	Cosmopolitaness	0.224	0.001**			

\*\* Significant at  $p < 0.01$ ;

\* Significant at  $p < 0.05$



Table 4.13 shows that level of education, organizational participation, cosmopolitanism and time spent in farming of the respondents had significant positive contribution with effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. Of these, organizational participation and cosmopolitanism were the most important contributing factors (significant at the 1% level of significant) and level of education and time spent in farming were less important contributing factors (significant at 5% level of significant). Coefficients of other selected variables don't have any contribution on effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.

The value of  $R^2$  is a measure of how of the variability in the dependent variable is accounted by the independent variables. So, the value of  $R^2 = 0.553$  means that independent variables accounts for 55% of the variation with effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. It also shows that the variation in the respondents changed the probability of use of DAE regarding Agricultural advisory services in receiving agricultural information can be attributed 55% to the respondent level of education, organizational participation, cosmopolitanism and time spent in farming.

The F ratio is 11.631 which is highly significant ( $p < 0$ ). However, each predictor may explain some of the variance in respondents of the effectiveness of Department of Agricultural extension regarding Agricultural advisory services simply by chance. The adjusted  $R^2$  value penalizes the addition of extraneous predictors in the model, but value 0.505 is still show that variance is farmers can be attributed to the predictor variables rather than by chance (Table 4.13). In summary, the models suggest that the respective authority should be considers the respondents' level of education, organizational participation, cosmopolitanism and time spent in farming on their use of DAE regarding Agricultural advisory services and in this connection some predictive importance has been discussed below :

### **4.3.1 Significant contribution of organizational participation on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

From the multiple regression, it was concluded that the contribution of organizational participation of the farmers on using effectiveness of DAE regarding Agricultural advisory services was measured by the testing the following null hypothesis;

*“There is no contribution of organizational participation of the farmers to the effectiveness of DAE regarding Agricultural advisory services”.*

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- a. The contribution of the organizational participation was significant at 1% level (0.000)
- b. So, the null hypothesis could be rejected.
- c. The direction between organizational participation of the farmers and the effectiveness of Department of Agricultural extension regarding Agricultural advisory services was positive.

The  $\beta$  -value of farmers in organizational participation was (0.265). So, it can be stated that as farmers organizational participation increased by one unit, farmers' effectiveness of DAE regarding Agricultural advisory services increased by 0.265 units. Considering the effects of all other predictors were held constant.

Based on the above findings, it can be said that farmers had more organizational participation increased the effectiveness of DAE regarding Agricultural advisory services. So, organizational participation has significantly contributed to the farmers' increased the effectiveness of DAE regarding Agricultural advisory services. Participation helped farmers to gather more knowledge on use of DAE regarding Agricultural advisory services which ultimately acted their capacity building in this sector. And so, due to organizational involvement the farmers got a change in their horizon of understanding by sharing ideas and views with other persons. Thus steps were arranged to increase farmers' participation in different organizations. Khan (2002), Paul (2000), Hossain (1991) and Hoque (1984) also found the similar result.

### **4.3.2 Significant contribution of cosmopolitanism on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

From the multiple regression, it was concluded that the contribution of cosmopolitanism of the farmers by using DAE regarding Agricultural advisory services was measured by the testing the following null hypothesis;

*“There is no contribution of cosmopolitanism of the farmers to the effectiveness of DAE regarding Agricultural advisory services”.*

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- a. The contribution of cosmopolitanism was significant at 1% level (0.001)
- b. So, the null hypothesis could be rejected.
- c. The direction between extension contact of the farmers and the effectiveness of Department of Agricultural Extension regarding Agricultural advisory services was positive.

The  $\beta$ -value of cosmopolitanism was (0.224). So, it can be stated that as cosmopolitanism increased by one unit, farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services increased by 0.224 units.

Based on the above findings, it was concluded that cosmopolitanism of farmers had significant positive contribution with the effectiveness of DAE regarding Agricultural advisory services. It meant that effectiveness of DAE regarding Agricultural advisory services were found more among those farmers who were more cosmopolite than the farmers with low cosmopolite trait. Higher level of cosmopolitanism farmers enabled to form positive attitude, gather knowledge and prompt them to adopt new practices .As such, the DAE regarding Agricultural advisory services were more effective among those farmers having more cosmopolitanism. Similar results were also found by Rahman (2015).

### **4.3.3 Contribution of education on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

The contribution of education of the farmers on effectiveness of using DAE regarding Agricultural advisory services was measured by the testing the following null hypothesis;

*“There is no contribution of education of the farmers' effectiveness of using DAE regarding Agricultural advisory services”.*

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- a. The contribution of the education was at 5% significance level(0.039)
- b. So, the null hypothesis could be rejected.
- c. The direction between education of the farmers and effectiveness of Department of Agricultural extension regarding Agricultural advisory services was positive.

The  $\beta$ -value of level education is (0.176). So, it can be stated that as education increased by one unit, farmers' effectiveness of DAE regarding Agricultural advisory services increased by 0.284 units.

Based on the above finding, it can be said that if farmer's education will increase then the farmers using effectiveness of DAE regarding Agricultural advisory services will be increased. So, education has high significantly positive contribution to the farmers' using effectiveness of DAE regarding Agricultural advisory services. Education plays an important role to gain more effectiveness using of the services. Education enhances knowledge on many aspects such as training, extension contact and so on .Thus the farmers get the chance to build capacity in different part of Agriculture. Similar results were also found by Sarker (1995), Nahar (1996) and Al amin (1997).

#### **4.3.4 Contribution of time spent in farming on the farmers' effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

From the multiple regression, it was concluded that the contribution of time spent in farming of the farmers by using DAE regarding Agricultural advisory services was measured by the testing of the following null hypothesis;

*“There is no contribution of time spent in farming of the farmers to the effectiveness of DAE regarding Agricultural advisory services”.*

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- a. The contribution of the time spent in farming was significant at 5% level (0.046)
- b. So, the null hypothesis could be rejected.
- c. The direction between times spent in farming of the farmers and effectiveness of Department of Agricultural extension regarding Agricultural advisory services was positive.

The  $\beta$ -value of farmers time spent in farming was (0.182). Therefore, it can be stated that as farmers time spent in farming increased by one unit, farmers' effectiveness of Department of Agricultural Extension (DAE) regarding Agricultural advisory services increased by 0.182 units. Considering the effects of all other predictors were held constant.

Based on the above findings, it can be said that farmers had more time spent in farming increased effectiveness of DAE regarding Agricultural advisory services. So, time spend in farming has high significantly positive contribution to the farmers' using effectiveness of DAE regarding Agricultural advisory services. This may be due to the fact that much time spent in farming is safety regarding economic region. Economically solvent farmers can use the DAE regarding Agricultural advisory services more than the insolvent one.

## CHAPTER V

### SUMMERY, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the significant empirical results of the selected characteristics of the farmers, the effectiveness of DAE regarding Agricultural advisory services and also the contributions between selected characteristics of the farmers and effectiveness of DAE regarding Agricultural advisory services. It also draws some conclusions and recommendations for policy actions as further steps in improving the existing curricula and dimensions of DAE regarding Agricultural advisory services. The chapter presents the summery of findings, conclusions and recommendations of the study. The study was conducted in Nawabganj Upazila under Dinajpur district to find out the effectiveness of DAE regarding Agricultural advisory services of the farmers. Total 525 farmers' were selected from the study area as the population and proportionate random sample techniques was used to comprised of 105 constituted the sample of the study. A well-structured interview schedule was developed based on objectives of the study for collecting information. The independent variables were: age, education, family size, time spent in farming ,distance of home to upazila agricultural office , experience in farming, farm size , annual family income, organizational participation and cosmopolitaness. Data collection was started from 9<sup>th</sup> November and completed in 9<sup>th</sup> December, 2019. Various statistical measures such as frequency counts, percentage distribution, mean and standard deviation were used in describing data. In order to estimate the contribution of the selected characteristics of the respondents to the effectiveness of DAE regarding Agricultural advisory services, multiple regression analysis was used. The major findings of the study are summarized below:

#### **5.1 Summary of Findings**

The major findings of the study are summarized below:

##### **5.1.1 Selected characteristics of the farmers**

Findings in respect of the ten selected characteristics of the farmers summarized below:

## **Age**

Age of the farmers ranged from 24 to 72 years. The average being 46.86 years with a standard deviation was 11.68. The highest proportions (44.75%) of the farmers were middle aged, while 19.5% were young and 36.2% were old.

## **Education**

The highest proportion (30.5 percent) of the respondent had secondary level of education, while 8.6 percent had primary level of education, 11.4 percent had illiterate, 20.9 percent had above secondary level of education and 28.6 percent had can sign only category.

## **Family size:**

The highest proportion (60.9 percent) of the house owners had medium family size, while 26.67 percent and 12.44 percent belonged to the small family size and large family size respectively.

## **Time spend in farming**

The highest proportion (63.8 percent) of the farmers had medium time spend in farming, while 14.2 percent had high time spend in farming and 22 percent had less time spend in farming.

## **Distance from home to Upazila agricultural office**

The observed distance from home to Upazila agricultural office of the farmers ranged from 0.25 to 10 km with the mean of 4.99 km and standard deviation 2.01. The highest proportion (76.2 percent) of the farmers had medium distance; while 20 percent had short distance and 3.8 percent farmers had long distance of home to Upazila agricultural office.

## **Experience in farming**

The observed experience scores of the farmers ranged from 4 to 45 years with the mean of 18.31 years and standard deviation 9.02. The highest proportion (80 percent) of the farmers had medium experience; while 5.7 percent had short and 14.3 percent farmers had long experience in farming.

### **Farm size**

The observed experience scores ranged from 0.02 to 0.80 hectares and the mean was 0.22 hectare. The highest proportion (61.9 percent) of the farmers had marginal farm size, while 38.1 percent had small farm size.

### **Annual family income**

Annual family income of the farmers ranged from 105 to 705 thousand Tk. with the mean of 283.7 thousand Tk. The highest proportion (72.4 percent) of the farmers had medium annual family income compared with 14.27 percent and 13.33 percent having high and low annual family income respectively.

### **Organizational participation**

The observed organizational participation scores of the farmers ranged from 0 to 15 with the mean of 4.9. The highest proportion (80.0 percent) of the farmers had medium organizational participation; while 10.48 percent had low and 9.52 percent farmers had high organizational participation.

### **Cosmopolitaness**

The observed cosmopolitaness ranged from 0 to 24 with an average 7.30 and standard deviation 2.40. The highest proportion (65.7 percent) of the respondents had medium cosmopolitaness compared to 16.2 percent having high cosmopolitaness and 18.1 percent had low cosmopolitaness.

## **5.1.2 Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services**

Effectiveness of Department of Agricultural Extension regarding Agricultural advisory services scores of the farmers ranged from 9 to 23 with an average of 18.61 and the standard deviation 2.63. The highest 70.2 percent farmers belong to the group of moderate level of effectiveness of DAE regarding Agricultural advisory services while the 7.7 percent had less effective level and the 22.1 percent had high level of effectiveness of DAE regarding Agricultural advisory services followed by the farmers.



### **5.1.3 Contribution of the selected characteristics on effectiveness of using the Department of Agricultural Extension regarding Agricultural advisory services**

Farmer's education, organizational participation, cosmopolitanism and time spent in farming had positive and significant contribution to effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.

However, characteristics of the farmers like age, family size, time spent in farming, distance from home to Upazila Ag. Office, experience in farming, farm size and annual family income of the farmers had no significant relationship with effectiveness of Department of Agricultural Extension regarding Agricultural advisory services in this study area.

## **5.2 Conclusions**

“A conclusion presents the statements based on major findings of the study and these statements mostly confirm to the objectives of the research in the shortest form. It presents the direct answers of the research objectives, or it relates to the hypothesis” (Labon and Schefter, 1990).

Results of the study and the logical interpretations of their meanings in the light of other relevant facts prompted the researcher to draw the following conclusions:

- i. Majority (70.2 percent) of the respondents had medium category effectiveness of DAE regarding Agricultural advisory services. So, there is a need to take crucial initiatives for the farmers by the Government for increasing effectiveness of DAE regarding Agricultural advisory services.
- ii. Education has a positive and significant contribution to the farmers' using effectiveness of DAE regarding Agricultural advisory services. A farmer with more education level can increase the capabilities to change of his behavior, power of observation, gain efficiency, knowledge and skill in different cognitive contents, develop positive attitudes and solve different problems about agriculture. Education plays an important role to gain more effectiveness using

of the Services. Education enhances knowledge on many aspects such as training, extension contact and so on .Thus the farmers got the chance to build capacity in different part of Agriculture. So, initiative to improve education can enhances the ability of the farmers to face the problems in Department of Agricultural Extension regarding Agricultural advisory services and reduce it at short time than any other persons.

- iii. Time spent in farming of the farmers had a positive and highly significant contribution with effectiveness of Department of Agricultural Extension regarding Agricultural advisory services. Majority (63.8 percent) of the respondents had moderate time spent in farming activities. So, much spent time in farm activities gave someone's better experiences, faster performances, and consciousness and expanded thinking quality about agricultural services. Therefore, it can be concluded that more the time spent in farming by the respondents, higher would be effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.
- iv. The results indicate that more than half (80.0 percent) of the respondents had medium organizational participation. Moreover, organizational participation was significant contributor on using DAE regarding Agricultural advisory services. Farmers had more organizational participation increased the effectiveness more in achieving Department of Agricultural Extension regarding Agricultural advisory services. Due to organizational involvement the farmers get a change in their horizon of understanding by sharing ideas and views with other persons. A farmer who involved in organization his development activities always exceptional from others. So, there is a need to take initiative to improve in organizational participation of the farmers with various organizations for increasing the use of DAE regarding Agricultural advisory services.
- v. A cosmopolite farmer is more mobile. When a farmer goes frequently to places other than his own locality, the possibility are that he comes in contact with more and many progressive farmers and gets opportunity to acquire more effectiveness

of agricultural development activities. Thus, higher level of cosmopolitanism farmers enabled to form positive attitude, gather knowledge and prompt them to adopt new practices. As such, Department of Agricultural Extension regarding Agricultural advisory services was more effective among those farmers having more cosmopolitanism. Therefore, it can be concluded that more cosmopolitanism by the respondents, higher would be the effectiveness of Department of Agricultural Extension regarding Agricultural advisory services.

### **5.3 Recommendations**

#### **5.3.1 Recommendations for policy implications**

- i. Majority of the farmers (70.2 percent) of the study area were found to have medium level of effectiveness of DAE regarding Agricultural advisory services. So, the government should be needed to take measures to influence farmers in adopting with modern services in Agricultural Extension process.
- ii. Minority (11.4 percent) of the farmers were illiterate. So, arrangement should be made to provide non-formal education to the farmers. This will help to change knowledge, skill and general abilities, attitude as well as outlook of the farmers. Ministry of Agriculture through Bureau of Non-formal Education and NGOs can take necessary steps to increase farmers primary level of education through adult education and regular farmers workshop; rally needs to be organized to broaden their knowledge on using effectiveness of DAE regarding Agricultural advisory services.
- iii. The study indicated that majority (65.7 percent) of the farmers had medium level of cosmopolitanism but only 16.2% had high level of cosmopolitanism. In order to increase cosmopolitanism of farmers, cultural activities agri-fair, new monetary facility, internet accessibility, interest on newly release innovations etc should be adopted by the farmers.
- iv. Organizational participation by the farmers had a positive and significant contribution with department of agricultural extension regarding Agricultural advisory services. Participation helps a person to perceive the program as to

whether it is good or bad. Logically he who participates functionally to the programs, he comes to know the problem, barriers, opportunities and scopes in the program implementation. So, the DAE agencies should arrange more organizations for training to utilize farm properly.

### **5.3.2 Recommendations for the future study**

The following recommendations are made for the future study:

1. A short research work has been conducted that can't provide unique and universal information related to actual impact of effectiveness of DAE regarding Agricultural advisory services and improving status of the rural farmers. Further studies should be undertaken related matters.
2. The present study conducted on the population of the farmers of two villages of Nawabganj upazila of Dinajpur district. The findings of the study need to be varied by undertaking similar research in other zones of the country.
3. The study investigated the contributions of the ten selected characteristics of the farmers with effectiveness of DAE regarding Agricultural advisory services. But farmer's use of DAE regarding Agricultural advisory services might be affected by other various personal, social, psychological, cultural and situational factors. It is, therefore, recommended that further study should be conducted involving other characteristics in this regard.
4. Effectiveness of DAE activities may be determined by using other ways and methods, which may be used in conducting future research
5. The research was conducted to find out effectiveness of DAE regarding Agricultural advisory services of the farmers. Further research should be taken related to other issues like BARI, BRRI and Androit phone etc.
6. The research was conducted to overall effectiveness of DAE that's consisted on various sub-organizations. Further research should be taken to any specific part of this organization

## REFERENCES

- Adejo, P. E., O. J. Okwuand and M. K. Ibrahim. 2012. "Challenges and Prospects of Privatization of Agricultural Extension Service Delivery in Nigeria." *Journal of Agricultural Extension and Rural Development*; 4 (3): 63–68.
- Ajayi, A. O. 2006. "An Assessment of Farmers' Willingness to Pay for Extension Services Using the Contingent Valuation Method (CVM): The Case of Oyo State, Nigeria." *Journal of Agricultural Education and Extension* 12 (2): 97–108.
- Ahmed, M., A.P. Davidson and T. Ali. 2000. Effectiveness of public and private sectors extension: Implications for Pakistani farmers. In: 16th annual conference of AIAEE held at Arlington VA, USA, 12-15 February 2001, 8891.
- Ailing-Ton, J. 2010. Addressing the Information Needs of Farmers and the Extension Services: The Malaysian Experiment. *Quarterly Bulletin of IAALD*, 36 (1&2): 36-39.
- Arifullah, M., Zahan, M.M. Rana, M. Adil and Shamsunnaher. 2013 Attitude of rural elite farmers towards extension activities performed by Upazilla Agricultural Extension personnel of DAE. *The Agriculturists*. 12(1): 96-102 (2014).
- Arokoyo, T. 2005. ICTs application in agricultural extension service delivery. In: S.F. Adedoyin (Ed.), *Agricultural Extension in Nigeria*. Ilorin, Nigeria: Agricultural Extension Society of Nigeria. pp. 245-251.
- Aluyu, A. J. 2016. Effectiveness of mobile phone supported market information dissemination in promoting agricultural marketing: the case of Amuru district of Uganda in Africa. Dissertation for Award of MSc Degree at Haramaya University, Haramaya, Ethiopia.
- Ahmed M., A.P. Davidson and T. Ali. 2000. Effectiveness of public and private sectors extension: Implications for Pakistani farmers. In: 16th annual conference of AIAEE held at Arlington VA, USA, 12-15 February 2001, 8891.

- Anwar, A.B.M.N. 1994. "A Study for Involving Rural Youth in Extension Activities in three Selected Village of Mymensingh district". An unpublished Ph.D Thesis (Ag. Ext. Ed). Bangladesh Agriculture University, Mymensingh.
- BBS (2018).Bangladesh Economic Survey, Bangladesh Bureau of Statistics. Statistics Division, Ministry of Planning, Government of the People's Republic of Bangladesh.
- Bonye, S.Z., K.B. Alfred and Jasaw. 2012. Promoting community-based extension agents as an alternative approach to formal agricultural extension service delivery in Northern Ghana. *Asian J Agric Rural Dev.*;2(1):76–95.
- Baig, M. B., F. S. Al-Subaiee and G. S. Straquadine 2009. Role of Agricultural Extension in Sustainable Rural Development in Pakistan.Pub.by Banat University of Agricultural Sciences and Veterinary Medicine, Timisoara, Romania. *Lucrari Stiintifice*, Serial I, Vol. XI (1).pp 291-308.
- Baig,M.B and F. Aldosari.2008.“Agricultural extension in asia :constrains and options for improvement”. Department of Agricultural Extension and Rural Society, College of Food and Agricultural Sciences, King Saud University, Kingdom of Saudi Arabia.
- Buyinza,J., J.Sekatuba., H.Agaba, R.Kinuthia and E.Kiptot. 2015. Analysis of Extension Systems in Uganda for Identification of Suitable Extension Approaches for Scaling-up Trees for Food Security Project in Eastern Uganda. National Forestry Resources Research Institute Kampala, Uganda. 64pp.
- Bhuiyan,M.H., M.A.M.Miah.,M.G.R.Akanda & M.A.Bashar. 2014. Agricultural Extension Education.g-Science Implementation & Publication,48 KaziNazrul Islam Avenue ,Karwan Bazar ,Dhaka-1207.
- Chizari, M., M.Karbasioun & J. R. Lindner. 1998. Obstacles facing extension agents in the development and delivery of extension educational programs for adult farmers in the province of Esfahan,Iran. *Journal of Agricultural Education*, 39(1), 4854.

- Chikaire,J.U., A.O.Ani., C.N. Atoma and A.R.Tijjani. Capacity Building: Key to Agricultural Extension Survival. *Scholars Journal of Agriculture and Veterinary Sciences*; 2(1A):13-21.
- Coutts.J., K.Roberts, F.Frost and A.Coutts.The Role of Extension in Building Capacity- What Works, and Why.2005. Available at [www.fao.org./sd/exdirect/Exan 0015.htm](http://www.fao.org./sd/exdirect/Exan 0015.htm).
- Davidson A.P., M. Ahmad and T. Ali. 2001. Dilemmas of Agricultural Extension in Pakistan: food for thought, Network Paper No. 116, Agricultural Research & Extension,ODI, London, England.
- DAE.2018.Agricultural extension manual .Ministry of agriculture, Government of people republic of Bangladesh.
- Elias, A., Nohmi, M., K.Yasunobu & A.Ishida. 2013. Effect of Agricultural Extension Program on Smallholders' Farm Productivity: Evidence from Three Peasant Associations in the Highlands of Ethiopia. *Journal of Agricultural Science*, 5(8), 163.
- Egziabher,K.G.,M.Maertensb.,J.Deckersb and H.Bauera. 2011. “Extension participation, household income and income diversification: a system equations approach”.Department of Earth Science and Environmental, KU Leuven, Belgium. Connect: [https:// www .researchgate.net/ publication/280934521](https://www.researchgate.net/publication/280934521)
- Eric,O.O. 2014.Effects of education on agricultural productivity of farmers. Kumasi, Ghana. *International Journal of Development Research* Vol. 4, Issue, 9, pp. 1951-1960.
- Evenson, R.E and G. Mwabu. 2001. The effect of agricultural extension on farm yields Kenya. *African Deve. Rev.* 13(1):1-23.
- FAO. 2005. Improving Agricultural Extension in Developing Countries. Rome. FAO.
- Gebrehiwot.K.G. 2017.The impact of agricultural extension on farmers’ technical efficiencies in Ethiopia: A stochastic production frontier approach. College of Economics and Management Sciences, University of South Africa, South Africa.

- Halim.A. and K.Yoshihiro. 2002. Agricultural Extension in Southeast Asia (Historical Review).Farming System and Environmental Studies. Bangladesh Agricultural University.Mymensingh, Bangladesh.
- Hoque, M. J., and K. Usami. 2008. “Effects of Training on Skill Development of Agricultural Extension Workers in Bangladesh: A Case Study in Four Upazilas Under Kishoreganj District.” *Journal of Social Sciences* 4 (1): 21–28. doi:10.3844/jssp.2008.21.28.
- Hasanullah, M.1989. "Performance Determinants of Extension Organization of Bangladesh".Unpublished Ph.d Thesis, Institute of Business Administration, University of Dhaka.
- Haque, M. E. 2003. Farmers’ Attitude towards Extension Activities of the Department of Agricultural Extension. M.S.(Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.
- Haq, A. Z. M. 2011. Effect of extension contact on rice productivity in some selected sites of Gazipur District. *Bangladesh J. of Agric. Res.* 36 (4):723-732.
- Haq,A.Z.M. 2013.“The impact of extension contact on crop income in Bangladesh”.*Bangladesh J. Agril. Res.* 38(2): 321-334.
- Haq, A. Z. M., A. Ishida., S.Yokoyama and K.Taniguchi. 2003. Outcomes and issues of agricultural extension services in Bangladesh. *J. of Agric. Ext. Res.* 8(17): 17-22.
- Islam,M.S., M.Islam, M. Abdullah and R.Yesmin. 2014. Rural women’s awareness on agricultural extension services. *Journal of Agriculture and Veterinary Science*.Volume 7, Issue 9 Ver. II (Sep. 2014), PP 54-58.
- Islam, M.R. 1998. Effectiveness of Mati-0-Manush TV Programme in Dissemination Agricultural Information to the Television Viewer Farmers. M.S. (Ag.Ext.Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.



- Javadi, E., Sheybani, H. and Soleimanpour, M. R. 2015. Factors affecting extension education media effectiveness in agriculture information transmission to farmers in Tehran province. *Journal of Scientific Research and Development* 2 (2):211 – 215.
- Jayarathne, K.S.U. 2001. Agricultural extension educators' perceptions regarding the teaching and learning processes as related to sustainable agriculture: Implications for agricultural extension education. Iowa State University .Ames, Iowa ,USA.
- Kashem, M. A. 1992. “Appropriate Extension Strategies for Developing Countries: The Case of Bangladesh.” In *Extension Strategy for Agricultural Development in 21st Century*, edited by R. K. Samanta, 28–50. New Delhi: Mittal.
- Karbasioun, M., H.Biemans & M.Mulder. 2000. “Supporting Role of the Agricultural Extension Services and Implications for Agricultural Extension Instructors as Perceived by Farmers in Esfahan, Iran”, *Education and Competence Studies*, Wageningen University , Netherlands.
- Karbasioun, M., H.Biemans and M.Mulder. 2007. Supporting role of the Agricultural Extension Services and implications for agricultural extension instructors as perceived by farmers in Esfahan, Iran. *Journal of International Agricultural and Extension Education*;14(1):31-44
- Kimaro, W. H., L.Mukandiwa and E.Z.J Mario. 1998. Towards Improving Agricultural Extension Service Delivery in the SADC Region. *Proceedings of the Workshop on Information Sharing Among Extension Players in the SADC Region*, Dar es Salaam, Tanzania. pp. 114 – 121.
- Khan, R.A. 2006. Effectiveness of Group Approach in Disseminating Farm Information to the Farmers. M.S. Thesis, Department of Agricultural Extension and Rural Development, BSMRAU, Gazipur.
- Khan, A., U. Pervaiz, , N. M Khan., S.Ahmad and S.Nigar. 2009. Effectiveness of demonstration plots as extension method adopted by AKRSP for agricultural technology dissemination in Chitral District. Sarhad. *Journal of Agriculture* 25(2): 313 – 319.

- Ladedo, O.J., Kassal, B.I. and Banjioko, O.C. 1997. Effect of Radio Farm Broadcasts on Farmers Knowledge of Improved Farm Practices. *Journal of Extension Systems*. 13(1&2): 121-127.
- Lee, Y., D. Anand and T. Kim. 2003. The Effects of Agricultural Extension Service on Farm Productivity: Evidence from Mbale District in Uganda. Department of Agricultural Economics and Rural Development, College of Agriculture and Life Sciences, Seoul National University, Seoul, Republic of Korea.
- L. Blum, M. 2007. "Trends and Challenges in Agricultural Extension –Policies and Strategies for Reform". FAO. Also available at <http://www.fao.org/nr/res/wshops/docs/presentation2.pdf> installation International, p.9.
- Meagy, M. J. H. 2001. Effectiveness of Farmer Information Needs Assessment (FINA) as Perceived by the Farmers. M.S. (Ag.Ext.Ed.) Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.
- Malek-Mohammadi, E. 1989. Extension system in agricultural development in Iran from the view point of extension experts. *Iranian Journal of Agricultural Sciences*, 20(1), 27-38.
- Mishra, S and B. Swanson. 2009. Extension's role in organizing producer groups: A case study from Orissa, India. San Juan, Puerto Rico: Association of Agricultural and Extension Education.
- Mowaad, M. 1992. Effectiveness of some Aids in Extension Work at a village in Egypt. Unpublished PhD Thesis. Faculty of Agriculture. Ain-Shams University, Cairo, Egypt.
- Nitsch, P. 1982 'Farmers' Perception of and Preferences Concerning Agricultural Extension programmes'. Uppsala: Swedish University of Agricultural sciences.
- Okunade, E.O., and L. Akintola. 2007. Effectiveness of extension teaching methods in acquiring knowledge, skill and attitude by women farmers in Osunstate. *J. App.Sci. Res.* 3(4):64-76.

- Okunade, E. O. 2007. Effectiveness of extension teaching methods in acquiring knowledge, skill and attitude by women farmers in Osun State. *Journal of Applied Sciences Research*. Vol.3(4): 282 – 286.
- Oyegbami, A. 2018. Location and distance covered by farmers to agricultural extension service among farmers in Oyo state. *S. Afr. J. Agric. Extension*. Vol. 46, No. 2: 14 – 23.
- Paul, R, K. 1989. Effectiveness of Result Demonstration as an Extension Teaching Methods. M.S (Ag. Ext. Ed.). Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.
- Pudasaini, S. P. 1983. The Effects of Education in Agriculture: Evidence from Nepal. *American Journal of Agricultural Economics* , 65 (3), 509-515.
- Kalim, Q. 1999. Effective information for Technology Transfer, Agricultural Research and Extension Interface in Asia, Asian Productivity Organization, Tokyo.
- Rahman, M. 2013. National Agricultural Extension Systems in SAARC Countries- an Analysis of the System Diversity Bangladesh. Accessed October 10.
- Reynar, R and T. Bruening. 1996. Agricultural extension issues: perception of Bangladesh T&V extension personnel. *J. of Int. Agric. & Ext.* 3(1):53-62.
- Ssemakula, E. and K.J. Mutimba. 2011. Effectiveness of the farmer-to-farmer extension model in increasing technology uptake Mbarara, Uganda. *South African Journal of Agricultural Extension* 40(3): 339 – 365.
- Sarker, M.M.R. 2004. Effectiveness of Agricultural Information Disseminated to Farmers Through Agricultural Radio Programme. M.S. Thesis (Ag. Ext. Ed.), BAU, Mymensingh.
- Somda, S. 2006. Extension Education in Community Development, Ministry Of Food and Agriculture, Food and Agriculture Organisation.
- Samanta, R.K. 1986. Effective Agricultural Communication Strategy. Need for Efficient Transfer of Technology. *Bangladesh Journal of Extension Education*, I (2): 91-100.

- Tegha, Y. C. Z. 2014. Effectiveness of field days on promoting the adoption of the recommended improved maize varieties by small holder farmers in Lilongwe District, Malawi. Dissertation for award of MSc degree at Purdue University .
- Gboku.M.L.S and A. A. Jibowu. 1998. Evaluate the effectiveness of the extension programme of Njala University College. *Journal of Rural Development*: 111 - 128
- Tripathy, S.L. and L.R. Panday. 1967. Comparative Effectiveness of the Extension Teaching Methods in a C.D. Block. *Indian Journal of Extension Education*, 16(1&2): 47-49.
- Uddin,M.E and Q.Gao.2013.“Prospects and Challenges of Privatization of Agricultural Extension Service in Bangladesh.” *Asian Journal of Agriculture and Rural Development*; 3 (7): 477
- Uddin,M.E., Q.Gao and M.Rashid. 2014.“Crop Farmers’ Willingness to Pay for Agricultural Extension Services in Bangladesh: Cases of Selected Villages in Two Important Agro-ecological Zones”, *The Journal of Agricultural Education Extension*, DOI: 10.1080/1389224X.2014.971826.
- Uddin, M.N. 2008. Agricultural Extension Services in Bangladesh: A Review Study. *Bulletin of Institute of Vocational and Technical Education*. Accessed 18 December 2017, Retrieved from:<http://ir.nul.nagoyau.ac.jp/jspui/bitstream/2237/12150/1/p119130.pdf>.
- Van den Ban, A. W. 1996. Agricultural development: Opportunities and threats for farmers and implications for extension organizations. *Journal of Agricultural Education and Extension*, 6(3), 145-146.
- Hunt.W.,C.Birch and B.William. 2014. Agricultural extension: Building capacity and resilience in rural industries and communities.*Rural society*:Volume 20, Issue 2.
- Yaseen .M., S Hasan., M.Amin. and S.Abbas. 2015. Role of Capacity Building and Training for Sustainable Livelihood of Farming Community in Pakistan. *European academic research*. Vol. III, Issue 3.

## Appendix – A

(English version of the interview schedule)

### Department of Agricultural Extension and Information System

### Sher-e-Bangla Agricultural University, Dhaka-1207

Interview schedule

On

#### EFFECTIVENESS OF DEPARTMENT OF AGRICULTURAL EXTENSION (DAE) REGARDING AGRICULTURAL ADVISORY SERVICES

Sample number :.....

Name of the respondent :.....

Father's Name : .....

Mobile No : .....

Village : Upazila :

Union : District :

#### (Please answer the following questions)

##### 1. Age

What is your present Age? ----- Years.

##### 2. Education

What is the level of your education?

a) Can't read and write: -----

b) Can sign only: -----

c) I read up to class: -----

d) I passed ----- class

### 3. Family size

Please mention the number of your family members in the following groups:

a) Male member .....Person(s)

b) Female member .....person(s)

c) Total member .....Person(s)

### 4. Time Spent in Farming

How many hours do you spent in farming?

Ans:..... hours/week

### 5.What is the distance between your home and Upazila Agricultural office?

Ans:..... km

### 6.Experience in farming:

How long have you engaged with farming?

Ans.....years

### 7. Farm size

Please indicate the land area

SL. No.	Nature of the land	Amount of land	
		Local unit	Hectare
1.	Homestead area		
2.	Own cultivable land		
3.	Land taken from others on lease		
4.	Land given to others on barga system		
5.	Land taken from others on barga system		
	Total land		

## 8. Annual family income

Please mention the total income of your family last year

SL. No.	Sources of income	Income (TK)
<b>A</b>	<b>Agriculture</b>	
1.	Rice	
2.	Jute	
3.	Wheat	
4.	Pulse	
5.	Vegetables	
6.	Poultry & Livestock	
7.	Fisheries	
<b>B</b>	<b>Business</b>	
<b>C</b>	<b>Service</b>	
<b>D</b>	<b>Labor</b>	
<b>E</b>	<b>Others</b>	
Total annual income = A + B + C + D + E = .....		

### 9. Organizational Participation:

Please mention your nature of involvement with the following organizations:

Sl. No	Name of organization	Nature of involvement			
		No involvement(0)	Ordinary member(1)	Executive member(2)	President (3)
1.	Farmers co-operative society				
2.	NGOs				
3.	Village development Samity				
4.	School/Collage committee				
5.	Mosque/ Mondir Committee				



## 10. Cosmopolitaness

Please indicate how frequently you visit the following places within a specific period.

SL. No	Places of visit	Degree of Visit			
		Regularly (3)	Occasionally (2)	Rarely (1)	Not at All (0)
1.	Local Market	7 or more times/month	3-6 times/month	1-2 times/month	No Visit
2.	Visit to other union	6 or more Times/month	4-5 times/month	1-3times/month	No Visit
3.	Visit to own thana headquarter	6 or more Times/month	4-5 times/month	1-3times/month	No Visit
4.	Visit to other Thana headquarter	4 or more Times/year	3-4 times/year	once/year	No Visit
5.	Visit to own district/head quarter	4 or more Times/year	3-4 times/year	once/year	No Visit
6.	Visit to other District town/headquarter	5 or more Times/year	2-3times/year	once/year	No Visit
7.	Visit to Capital City or other Metropolitan City	3or more Times/year	2-3times/year	once/year	No Visit

### 11. Effectiveness of DAE regarding Agricultural advisory services

Please mention the effectiveness of DAE regarding Agricultural advisory services with the following statements

Advisory services		Extent of effectiveness			
		Highly effective (3)	Moderate Effective(2)	Low Effective(1)	Not effective (0)
1	Motivation for the farmers regarding the use of modern technologies				
2	Training of farmers				
3	Method & result demonstration				
4	Taking action by farm and home visit timely				
5	Provide technical, advisory and input support				
6	Monitoring supply and inspection of seed, fertilizer and pesticides				
7	Technology transfer by field day & various fair				
8	Solution of various problems regarding crop production				
9.	Serve e-krisi & prescription				

Thanks for your co-operation

.....

Signature of the interviewer