

**AGRICULTURAL PROBLEM CONFRONTATION BY
CHARLAND FARMERS OF JAMUNA RIVER**

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Thesis Submitted in Partial Fulfillment of the Requirement for the Degree

Of

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IN

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**DEPARTMENT OF AGRICULTURAL EXTENSION AND
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**SHER-E-BANGLA AGRICULTURAL UNIVERSITY
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June, 2008

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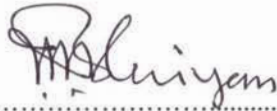
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A Thesis
*Submitted to the Faculty of Agriculture,
Sher-e-Bangla Agricultural University, Dhaka,
in partial fulfillment of the requirements
for the degree of*

**MASTER OF SCIENCE
IN
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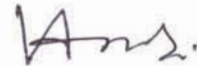
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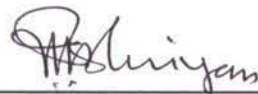
SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA-1207

CERTIFICATE

This is to certify that the thesis entitled, “**Agricultural Problem Confrontation By Charland Farmers of Jamuna River**” submitted to the Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE in Agricultural Extension**, embodies the result of a piece of bonafide research work carried out by **Md. Sadiqur Rahman**, Registration No. **00984** 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 availed of during the course of this investigation has duly been acknowledged.



(**Prof. Mohammad Hossain Bhuiyan**)

Supervisor

Dated:

Place: Dhaka, Bangladesh

Dedicated to
My Beloved Parents

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All praises to Almighty Allah who enabled me to complete the research work as well as to submit the thesis for the degree of Master of Science (M.S.) in Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh.

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ABSTRACT

The main focus of the present study was to identify the agricultural problem confrontation by the charland farmers of Jamuna River and to explore the relationship between the selected characteristics with their problem confrontation and other related matters in charland. The study was conducted in purposively selected village Malipara of Pugal diga union under sharishabari upazilla of Jamalpur didtrict. The population of the study included 504 farm family heads. Data were collected personally by the researcher himself from the sample by using interview schedule during the period from March 2 and completed on March 25. Problem confrontation of the farmers in charland was the main focus of this study. In this study, problem confrontation on agricultural activities referred to extent of problem confrontation faced by the farmers in eleven selected aspects. In this study flooding, academic opportunity and market facilities are big problem Problem index (PI) was developed to measure the dependent variable. Problem indices (PI) of farmer on 11 items in agricultural problem confrontation ranged from 96 to 278 against a possible range of 0 to 300. PI of 3 problems exceeded 200 and 3 problems were having PI over 150. However, the top three problems were: i) Flood problem (278) ii) Lack of market facilities (for sales, surplus products, and purchase) (274). iii) Lack of academic opportunities (School/Collage). There were also other three problems with PI over 150. The lowest score was 96 in rank order. Highest proportion (64 percent) of the farmers had medium overall problem confrontation in char land while 24 percent having high problem and 12 percent low problem confrontation the mean and standard deviation were 18.45 and 3.26 respectively.. Correlation analysis indicated that education, farm size, annual income, agricultural knowledge, extension contact, innovativeness of the farmers showed significantly negative relationship with the farmers' problem confrontation. On the other hand age, agricultural experience, organizational participation did not show any significant relationship with their problem confrontation in char land.



CHAPTER I
INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 General Background of the study

Bangladesh is an agricultural country with 146 million population in an area of 1,47,570 sq. kilometers. About 80 percent of her population live, directly or indirectly on agriculture that accounts for 21.91 percent of GDP (BBS-2005). So, agriculture plays a vital role in employment, poverty alleviation, food security, standard of living and increase of earning. Many people of the country live in charlands engaged in various agricultural activities such as crop cultivation, fishing, cattle rearing, tree plantation etc. Chars in Bangladesh have been divided into five sub-areas: the Jamuna, the Ganges, the Padma, the Upper Meghna and the Lower Meghna rivers. There are other areas of riverine chars in Bangladesh, along the Old Brahmaputra and the Tista rivers. But compared to the chars in the major rivers, these constitute much less land area. It is estimated that in 1993 the total area covered by chars in Bangladesh was 1,722 sq km. Jamuna contained a total of 56 large chars, each longer than 3.5 km. There were an additional number of 226 small chars, varying in length between 0.35 and 3.5 km.

The total population in the chars during 1993 works out to be about 631,000. The majority of these people (65%) live in the Jamuna chars. The char population in 1993 represents a 47% increase over the population in 1984. The national population growth over the same period is estimated to be 26%. Thus char provides land for human habitation in Bangladesh. The socio-economic conditions of people living in chars vary widely between rivers and sometimes even between the upper, middle and lower reaches of the same river. The life of the char people is closely related to variations in the dynamics of river and char formation as well as the associated erosion and flood hazards.

Cultivation and settlement of all the rivers, the Jamuna has by far the highest land area under chars. In 1992, the total area of char in the Jamuna was about 100,000 ha, compared to 75,000 ha all other rivers together. Also, in terms of percentage of total

within-bank area covered by chars, the Jamuna has a higher figure than the other rivers. Thus, while this figure works out to be 45% for the Jamuna, the corresponding figures for the Ganges and the Padma are 30% and 20% respectively. The soil and water conditions in the chars of all river stretches except for the northern part of the Jamuna offer opportunities of settlement as well as agricultural activities.

In the upper reach of the Jamuna, newly accreted soils consist mainly of coarse sand and are less suitable for agricultural activities. Where soil and water conditions are favorable, cultivation and settlement development are constrained by the instability of chars and flood hazards. There are few stable chars in the Jamuna, Ganges and Padma rivers.

The char area in Jamalpur districts constitute vast area which has been utterly neglected in development activities. People of this area remain under water for about 4 months from July to October and disconnected from the main land. Farmers growing crops once a year have little avenues for incomes and comparing to people of other places in Bangladesh and hence their poverty and unemployment is very acute. Farmers of char areas are burdened with double poverty: their own poverty because of unemployment and the poverty of their whole family. They face many kinds of problems such as food, shelter, medicine, illiteracy, lack of training, appropriate guidance, poverty and frustration. This situation is being aggravated day by day due to over population, landless, unemployment, limited use of technology in agricultural production, natural calamities and political turmoil are always acting against achieving any substantial break through in production and overall development of people.

Problem confrontation of the farmers may vary from one farmer to another to the influence of various factors. Behavior of an individual is greatly influenced by his characteristics. It is, therefore, likely that the agricultural problem confrontation of the farmers might be influenced by their personal, economic, social and psychological characteristics. An understanding of the agricultural problem confrontation of the farmers and its relationship with their various characteristics will be greatly helpful for

planning and execution of programmes. But little efforts has been made to undertake systematic investigation in this respect. These facts indicate the need for conducting a research study on the agricultural problem confrontation of the farmers.

1.2 Statement of the Problem

In the view of the foregoing discussion the researcher undertook a research problem entitled "Agricultural problem confrontation by char land farmers of Jamuna river". In a Selected Villages of sarishabari Upazila in Jamalpur District. The purpose of this study was to have an understanding of the problems faced by the farmers in respect of char land. Each year a large percentage of the chars get flooded. The flooding, if it comes early, can damage the crops in the fields. These large amount of char has various agricultural problem. The study investigated the problem confrontation of farmers in selected aspect namely agricultural problem confrontation.

The study also explored relationship of the selected characteristics of the farmers with their problem confrontation for a clearer insight.

In view of the above background and facts, the present study was undertaken with the title the study aimed at providing information regarding the following queries:

- i. What are the problems being faced by the farmers in char land ?
- ii. What are the farmers' characteristics (personal, social, economic and psychological) that directly related to their problem confrontation?
- iii. Is their any relationship between extent of problem confrontation and selected characteristics of charland farmers?

1.3 Specific Objectives of the Study

In view of the problem as stated above, the following specific objectives were formulated for giving proper direction to the study :

1. To determine the extent of agricultural problem confrontation by charland farmers of Jamuna river.

2. To describe some selected characteristics of the charland farmers of Jamuna river, the selected characteristics were as follows:
 - a. Personal characteristics
 - i) Age
 - ii) Education
 - iii) Agricultural Knowledge
 - iv) Experience in Agricultural practice
 - b. Economic- characteristics
 - i) Farm size
 - ii) Family annual income
 - c. Social- characteristics
 - i) Organizational Participation
 - ii) Extension Contact
 - iii) Innovativeness
3. To explore the relationship between selected characteristics of the charland farmers and their agricultural problem confrontation.
4. To compare the severity among the agricultural problems.

1.4 Scope and Limitations of the Study

In order to conduct the research in a meaningful and manageable way considering the time, money and other necessary resources available to the researcher, became necessary to impose certain limitations stated below:

1. The study was confined to village namely Malipara of Pugaldiga union under Sarisabari upazila of Jamalpur district.
2. There were many farmers in the study area, but only the farmers who were involved in agriculture practice were considered for this study.
3. Characteristics of the farmers were many and varied but only nine characteristics were selected for investigation in this study.
4. There are many problems which may arise in agricultural activities. But, only some selected problems have been taken into consideration.

5. During data collection the researcher had to depend on data furnished by the respondents. As none of the farmers kept records of their farming activities, they furnished information to the different questions by recall.
6. Conceptually, problems of the farmers were determined from their statements.
7. Problems of the farmer could be measured in various ways. However in this study these were measured by using four and five point rating scale.
8. The present study highlights a new dimension of research in the field of agricultural extension in Bangladesh and so the researcher could not provide sufficient evidence in equipping his study report with relevant literature reviews.

1.5 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 researcher had the following assumptions in mind while undertaking this study.

- i. The respondents selected for the study were capable to provide proper responses to the questions included in the instrument.
- ii. The responses furnished by the respondents were reliable. They expressed the truth about their convictions and awareness.
- iii. Views and opinions furnished by the respondents included in the sample were the representative views and opinions of the whole population of the study area.
- iv. The researcher who acted as interviewer was well adjusted to the social and cultural environment of the study area. Hence the respondents furnished their correct opinions without hesitation.
- v. The environmental conditions of the farmers were deemed more or less similar throughout the study area.
- vi. The nature of problems gave a representative feature in the context of the other rural areas of Bangladesh.

1.6 Definition of important terms

Age: It refers to the time from the date of birth to the date of interview conducted of respondent of Jamuna charland..

Education: It refers to the grade passed by the farmers from formal educational institutions.

Farm size: A farmsize of a respondent of Jamuna charland refers to the total land area on which he/she carried farming operations, the area being estimated in terms of full benefit to him.

Block: It refers to a unit area for extension work at Upazila level constituting of around 1000 farm families where a Block Supervisor, the front line extension worker of the department of Agricultural Extension (DAE), is appointed for the development of all kinds crops and dissemination related technology.

Char: Char is a tract of land surrounded by the waters of an ocean, sea, lake, or stream; it usually means, any accretion in a river course or estuary. It includes all types of bars including both lateral (point-bars) and medial (braid-bars). In this research work char means charland of Jamuna river.

Family income: It refers to the gross income in taka gained annually from crop, livestock, fisheries and various sources (service, landed property, business etc.) by the farmer or his parents and other members of the respondent.

Agricultural activities: It refers to the extent of involvement, in the production of crop, vegetables, fruits, livestock, fisheries and forestry in his own farm.

Agricultural knowledge: It refers to the extent of understanding of a respondent of charland farmer about different facts, information, causes and effects related to crop, livestock and fisheries,

Participation: It refers to undertaking crop cultivation activities of the farmer for his livelihood or as a duty of the family task.

Organizational participation: It refers to taking part in a formal/informal organization by a farmer in and around his village/Upazila either as an ordinary or executive member or an office bearer of the executive committee.

Extension contact: It refers to a respondent farmer's contact with different information sources and extension personnel on the technologies.

Extension agencies: Extension agencies are those government and semi-government organizations which largely undertake crop, livestock, fishery and development programmes using non-formal educational approach such as the Department of Agricultural Extension (DAE), Directorate of Fisheries (DOF), Directorate of Livestock Services (DLS), etc. autonomous agencies, Bangladesh Agricultural Development Corporation (BADC), Bangladesh Rural Development Board (BRDB) and others.

Innovativeness: It refers to the degree to which a respondent was relatively earlier to accept agricultural innovations, new ideas, practices and things than other members of his social system.

Training: It refers to the activities of improving the knowledge, skills and attitudes of farmers for doing a specific job.

Cropping experience: It refers to the extent of practice and understanding of the farmer about cultivation of different crops including the use of technologies.

Agricultural problem confrontation: It refers to the problem faced by the farmers at the time of operating crop, livestock and fisheries cultivation.



CHAPTER II
REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to review the past studies and opinions of experts and social scientists having relevance to this investigation based on the major objectives of the study. The researcher, therefore, made exhaustive effort to review the previous research works directly or indirectly related to the present study by different researcher in home and abroad. Literatures reviewed have presented below into two sections. In the first section, deals with the agricultural problem confrontation by charland farmers of Jamuna river. The second section contained literatures concerning relationship of the selected characteristics of the charland farmers and their problem confrontation.

2.1 Studies related to agricultural problem confrontation

This subsection deals with studies and references relating to crop, livestock and fisheries problem confrontation by charland farmers.

Ismail (2001) conducted a study on farm youth of haor area of Mohangonj upazila.

The findings of the study revealed that there were six top problems in rank order were (i) no arrangement of loan for the farm youth for fishery cultivation, (ii) lack of government programmes in agriculture for the farm youth, (iii) absence of loan giving agencies for establishing farm in locality, (iv) general people face problem for fishery due to government leasing of Jalmohal, (v) lack of government programmes for establishing poultry farm, (vi) lack of agricultural loan for the farm youth.

Pramanik (2001) studied extensively on the twenty-four problems of farm youth in Mymensingh villages relating to different problems in crop cultivation. Out of twenty-four problems the top four problems in rank order were: (i) local NGOs take high rate of interest against a loan, (ii) lack of agricultural machinery and tools, (iii) lack of cash and (iv) financial inability to arrange improved seeds, fertilizers and irrigation.

Kher and Halyal (1988) administered a research work to identify the constraints in adoption of sugarcane production technology. The most important constraints identified regarding the adoption of improved sugarcane production technology were an irregular and insufficient electricity supply, small size of holding for green manuring, intercrops not convenient due to weeds, high cost of farm fuel, scarce irrigation facilities, absence of location specific recommendations for earthing up, lack of drought resistant varieties and lack of technical knowledge about plant protection and chemical fertilizers.

Ramachandran and Sripal (1990) identified different constraints in adoption of dry land technology for rainfed cotton in Kamaraj district, Tamilnadu, India. They found that farmers' faced constraints were insufficient rainfall, susceptibility of pest and diseases, lack of experience, presence of modern plants, chemicals not available in time, lack of knowledge and non-availability, insufficient livestock, risk due to failure of monsoon, high cost etc.

Chander *et al.* (1990) in their study identified constraints in potato cultivation. Main constraints were ignorance about improved cultivars and cultivation practices, ignorance about time and number of irrigation, ignorance about scientific method of sowing, lack of guidance of marketing of potato, high cost of improved cultivars, high cost of fertilizers, pesticides and irrigation, lack of enough space for storing potatoes scientifically and so on.

Gumisiriza *et al.* (1994) showed several constraints (traditional farming practices, unavailability or lack of improved cultivars, information and technology transfer, rusts (*Puccinia* spp.) and foliar diseases (*Septoria* and *Helminthosporium* spp.), ineffective communication between research stations) and research priorities in Uganda.

Zinyama (1988) conducted a relative observation to find out the farmers' perceptions of the constraints against increased crop production in the subsistence communal farming sector of Zimbabwe. Five of the most frequently cited constraints were: (i)

lack of money with which to purchase seasonal agricultural inputs, particularly fertilizers, (ii) lack of farming implements, notably the ox-driven single furrow plough, (iii) lack of draught cattle and (iv) inadequate arable land, and (v) inadequate family labour for agricultural work.

2.2 Studies on the Relationship between the Selected Characteristics of the Charland Farmers and Their Problem Confrontation

2.2.1 Age and problem Confrontation

Bhuiyan (2002) in his study found a positive and significant relationship between age of the farmers and their constraint in banana cultivation. Similar findings were obtained by Haque (1995) and Rahman (1996) in their respective study.

Rashid (2003) found that age of the rural youth had significant negative relationship with problem confrontation in selected agricultural production activities.

Hossain (1985) in a study on landless labourers in Bhabakhali union of Mymensingh district found that there was no relationship between age of the landless labourers and their problem confrontation. Similar findings were obtained by Rahman (1995), Ali (1999), Rashid (1999), Pramanik (2001), Ahmed (2002), Hossain (2002), Salam (2002) and Halim (2003) in their respective studies.

Mansur (1989) found that age of the farmers had no significant relationship with the feeds and feeding problem confrontation.

Thus it could be concluded that an overwhelming majority of the researchers did not found any relationship between two variables.

2.2.2 Education and problem confrontation

Hasan (2005) in his study found that there was no relationship between education of the farmers and their problem confrontation in crop production activities.

Haque (2001) found a significant negative relationship between education and problem confrontation of the FFS farmers in practicing IPM.

Karmakar (2004) and Alam (2003) found similar results in their respective studies.

Haque (1995) in his study on problem confrontation by farmers of Mohila Bittahen Samabaya Samittee working under the Bangladesh Rural Development Board found a significant negative relationship between education of members and their problem confrontation. Similar findings were obtained by Mansur (1989).

Rahman (1995), Rahman (1996), Faroque (1997), Pramanik (2001), Ahmed (2002), Hossain (2002), Bhuyian (2002) and Salam (2003) in their respective studies.

2.2.3 Farm size and problem confrontation

Hasan (2005) in his study found that there was no relationship between farm size of the farmers and their problem confrontation in crop production activities.

Uddin (2004) found that farm size of the farmers was negatively related with their constraints. Alam (2003) found similar result in his study.

Karmakar (2004) observed statistically insignificant relationship between farm size and their constraints in adopting aquaculture technologies.

Rashid (2003) found that farm size of the rural youth had no relationship with problem confrontation in selected agricultural production activities.

Hoque (2001) revealed that significant positive relationship between farm size and problem confrontation of the FFS farmers in practicing IPM.

Bhuyian (2002) and Salam (2003) found similar result in their respective studies.

Rahman (1995) found that farm size of the farmer's had a significant negative relationship with their problem confrontation in cotton cultivation. Similar findings were obtained by Islam (1987), Mansur (1989), Rahman (1996), Faroque (1997), Ismail (2001), Ahmed (2002) and Halim (2003) in their respective studies.

Hossain (1985) found that barga farm size of the landless labourers, had a significant relationship with their problem confrontation. Problem confrontation was higher in barga farming than no barga farming category.

2.2.4 Family Annual income and problem confrontation

Mansur (1989) in his study found that the relationship between income of the farmers and their problem confrontation in feeds and feeding cattle was significant but showed a negative trend.

Rahman (1995) found in his study that annual family income of the farmers had a significant negative effect on their problem confrontation in pineapple cultivation.

Karim (1996) found in his study that annual family income of the farmers had a significant negative effect on their problem confrontation in kakrol cultivation.

Hoque (2001) found in his study that annual family income of FFS farmers had a positive significant effect on their problem confrontation.

Saha (1983) found in his study a negative relationship between income of the farmers and their poultry problem confrontation.

2.2.5 Agricultural knowledge and problem confrontation

Raha (1983) in a study on poultry problem confrontation reported that the relationship between poultry knowledge and poultry problem confrontation was negative. He reported from his study that farmer's knowledge in irrigation of modern boro rice had no significant relationship with their irrigation problem confrontation. Anwar (1994), Karim (1996), Ali (1999), Rashid (1998), Ismail (2001), Salam (2003), and Rashid (2003) found similar findings in their respective studies.

Mansur (1989) found in his study that there was a substantial significant negative relationship between knowledge in feeds and feeding cattles of the farmer and their problem confrontation in feeds and feeding. Similar findings were obtained by Sarker (1983), Rahman (1996), Hoque (2001), Hossain (2002) and Ahmed (2002) in their respective studies.

The study of Ali (1999) revealed that knowledge of the rural youth had significant positive relationship with their anticipated problem confrontation in self employment by undertaking selected income generating activities.

2.2.6 Agricultural experience and problem confrontation

The researcher could not find any literature involving relationship between agricultural experience and problem confrontation of the farmers.

2.2.7 Organizational participation and problem confrontation:

Hasan (2005) in his study found that there was no relationship between organizational participation of the farmers and their problem confrontation in crop production activities.

Between the organization participation and their problem faced in kakrol cultivation.

Mahoboob (1966) undertook a study on the personality characteristics of county extension personnel in Wisconsin. Based on finding of he study concluded that participation in society is desirable for extension worker as it developed leadership qualities. The conclusion suggested that social participation of individuals may lessen their problem confrontation and thus enhance their performance.

Rashid (1975) concluded in his study that organization participation of the farmers had no significant relationship with their agricultural problem confrontation.

Ali (1978), Saha (1983), Sarker (1983) and Mansur (1989) found in their studies that organization participation of the farmers had a significant negative relationship with

the agricultural problem confrontation. On the other hand Islam (1987) and Raha (1989) found no significant relationship with their agricultural problem confrontation.

2.2.8 Extension contact and problem confrontation

Hasan (2005) in his study found that there was no relationship between Extension contact of the farmers and their problem confrontation in crop production activities.

Ali (1984) found that contact and non-contact farmers differed significantly in respect of their extension contact. He observed that extension contact of the contact and non-contact farmers had significant contribution towards their agricultural knowledge.

Rahman (1995) in his study conducted that extension contact of the farmer had significant negative relationship with their problem confrontation in cotton cultivation. Similar findings were obtained by Rahman (1996), Faroque (1997), Pramanik (2001), Hossain (2002), Bhuyan (2002), Ahmed (2002), Salam (2003) and Halim (2003) their respective studies.

The study of Ismail (2001) revealed that there was no significant relationship between farm youths' extension contact and their agricultural problem confrontation. Similar findings were obtained by Raha (1989) and Hoque (2001) in their respective studies

2.2.9 Innovativeness and their problem confrontation

Rahman (1995) in his study found that innovativeness of the farmers had no significant relationship with their problem confrontation in cotton cultivation. Similar findings were obtained by Rashid (1999) in their respective studies.

Salam (2003) in his study found that innovativeness of the farmers had significant negative relationship with their problem confrontation in adopting environmentally friendly farming practices.

Mansur (1989) showed that innovativeness of the farmers had a significant negative relationship with their problem confrontation in feeds and feeding cattle. Similar

findings were obtained by Ali (1978), Saha (1983), Sarker (1983), Ismail (2001), Pramanik (2001), Hossain (2002) and Halim (2003) in their respective studies.

2.3 Conceptual framework of the study

It is evident from the past studies that every occurrence or phenomenon is the outcome of a number of variables, which may or may not be interdependent or interrelated with each other. In other words, no single variable can contribute wholly to a phenomenon. Variables together are the cause effect and thus, there is cause-effect relationship every where in the universe.

The conceptual framework of Rosenberg and Hovland (1960) was kept in mind while framing the structural arrangement for the dependent and independent variables. This study was concerned with the agricultural problem confrontation of the char land farmers. Thus the problem confrontation was the main focus of the study and constituted the dependent variable. The characteristics of the farmers were considered as the independent variables. It is not possible to deal with all characteristics in a single study. It was therefore, necessary to limit the characteristics, which include age, education, farm size, family annual income, agricultural knowledge, organizational participation, extension contact, innovativeness. Based on this discussion and review of literature the conceptual model of this study has been formulated and shown in the Figure 2.1.

Independent Variables

(Farmers Characteristics)

- Age
- Education
- Farm size
- Family annual income
- Agricultural knowledge
- Experience in agricultural practice
- Organizational participation
- Extension contact
- Innovativeness

Dependent Variable

Agricultural problem confrontation

- Flood or cyclone
- Lack of irrigation water
- Lack of draft power
- Lack of academic opportunity (school/college)
- Lack of recreation facilities
- Lack of market facilities (for sales, surplus products, and purchase)
- Lack of input dealers
- No social welfare activities
- Lack of modern agricultural knowledge
- Lack of cooperative



Figure2.1: Conceptual framework of the study



CHAPTER III
MATERIALS AND METHODS

CHAPTER III

METHODOLOGY

Social science research needs accurate methods and procedures to arrive at research objectives. Methodology enables the researcher to collect reliable data from the respondents. Measurement of variables is an important part of methodology. Established methods of measurement lead the data to analyze, interpret and to achieve objectives. The methods and procedures followed in conducting this research have been described below.

3.1 Locale of the Study

Malipara a village of Pugal diga union under Sharishabari upazilla in Jamalpur district was purposively selected as a study area. This is the charland of a Jamuna river situated 13 km from main land. Malipara is situated on Sharishabari upazila the bank of the Jamuna River. Every year it is submerged by the flood water, it has 582 hactares of area. The village was outside of the upazila head quarter. The site is located at South-West corner of Sharishabari upazila sadar. Agriculture was the major occupation in the study area and the area had well accessibility through road and water ways. A map of Jamalpur district showing Sharishabari upazila showing Malipara village have been presented in Figs. 3.1. and 3.2 respectively.

3.2 Population and Sample

An up date list of all farm family heads of the selected village was prepared with the help of SAAO. The list comprised a total of 504 farmers in the study area. These farmers constituted the population of this study. Twenty (20) percent of the population of this village was randomly selected as representative sample by using a Table of Random Numbers (Kerlinger, 1973). Thus, 100 farm family head constituted the sample size of the study.



Fig. 3.1 A map of Jamalpur district showing Sarishabari upazila

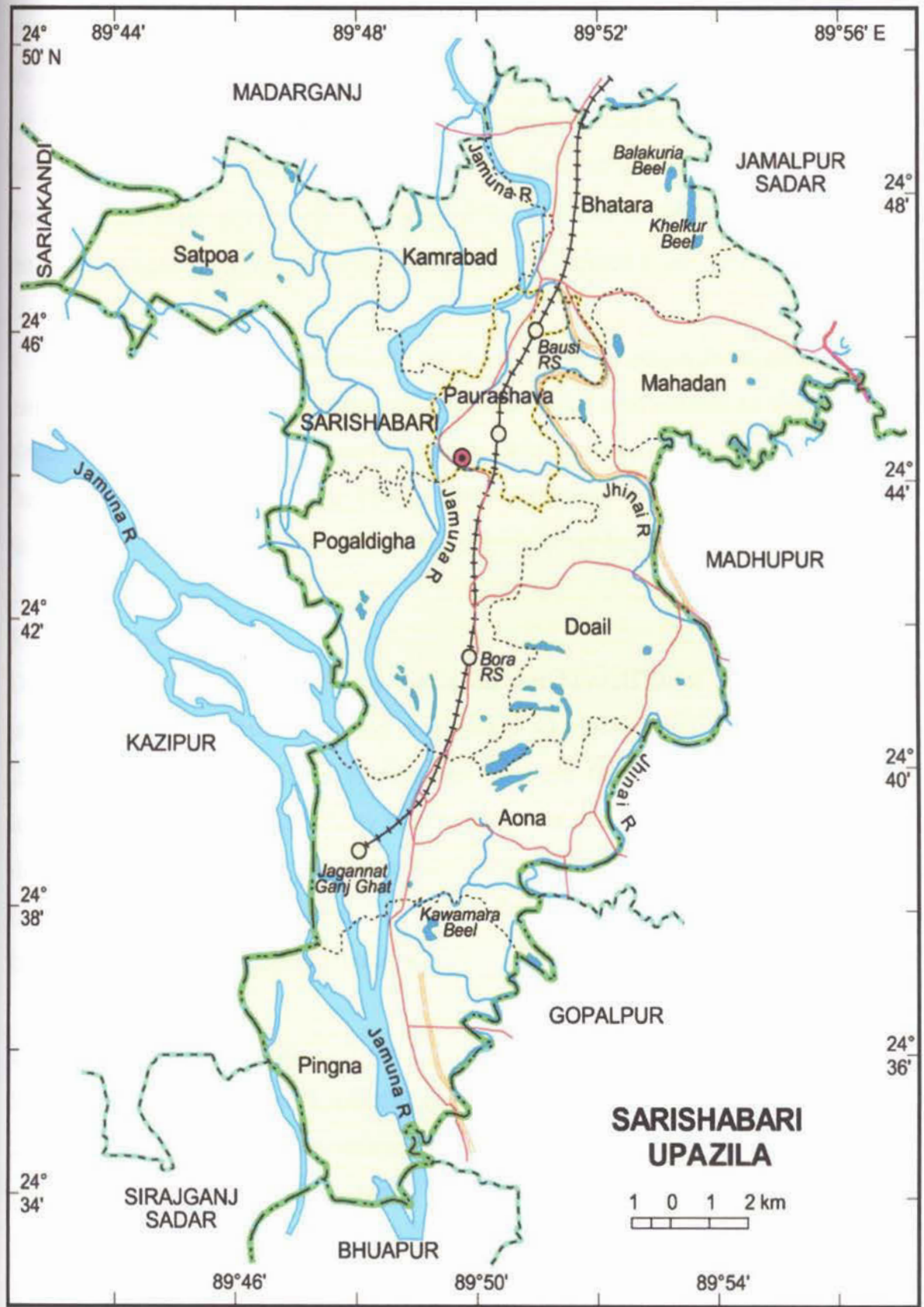


Fig. 3.2 A map of Sarishabari upazila showing the study area

3.3 Instrument for Collection of Data

In order to collect data, an interview schedule was prepared keeping the objectives of the research in view. The schedule was prepared in Bangla for clear understanding of the respondents. The Bengali version of interview schedule was used to collect data. The interview schedule contained closed form of questions. Simple and direct questions and some scales were included in the schedule to get information regarding the problem confrontation of the farmers and their selected characteristics.

It may be recalled that the schedules were pre-tested in actual field situation before using the same for final collection of data among 20 respondents of the study area. Necessary correction, addition and alterations were made in the interview schedule on the basis of results of pre-test. The interview schedule was then printed in its final form. An English version of the interview schedule has been shown in Appendix-A.

3.4 Collection of Data

Data were collected personally by the researcher himself from the sample by using interview schedule. Data collection was started on March 2 and completed on March 25. Very good co-operation was obtained from the field extension workers and the local leaders. No serious difficulty was faced by the researcher during the collection of data. Data obtained from the respondents were transferred to master sheet and then compiled to facilitate tabulation. The qualitative data were converted into quantitative by means of suitable scoring techniques.

3.5 Variables of the Study

The hypothesis of a research contains generally two variables, an independent variable and a dependent variable. An independent variable is that factor which is manipulated by the experimenter in his attempt to determine its relationship to an observed phenomenon. A dependent variable is that factor which appears or varies as the experimenter introduces, removes or varies the independent variables.

In this study 9 selected characteristics of the farmers constituted the independent variables they were: age, education, farm size, annual income, agricultural knowledge,

experience in agricultural practices, organizational participation, innovativeness, extension contact. On the other hand farmers' problem confrontation on agricultural practices was the only dependent variable.

3.6 Measurement of the Variables

3.6.1 Measurement of the independent variables

3.6.1.1 Age

Age of a respondent was measured by counting years from the date of his birth to the time of data collection on the basis of verbal response of the farmers.

3.6.1.2 Education

Education was measured by assigning score against successful years of schooling by a respondent. For example if a respondent passed the final examination of class five or equivalent examination, his education score was given 5. Each illiterate respondent was given a score of zero (0). A person not knowing reading or writing but being able to sign only was given a score of 0.5.

3.6.1.3 Farm size

The term refers to the cultivated area either owned by the farmers or cultivated on share cropping, lease or taking from other including homestead area. Farm size of a respondent was measured in hectares by using the following formula:

$$FS = A_1 + A_2 + A_3 + A_4 + \frac{1}{2} (A_5) + A_6$$

where,

FS = Farm size

A₁ = Homestead area

A₂ = Pond

A₃ = Garden

A₄ = Own cultivated area

A₅ = Land taken from others on share cropping.

A_6 = Cultivated area taken on lease from others

The data was first recorded in terms of local measurement unit i.e. kani or decimal and then converted into hectare.

3.6.1.4 Family Annual income

Family annual income of the respondent was measured on the basis of his total yearly income from agricultural and non-agricultural sources in Taka. The income sources under agriculture included crops, livestock, fish, fruits and vegetables. Non agricultural sources of income included service, business and other sources of the respondents or other members of his family. Score one was assigned for one thousand taka of income of a respondent.

3.6.1.5 Agricultural knowledge

Agricultural knowledge of a respondent was measured by asking him 26 questions related to different components of Agriculture e.g. different crop varieties, livestock, fisheries, pests, pesticides, fertilizer etc. It was measured assigning weightage 2 for each questions. So, the total assigned scores for all the questions became 52. The score was given according to response at the time of interview.

Answering a question correctly an individual could obtain full score. While for wrong answer or no answer he obtained zero score. Partial score was assigned for partially correct answer. Thus, the agricultural knowledge score of a respondent could range from 0 to 52, where 0 indicates low knowledge and 52 indicates very high knowledge.

3.6.1.6 Experience in Agricultural Practice

Agricultural experience of a respondent was measured on the basis of agricultural problem practice . This was expressed in terms of years. The score of a respondent for experience in crop, livestock, and fisheries were given on the following way:

Years of experience	Score
1. 1to 4 years of experience	1
2. 5 to 8 years of experience	2
3. above 8 years of experience	3

Each respondent was asked to express his opinion in the form of one of the 4 response such as high, moderate, low and not at all. Score of 3, 2, 1 and 0 were assigned respectively in each of response for each item. The score obtained from the extent of agricultural experience multiplied by the score of duration of practice. Thus the agricultural practice score of respondent could range from 0 to 72, when 0 indicates no experience and 72 indicates high experience.

3.6.1.7 Organizational participation

The organizational participation score was computed for each respondent on the basis of his membership with four different types of organizations as shown in the item number 7 of the interview schedule. The following scale was used for computing the organizational participation score.

<u>Categories of participation:</u>	<u>Score</u>
a. No participation	0
b. Participation as ordinary member	1
c. Participation as executive member	2
d. Participation as president or secretary	3

Each membership category was multiplied by duration of membership. If a respondent had membership in two or more organizations his scores were computed by adding the scores obtained for each organization according to the categories of his membership. Four types of organizations were in existence in the study area. Organizational

participation score of a respondent was obtained by adding the scores according to the formula mentioned below:

$$\text{Organizational Participation} = \sum P \times D$$

Where,

P= Participation Score

D= Duration Score

3.6.1.8 Extension contact

It was measured on the basis of a respondent's extent of exposure to 11 selected information sources related to agricultural extension. A respondent was asked to choose one answer among five options of contact for each medium, namely: regularly, often, occasionally, rarely and not at all. These five options for each medium were defined specially to each medium considering the situation, rationality and result of pre-test. Weight was assigned for all extension media in the following manner:

Extent of contact	Weighting system
Regularly	4
Often	3
Occasionally	2
Rarely	1
Not at all	0

The extension contact score of a respondent was, therefore, determined by adding the total responses against 11 selected extension media. Thus, the extension contact score could range from 0 to 44, where 0 indicating no extension contact and 44 indicating highest contact.

3.6.1.9 Innovativeness

Innovativeness of a respondent was measured by computing an innovativeness score on the basis of the adoption of 8 selected agricultural technologies by the respondents. Score was assigned on the basis of time dimension. Score 3 was assigned for adoption of technology within one year after hearing. If a respondent adopted a technology within the 2 years after hearing his innovativeness score was assigned 2 and score one was assigned in case of adoption of technology within 3 years or more.

Thus, the innovativeness score of a respondent was obtained by adding his scores for all the 8 items and it could range from 0 to 24 where 0 indicating no innovativeness and 24 indicating high innovativeness (item no. 9 in the interview schedule).

3.6.2 Measurement of the dependent variables

Agricultural problem confrontation by the charland farmers of Jamuna river

As mentioned earlier, problem confrontation of the farmers in charland was the dependent variable of this study. Four point rating scale was used to determine problem confrontation on agricultural activities in charland. The scale contained 11 items of problem confrontation in charland. Each respondent was asked to express his opinion in the form of one of the 4 responses such as severe problem, moderate problem, little problem and no problem at all. Scores of 3, 2, 1 and 0 were assigned respectively for the responses for each item. For each of the problem confrontation of char land farmers was determined by summing the scores obtained by himself for the 11 concerned problem, while the overall problem confrontation of an individual farmer was computed by adding together the score. The possible problem confrontation score ranged from 0 to 33

Problem Confrontation Index

For clearer understanding of problems of farmers, index for each item along with rank order was computed by using the following formula:

$$\text{Problem Confrontation Index (PCI)} = P_s \times 3 + P_m \times 2 + P_l \times 1 + P_n \times 0$$

Where,

$$P_s = \text{Percentage of respondents with severe problem}$$

P_m = Percentage of respondents with moderate problem

P_l = Percentage of respondents with little problem

P_n = Percentage of respondents with no problem

Problem Confrontation Index (PCI) related to agricultural problem confrontation could range from 0 to 300, 0 indicating no problem and 300 very high problem. Based on the problem indices, rank order was computed for each selected agricultural problem.

3.7 Statement of the Hypotheses

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.”

For statistical advantage, the following major null hypothesis was tested.

There is no relationship between farmers' 9 selected characteristics (independent variables) and their problem confrontation on agricultural activities (dependent variable), while the selected characteristics include: age, education, family size, farm size, family annual income, social participation, extension contact, agricultural knowledge, innovativeness etc.

3.8 Data Processing and Analysis

3.8.1 Compilation of data

After completion of field survey data recorded in the interview schedules were coded, compiled, tabulated and analyzed in accordance with the objectives of the study. In this process, all the responses in the interview schedule were given numerical coded values. Local units were converted into standard units and qualitative data were converted into quantitative ones by means of suitable scoring whenever necessary. The responses to the questions in the interview schedule were transferred to a master sheet to facilitate tabulation.

3.8.2 Categorization of the Respondents

It was necessary to develop suitable categories to determine the problem of farmers in selected aspects. For that purpose, the respondent was classified into categories on the basis of obtained scores of agricultural problem confrontation by farmer in selected aspects.

Categories were also developed for describing each of the selected characteristics of farmers. Nature of the data and mode of the categorization prevailing on the social system guided the researcher in developing categories in respect of selected characteristics.

3.8.3 Statistical technique

The analysis was performed using SPSS (Statistical Package for Social Sciences) computer package. Descriptive analysis such as number and percentage, mean, standard deviation and rank order were used whenever possible. Pearson's Product Moment Co-efficient of Correlation (r) was used in order to explore the relationship between the concerned variables. Throughout the study, at least five- percent (0.05) level of probability was used as basis of rejecting a null hypothesis.



CHAPTER IV
RESULTS AND DISCUSSION

CHAPTER IV

FINDINGS AND DISCUSSION

Purpose of this Chapter was to describe the findings of the present study. The study investigated problem confrontation by char land farmers. This Chapter is divided into three sections. **First** section deals with the selected characteristics of the farmers. **Second** section deals with the problem confrontation of the char land farmers. The **last** section deals with the relationship between selected characteristics of the farmers and their problem confrontation.

4.1 Selected Characteristics of the Farmers

In the present study, 9 characteristics of the farmers were selected for investigation. The characteristics included: age, education, farm size, family annual income, agricultural knowledge, and experience in agricultural practice, organizational participation, extension contact and innovativeness. The salient features of the different characteristics have been presented in Table 4.1.

Table 4.1 Salient features of the selected characteristics of sample farmers

Selected characteristics	Observed range	Categories	Number	Percent	Mean	SD
Age (Year)	21-70	Young (up to 35)	31	31.00	40.65	10.57
		Middle (36-50)	49	49.00		
		Old (>50)	20	20.00		
Education (Year of schooling)	0-16	Illiterate (0)	27	27.00	4.81	4.89
		Can sign only (0.5)	22	22.00		
		Primary education (1-5)	08	08.00		
		Secondary education (6-10)	34	34.00		
		Above secondary (>10)	09	09.00		
Farm size (ha)	0.01-6.92	Landless (0.1- 0.5 ha)	17	17.00	01.38	01.08
		Marginal (.51-1.0 ha)	26	26.00		
		Small (1.01-1.5 ha)	23	23.00		
		Medium (1.51-2.0 ha)	19	19.00		
		Large (>2 ha)	15	15.00		
Annual income	10.50-1129.65	Low (upto 100)	24	24.00	205.76	196.47
		Medium (100.1-300)	62	62.00		
		High (>300)	14	14.00		
Agricultural knowledge	20-46	Low (upto 30)	36	36.00	33.53	8.53
		Medium (31-40)	46	46.00		
		High (> 40)	18	18.00		
Experience in agricultural practice	04-39	Low (upto 15)	24	24.00	20.48	7.16
		Medium (16-25)	53	53.00		
		High (> 25)	23	23.00		
Organizational participation	.00-32	Low (upto 7)	25	25.00	12.28	7.18
		Medium (8-17)	41	41.00		
		High (> 17)	34	34.00		
Extension Contact	10-36	Low (upto 20)	22	22.00	25.13	5.20
		Medium (21-29)	59	59.00		
		High (> 29)	19	19.00		
Innovativeness	9-16	Low (Upto 15)	23	23.00	13.52	2.13
		Medium (16-19)	54	54.00		
		High (>20 & 20)	23	23.00		

4.1.1 Age of the farmers

Age of the charland farmers ranged from, 21-70 years and the average was 40.65 with a standard deviation of 10.57. This indicates that the study group was moderately heterogeneous in terms of age level. On the basis of their age, the farmers were classified into three categories (Table 4.2).

Table 4.2 Classification of the farmers according to their age

Categories according to age (years)	Farmers		Mean	Standard deviation
	Number	Percent		
Young (upto 35)	31	31	40.65	10.57
Middle-aged (36-50)	49	49		
Old (above 50)	20	20		
Total	100	100		

Analysis of data contained in Table 4.2 reveals that the highest proportion (49 percent) of the farmers were middle aged, while 31 percent belonged to the young aged category. Only 20 percent of the farmers were in the old aged category. It shows that 70 percent of the farmers belonged to the young and middle aged categories. At an early stage charland farmers may have options to take up something as livelihood. But with the increase in age they find few alternatives for livelihood except farming activities in parents or neighbours farm thus become committed in agricultural activities. Extension agencies take a note of this trend before extend extension services to all categories of charland farmers.

4.1.2 Education of the farmers

Education of the respondent farmers ranged from 0 to 16 years of schooling having an average 4.81 with a standard deviation of 4.89. On the basis of their education the respondents were classified into five categories (Table 4.3).

Table 4.3 Classification of the farmers according to their education

Categories according to education	Farmers		Mean	Standard deviation
	Number	Percent		
Illiterate (0)	27	27	4.81	4.89
Can Sign only (0.5)	22	22		
Primary level (1-5)	08	08		
Secondary level (6-10)	34	34		
Above secondary (above 10)	09	09		
Total	100	100		

Data furnished in Table 4.3 indicate that 22 percent of the farmers could sign their name only, while 27 percent were illiterate. It was found that 08 percent, 34 percent and 09 percent of the farmers had primary, secondary and above secondary level of education respectively. Thus, 51 percent of the farmers had schooling from primary level to above secondary level. Although Government has been emphasizing on mass literacy at the root levels, but this study shows that a remarkable percent of the charland farmers are illiterate. Because most of them now become dropout from primary school and find no suitable job. Thus increasing number of dropout farmers has been a great threat to the rural social system of Bangladesh. The DAE and other related NGO extension agencies should launch non-formal educational programme related to agricultural extension activities and also innovative types of programs considering educational background of the charland farmers.

4.1.3 Farm size of the farmers

Farm size of the respondents ranged from 0.01-6.92 hectare with a mean of 1.38 ha, standard deviation of 1.08. The farmers were classified into five categories, as presented in Table 4.4.

Table 4.4 Classification of the farmers according to their farm size

Categories according to farm size (hectare)	Farmers		Mean	Standard deviation
	Number	Percent		
Landless (0.1-.5)	17	17.00		
Marginal (0.51-1.0)	26	26.00	1.38	1.08
Small (1.01-1.5)	23	23.00		
Medium (1.51-2.0)	19	19.00		
Large (above 2)	15	15.00		
Total	100	100		

Data presented in Table 4.4 indicate that 19 percent of the farmers had medium farm size, while 15 percent had large farm, 23 percent small farm, 1 percent marginal farm and 17 percent landless farmers. Data also revealed that majority (57 percent) of the farmers large to small farm size where as 43% of the respondents were landless and marginal farmers. Most of the population of Bangladesh resides in the rural areas and large majority of them have small income from small operational land. Their younger farmers do not progress with education and become dropout. Many of these young's do not get salaried jobs and come back to farming activities in charland without sufficient skill and knowledge. The extension agencies will not be able to give them land but can easily train them up for modern agriculture by teaching them new agricultural technology suitable for charland farmers.

4.1.4 Family annual income of the charland farmers

Family annual income of the respondent farmers ranged from Tk. 10500-1129650 with the mean of Tk. 205.76 thousand, standard deviation 196.47. The farmers were classified into three categories on the basis of their family income (Table 4.5).

Table 4.5 Classification of the charland farmers according to their family income

Categories according to family income (taka '000)	Farmers		Mean	Standard deviation
	Number	Percent		
Low income (upto 100)	24	24.00	205.76	196.47
Medium income (100.1-300)	62	62.00		
High income (above 300)	14	14.00		
Total	100	100		

Data presented in Table 4.5 indicate that the highest proportion (62 percent) of the farmers had medium family income compared to 24 percent and 14 percent having low and high family income respectively. As a result, very high majority of the farmers constituted low to medium income categories. Almost in every handout and survey revealed that low income group of people mostly reside in rural areas. New avenues of income could not be provided for the rural people except agriculture sector. Farmers are closely related to agriculture. But for developing new income avenues, traditional farming will be sufficient to raise income. Hence, farmer's extension programme must include modern agricultural technology and provide credit facility for low income group.

4.1.5 Agricultural knowledge of the charland farmers

Agricultural knowledge scores of the farmers ranged from 20-46 against possible score 0-52. The average score and standard deviation. were 33.53 and 8.53 respectively. Based on the agricultural knowledge scores, the farmers were classified into three categories, namely low knowledge, medium knowledge and high knowledge (Table 4.6).

Table 4.6 Classification of the farmers according to their agricultural knowledge

Categories according to agricultural knowledge (score)	Farmers		Mean	Standard deviation
	Number	Percent		
low (upto 30)	36	36.00	33.53	8.53
Medium (31-40)	46	46.00		
High (above 40)	18	18.00		
Total	100	100		

Data presented in the Table 4.6 revealed that 46 percent of the farmers had medium agricultural knowledge, 36 percent had low knowledge and 18 percent had good knowledge. Thus, an overwhelming majority (46 percent) of the farmers had medium knowledge. Farmer lives on farming. Hence, they must have required skill and modern knowledge to bring more yield and profit. But the level of knowledge of the charland farmers in modern agricultural activities has been far below the expectation. The situation has been such that these farmers have been very neglected by the extension agencies most often and do not get opportunity to gain modern knowledge. To overcome this shocking situation these must special type of extension programme involving farmer as soon as possible to offer farmer new agricultural knowledge and skill to make modern farmers.

4.1.6 Agricultural experience of the charland farmers

Agricultural experience scores of the farmers ranged from 4-39 against the possible score range 0-72. The average score was 20.48, standard deviation was 7.16. Based on experience scores, the farmers were classified into three categories namely, low experience medium experience and high experience (Table 4.7).

Table 4.7 Classification of the charland farmers according to their agricultural experience

Categories according to agricultural experience (years)	Farmers		Mean	Standard deviation
	Number	Percent		
Low experience (upto 15)	24	24.00	20.48	7.16
Medium experience (16-25)	53	53.00		
High experience (above 25)	23	23.00		
Total	100	100		

Data contained in the Table 4.7 show that the largest proportion (53 percent) of farmers had medium experience while 24% of the farmers had low experience and 23 percent had high experience. Those farmers who possess agriculture occupation for a long duration he gains a lot of experience. Now-a-days farmer takes alternative occupation as a result they forgot agriculture knowledge and experience. Thus, extension agencies should help them offering practical training..

4.1.7 Organizational participation of the charland farmers

The organizational participation scores of the farmers ranged from .00 to 32 with an average of 12.28, standard deviation 7.18. On the basis of organizational participation scores, the farmers were classified into 3 categories namely, low participation, medium participation and high participation as shown in Table 4.8

Table 4.8 Classification of the charland farmers according to their organizational participation

Categories according to social participation (score)	Farmers		Mean	Standard deviation
	Number	Percent		
Low participation (up to 7)	25	25.00	12.28	7.18
Medium participation (8-17)	41	41.00		
High participation (above 17)	34	34.00		
Total	100	100		

Organizational participation brings an individual in contact with others where they can exchange ideas, experience and information among the other members of the society. Data presented in Table. 4.8 indicate that majority (41 percent) of the respondents had medium participation, 34 percent had high participation. Thus, an overwhelming majority (75 percent) of the farmers had medium to high participation. Participation in any organization brings an individual in contact with others where they can exchange ideas, experience and information among the other members of the organization. But there is a tremendous dearth of organization for the farmers in the charland area where they could participate in learning and exposed to useful knowledge. The absence of farmers organization at char level have aggravated the situation of the farmers. There are different types of NGO that exist in charland namely ASA, BRAC, extension services offered by them should immediately launch programmes for the farmers. Such programmes would create opportunity for the farmer to participate.

4.1.8 Extension contact of the farmers

The scores of the farmers regarding extension contact ranged from 10-36 against the possible score range from 0-44 with a standard deviation 5.20. On the basis of their extension contact scores, the farmers were classified into three categories (Table 4.9).

Table 4.9 Classification of the Farmers according to Their Extension Contact

Categories according to extension contact (score)	Farmers		Mean	Standard deviation
	Number	Percent		
Low contact (upto 20)	22	22.00	25.13	5.20
Medium contact (21-29)	59	59.00		
High contact (above 29)	19	19.00		
Total	100	100		

Data presented in the table 4.9 indicate that majority (59 percent) of the farmers had medium extension contact as compared to 22 percent having low extension contact and 19 percent had high extension contact. Thus, an overwhelming majority (81 percent) of the farmers had medium to low extension contact.

Extension contact is very important for receiving farm information from various sources. But, it clearly appears that farmers have generally a poor level of extension contact. One reason behind this phenomenon is that DAE has no specific programme for charland farmers development. Secondly, the programme of the Ministry of Youth and Sports is inadequate to reach a big client system. As a result, a vast majority of the youth, specially farm youth ones, remain uncontacted.

4.1.9 Innovativeness

Computed innovativeness scores ranged from 10 to 24 against the possible score range from 0-24. The mean of the innovativeness scores of the respondents was 17.56, standard deviation was 3.05 percent respectively. Based on the innovativeness scores, the respondents were classified into three categories as shown in Table 4.10

Table 4.10 Classification of the charland farmers according to their innovativeness

Categories according to innovativeness (score)	Farmers		Mean	Standard deviation
	Number	Percent		
Low (upto 15)	23	23.00	17.56	3.05
Medium (16-19)	54	54.00		
High (above 19)	23	23.00		
Total	100	100		

Data presented in the Table 4.10 reveals that the highest proportion (54 percent) of the respondents had medium innovativeness compared to 23 percent of the respondents having low innovativeness and percent respondent had high innovativeness. As there has been absence of farmer extension programme for a long time, it is quite natural that farmer lives with traditional farming knowledge and skill. The innovativeness of farmers develops quality as they are exposed to new technology. Until there is a specific programme and agency for these farmers they would remain in charland under-developed individuals.

4.2 Problem Confrontation of the farmers

Computed overall problem confrontation scores of the farmers ranged from 9 to 26 against the possible score range from 0 to 33. The average score was 18.45 with standard deviation 3.26 (Table 4.11)

Table 4.11 Classification of the charland farmers according to their problem confrontation

Categories according to problem confrontation on charland farmers	Farmers		Mean	Standard deviation
	Number	Percent		
Low problem confrontation (9-14)	12	12	18.45	3.26
Medium problem confrontation (15-20)	64	64		
High problem confrontation (21-26)	24	24		
Total	100	100		

Data presented in the Table 4.11 indicates that the highest proportion (64 percent) of the charland farmers had medium problem confrontation as compared to 24 percent having high problem and 12 percent low problem confrontation.

Problem confrontation by farmers in char land was the main focus of this study. In this study, problem confrontation on agricultural activities referred to extent of problem confrontation faced by the farmers in eleven selected aspects. In this study flooding, academic opportunity and market facilities are big problem. Each year a large percentage of the chars get flooded. The flooding, if it comes early, damage the crops in the fields. This large amount of char has various agricultural problems. For lacking of academic opportunity and poverty most of them become dropout from primary school and find no suitable job. Thus increasing number of dropout farmers has been a great threat to the social system of charland. In Malipara char there is no big market for sales, surplus products, and purchase as a result they are depriving for their actual

demand. The LGED, LGRD, DAE, Primary Education Academy, Local Government should take immediately steps to solve the above problems in charland.

4.3 Comparative severity of agricultural problem confrontation of the farmers in charland

Farmers percentage distribution according to their agricultural problem confrontation in each of the 11 items has been shown in Table 4.12 along with problem indices and rank order of each problem.

Problem Confrontation indices (PCI) of farmer on 11 items in agricultural problem confrontation ranged from 96 to 278 against a possible range of 0 to 300. It was revealed from the PCI table that three problems exceeded the PCI score 200. The problems were i) Flood problem (278) ii) Lack of market facilities (for sales, surplus products, and purchase) (274). iii) Lack of academic opportunities (School/Collage). Individually they were positioned in the rank order as 1st, 2nd, and 3rd respectively. Next three problems exceeded the PCI score 150 were iv) lack of recreational facilities v) lack of cooperative activities vi) no social welfare activities. Individually they were positioned in the rank order as 4th, 5th, and 6th respectively.

It is to be noted here that all the problems in charland affect the life of people. Some may be most severe and some may be less severe. However, in this study as less severe problems were identified as vii) lack of modern agricultural knowledge, viii) lack of training facilities, ix) lack of draft power, x) lack of input dealers and lack of irrigation water. which obtained PCI score range 96 to 136.

Table 4.12 Agricultural Problem confrontation by the farmer on eleven items with percentage distribution, index number and rank order (N= 100)

Sl.no	Name of the problem	Intensity of problem				Problem Index (PI)	Rank Order (RO)
		Severe problem (%)	Moderate problem (%)	Little problem (%)	Not at all (%)		
1.	Flood or cyclone	81	16	3	0	278	1
2.	Lack of market facilities (for sales, surplus products, and purchase)	65	23	6	6	274	2
3.	Lack of academic opportunity (school/college)	31	50	13	6	206	3
4.	Lack of recreation facilities	8	63	23	6	173	4
5.	Lack of cooperative activities	5	55	35	5	160	5
6.	No social welfare activities	0	61	32	7	154	6
7.	Lack of modern agricultural knowledge	9	26	57	7	136	7
8.	Lack of training facilities	5	19	68	8	121	8
9.	Lack of draft power	3	20	51	26	100	9
10.	Lack of input dealers	4	12	63	21	99	10
11.	Lack of irrigation water	3	15	57	25	96	11

4.4 Relationship Between the Selected Characteristics of the Respondent Farmers and Their Problem Confrontation in char land of Jamuna river

The purpose of this section is to examine the relationship of 9 selected characteristics of the farmers with their problem confrontation. The 9 characteristics of the farmers included: age, education, farm size, family annual income, agricultural knowledge, organizational participation, , extension contact, agricultural experience, and innovativeness. Each of the characteristics constituted the independent variables, while problem confrontation was the dependent variable. To explore the relationships between the selected individual characteristics of the farmers and their problem confrontation Pearson's product moment co-efficient of correlation (r) has been used.

Five percent level of probability was used as the basis for rejection of a null hypothesis. The computed values of 'r' were compared with relevant tabulated values for 98 degrees of freedom at the designated level of probability in order to determine whether the relationships between the concerned variables were significant or not.

The summary of the results of the correlation analysis has been presented in Table 4.13 showing the relationship between 9 characteristics of the farmers and their problem confrontation. For clarity of understanding Appendix-B may be seen.

Table 4.13 Co-efficient of Correlation Showing Relationship Between the Selected characteristics of the Farmers and Their agricultural Problem Confrontation

Dependent variable	Independent variables (farmers selected characteristics)	Observed correlation co-efficient (r) value with d.f.= 98	Tabulated value 'r'	
			5% level	1% level
Agricultural problem confrontation by char land farmers of Jamuna River	• Age	0.122 ^{NS}	0.196	0.257
	• Education	-0.235*		
	• Farm size	-0.250*		
	• Family annual income	-0.231*		
	• Agricultural knowledge	-0.207*		
	• Experience in agricultural practice	-0.055 ^{NS}		
	• Organizational Participation	-0.193 ^{NS}		
	• Extension contact	-0.325**		
	• Innovativeness	-0.235*		

NS = Not significant

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

4.4.1 Relationship between age of the farmers and their problem confrontation

Relationship between age of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between age of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be 0.122 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = 0.122$) was found to be smaller than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis could not be rejected.*
- c) *The relationship between the concerned variables was not significant.*

Based on the above findings, the researcher concluded that age of the farmers had no significant relationship with their problem confrontation in char land. This meant that age of the farmers was not an important factor in problem confrontation of char land.

4.4.2 Relationship between education of the farmers and their problem confrontation

Relationship between education of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between education of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.235 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.235$) was found to be larger than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis was rejected.*
- c) *The relationship between the concerned variables was significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that education of the farmers had a significant and negative relationship with their problem confrontation. This meant that the farmers having more education were likely to have lesser problem confrontation.

4.4.3 Relationship between farm size of the farmers and their problem confrontation

Relationship between farm size of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between farm size of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variable was found to be -0.250 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.250$) was found to be larger than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis was rejected.*
- c) *The relationship between the concerned variables was significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that farm size of the farmers had a negatively significant relationship with their problem confrontation. This implies that farmers with larger farm size had lower level of problem confrontation in char land.

4.4.4 Relationship between family annual income of the farmers and their problem confrontation

Relationship between family income of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between family income of the farmer and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.231 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.231$) was found to be larger than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis was rejected.*
- c) *The relationship between the concerned variables was significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that family income of the farmers had negatively significant relationship with their problem confrontation. This implies that farmers having higher family income had lower level of problem confrontation in char land.

4.4.5 Relationship between agricultural knowledge of the farmers and their problem confrontation

Relationship between agricultural knowledge of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between agricultural knowledge of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.207 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.207$) was found to be larger than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis was rejected.*
- c) *The relationship between the concerned variables was significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that agricultural knowledge of the farmers had negatively significant relationship with their problem confrontation. This implies that farmers with higher agricultural knowledge were likely to have lower level of problem confrontation in char land.

4.4.6 Relationship between experience in agricultural practice of the farmers and their problem confrontation

Relationship between agricultural experience of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between agricultural experience of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be 0.055 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = 0.055$) was found to be smaller than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis could not be rejected.*
- c) *The relationship between the concerned variables was not significant.*

Based on the above findings, the researcher concluded that agricultural experience of the farmers had no significant relationship with their problem confrontation. This implies that agricultural experience of the farmers was not an important factor for problem confrontation.

4.4.7 Relationship between organizational participation of the farmers and their problem confrontation

Relationship between organizational participation of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between social participation of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variable was found to be -0.193 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.193$) was found to be smaller than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- b) *The null hypothesis could not be rejected.*
- c) *The relationship between the concerned variables was not significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that social participation of the farmers had no significant relationship with their problem confrontation. This implies that organizational participation of the farmers was not an important factor in problem confrontation of char land. But the 'r' value indicates that none the agricultural participation by the problem confrontation.

4.4.8 Relationship between extension contact of the farmers and their problem confrontation

Relationship between extension contact of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between extension contact of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.325 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- a) *The computed value of 'r' ($r = -0.325$) was found to be larger than the tabulated value ($r = 0.257$) with 98 degrees of freedom at 0.01 level of probability.*
- b) *The null hypothesis was rejected.*
- c) *The relationship between the concerned variables was highly significant.*
- d) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that extension contact of the farmers had a negatively highly significant relationship with their problem confrontation on crop production activities. This implies that farmers with higher extension contact were likely to have lower level of problem confrontation in char land

4.4.9 Relationship between innovativeness and their problem confrontation

Relationship between innovativeness of the farmers and their problem confrontation was determined by testing the following null hypothesis: "There is no relationship between innovativeness of the farmers and their problem confrontation in char land".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.235 as shown in Table 4.13. The following observations were made regarding the relationship between the two variables under consideration.

- e) *The computed value of 'r' ($r = -0.235$) was found to be larger than the tabulated value ($r = 0.196$) with 98 degrees of freedom at 0.05 level of probability.*
- f) *The null hypothesis was rejected.*
- g) *The relationship between the concerned variables was significant.*
- h) *The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that innovativeness of the farmers had a negatively significant relationship with their problem confrontation. This implies that farmers with higher innovativeness were likely to have lower level of problem confrontation in char land.



CHAPTER V
SUMMARY AND CONCLUSION

CHAPTER V
SUMMARY OF FINDINGS, CONCLUSIONS AND
RECOMMENDATIONS

5.1 Summary of Findings

5.1.1 Characteristics of the farmers

Findings in respect of the 9 selected characteristics of the farmers are summarized below:

Age: Age of the farmers ranged from 21 to 70 years with the average 40.65 i.e. 45 years. The highest proportion (49 percent) of the respondent farmers was middle aged while 31 percent of the farmers were young and 20 percent were old.

Education: Education of the respondent farmers ranged from 0 to 16 years of schooling with the average 4.81

That 22 percent of the farmers could sign their name only, while 27 percent were illiterate. It was found that 08 percent, 34 percent and 09 percent of the farmers had primary, secondary and above secondary level of education, respectively. Thus, 51 percent of the farmers had schooling from primary level to above secondary level.

Farm size: Farm size of the respondents ranged from 0.01-6.92 hectare with a mean of 1.38 ha. Nineteen (19) percent of the farmers had medium farm size, while 23 percent had small farm size and 15 percent had large farm size. 26 percent of the farmers had marginal farm size.

Family annual income: Family income of the respondent farmers ranged from Tk. 10.50-1129.65 with the mean of Tk. 205.76. The highest proportion (62 percent) of the farmers had medium family income compared to 24 percent and 14 percent having low and high family income respectively.

Agricultural knowledge: Agricultural knowledge scores of the farmers ranged from 20-46 against the possible score range 0-52 with an average 33.53. The highest proportion (64 percent) of the farmers had moderate agricultural knowledge, while, 36percent had poor knowledge and 18 percent had good knowledge.

Agricultural experience: Agricultural experience scores of the farmers ranged from 4-39 against the possible score range 0-72 with an average of 20.48. The largest proportion (53 percent) of the farmers had medium experience, 24 percent had low experience and 23 percent had high experience

Organizational participation: The organizational participation scores of the farmers ranged from 00 to 32 with an average of 12.28. Forty one percent of the farmers had medium participation, while 25 percent had low and 34 percent had high participation.

Extension contact: The scores of the farmers regarding extension contact ranged from 10-36 against the possible score range 0-44 with a mean of 25.13. The majority (59 percent) of the farmers had medium extension contact as compared to 22 percent having low extension contact, 19 percent high extension contact.

Innovativeness: Innovativeness of the respondents ranged from 9 to 16 against the possible score range 0-24 with an average of 17.56. The highest proportion (54 percent) of the farmers had medium innovativeness while 23 percent had high innovativeness.

5.1.2 Agricultural problem confrontation by the farmers:

The problem confrontation scores of the respondents ranged from 9-26 with an average of 18.45 against the possible range of 0-33. The majority proportion (64%) of the farmers faced medium problem, 12%low and 24% are high.

5.1.3 Comparative severity of agricultural problem

Problem Confrontation indices (PCI) of farmers on 11 items in agricultural problem confrontation score ranged from 96 to 278 against the possible score were 0 to 300. According to the severity the problems are as i) Flood problem ii) Lack of market facilities (for sales, surplus products, and purchase). iii) Lack of academic opportunities (School/Collage). vii) lack of modern agricultural knowledge, viii) lack of training facilities, ix) lack of draft power, x) lack of input dealers and lack of irrigation water.

iv) lack of recreational facilities v) lack of cooperative activities vi) no social welfare activities

5.2 Relationship between farmers' characteristics and their problem confrontation:

Nine null hypotheses were tested to explore the relationship of the selected characteristics of the farmers with their problem confrontation. Of the nine null hypotheses tested six were rejected. Among them education, farm size, annual income, agricultural knowledge, extension contact, innovativeness of the farmers showed significantly negative relationship with the farmers' problem confrontation.

On the other hand age, agricultural experience, organizational participation did not show any significant relationship with their problem confrontation in char land.

5.3 Conclusions

Conclusions drawn on the basis of the findings of this study and their logical interpretation in the light of the other relevant factors are furnished below:

5.3.1 Agricultural problem confrontation of the farmers in char land:

Agricultural problem confrontation of the farmers was recognized 11 items of problem from problem indices and ranked them in order.

Problem indices (PI) of farmer on 11 items in agricultural problem confrontation score ranged from 96 to 278 against a possible range of 0 to 300. PI of 3 problems exceeded

200 and 3 problems were having PI over 150. However, the top three problems were: I) Flood problem (278) ii) Lack of market facilities (for sales, surplus products, and purchase) (274). iii) Lack of academic opportunities (School/Collage). There were also other three problems with PI over 150. The lowest score was 96 in rank order. The highest proportion (64%) of farmers faced medium problem and 24% of farmers high problem. Agricultural problem confrontation by farmers had negative significant relationship with their education, farm size, annual income, agricultural knowledge, extension contact, innovativeness.

1. It was found that the farmers faced various problem in char land. Majority of the farmers (88 percent) under study faced medium and high problem confrontation in char land. These farmers may face a lot of problem in agriculture until or unless necessary steps are taken regarding this situation.
2. Fifty one percent of the farmers were literate and the remaining 49 percent of them were either illiterate or could sign only. There existed a negatively significant relationship between farmers' education and problem confrontation. Therefore, it may be concluded that an appreciable proportion of the farmers will continue to face problems in char land on agriculture, if suitable steps are not taken to remove illiteracy from the farmers.
3. An over-whelming majority (85 percent) of the farmers had medium to landless size of farms, while there was a negatively significant relationship between farmers' farm size and their problem confrontation. Thus, it may be concluded that larger farm size would be helpful for minimizing problem confrontation on crop production activities.
4. A very large proportion (89 percent) of the farmers had medium to low family income, while there existed a negatively significant relationship between farmers' family income and their problem confrontation. It may, therefore, be concluded that efforts to raise family income of the farmers will lead to minimize their problem confrontation

5. Forty six percent of the farmers possessed medium agricultural knowledge, while there was a negatively significant relationship between agricultural knowledge of the farmers and their agricultural problem confrontation. therefore, agricultural knowledge of the farmers should be increase and it would be helpful for minimizing their problem confrontation.
6. An over-whelming majority (81 percent) of the farmers had medium to low extension contact, while there was a negatively significant relationship between extension contact of the farmers and their problem confrontation. Therefore, it may be concluded that a very large majority of the farmers will continue to face problems, if suitable steps are not taken to strengthen extension activities among the farmers.
7. A great majority (77 percent) of the farmers had medium to low innovativeness, while there existed a very strong negative relationship between farmers' innovativeness and their problem confrontation. The above facts lead to the conclusion that more innovativeness of the farmers will be highly helpful for minimizing their problem confrontation on agricultural problem confrontation in char land.

5.4 Recommendations

Recommendations based on the findings and conclusions of the study are presented below:

1. Findings of the study indicate that the farmers faced highest problem. It was also observed that the overall problem confrontation was either high or medium for 88 percent of the farmers. Agricultural problem confrontation in char land has been large majority of the farmers will; therefore, adversely affect the effort for controlling flood. In view of the urgent need to control flood, it is recommended that steps should be taken on a priority basis to remove the various problems causing hindrance to the agricultural activities.

2. Findings of the study indicate that the education in primary and secondary schools is helpful in creating awareness about the agricultural problem. It can play a very useful role in dissemination of agricultural problem confrontation among the char land people. It is, therefore, recommended that arrangement should be made for imparting education in agriculture in the primary and secondary schools.
3. Low income of farmers of the char land face a great problem in agricultural production. The following recommendations are made in view of the need for increasing the income of the farmers and providing technical support to them at the time of need:
 - (a) The proper administration need to protect flood for why they should construct various damp at the side of the river or dug many canal for control the river flow.
 - (b) Extension worker need to help farmers to supplying alternative seeds or seedlings, like local rice, mustard seeds after affecting flood.
 - (c) Have to create local market for selling their agricultural products and develop communication system.
4. Farmers with good agricultural knowledge want to use improved agricultural practice for agricultural production. For this purpose the concern authority like extension services should facilitate them with the effective measure of flood control, ensure the availability of market facilities and academic facilities. It is, therefore, recommended that extension work for educating the farmers in the improving agricultural practices should be supported by solving these problems
5. Agricultural experience seems to minimize their problem confrontation. For more experience should add agricultural training. Therefore, it is highly recommended that the concerned authority should take steps that farmers are to get more opportunity to receive training and increase their efficiency for confront the problem.

6. Organizational participation helps farmers develop abilities and attitudes to work in cooperation and coordination with others for solution of problems. But there is acute dearth of social organization in the rural areas of Bangladesh. Consequently the farmers get little opportunity to participate in such social organizations. In view of the great importance of agriculture related organizations in solving agricultural problems, it is recommended that the Department of Agricultural Extension (DAE), Directorate of Fisheries (DOF), Directorate of Livestock Services (DLS), NGOs and any other organizations or agencies should immediately i) organize the farmers to teach them agricultural problem solving technique other economic skills to enable the neglected farmers become self-employed, ii) increase per capita income of their families and iii) to make them productive.
7. Extension contact helps the people to become more conscious and more dynamic. So extension contact is necessary for reducing problem confrontation on agricultural activities of the farmers. It is, therefore, recommended that when the farmer would be organized by the Department of Agricultural Extension (DAE), Directorate of Fisheries (DOF), Directorate of Livestock Services (DLS), NGOs and any other organizations or agencies careful consideration to be given for i) technical assistance or other important requisites, ii) training as a regular phenomenon of a farmer programme to teach skill and use of improved technology for problem solving and better income earning.
8. Innovativeness is a good characteristic of the farmers. Increase innovative power there should be arranged tour of the farmers for visiting agricultural research stations, agricultural farms, agricultural universities and other agriculture related organizations. It will help them acquire knowledge, skill and develop positive attitude to cope more effectively with their problem confrontation in charland. Farmers extension programme and rarity of funding from local sources, it is recommended that farmers extension programme should have to be funded by the government agencies and for a certain period it

would need all kinds of support and care from the top of the administration of the nation.

5.4.1 Recommendation for further study

This study investigated problem faced by the char land farmers in agricultural problem confrontation. There is a need for investigation of other potential aspects.

1. The relationship of nine important characteristics of the char land farmers with their problem faced agricultural problem confrontation have been investigated in this study. Further research may be undertaken for exploring relationship of other characteristics of the char land farmers with their problem confrontation.
2. Relationship of the characteristics of the farmers with their problem confrontation in eleven aspects of agricultural problem confrontation, like flood problem, lack of market facilities (for sales, surplus products, and purchase), lack of academic opportunities (School/Collage), lack of recreation facilities, lack of cooperative activities, lack of irrigation water, lack of modern agricultural knowledge, lack of training facilities, lack of draft power, lack of input dealers, social welfare activities were investigated in this study. It is necessary to examine the relationship of the characteristics of the farmers with their problem faced in other aspect of agricultural problem confrontation.
3. The study was conducted on the population of the char land of purposively selected one villages of Malipara, under Pugal Diga union, Sharishabari upazila. Jamalpur district. Findings of this study need to be varified by undertaking similar research in other char land of the country.
4. In addition to agricultural problem confrontation in char land the farmers also faced other problem like social, economic, housing, sanitation, nutrition etc. All these problem affect the performance of the farmers. There is a need for undertaking research on the various problems faced by the farmers which affect the performance.



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APPENDICES

APPENDICES

APPENDIX A

(English Version of the Interview Schedule)

Department of Agricultural Extension and Information System

Sher-e-Bangla Agricultural University

Dhaka-1207

An Interview Schedule on "Agricultural Problem Confrontation by Charland Farmers of Jamuna River"

Respondent No.....

Name of the respondent :

Village :

Agricultural Block :

Please answer the following questions

1. Age:

What is your present age? : Years

2. Education:

Indicated on educational qualification

a) Can not read or write ()

b) Can sing only ()

c) Passed class.....

3) Farm size

Please give the following information related to your farm size.

Sl no	Description of land	Quantity of land	
		Local unit	Hectare
1.	Homestead		
2.	Pond		
3.	Garden (fruits, vegetables, other trees)		
4.	Own land under own cultivation		
5.	Land taken from other on barga		
6.	Land given to other on barga		
7.	Land taken from others on lease		

4) Family annual income

Please state the income of your family from different sources during the last one year.

a. Income from agricultural crops

Sl no	Name of crops	Total production (kg)	Price/kg (Tk)	Total price
1.	Paddy			
2.	Potato			
3.	Wheat			
4.	Mustard			
5.	Pulse crops			
6.	Oil seed			
7.	Maize			
8.	Fruits			
9.	Spices and others			
	Total			

b) Income from fisheries and livestock

Sl no	sources	annual production unit/(kg)	unit/price (Tk)	Total price
1.	Poultry			
2.	Milk			
3.	Cattle			
4.	eggs			
5.	Goat			
6.	fish			
	Total			

C) Income from Non-agricultural sources:

Sl no	Sources	Monthly income (TK)	Annual income (TK)
1.	Business		
2.	Service		
3.	Daily labour		
4.	Small boat		
	Total		

Total = (a+b+c) =(TK)

5) Agricultural knowledge

Please answer the following questions:

a) Pulse, Crops, Vegetables and fruits related:

Sl no	Question	Total marks	Marks obtained
1.	Name two varieties of rice which can be cultivated after recession of flood water?	(2)	
2.	Name two HYV rice of Boro season?	(2)	
3.	Name two modern varieties of potato.	(2)	
4.	What kind of insect infest rice field?	(2)	
5.	Name two insecticides.	(2)	
6.	Mention the fertilizer doses for potato cultivation?	(2)	
7.	Name two oil seed crop of char land.	(2)	
8.	Name two varieties of maize.	(2)	
9.	Name two fruits that are suitable for cultivation in Char land.	(2)	
10.	Name two vitamin 'C' enriched fruits	(2)	

b) livestock related

1.	Name two improved breeds of poultry.	(2)	
2.	How many days it takes to make broiler ready for marketing?	(2)	
3.	Name two improve breeds of duck.	(2)	
4.	Name two diseases of duck.	(2)	
5.	Name two breeds of goats.	(2)	
6.	Name two diseases of goats.	(2)	
7.	Mention some cattle feed.	(2)	

c) Fisheries related

1.	Which is the most appropriate month of releasing fish in the pond of char land?	(2)	
2.	What is the appropriate month of catching fish from cannel or river?	(2)	
3.	Name two predator species of fish?	(2)	
4.	Name two major diseases of fish	(2)	

5.	Mention two demerits of current net in use	(2)	
6.	Mention the name of two rapid growing fish?	(2)	
7.	Name two fishing equipments	(2)	
8.	Mention two kind of fishing nets	(2)	
9.	Name two species of fishes that are more profitable.	(2)	
Total		52	

6) Experience in Agricultural practices

Which of the following technologies have you applied in cultivation of crop, livestock and fisheries and mention time and dose?

Sl no	Name of technology	Duration of practice	Extent of experience			
			High (3)	Moderate (2)	Low (1)	Not at all (0)
1.	Use of weedicide					
2.	Use of modern variety					
3.	Use of compost					
4.	Use of Japanese rice weeder					
5.	Use of mulching in crop field					
6.	Use of vaccine in poultry rearing					
7.	application of intercropping					
8.	Beef fattening technology					

7) Organizational participation

Mention your involvement in details in the following organizations:

Sl. no	Name of organizations	Duration of participation			
		Executive officers (year)	Executive member (year)	General member (year)	No participation
1.	Farmers cooperative society				
2.	N.G.O. organized group				
3.	Village defence committee				
4.	others				

8) Extension contact

Please indicate the extent of extension contact to reach agricultural information through different extension media.

SI no	Sources of communication	Duration of participation				
		regularly (4)	Often (3)	Occasionally	Rarely	Not at all
PERSONAL CONTACT	Ideal farmer					
	Seed, pesticide & fertilizer dealer					
	NGO worker					
	Sub assistant agricultural officer (SAAO)					
	Upazilla level agricultural officer					
GROUP CONTACT	Group discussion					
	Result /method demonstration					
	Agricultural meeting / field day					
MASS CONTACT	Radio					
	Television					
	Newspaper					

9) Innovativeness:

Please give the information about the 1st use of the following agricultural technology.

SI no.	Technology/method used	Adoption within 1 st year after hearing	Within the 2 nd year	Within After hearing
1.	Use of line planting for rice cultivation			
2.	Use of hybrid variety			
3.	Use of organic fertilizer in soil			
4.	Cultivation of HYV of rice			
5.	Use of zinc sulphate in soil			

6.	Use of mulching in vegetable cultivation			
7.	Use of modern agricultural machine and tools, power tiller			
8.	Use of vaccination for poultry, cattle and goat			

10) Agricultural problem confrontation

What kind of agricultural problems do you usually confront in charland?

Sl.no	Name of the problem	Intensity of problem			
		Severe problem	Moderate problem	Little problem	Not at all
1.	Flood or cyclone				
2.	Lack of irrigation water				
3.	Lack of draft power				
4.	Lack academic opportunity (school/college)				
5.	Lack of recreational facilities				
6.	Lack of market facilities (for sales, surplus products, and purchase)				
7.	Lack of input dealers				
8.	No social welfare activities				
9.	Lack of modern agricultural knowledge				
10.	Lack of cooperative activities				
11.	Lack of training facilities				

Thank you for your co-operation

Signature of the
interview with date

APPENDIX B

CORRELATION MATRIX SHOWING THE INTERRELATIONSHIP AMONG THE VARIABLES (N0)

	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	Y
X ₁	1									
X ₂	-0.507**	1								
X ₃	-0.038 ^{NS}	0.406**	1							
X ₄	0.000 ^{NS}	0.270**	0.657**	1						
X ₅	-0.235*	0.457**	0.369**	0.368**	1					
X ₆	0.289**	0.066 ^{NS}	0.316**	0.366**	0.207*	1				
X ₇	0.216*	0.050 ^{NS}	0.374**	0.320**	0.001 ^{NS}	0.364**	1			
X ₈	-0.148 ^{NS}	0.466**	0.474**	0.387**	0.343**	0.402**	0.328**	1		
X ₉	-0.218*	0.290**	0.395**	0.163 ^{NS}	0.292**	0.153 ^{NS}	0.257**	0.424**	1	
Y	0.122 ^{NS}	-0.235*	-0.250*	-0.231*	-0.207*	-0.055 ^{NS}	-0.193 ^{NS}	-0.325**	-0.235*	1

NS = Correlation is not significant

* Correlation is significant at 0.05 level of probability

** Correlation is significant at 0.01 level of probability

Table value of r at 0.05 = 0.197, 0.01 = 0.257 and 0.001 = 0.324 with 98 degrees of freedom.

x ₁ = Age	x ₈ = Extension contact
x ₂ = Education	x ₉ = Innovativeness
x ₃ = Farm size	Y = Agricultural problem confrontation
x ₄ = Family annual income	
x ₅ = Agricultural knowledge	
x ₆ = Experience in agricultural practice	
x ₇ = Organizational participation	