ATTITUDE OF RURAL WOMEN TOWARDS LIVESTOCK REARING IN MAGURA SADAR UPAZILA

URMI PAUL

DEPARTMENT OF

AGRICULTURAL EXTENSION AND INFORMATION SYSTEM

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

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URMI PAUL

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Approved by

……….……………..…

(Md. Abul Bashar)
Supervisor
Associate Professor
Dept. of Agril. Ext. and Info. System
Sher-e-Bangla Agricultural University

…………………….……..……

(Dr. Md. Rafiquel Islam)
Co-Supervisor
Professor
Dept. of Agril. Ext. and Info. System
Sher-e-Bangla Agricultural University

……………………….……….

(Md. Mahbubul Alam, Ph.D)
Associate Professor and Chairman
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University, Dhaka

Department of Agricultural Extension and Information System

Sher-Bangla Agricultural University

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

Memo No.: SAU/AEIS Date:

CERTIFICATE

This is to certify that the thesis entitled, **"ATTITUDE OF RURAL WOMEN TOWARDS LIVESTOCK REARING IN MAGURA SADAR UPAZILA"** submitted to the faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science (MS) in Agricultural Extension,** embodies the result of a piece of bona fide research work carried out by **Urmi Paul**, Registration No. 10-03868, under my supervision and guidance. No part of this thesis has been submitted for any other degree or diploma.

I further certify that any help or sources of information, as has been availed of during the course of investigation have been duly acknowledged.

Dated: June, 2016
Dhaka, Bangladesh

……..……
(Md. Abul Bashar)
Supervisor
Associate Professor
Dept. of Agril. Ext. and Info. System
Sher-e-Bangla Agricultural University

Telephone: +88-02-9144270-8, Fax: +88-02-8155800

DEDICATION

LOVINGLY DEDICATED TO MY BELOVED PARENTS AND RESPECTED TEACHERS OF SHER-E-BANGLA AGRICULTURAL UNIVERSITY

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LIST OF ABBREVIATIONS AND GLOSSARY

Abbreviation	Full word
ADB	Asian Development Bank
Ag. Ext. Ed.	Agricultural Extension Education
Ag. Ext. and Info. Sys.	Agricultural Extension and Information System
B	Multiple regression
BBS	Bangladesh Bureau of Statistics
BEC	Bangladesh Economic Census
DAE	Department of Agricultural Extension
DLS	Department of Livestock Services
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HKIB	Helen Keller International, Bangladesh
IGAs	Income Generating Activities
MOWCA	Ministry of Women and Children Affairs
NGO	Non-Government Organization

ATTITUDE OF RURAL WOMEN TOWARDS LIVESTOCK REARING IN MAGURA SADAR UPAZILA

ABSTRACT

Livestock (goat, poultry and cattle) are domesticated animals raised in an agricultural setting to produce commodities such as food, fiber, and labor. The study examined the attitude of rural women towards livestock rearing and estimated the contribution of the selected characteristics of the rural women to their attitude towards livestock rearing. Data were collected from 118 rural women of Magura sadar upazila from January 20 to February 20, 2017. Descriptive statistics, multiple regression were used for analysis. Most of the rural women (66.1 %) had moderately favorable attitude while 13.6 and 20.3 percent of them had highly and poorly favorable attitude towards livestock rearing. Among the variables- education, livestock rearing experience, usages of mass media, training exposure, livestock management practices, financial facilities, and knowledge on livestock rearing were significant contributor and provided 63.1 percent contribution on rural women's attitude towards livestock rearing. Majority (71.2 %) rural women faced medium problems on livestock rearing, while lack of grazing land positioned the 1st and environmental hazards in last position regarding problems on livestock rearing. Based on the findings, it is recommended that respective authorities i.e., DLS, DAE and NGOs should implement and popularize women based projects on a massive scale for increasing livestock rearing.

Key words: attitude, livestock rearing. rural women;

CHAPTER I

INTRODUCTION

1.1 General Background

Bangladesh is a densely populated and agro-based developing country. About 76% of the people live in rural areas, and 47.5% of the total manpower is involved in agriculture. In Bangladesh, agriculture contributes 18.82% of the gross domestic product (GDP) of the country in the year of 2014-2015 (BEC, 2016). Around 152.51 million people lives in its 1,47,570 square kilometer of land (BBS, 2014). Most of the rural people are dependent for their livelihood mainly on cropping and livestock farming. Livestock sub-sector is playing a crucial role in the traditional subsistence farming, contributing about 6.5 percent of the GDP, 13 percent of the total foreign exchange earnings and providing employment to 20 percent of the population. The majority of the rural households in Bangladesh have an average of 2-3 dairy cows. Often cattle are used as dual purpose i.e. milk and draft power (Rokonuzzaman *et al.*, 2009). About 92 percent of the dairy cattle is descriptive indigenous and only eight percent is reported to be crossbred (BBS, 2014). The average milk yields 1.5liters/cow/day for indigenous and 2.5 liters/cow/day for cross-breeds. The livestock sub-sector plays a vital role for the economic development of agrobased Bangladesh. The contribution of livestock to national Gross Domestic Product (GDP) is 3.21 percent and which is 16.56 percent of total Agricultural share (DLS, 2016). About 44 percent of the animal protein comes from livestock sources. Moreover, 4.31 percent of foreign exchange comes from the export of leather and leather goods.

Livestock population in Bangladesh is currently estimated to comprise 25.7 million cattle, 0.83 million buffaloes, 14.8 million goats, 1.9 million sheep, 118.7 million chicken and 34.1 million ducks. The density of livestock population per acre of cultivable land is 7.37. This density has been increasing

every year in the country. The country has a relative density of livestock population well above the averages for many other countries of the world. In spite of a high density of livestock population, the country suffers from an acute shortage of livestock products like milk, meat and eggs. The shortage accounts for 85.9%, 88.1% and 70.7% for milk, meat and eggs, respectively. The annual growth rates of these products have significantly increased in recent years. However, if we desire to meet the increasing demand from domestic production, we will require an increase in production at the rate of 6 to 9 percent per year up to 2021. In Bangladesh, 83.9 percent of total households own livestock (animals or poultry or both). About 45.9 percent households possess bovine stack, and 76.3 percent possess poultry. On average, each household owns 1.52 bovine animals, 0.9 goat and sheep and 6.8 chicken and ducks (Banglapedia, 2016). The development of livestock farming does not only involve issues related to lairage facilities, equipment and the genetic improvement of livestock, but also concerns farmers' attitudes on better livestock treatment practices and their knowledge on farming management issues and zootechnics (Karelakis *et al.*, 2013; Dwyer, 2009). Hence, a potential conflict may exist between seeking profitability and good animal health in livestock farming systems (Stott *et al.,* 2005). Clearly, livestock welfare is a value-laden concept and animal welfare science cannot be practiced independently of questions linked to values and ethics. Farmers should choose their production plan on the grounds of their fundamental objectives and their decisions should be based on their impact on the various parties (Jensen and Sørensen 1999; Whittemore, 1995). If farmers obtain the necessary information on how their production practices affect the interests of other parties, then an ethical accounting system can be beneficial.

Women are playing an increasingly important role in agriculture and rural development both at national and international levels. Due to potential contribution to the reduction of poverty, increased food security and enhancement of environmental sustainability female economic activity in

agriculture has snatched special attention (Muller, 1989). Over half of the world's food is produced by women (Johnson, 1998) and they contribute to half of the total labor force in agriculture (Das, 1995; FAO, 1995). Women are involved exclusively in agricultural operation all over the world. A convincing body of research literature documented that participation in various agricultural activities having complementary roles, sharing activities related to crop production, livestock production and management, fish farming and forest management with her male counterpart (Franzel and Helen, 1992; Saito and Spurling, 1992; Sharma *et al.,* 1997; Ahmad and Ismail, 1998; Lovenbalk *et al.,* 2003; Oladeji, 2004; Oyesola, 2004). In some parts of the world their involvement in agricultural activities is even higher than that of man (Prakash, 2003; Tacio, 2003).

The level of entitlement to basic household necessities depends on the employment, income opportunities, control over assets, current income level and endowment of that household (ADB, 2007; NWDP, 2008). In Bangladesh, about half of the total population is female and a majority of them 80%, live in rural areas. Among the rural women, about 43% are involved in the agricultural sector, and 70% are unpaid family labor (Khan *et al.,* 2004). They constitute 42% of the total labor force (FAO, 2006). Most of the rural women have little opportunity to participate in intra-household, socio-economic and political decision-making processes as well as very limited interaction with people outside of the home (Shekh, 2003; Parveen, 2005; WB, 2005; Quisumbing and Mcclafferty, 2006). These factors isolate women from development activities as well as from acquiring income, knowledge, skills, etc., which make it difficult for them to be economically and socially independent (DFID, 2000; Fakir, 2008). Ensuring the income of women is an essential precondition for the elimination of poverty and the upholding of human rights (DFID, 2000), in particular at the individual level, as it helps to build a base for social change. Living standard of the rural poor would only be uplifted when they receive income from the economic activities (Ahmed, 2009; Al-amin, 2008; Ahmed *et*

al., 2007). Income generating activities (IGAs) change the livelihood of the poor in terms of living condition, housing, nutrition, savings, dress, medical treatment, health, sanitation, liberalization and education (Ullah and Routray, 2007). Overcoming widespread poverty and improving livelihood requires confronting the widening disparity of rural women's income (Kandiyoti, 1988; Fakir, 2008). Currently rural women in Bangladesh have an anchoring role in the management of their families as well as participation in different income generating activities like crop production, livestock and poultry rearing, aquaculture etc. (Hoque and Itohara, 2008; Al-amin, 2008; ADB, 2007). Women from the poorest households sometimes work outside the home as paid laborers for their family's survival (ADB, 2001). Even economic contribution of rural women is substantial, it is largely unacknowledged (ADB, 2004).

Livestock rearing is an important income generating activities (IGAs) that was initiated by different government, non-government organizations (NGO) for the rural women. It is quite pertinent to know the extent of attitude, knowledge of rural women and the problem faced by them towards livestock rearing. But a very limited research work has been done on this aspect. Therefore, the researcher felt necessity to conduct a research entitled 'Attitude of Rural Women towards Livestock Rearing in Magura Sadar Upazila'.

1.2 Statement of the Problem

In a patriarchal society like Bangladesh, men hold the sovereign power to control households and society as a whole, and woman are frequently secluded in their homes (Balk, 1997). Women are ascribed as being of lower status compared to men, and poverty is higher among women than men (MOWCA, 2008; ADB, 2001). According to the same report by ADB, 15% of all households in Bangladesh are headed by women who are either widows, divorced or have a disabled husband. Ninety-five percent of the members of these households are below the introduction to poverty line, and 33% of them

belong to the hard-core poor living on low than $1.25 US/day, i.e., extreme poverty (UNDP, 1996).

Women are poor because lack of entitlement to the absolute minimum necessities for living. The absolute minimum necessities for living include food, education, clothing, housing and health. The level of entitlement to basic household necessities depends on the employment, income opportunities, control over assets, current income level and endowment of that household (NWDP, 2008; ADB, 2007). Ensuring the income of women is an essential precondition for the elimination of poverty and the upholding of human rights (DFID, 2000) in particular at the individual level, as it helps to build a base for social change. In order to formulate suitable strategic measures for the improvement of the studied women's livestock rearing, this research focuses on socio-economic characteristics of women and their existing situation and examines their knowledge, attitude towards livestock rearing, along with their scopes and constraints of in livestock rearing. This was finished by looking for answers to the accompanying queries:

- What is the extent of attitude of rural women towards livestock rearing?
- What were the characteristics of the rural women?
- Was there any contribution of selected characteristics of the rural women on their attitude regarding livestock rearing?

In order to get a clear view of the above questions the investigator undertook a study entitled 'Attitude of Rural Women towards Livestock Rearing in Magura Sadar Upazila'.

1.3 Objectives of the Study

The focal point of the research work was to explore the trends of attitude of rural women towards livestock rearing. This is why the following objectives were structured out in order to provide an appropriate track to the research work:

i. To assess the extent of attitude of rural women towards livestock rearing

ii. To describe the following selected characteristics of the rural women:

- Age
- Level of education
- Annual family income
- Livestock rearing experience
- Contact with service providers
- Training exposure
- Organizational participation
- Financial facilities
- Use of mass media
- Livestock management practices
- Marketing amenities
- Knowledge on livestock rearing;

iii. To explore the contribution of the rural women selected characteristics on their attitude towards livestock rearing

iv. To find out the problems faced by the rural women in livestock rearing

1.4 Rationale of the Study

The present study was designed to have an understanding attitude of rural women towards livestock rearing and to explore its contribution with their selected characteristics.

i. The findings of the study will, in particular, be applicable to the study area at Magura sadar upazila. The findings may also be applicable to other locale of Bangladesh where socio-cultural, psychological and economic circumstance do not differ much than those of the study areas.

ii. The findings of the study may also be subsidiary to the field worker of extension service to enhance their action strategies on attitude of rural women towards livestock rearing.

iii. The findings of the study will be conducive to accelerate the improvement in agriculture, farmers' logistic supports, information needs and the way of dissemination especially tuned to key role players in the society as well as attitude of rural women towards livestock rearing. The outcomes might also be helpful to the planners and policy makers, extension workers and beneficiaries of the agriculture.

iv. To the academicians, it may help in the further conceptualization of the model for analyzing the attitude of rural women towards livestock rearing. In addition, the findings of this study may have other empirical evidence to all aspects of attitude of rural women towards livestock rearing which may be used to build an adequate theory of livestock aspects.

1.5 Justification of the Study

It is expected that the participation of women in IGAs like livestock rearing can contribute to enabling households to cope with income shocks, to ensure food security, to avoid an increase in poverty or to prevent vulnerable households from falling below the poverty line. Women's income through livestock rearing is important for achieving economic growth and sustainable development in Bangladesh and thus, their economic contributions should be given importance in policy design (Kabeer, 2003). Unfortunately, existing societal opportunities and structures have hindered rural women from fully participating in IGAs as well as livestock rearing at broaden scale. To eliminate the distressed condition of rural women and bring them to the main stream of development for achieving a sustainable livelihood, they need to be involved in income activities like livestock rearing much more actively. Furthermore, they need to improve in all sorts of areas such as income, information, knowledge and skills, education, and access to capital through the services of the intervening agencies. In Bangladesh, apart from government initiatives, a large number of non-government organizations are operating in rural areas, concentrating on rural women to encourage livestock rearing. Due to the direct and indirect support from these organizations, the capabilities of the involved women are

increasing day by day, motivating them to participate in livestock rearing which are expected to eventually contribute to their household income.

The government and some of the NGO in Bangladesh has initiated program on livestock, fisheries, housing, credit, saving etc. to improve the socio-economic status of the rural women. The findings of the study are therefore, expected to be conducive to the researchers, policy makers who are concerned with of livestock rearing. Keeping the above facts, the investigator undertook a study entitled 'Attitude of Rural Women towards Livestock Rearing in Magura Sadar Upazila'.

1.6 Assumptions of the Study

An assumption is the supposition that an apparent fact or principle is true in the light of available evidence (Goode and Hatt, 1952). The researcher had considered the following assumptions while undertaking the study:

i. The respondents were capable of furnishing proper answers to the questions contained in the interview schedule.
ii. The data collected by the researcher were free from any bias and they were normally distributed.
iii. The responses answered by the respondents were valid, acceptable and reliable.
iv. Information sought by the researcher elicited the real situation was the representative of the whole population of the study area to gratify the objectives of the study.
v. The researcher was well adjusted to herself with the social contiguous of the study area. Hence, the collected data from the respondents were free from favoritism.
vi. The selected characteristics and the attitude, knowledge of rural women and constrains faced by them of the study were normally and independently allotted with respective means and standard deviation.

1.7 Limitations of the Study

Considering the time, respondents, communication facilities and other necessary resources available to the researcher and to make the study manageable and meaningful, it became necessary to impose certain limitations as mentioned bellow:

i. The study was confined to only one upazila namely Magura sadar upazila which may fail to represent the actual scenario of the whole situation as people develop their strategies according to concrete situation they face.

ii. It is difficult to get exact information on attitude, knowledge of rural women and constrains faced by them towards livestock rearing indicator from the women as many of them are illiterate.

iii. Characteristics of the rural women were many and varied, but only twelve characteristics were selected for the research study.

iv. There were embarrassment situations at the time of data collection. So, the researcher had to manage proper rapport with the respondents to collect maximum proper information.

v. Several methods, scales and statistical tests have been utilized in this study over a relatively short period of time.

CHAPTER II

REVIEW OF LITERTURE

Review of literature gives the clear and concise direction of the researcher for conducting the experiment. In this chapter, review of literatures relevant to the objectives of this study was presented. This was mainly concerned with attitude of rural women towards livestock rearing. There was serious dearth of literature with respect to research studies on this aspect. So, the directly related literatures were not readily available for this study. Some researchers addressed various aspects of the attitude of women and its effect on client group and suggesting strategies for their emancipation from socio-economic deprivations. A few of these studies relevant to this research are briefly discussed in this chapter under the following five sections:

First section **:** Concept of attitude, components of attitude, formation of attitude and review related to measurement of attitude

Second section : Past related research on rural women agricultural activities

Third section : Previous research studies related to livestock rearing

Fourth section : Relationship between the selected characteristics of the respondents and their extent of attitude

Fifth section : Research gap of the study

Sixth section : Conceptual framework of the study

2.1 Concept of Attitude and Past Related Research

2.1.1 Concept of attitude

Attitude may be thought of as a person perspective toward a specific target and way of predisposition to act, perceive, think and feel in relation to something. It is expressed as one views regarding an object as positive or negative, favorable or unfavorable, like or dislike etc. with varying degrees (Bhuiyan, 2012).

Different persons have defined attitude in different ways. Some of these are mentioned below:

Attitude as the effect for or against a psychological object defined by Thurstone (1928). Attitude means one's feeling towards persons, ideas, institution, practices of facts (Morgan *et al.,* 1929). Attitude as a specific mental disposition towards an incoming or arising experience, whereby that experience is modified, or in other words, it is a condition of readiness for a certain type activity (Warren, 1934). Goode (1945) in his Dictionary of education defined the term attitude as a state of mental and emotional readiness to react to situations, person or things, in harmony with a habitual emotional readiness to react to situations, person or things, in harmony with a habitual pattern of response previously conditioned to or associated with these stimuli. Green (1954) distinguished three kinds of attitude universe to represent three different classes of individual responses to sets of social objects. These are: i) verbal attitudes, given in response to question, ii) spontaneous verbal attitude, usually expressed in normal conversation and iii) action attitudes which include both verbal and non-verbal behavior directed towards object in referent class.

Sherif and Sherif (1956) defined the term attitude as a relatively stable tendency to respond with a positive or negative effect to a specific referent. McGrawth (1966) defined attitude as the learned orientations towards objects, or predisposition to behave in certain ways towards a given objects or a class of objects. An attitude has always in object, person, thing or concept and it may be general or specific. Drever (1968) defined an attitude as more or low a stable set or disposition of opinion, interest or purpose, involving expectancy of certain kind of experience and readiness with appropriate kind of response. Doob (1948) stated that attitude affects behavior since an implicit, drive producing response considered socially significant in the individual society. If this definition is broken down typographically into phases and clauses, an attitude implies the following.

i) It is an implicit response.

ii) It is both (a) anticipatory and (b) mediating reference to covert responses.

iii) It is evoked by (a) a variety of stimulus patterns (b) as a result of previous learning, or of gradients of generalization and discrimination.

iv) It is itself a cue and drive producing.

v) It is considered socially significant in the individual's society.

Allport (1935) who devoted the major part of her life to research on attitude, defined the term in the following manner. An attitude is a mental and neural state of readiness, organized through experience, exerting experience or dynamic influence upon the individual, response to all objects and situation with which it is related.

2.1.2 Components of attitude

Krech (1962) explained attitude as a system of three interrelated components and the authors express as, as systems, we are emphasizing the interrelatedness of the three attitude components become mutually interdependent about an object are influenced by their feelings and action tendencies toward that object will tend to produce changes in her feelings and action tendencies toward it. Another definition of attitude made by Triandis (1971), “an attitude is an idea changed with emotion which predisposes a class or actions to a particular class or social situations”. This definition suggests that attitude has three components. These components are cognitive, affective and behavioral.

a) The cognitive component of an attitude consists of the belief of the individual about the object. This may also be said as understanding, knowledge and conception.

b) The feeling or affective component with the object. The object in felt to be pleasing or displeasing.

c) The action or behavioral component of an attitude includes all the behavioral readiness associated with the attitude. Attitude as a system

bearing these three components is expected to be consistent but there may have some degree of inconsistency.

2.1.3 Formation of attitude

The term ‘attitude formation’ is important within the individual in order to ensure more accurate prediction about their behavior and to have greater control over action. Rosenberg (1956) studied on goals and attitude and found that the individuals coping with various problems try to satisfy his wants and develop attitudes. He develops favorable attitude towards objects that satisfy his wants, final goal object will be favorably evaluated and develops unfavorable attitude towards objects that block the achievement of his goal.

Krech (1962) from the results of different experiments and observations enlisted individual’s wants, information, group affiliations and personality as factors for attitudes while coping with various problems in trying to satisfy his wants. He develops favorable attitudes towards objects and people that satisfy his wants and unfavorable attitude towards objects and persons that block the achievement of his goal.

2.1.4 Review related to measurement of attitude

Getting information from data of social science is not so easy. There is no standard measurable unit to convey the meaning of the behavior of respondents to the people. But scientific survey measurement is a key tool. For this reason, many scientists had developed techniques for measuring attitude like any other psychological concept. Many opined that attitude may be measured from respondent’s behavior and opinion. But these are not correct enough to assess one’s attitude. Because, people are often unwilling to express opinions and may simply answer that they are undecided or do not know or are uncared of their attitudes towards a given psychological object. On the other hand, in many situations behavior is designed to conceal feeling or behavior observed may be determined by factors data quantitatively. For statistical analysis and scientific interpretation there must be quantitative data. In this regard, Thurstone (1928)

made a good contribution by evolving a scale named as Thurstone scale for measuring attitudes. In 1928, he first adopted the methods of psychological scaling originated by year to the scaling of judgments of favorableness and unfavorable toward various objects.

i) **The method of equal appearing intervals**

This method was developed by Thurstone (1928). This technique is the approximation of interval scale. An interval scale is one on which the distances between the points on the measuring instrument are known and on which equal numerical distances represent equal distance along the continuum being measured (Selltiz *et al.,* 1959). The first step to construct this scale is to collect a large number of statements usually ranging from 100-200 related to attitude being investigated. A large number of judges usually from 50 to 300, working independently are to classify this statement into eleven groups or piles. In the first pile, the judge places the statement he considered most unfavorable to the object, then he considered the next most unfavorable. In the eleventh piles, the statements he considers most favorable. The sixth or the neutral positions defined as the point at which there is neither favorableness nor unfavorableness. The judges are not asked to give their own opinions, but merely to estimate the degree of favorableness or unfavorableness expressed by each statement. The scale value of a statement is computed as the medium position to which it is assigned by the judges. Statements that have too broad a scatter are discarded as ambiguous or irrelevant. The formal selections made, taking those statements about twenty, which scale values relatively, equally spaced along the continuum. The form of statements with which they agreed, the score for each respondent is the mean scale values or items with which he showed agreement.

ii) Method of summated ratings

This method was developed by Likert (1932) and was used more or low similar to the other Thurston scale. The difference is that this method does not require

panel of judge ratings. It is low cumbersome and takes low time to construct. This scale is more reliable than Thurstone (Selltiz *et al.*, 1959). The procedure for constructing this type of scale starts with the selection of a large number of statements which are considered, relevant to the attitude being investigated. Statements failing to meet the prescribed standards are eliminated from the scale. The selected statements should be the expression or desired behavior as far as possible and not statements of facts. The favorable and unfavorable statements are distributed randomly throughout the scale. The ambiguous statements are avoided and only clear, concise and straightforward ones are retained. The half of the statements are so worded that the response of agreement indicates a favorable response to the rest a response of agreement indicates an unfavorable reaction. The favorable and unfavorable statements are distributed randomly throughout the scale. The respondents are asked to check whether they strongly agree, agree, undecided, disagree, and strongly disagree with each statement. These four alternative responses are assigned scores of 4, 3, 2, 1 or 1, 2, 3, 4 in proper order, the direction of scoring determined by the favorableness or unfavorableness of each statement. Sometimes scores of 3, 2, 1, 0 and 0, 1, 2, 3 are preferred for weighting the statements. Each individual's total score is computed by adding his item score.

2.2 Past Related Research on Rural Women Agricultural Activities

Activities of rural women can be divided into two broad categories: agricultural and non-agricultural activities. Homestead vegetables cultivation, crop production, post-harvest activities in agriculture farming, poultry rearing, management of livestock, fisheries, bee keeping, sericulture, etc., are the most important agricultural activities.

Livestock: Livestock is the basis of survival for poor and landlow households in Bangladesh. The poorest women collect dung from fields for making dried dung cakes that they sell during the winter. One strategy for the very poor is taking animals on shared ownership, whereby poor women care for richer

people's animals in return for 50% of its production including offspring (Islam, 2008). Dairy provides a viable subsidiary occupation for the unemployed rural poor (Shamsuddoha, 2009). Parveen (2008) reported that care of all animals is the domain of women. Cattle, sheep and goats are led to graze by older women and children, while housewives prepare feed, feed and clean animals, and often milk cows. Studies quoted by Jahan and Rahman (2003) confirm this - but women usually do not milk cows. Eggs and milk tend to be sold by women, primarily within the village. They also found that livestock rearing was difficult for women-headed households due to the small number of working members. Goat and cow rearing (even on a shared-basis) requires collection of fodder or taking the animals regularly for grazing. They also reported that women often face difficulties to get support from government veterinary hospitals.

Poultry: Poultry (chicken and ducks) rearing at household level in Bangladesh is a traditional method. It is an integral part of agro-business of the village community. About 89% of the rural households' rear poultry and the average number of birds per household is 6.8 (Islam et al., 2003). Usually poultry-related work is carried out by women (Rahman, 2003), which play vital role for income generation. In rural areas, 94% of the poultry is owned by women (BRAC, 2007). Major involvement of women in this sector is due to the fact that it requires minimum land, short capital and not very high skills. Poultry production by poor rural households contributes to income, nutrition, food security, savings and insurance (Nielsen *et. al,* 2003; Sonaiya, 2007; Smucker and Wisner, 2008). Furthermore, poultry production constitutes a quick and high return investment opportunity (Islam *et al.,* 2010) for improving income level. In fact among the rural poor, poultry is found to be a crucial livelihoods asset for the poorest segments, i.e., households that are in the first income quintile (Roland-Holst *et al.,* 2007), which is associated with breaking out of poverty traps (Alabi *et al.,* 2006; Guèye, 2007). However, it is not without risk. Recent outbreaks of highly pathogenic Avian Influenza caused severe economic damage (FAO, 2006).

Homestead vegetable cultivation: Homestead gardening is the main agricultural activity of rural women in Bangladesh (Khan *et al.,* 2009), which provides the major share of livelihood resources for poor farmers (Ali *et al.,* 2008). In the rural areas, home gardens are a well-established land-use system where different vegetables and trees are grown, capital input is low, simple techniques are applied and the family members themselves participate as labor. More than 60 types of vegetables of indigenous and exotic origin are grown. Primarily, homestead gardens are the source of supplementary food which plays an important role to meet nutrient requirements for a family. Vegetables from homestead are mostly consumed at home and only the surplus is sold (HKIB, 2008). Plants are generally grown in the back yard, at the pond side, and around the cow shed (Millat-e-Mustafa *et al.,* 2000). Homestead gardening improves the resources of poor farmers and also meets several socio-economic and ecological conditions which contribute to sustainability (Khan *et al.,* 2009).

Aquaculture: Traditionally, fishing is an occupation for the peoples of Hindu religion and only men are involved in catching fish, with women in the supporting roles of making nets and in sorting and drying of fish (Sultana, 2006). In coastal areas, rural women are directly or indirectly involved in fishery activities - mostly processing and marketing (Shelly, 2005; Sultana *et. al.,* 2005). However, women do cultivate ponds, especially small ponds close to Situation of women in Bangladesh: A brief overview homestead (known as pagar) for generating income. Pond fish culture can create employment and improve the quality of life (Rahman and Naoroze, 2007).

Non-agricultural activities: Traditionally, women are practicing non-farm self-employment activities such as handicrafts (dressmaking, nakshikatha, wall mats, household accessories, baskets making, jute bags, bamboo work, embroidery) or cigarette (biri) making (Al-Amin, 2008). Some women operate grocery shops (especially if adjoining their homes), or travel from village to village to selling clothes and other items (Fakir, 2008; Farid *et al.,* 2009). The poorest women are finding work such as gathering firewood, laboring in brick

fields, and earthwork on roads, and in rural industries. Women are also engaged in rice/paddy trading, rent of rickshaws, studio business, preparing and supplying fishing nets and other fishing instruments, and so on. They also work as domestic helpers in other people's place (Hossain and Bose, 2004), where payment is often minimal. Earnings may be very low, but such home work has the advantage of being flexible, fitting in around other domestic and agricultural tasks (Kabeer, 2008). With access to micro-credit, women are also investing in a range of non-farm businesses (Kelkar *et al.*, 2004). Due to have limited employment opportunities in the rural areas, many women migrate from villages to the city in search of jobs. Mainly they employed in the garment industry. In Bangladesh, over 3 million peoples are working in the garment industry and 85 percent of these workers are women (Alam *et al*,. 2011). In addition, every year Bangladeshi women also migrate to Middle-East countries for earning. A total of 24,838 Bangladeshi female workers secured their overseas employment in 2010 (BMET, 2011).

2.3 Previous Research Studies Related to Livestock Rearing

This study is concerned with the socio-economic study on the livestock rearing. Available literatures were extensively reviewed to search out related works carried out in the Sher-e-Bangla Agricultural University as well as in other places of Bangladesh. But a very few studies directly related to the present study were found. These are discussed below:

Selvam (2004) conducted a study in five villages of Namakkal district, Tamil Nadu, India to find out the economic potential of free-range local poultry rearing by rural women. The farms were post-stratified into small, medium and large categories. The flock sizes were 5, 12 and 26, and egg production for each flock size was 44, 49, and 52, respectively. The sale price of eggs and birds on free range rearing was much higher than sale price of commercial eggs and broilers.

Kozarova (2002) conducted a study on the prevention and control of coccidiosis has been the essential component of successful and profitable poultry rearing. Good management practices and hygiene help to prevent the spread of the disease. To control coccidiosis, prophylactic medication or vaccination were absolute requirements. Anti-coccidial drugs are routinely and continuously administered in the feed. The main problems associated with the chemotherapeutic approach to controlling coccidiosis, the emergence of drug resistant strains and drug residues, are met by the requirement for the use of vaccines. The vaccines represent a biological approach to the control of coccidiosis. In spite of the advances in chemotherapy, management, nutrition, and genetics, coccidiosis still remains the most important and expensive disease of poultry production.

Hansen (1992) in conducting a research for Danish poultry breeders are mixed. This uncertainty is mostly due to the likely outcome of the GATT negotiations which will liberate the market. The EC reforms, similarly leading to market liberalization, will have some influence but as the EC subsidies for poultry are low the sector will not be harmed to any great extent.

2.4 Relationship Between the Selected Characteristics of the Respondents and Their Extent Of Attitude

The reviews related to the selected characteristic of rural farm women and their extent of attitude towards in different agricultural activities rearing activities was not available. Yet the researcher tried her best to find out the related reviews. Here describes the recent attitude related reviews, which were found.

2.4.1 Age and attitude

Chowdhury (2003) found in his study that age had no relationship with attitude towards livestock rearing. Sarker (2002) found that age of the world vision farmers had no significant relationship with their attitude. Bari (2000) reported in his study that age of the farmers had no significant relationship with their attitude. Verma and Kumar (1991) conducted a study on comparison of

farmer's attitude towards buffalo management practice in adopted and non-adopted village. The study revealed that there was relationship between age and attitudes in case of adopted village and they found no significant relationship between age and attitude of the farmers of non-adopted village. Sarker (1983) observed that age of the farmers had no relationship with their attitude towards poultry rearing. Singh and Kunzroo (1985) obtained similar type of findings. Therefore, the related reviews of literatures were cited above regarding attitude and age. It may be concluded that age may have relationship between attitudes towards poultry rearing.

2.4.2 Education and attitude

Zahan (2008) studied that education had significant relationship with attitude towards livestock rearing. Sarker (2002) found that education had positive correlation with the World Vision farmer's attitude. Verma and Kumar (1991) reported that there was positive and significant relationship between education of farmers and their attitude on non-adopted village but the relationship was not significant in adopted village. Kumari (1998) from the study on communication effectiveness of selected mass media conducted that there was a significant association between education of the respondents (rural women) and their attitude. Kashem (1987) found that attitude of the small farmers had significant positive relationship with their educational level. Singh and Kunzroo (1985) in their study revealed that there was positive and significant relationship between education of farmers and their attitude. Therefore, the related reviews of literatures were cited above regarding attitude and education. It may be concluded that education may have positive relationship between attitudes towards poultry rearing.

2.4.3 Annual family income and attitude

Chowdhury (2003) found that family income of farmers had positive significant relationship with their attitude. Shehrawat *et al.* (2002) observed in their article a significant and positive relationship between income of family

and attitude of farmers. Islam and Shahidullah (1989) found a significant positive relationship between family income and poultry rearing. Kashem (1987) found that income of the small farmers had no significant relationship with their attitude of the farmers. Therefore, the related reviews of literatures were cited above regarding attitude and annual family income. Therefore, it may be concluded that annual family income may have relationship between attitudes towards poultry rearing.

2.4.4 Contact with service providers and attitude

Zahan (2008) studied that contact with service providers had a significant relationship with attitude towards livestock rearing. Sadat (2002) reported that extension media contact had significant positive relationship with attitude of both beneficiaries and non-beneficiaries. Kaur (1988) found that extension contact and attitude had significant influence upon opinion, level of knowledge and adoption of selected programs of rural women. Gura (1986) suggested that rural women need to be recognized as a group with specific extension and training needs. Group approaches, compared to methods of extension that are general to individuals, have potential to extent the benefits of extension efforts and to increase impact of extension work. He opined that group approach of women rather than individual approach might help to reduce the social and cultural restriction that impedes contact between female farmers and male extension agent. Therefore, the related reviews of literatures were cited above regarding attitude and extension contact. Therefore, it may be concluded that extension contact may have relationship between attitudes towards poultry rearing.

2.4.5 Organizational participation and attitude

Habib (2002) observed that organizational participation of the BSS had no significant relationship with their attitude. Noor (1995) observed that there was positive and significant relationship between organizational participation of the farmers and their attitude. Kaur (1988) found that extension contact and

mass media exposure had significant influence upon opinion, level of knowledge and adoption of selected program or rural women. Therefore, the related reviews of literatures were cited above regarding attitude and organizational participation. It may be concluded that organizational participation may have positive relationship with attitudes towards livestock rearing.

2.4.6 Use of mass media and attitude

A few study was found related use of mass media and attitude. However, other literatures showing the relationship between extension media and attitude that are more likely use of mass media and attitude are cited below:

Noor (2010) observed that extension contact had no relationship with attitude. Similar findings were obtained by Zahan (2008), Bari (2000) and Habib (2000) in their study. Zahan (2008) studied on attitude of rural women towards livestock rearing at kapashia upazila in Gazipur district and she found that contact with mass media had no significant relationship with their attitude toward livestock rearing. Bhuiyan (2008) reported a significant and positive relationship between extension contact and attitude. Shehrawat (2002) also found similar result in his study. Islam (2007) found in the study of attitude of farmers' towards modern jute cultivation that there was negative significant relationship between extension media contact and attitude. Chowdhury (2003) observed no relationship between extension media contact and attitude of farmers towards crop diversification. Sadat (2002) reported in his study that extension media contact had significant relationship with PROSHIKA-beneficiaries attitude towards PROSHIKA. Nuruzzaman (2001) revealed that extension contact of the FFS farmers was positively significant with their attitude on IPM but in case of non-FFS farmers, there was no significant relationship with their attitude on IPM. Vidyashankar (1997) reported that the media participation had positive relationship with the attitude towards seed production programme of seed growers. Kaur and Singh (1991) revealed that extension contact and mass media exposure

influenced the rural women to form favorable attitude and as a result the rate of adoption of smokeless chula was increased. Thomas *et al.* (1990) observed that group meetings had significant relationship with the adoption of integrated pest management practices among the cotton growers of Texas. Ajore (1989) observed in his study that mass media exposure of farmers had a significant relationship with their attitude towards chemical fertilizer. Similar findings were obtained by Verma and Kumar (1991), Noor (1995), Paul (2000), Mannan (2001), Sarker (2001) and Rahman (2001) in their respective studies. Karim (1973) found that the higher the extension exposure of the farmer, the higher was their adoption behavior in respect of fertilizer.

2.4.7 Knowledge on livestock rearing and attitude

Tarannum (2013) found a positive significant relationship between knowledge and attitude in her study. Bhuiyan (2008) and Zahan (2008) found a positive significant relationship between knowledge and attitude. Similar results were obtained by Afrad (2002), Siddique (2002), Haque (2002), Sarker (2002), Mannan (2001), Paul (2000), Nuruzzaman (2001) and Ali (1995) in their respective studies. Sadat (2002) study revealed that agricultural knowledge was positively associated with the attitude of non-beneficiaries towards PROSHIKA but no relationship was found between these two variables in case of PROSHIKA beneficiaries. Bari (2000) concluded that agricultural knowledge of rice growers had no significant relationship with their attitude towards hybrid rice AALOK 6204. Sarker (2001) found that the knowledge of the world vision farmers had a significant positive relationship with their attitude towards organic homestead gardening practices. Similar findings were obtained by Ali (1995), Nuruzzaman (2001), Bari (2000), Paul (2000) and Rahman (2001) in their respective studies.

2.4.8 Other selected characteristics of rural women and attitude

There was found a very little or no review on livestock rearing experience, training exposure, livestock management practices, financial facilities and marketing amenities regarding livestock rearing by rural women.

2.5 Conceptual Framework of the Study

In scientific research, selection and measurement of variables constitute an important task. Studies on individual, group and society revealed that acceptance of modem technologies is conditional upon many factors. Some of these are social, personal, economical and situational factors and the behavior of rural women are influenced by these characteristics. The hypothesis of a research while constructed properly consist at least two important elements i.e.: a dependent variable and an independent variable. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953). An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. Variables together are the causes and the phenomenon is effect and thus, there is cause effect relationship everywhere in the universe for a specific events or issues.

This study is concerned with the 'Attitude of Rural Women towards Livestock Rearing in Magura Sadar Upazila'. Thus, the attitude of rural women towards livestock rearing was the dependent variable and 12 selected characteristics of the rural women were considered as the independent variables under the study. Attitude of rural women towards livestock rearing may be affected through interacting forces of many independent variables. It is not possible to deal with all of the independent variables in a single study. It was therefore, necessary to limit the independent variables, which include age, level of education, annual family income, contact with service providers, livestock rearing experience, usages of mass media, training exposure, organizational participation, livestock

management practices, financial facilities, marketing amenities and knowledge on livestock rearing for this study.

Considering the above-mentioned situation and discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure 2.1.

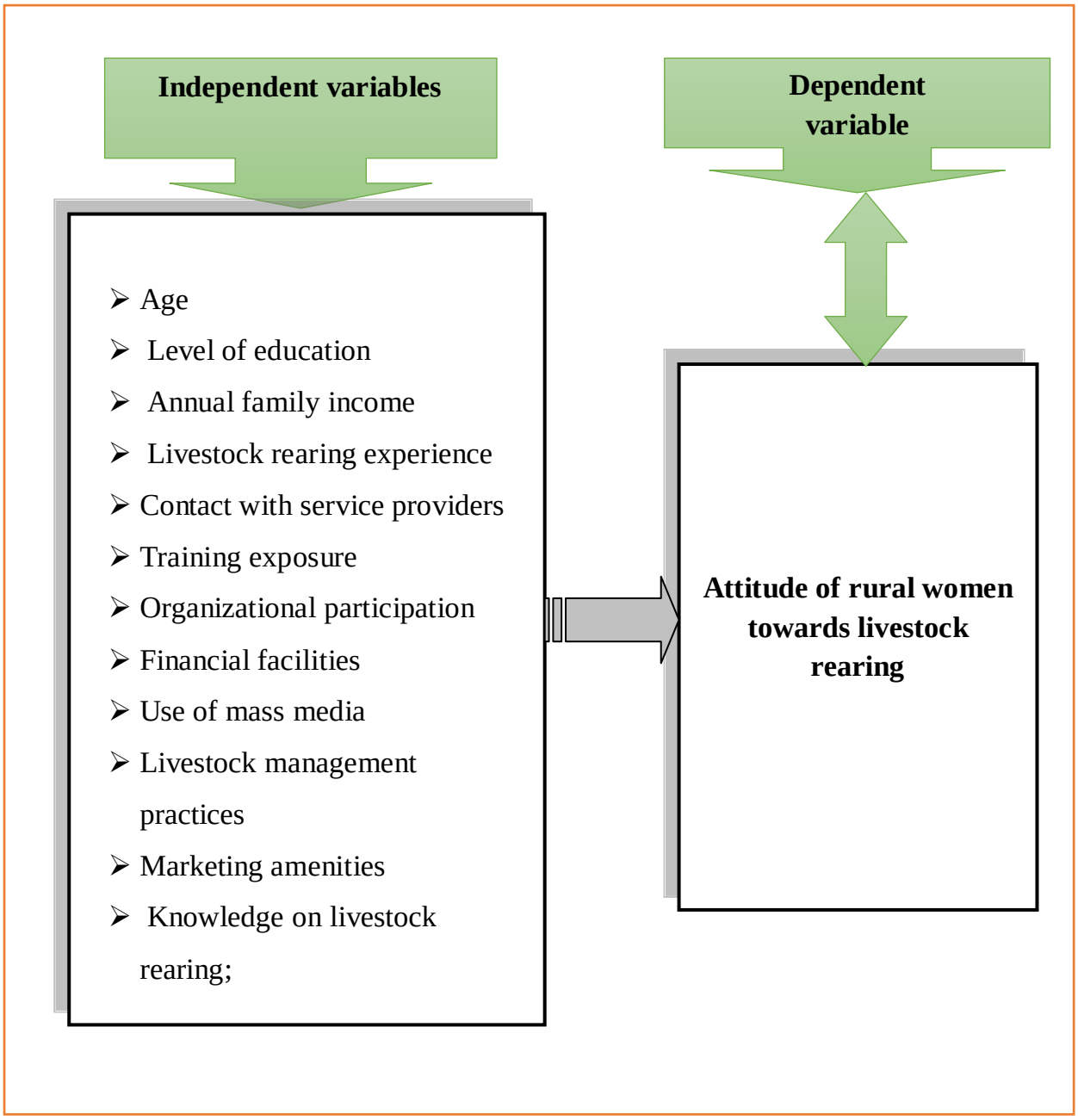

Figure 2.1 Conceptual framework of the study

CHAPTER III

MATERIALS AND METHODS

Methods play a significant role in scientific research. Methods of any study should such as to enable the researcher to collect valid and reliable information to analyze the same properly and to arrive at appropriate decisions. To meet the objectives of the study, a researcher should be very careful while formulating methods and procedures in conducting the research. According to Mingers (2001), research method is a structured set of guidelines or activities to generate valid and reliable research results. This chapter of the thesis explains the research methods and procedures used to collect and analyze the data for answering the research questions and attaining the purposes. Further, the chapter includes the operational format and comparative reflection of some variables used in the study. Statistical methods and their use have been mentioned in the latter section of this chapter. A chronological description of the materials and methods followed in conducting this research work has been presented in this chapter.

3.1 Research Design

A research design is detailed plan of investigation. It is the blueprint of the detailed procedure of testing the hypothesis and analysis of the obtained data. The research design followed in this study was *ex-post facto,* because of uncontrollable and non-manipulating variables. This is absolute descriptive and diagnostic research design. A descriptive research design is used for fact findings with adequate interpretation. Diagnostic research design, on the other hand, is concerned with testing the hypothesis for specifying and interpreting the relationship of variables.

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3.2 Locale of the Study

The study was conducted in the Magura Sadar upazila under Magura district. Magura Sadar Upazila (Magura district) area 406.5 sq km, located in between 23°17' and 23°34' north latitudes and in between 89°17' and 89°32' east longitudes. It is bounded by Sreepur (Magura) and Shailkupa upazilas on the north, Salikha upazila on the south, Mohammadpur (Magura) and Madhukhali upazila on the east, Jhenaidah sadar and Salikha upazilas on the west. The features of the farmers and agriculture at Magura Sadar upazila are like- Ownership of agricultural land: Landowner 61.64%, landlow 38.36%; agricultural landowner: urban 43.3% and rural 68.31%; main crops: Paddy, jute, wheat, mustard, gram, masuri, sugarcane, vegetables; main fruits: Mango, jackfruit, guava, banana, papaya; fishery 62, poultry 28, hatchery 7 etc. Magura sadar upazila has 13 unions (Hazipur, Atharkhada, Kochundi, Bogia, Hazrapur, Raghob Dayed, Moghi, Gogodol, Chawlia, Sotrujitpur, Beryl Polita, Kuchyamora, Gopalgram) in which Hazipur and Hazrapur unions were selected randomly as the study area.

The present study was conducted at Hazipur and Hazrapur union of Magura sadar upazila on the population size in the selected area. The women of the study area are involved in livestock rearing activities besides other occupation. Number of women who involves in livestock rearing in the study area are 1745.

The map of the Magura district has been presented in Figure 3.1. and the specific study location namely Magura sadar upazila have also been shown in Figure 3.2.

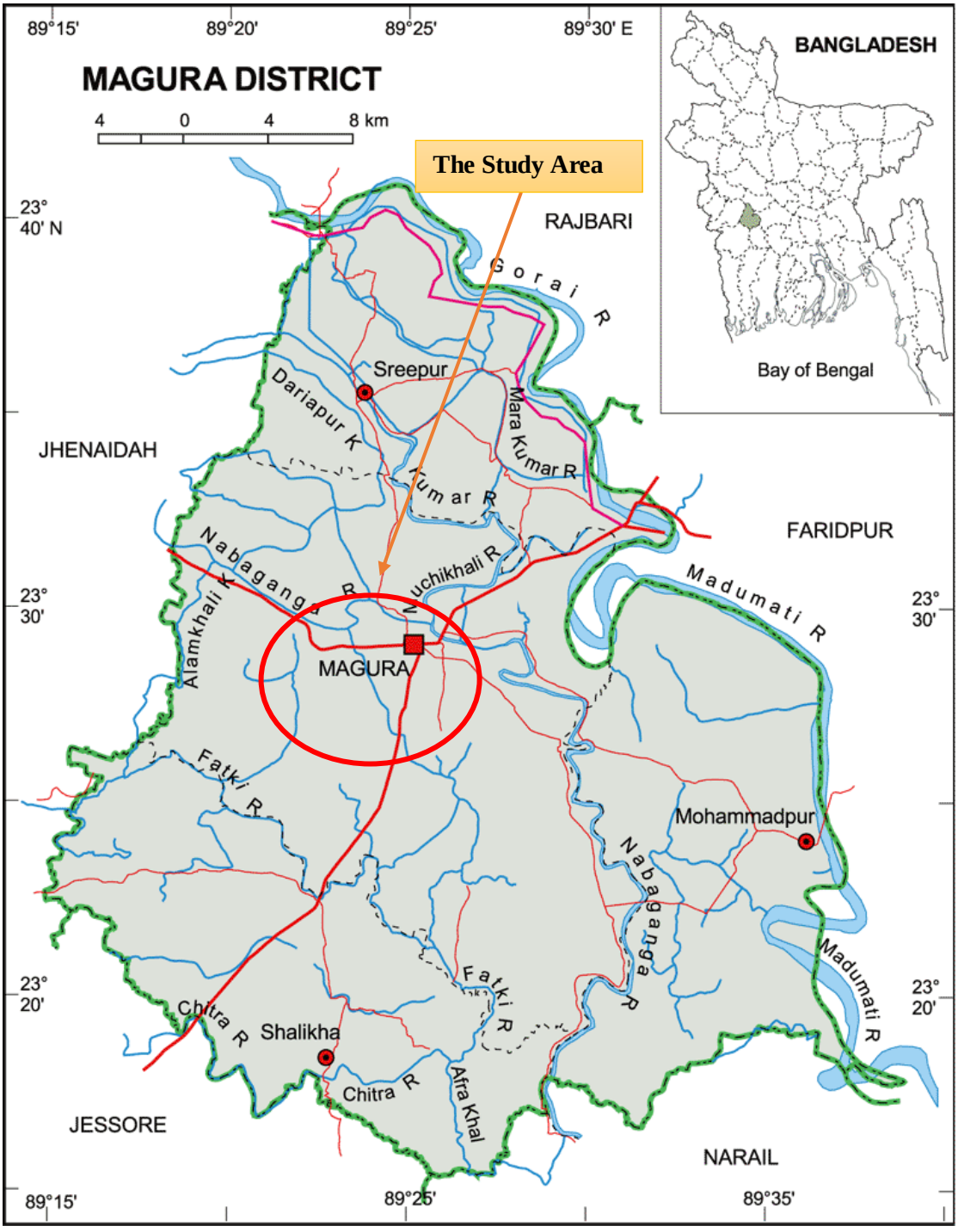

Figure 3.1 Map of Magura district showing the study area of Magura sadar upazila

Figure 3.2 Map of Magura sadar upazila showing the study area- Hazipur and Hazrapur union

3.3 Population and Sample of the Study

People who permanently reside in the Hazipur and Hazrapur union of the Magura sadar upazila constituted the population of this study. As all population of the study area could not possible to measure, the women who rear livestock at Dariapur, Sreerampur, Partharghata villages of Hazipur union and Rawtara, Khalimpur, Nondolalpur of Hazrapur union under Magura sadar upazila were the population of the study. However, representative sample from the population were taken for collection of data following random sampling technique. One women (who mainly rear livestock of the family) from each of the farm families was considered as the respondent. Updated list of rural women who rear livestock of the selected villages of Hazipur and Hazrapur union of Magura sadar upazila were prepared with the help of livestock assistant and local leader (Matobbor). A purposive sampling procedure was followed to select one district from the whole of Bangladesh, and the same method was used to select the upazila as the study area. The total number of women who rear livestock at selected areas are 1745; where livestock rearing population are 325 women of Dariapur, 255 women of Sreerampur, 288 women of Partharghata villages of Hazipur union and 312 women of Rawtara, 270 women of Khalimpur, 295 women of Nondolalpur of Hazrapur union at the study. Thus, 1745 rural women of livestock rearing constituted the population of the study.

3.3.1 Determination of sample size

There are several methods for determining the sample size; here, Yamane's (1967) formula was used for study group.

$$n = \frac{z^2 P\,(1-P) N}{z^2 P\,(1-P) + N\,(e)^2}$$

Where,

n = Sample size;

N, Population size = 1745;

e, The level of precision = 9 %;

z = the value of the standard normal variable given the chosen confidence level (e.g., z = 1.96 with a confidence level of 95 %) and

P, The proportion or degree of variability = 50%;

The sample size (n) is 118

3.3.2 Distribution of the population, sample size and reserve list

According to Yamane's formula, the respondents comprised of 118 women who rear livestock at different unions of Magura sadar upazila. A reserve list of 12 rural woman (ten percent of the sample size) were also prepared so that the women who rear livestock of this list could be used for interview if the women included in the original sample were not available at the time of conduction of interview. The livestock rearing rural women at different villages of Magura sadar upazila were measured proportionately from the total sample size (118) which was calculated using Yamane's (1967) formula. The distribution of the population sample and number of respondents along with the reserve list are given in Table 3.1.

Table 3.1 Distribution of the livestock rearing women according to population and reserve list

Upazila	Union	Villages	Population	Sample size	Reserve list
Magura Sadar	Hazipur	Dariapur	325	22	2
		Sreerampur	255	17	2
		Partharghata	288	20	2
	Hazrapur	Rawtara	312	21	2
		Khalimpur	270	18	2
		Nondolalpur	295	20	2
Total			1745	118	12

3.4 Data Collection Methods and Tools

3.4.1 Data collection methods

The survey method was used to collect data that allow to answer the research questions framed and to gain an understanding of the determinants of rural women's attitude towards livestock rearing. Individual interviews were used in the survey and were conducted in a face-to-face situation by the researcher. This method is useful to get unanticipated answers and to allow respondents to describe the world as they really see it rather than as the researcher does (Bryman, 2001).

3.4.2 Data collection tools

A structured interview schedule was prepared to reach the objectives of the study. A structured interview schedule was prepared containing open and closed questions. The open questions allowed for the respondents to give answers using their own language and categories (Casley and Kumar, 1998). The questions in this schedule were formulated in a simple and unambiguous way and arranged in a logical order to make it more attractive and comprehensive. The instruments were first developed in English and then

translated into Bengali. The survey tool was initially constructed based on an extensive literature reviews. The schedule was then pre-tested with 15 randomly selected rural women in the study area. The pre-test was helpful in identifying faulty questions and statements in the draft schedule. Thus, necessary additions, deletions, modifications and adjustments were made in the schedule on the basis of experiences gained from pre-test. The questionnaire was also checked for content validity by supervisor and academic experts at Sher-e-Bangla Agricultural University (SAU). Finally, based on background information, an expert appraisal and the pre-test, the interview schedule was finalized. Data was gathered by the researcher personally. During data collection, necessary cooperation was obtained from field staff of different GOs and NGOs and local leader. The pre-test was conducted from 10 January to 17 January, 2017. Books, journals, reports and internet documents were used as secondary sources of data supporting or supplementing the empirical findings of the study. No serious problem was faced by the investigator during data collection but obtained cooperation from the rural women and concerns ones. Data collection was started in 20 January, 2017 and completed in 20 February, 2017.

3.5 Variables and Their Measurement Techniques

The variable is a characteristic, which can assume varying, or different values in successive individual cases. A research work usually contains at least two important variables viz. independent and dependent variables. An independent variable is that factor which is manipulated by the researcher in her attempt to ascertain its relationship to an observed phenomenon. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable (Townsend, 1953). In the scientific research, the selection and measurement of variable constitute a significant task. Following this conception, the researcher reviewed literature to widen this understanding about the natures and scopes of the variables relevant to this research. At last she had selected 12 independent variables and one dependent

variable. The independent variables were: age, level of education, annual family income, contact with service providers, livestock rearing experience, usages of mass media, training exposure, organizational participation, livestock management practices, financial facilities, marketing amenities and knowledge on livestock rearing. The dependent variable of this study was the 'attitude of rural women towards livestock rearing'. The methods and procedures in measuring the variables of this study are presented below:

3.5.1 Measurement of independent variables

The 12 characteristics of the rural women mentioned above constitute the independent variables of this study. The following procedures were followed for measuring the independent variables.

3.5.1.1 Age

Age of the rural woman was measured in terms of actual years from her birth to the time of the interview, which was found on the basis of the verbal response of the rural people (Rashid, 2014). A score of one (1) was assigned for each year of one's age. This variable appears in item number 1 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories.

Category	Years
Young age	≤ 35
Middle age	36 to 50
Old age	≥ 51

3.5.1.2 Level of education

Education was measured by assigning score against successful years of schooling by a rural woman. One score was given for passing each level in an educational institution (Rashid, 2014).

For example, if a rural woman passed the final examination of class five or equivalent examination, his/her education score has given five (5). Each rural woman of can't read & write has given a score of zero (0). A person not knowing reading or writing but being able to sign only has given a score of 0.5. If a rural woman did not go to school but took non-formal education, his educational status was determined as the equivalent to a formal school student. This variable appears in item number 2 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into five categories.

Category	Education (year of schooling)
Can't read & write	0
Can sign only	0.5
Primary education	1 to 5
Secondary education	6 to 10
Above secondary	> 10

3.5.1.3 Annual family income

The term annual income refers to the annual gross income of rural women and the members of his family from different sources. It was expressed in taka. In measuring this variable, total earning taka of an individual rural woman was converted into score. A score of one was given for every one thousand taka. The method of ascertaining income involved three phases. Firstly, the income from agricultural crops in the preceding year was noted and converted into taka. Secondly, Income from animals and fish resources. Thirdly, other source income included earning form small business, service, other family members' income, day laborer, fishing and others if any. This variable appears in item number 3 in the interview schedule as presented in Appendix-I. Based on the available information cited by women, they were classified into three categories (Mean ± Standard Deviation) i.e. 'low', 'medium' and 'high' annual family income.

3.5.1.4 Livestock rearing experience

Livestock rearing experience of rural women was determined by the total number of year involved in livestock rearing. A score of one (1) was assigned for each year livestock rearing experiences. This variable appears in item number 4 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' livestock rearing experience.

3.5.1.5 Contact with service providers

It was defined as one's extent of contact with service providers related to livestock rearing. Contact with service providers of a rural woman was measured by computing contact with service provider score on the basis of their nature of contact with six service providers. Each rural woman was asked to indicate her nature of contact with five alternative responses, like regularly, frequently, sometimes, rarely and not at all basis to each of the six service providers and score of four, three, two, one and zero were assigned for those alternative responses, respectively. These five options for each medium were defined specially to each medium considering the situation, rationality and result of pre-test. Logical frequencies were assigned for each of the five-alternative nature of contact. Contact with service providers of the rural woman was measured by adding the scores of seven selected source of information. Thus, contact with service providers' score of a woman could range from 0 to 24, where '0' indicated no contact with service providers and '24' indicated highest level of contact with service providers. This variable appears in item number 4 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' contact with service providers.

3.5.1.6 Training exposure

Training exposure of a rural woman was determined by the total number of day when he attended in different training programs in her life regarding livestock rearing. A score of one (1) was assigned for each day of training attended. This variable appears in item number six (6) in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' training exposure.

3.5.1.7 Organizational participation

Organizational participation of a respondent was computed on the basis of her participation in different organizations. This variable appears in item number seven (7) in the interview schedule as presented in Appendix-I. Scoring of the organizational participation was done using the following formula and in the following way-

$OP = P_{om} + P_{em} + P_{eo}$

Where, OP = Organizational participation score,

P_{om} = Participation as ordinary committee member,

P_{em} = Participation as executive committee member and

P_{eo} = Participation as executive committee officer (president/secretary).

Nature of participation	Score assigned
No participation	0
Participation as ordinary member	1
Participation as executive member	2
Participation as secretary/ president	3

For example, if a respondent participated as an executive committee member of school committee, an ordinary member at NGO organized society and no participation in other organizations, that respondent would have a total score 3. Based on the available information cited by the rural women, they were

classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' organizational participation.

3.5.1.8 Financial facilities

A financial facility received by rural woman from different sources was defined as one's extent of getting financial support. Financial facilitates getting by a rural woman was measured by computing financial facilitates getting score on the basis of the nature of five graded financial facilitates. Each rural woman was asked to indicate her nature of getting financial facilitates with five alternative responses, like very high, high, medium, low and not at all basis to each of the six-financial service providers and score of four, three, two, one and zero were assigned for those alternative responses, respectively. These five options for each medium were defined specially to each medium considering the situation, rationality and result of pre-test. Logical frequencies were assigned for each of the five-alternative nature of getting financial support. A financial facility received by rural woman from different sources of a rural woman was measured by adding the scores of six selected practices. Thus, financial facilities received by rural woman score of a woman could range from 0 to 24, where '0' indicated no financial facilities and '24' indicated highest level of financial facilities. This variable appears in item number 8 in the interview schedule as presented in Appendix-I. Based on the information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' financial facilities.

3.5.1.9 Use of mass media

Use of mass media referred to the extent of use of mass media for receiving farm related information. It was expressed in the score. In measuring this variable, a score of one was given for rarely use of mass media. This variable appears in item number nine (9) in the interview schedule as presented in Appendix-I. The use of mass media scoring of rural women were done in following manner:

Category	Score
Regularly	4
Frequently	3
Occasionally	2
Rarely	1
Not at all	0

Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' usages of mass media.

3.5.1.10 Livestock management practices

It was defined as one's extent of management practices of livestock rearing. Livestock management practices of a rural woman were measured by computing management practices score on the basis of their nature of five management practices. Each rural woman was asked to indicate her nature of management practices with five alternative responses, like regularly, frequently, sometimes, rarely and not at all basis to each of the five practices and score of four, three, two, one and zero were assigned for those alternative responses, respectively. These five options for each medium were defined specially to each medium considering the situation, rationality and result of pre-test. Logical frequencies were assigned for each of the five-alternative nature of management practices. Management practiced of the rural woman was measured by adding the scores of five selected practices. Thus, management practices score of a woman could range from 0 to 20, where '0' indicated no management practices and '20' indicated highest level of management practices. This variable appears in item number 10 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' management practices.

3.5.1.11 Marketing amenities

Marketing amenities was defined as extent of prevailing marketing amenities on the study area. Marketing amenities on the study area was measured by computing marketing amenities score on the basis of five point scale. Each rural woman was asked to indicate the nature of marketing amenities at her locality with five alternative responses, like very high, high, medium, low and not at all basis to marketing facilities of livestock and score of four, three, two, one and zero were assigned for those alternative responses, respectively. Marketing amenities on the study area was measured by the response of the women who rare livestock. Thus, marketing amenities could range from 0 to 4, where '0' indicated no marketing amenities and '4' indicated highest level of marketing amenities. This variable appears in item number 11 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' marketing amenities.

3.5.1.12 Knowledge on livestock rearing

Livestock rearing knowledge of a woman was measured by asking her 15 questions related to different components of livestock rearing. It was measured assigning weightage two (2) for each question. So, the total assigned scores for all the questions became thirty. 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 she obtained zero (0) score. Partial score was assigned for partially correct answer. Thus, the livestock rearing knowledge score of a woman could range from zero (0) to thirty (30), where '0' indicates no knowledge and '30' indicates highest knowledge. This variable appears in item number 12 in the interview schedule as presented in Appendix-I. Based on the available information cited by the rural women, they were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' knowledge on livestock rearing.

3.5.2 Measurement of dependent variable

Attitude towards livestock rearing of a respondent implies her beliefs, outlook, perception and action tendencies. To determine this criterion, a number of 14 statements (7 positive and 7 negative) were randomly presented before the interviewees. A five-point scale was used to measure the attitude of the beneficiaries. This scoring was done in the following manner: All the scores for positive and negative statements were summed up and the final score was determined. This variable appears in item number thirteen (13) in the interview schedule as presented in Appendix-I.

Extent of agreement	Score
Strongly agreed	+2
Agreed	+1
Undecided	0
Disagreed	-1
Strongly disagreed	-2

Based on the available information cited by the women, they were classified into three categories namely low favorable attitude, moderately favorable attitude and highly favorable attitude towards livestock rearing.

3.6 Problems Faced by Rural Women in Livestock Rearing

A problem in livestock rearing was measured on the basis of extent of problems faced by the rural women on different aspects of livestock rearing. The following scores were assigned against each of the problems:

Extent of problems	Score
Very High problem	4
High problem	3
Moderate problem	2
Little problem	1
No problem	0

Livestock rearing problem of a rural woman was measured by asking her 12 questions related to different components of livestock rearing problems. Thus, problems in livestock rearing score of a respondent could range from 0 to 48, where '0' indicated very low and '48' indicated very high problem faced in livestock rearing.

3.6.1 Rank order of problems faced by rural women in livestock rearing

To ascertain the best problem confrontation strategies Problem Faced Index (PFI) was computed. There were twelve problem faced by rural women towards livestock rearing strategies for coping with 12 selected items by the rural women in livestock rearing. The livestock rearing women implement different extent of problem confrontation strategies against different problems. They are presented below in rank order. A Problem Faced Index (PFI) was computed for each problem confrontation strategies by using the formula:

$$PFI = PVH\times4 + PH\times3 + PM\times2 + PL\times1 + PNA\times0$$

Where, PVH = Very high extent of problem

PH = High extent of problem

PM = Medium extent of problem

PL = Low extent of problem

PNA = Not at all of problem

Problem Faced Index (PFI) for each problem confrontation strategies could range from 0 to 472, where '0' indicating lowest extent and '472' indicating highest extent of problem confrontation.

3.7 Hypothesis of the Study

According to Kerlinger (1973) a hypothesis is a conjectural statement of the relation between two or more variables. Hypothesis are always in declarative sentence form and they are related, either generally or specifically from variables to variables. In broad sense hypotheses are divided into two categories: (a) Research hypothesis and (b) Null hypothesis.

3.7.1 Research hypothesis

Based on review of literature and development of conceptual framework, the following research hypothesis was formulated:

"Each of the 12 selected characteristics (age, level of education, annual family income, contact with service providers, livestock rearing experience, use of mass media, training exposure, organizational participation, livestock management practices, financial facilities, marketing amenities and knowledge on livestock rearing) of the rural women has significant contribution on attitude towards livestock rearing."

3.7.2 Null hypothesis

A null hypothesis states that there is no contribution between the concerned variables. The following null hypothesis was formulated to explore the contribution of the selected characteristics on attitude towards livestock rearing. Hence, in order to conduct tests, the earlier research hypothesis was converted into null form as follows:

"There is no contribution of the selected characteristics (age, level of education, annual family income, contact with service providers, livestock rearing experience, use of mass media, training exposure, organizational participation, livestock management practices, financial facilities, marketing amenities and knowledge on livestock rearing) of the rural women on attitude towards livestock rearing."

3.8 Data Processing and Analysis

Bogdan and Biklen (2006) insist that data analysis is an on-going part of data collection. Initially, all collected data were carefully entered in SPSS version 22.0. Exported data were checked randomly against original completed interview schedule. Errors were detected and necessary corrections were made accordingly after exporting. Further consultation with research assistants and in

some cases with the community people were required. Qualitative data were converted into quantitative numbers, if required, after processing, scaling and indexing of the necessary and relevant variables to perform subsequent statistical analysis for drawing inferences.

As outlined earlier, there are many different forms and methods that can be used to analyze both quantitative and qualitative data in accordance with the objectives of the study. Both descriptive and analytical methods were employed in order to analyze the data. Descriptive techniques have been used to illustrate current situations, describe different variables separately and construct tables and graphs presented in results. These included: frequency distribution, percentage, range, mean, median, standard deviation and coefficient of variance.

In most cases the opinions of respondents were grouped in broader categories. Analytical techniques have been utilized to investigate the contribution of the selected characteristics of the rural women on their attitude towards livestock rearing. Statistical test like regression was used in this study. Each statistical technique is used under specific conditions and depends on the measurement scale of different variables.

3.9 Statistical Analysis

Regression analysis was used to identify the linear contribution between independent variables used collectively to predict the dependent variables (Miles and Shevlin, 2001). Regression analysis helps us understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Ordinary Least Squares (OLS) is used most extensively for estimation of regression functions. In short, the method chooses a regression where the sum of residuals, ΣUi is as small as possible (Gujarati, 1995). The factors that contribute to the attitude of rural women towards livestock rearing are analyzed

using a regression model. The overall quality of fit of the model has been tested by ANOVA specifically F and R^2 test.

The data were analyzed in accordance with the objectives of the proposed research work. The factors that contribute to the attitude of rural women towards livestock rearing are analyzed using a regression model, multiple regression analysis (B) was used. Throughout the study, five (0.05) percent and one (0.01) percent level of significance were used as the basis for rejecting any null hypothesis. If the computed value of (B) was equal to or greater than the designated level of significance (*p*), the null hypothesis was rejected and it was concluded that there was a significant contribution between the concerned variable. Whenever the computed value of (B) was found to be smaller at the designated level of significance (*p*), the null hypothesis could not be rejected. Hence, it was concluded that there was no contribution of the concerned variables.

The model used for this analysis can be explained as follows:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + b_{11}x_{11} + b_{12}x_{12} + e$$

Where,

Y= is the attitude of rural women towards livestock rearing;

Of the independent variables, x_1 is the livestock rearing woman age, x_2 is level of education, x_3 is annual family income, x_4 is contact with service providers, x_5 is livestock rearing experience, x_6 is use of mass media, x_7 is training exposure, x_8 is organizational participation, x_9 is livestock management practices, x_{10} is financial facilities, x_{11} is marketing amenities and x_{12} is knowledge on livestock rearing. On the other hand, b_1, b_2, b_3, b_4, b_5, b_6, b_7, b_8, b_9, b_{10}, b_{11}, and b_{12} are regression coefficients of the corresponding independent variables, and e is random error, which is normally and independently distributed with zero mean and constant variance, and a is constant value of regression equation.

CHAPTER IV

RESULTS AND DISCUSSION

The recorded observations in accordance with the objective of the study were presented and discussion was made of the findings with justifiable and relevant interpretation under this chapter. The findings of the study and their interpretation have been presented in this chapter. These are presented in four sections according to the objective of the study. The first section deals with the selected characteristics of the rural women, while the second section deals with the attitude of rural women towards livestock rearing. The third section deals with contribution of the rural women' selected characteristics to their attitude of rural women towards livestock rearing, while the fourth section deals with the problem faced by rural women associated with livestock rearing.

4.1 Characteristics of the Rural Women

Behavior of an individual is determined to a large extent by one's personal characteristics. There were various characteristics of the rural women that might have consequence to attitude towards livestock rearing. But in this study, twelve characteristics of them were selected as independent variables, which included their age, level of education, annual family income, contact with service providers, livestock rearing experience, usages of mass media, training exposure, organizational participation, livestock management practices, financial facilities, marketing amenities and knowledge on livestock rearing that might be greatly influenced the attitude towards livestock rearing by rural women are presented below:

4.1.1 Age

The age of the rural women has been varied from 21 to 53 years with a mean and standard deviation of 32.15 and 8.04, respectively. Considering the recorded age rural women were classified into three categories namely 'young',

'middle' and 'old' aged following Rashid (2014). The distributions of the rural women in accordance of their age are presented in Table 4.1.

Table 4.1 Distribution of the rural women according to their age

Category	Range (years)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Young aged	≤35	21-53	75	63.65	32.15	8.04
Middle aged	36-50		36	30.54		
Old aged	> 50		7	5.81		
Total			118	100.0		

Table 4.1 reveals that the young-aged rural women comprised the highest proportion (63.65 percent) followed by middle-aged category (30.54 percent) and the lowest proportion were made by the old aged category (5.81 percent). Data also indicates that the middle and young aged category constitute 94.19 percent of total rural women. The young and middle aged rural women were generally more involved in farm activities than the older. Young and middle age women are generally inventive and have more hazard taking capacity. As the younger appears to additional vivacious, distinctive GOs and NGOs ought to give fundamental consideration and take proper techniques to include them in their programs and activities in order to achieve sustainable development with more and appropriate production.

4.1.2 Level of education

The level of educational scores of the rural women ranged from 0.5 to 10 with a mean and standard deviation of 4.33 and 2.51, respectively. Based on the educational scores, the rural women were classified into five categories. The distributions of rural women according to their level of education are presented in Table 4.2.

Table 4.2 Distribution of the rural women according to their level of education

Category	Range (years)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Can't read and sign	0	0.5-10	0	0	4.33	2.51
Can sign only	0.5		10	8.51		
Primary education	1-5		67	56.87		
Secondary education	6-10		41	34.62		
Above secondary	>10		0	0		
Total			118	100.0		

Table 4.2 shows that rural women under primary education category constitute the highest proportion (56.87 percent) followed by secondary education (34.62 percent). On the other hand, the lowest 8.51 percent in can sign only category. No respondents were found in can't sign and read category and above secondary category. Education broadens the horizon of outlook of rural women and expands their capability to analyze any situation related to attitude towards livestock rearing. An educated woman is likely to be more responsive to the modern facts, ideas, and information of livestock rearing. To adjust with the same, they would be progressive minded to adopt positive attitude towards livestock rearing as well as involve with modern livestock rearing activities.

4.1.3 Annual family income

The score of annual income of the livestock rearing women ranged from 68 to 217 thousand (BDT) with a mean and standard deviation of 109.31 and 29.91, respectively. On the basis of annual income, the livestock rearing women were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' annual family income. The distribution of the women who rear livestock according to their annual income is presented in Table 4.3.

Table 4.3 Distribution of the rural women according to their annual family income

Category	Range ('000' BDT)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low income	≤ 79	62-230	21	17.75	109.31	29.91
Medium income	80-140		80	67.82		
High income	>140		17	14.43		
Total			118	100.0		

Data reveals that the women who rear livestock having medium annual income constitute the highest proportion (67.82 percent), while the lowest proportion in high income (14.43 percent) followed by low income (17.75 percent). Overwhelming majority (85.57 percent) of the respondent had low to medium level annual family income. Income of an individual permits her to put more in livestock rearing and taking risks involved in adoption of technologies.

4.1.4 Livestock rearing experience

Score of livestock rearing experience of rural women could range from 3 to 25 with mean and standard deviation of 9.38 and 5.26, respectively. On the basis of livestock rearing experience scores, the livestock rearing women were classified into three categories (Mean ± Standard Deviation) namely 'low, 'medium' and 'high' experience. The distribution of the livestock rearing women according to their livestock rearing experiences is given in Table 4.4.

Table 4.4 Distribution of the rural women according to their livestock rearing experiences

Category	Range (year)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low experience	≤4	3-25	21	17.63	9.38	5.26
Medium experience	5-15		84	71.23		
High experience	>15		13	11.14		
Total			118	100.0		

Table 4.4 reveals that the majority (71.23 percent) of the livestock rearing women fell in medium livestock rearing experience category, whereas only 17.63 percent in low experience category followed by 11.14 percent in high livestock rearing experience category. The findings of the present study reveal that around 88.86 percent of the livestock rearing women in the study area had low to medium livestock rearing experiences.

4.1.5 Contact with service providers

The observed score of contact with service providers of the rural women ranged from 6 to 16 against a possible range of 0 to 24. The average score of the rural women was 10.63 with a standard deviation 2.59 (Table 4.5). The rural women were classified into three categories on the basis of their contact with service providers score and distribution of the three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' contact with service providers by the rural women.

Table 4.5 Distribution of the rural women according to their contact with service providers

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low contact	≤8	6-16	27	22.85	10.63	2.59
Medium contact	9-13		72	61.03		
High contact	>13		19	16.12		
Total			118	100.0		

Data shows that the highest proportion (61.03%) of the rural women had medium contact with service providers as compared to 22.85 percent of them having low contact with service providers and 16.12 percent fell in high contact with service providers (Table 4.5). From this table, it might be concluded that majority of the rural women had medium contact with service providers. It could be concluded that extension agent or media of the study area were available to the rural women. The finding was interesting but logical because in general the rural women in the rural areas of Bangladesh are less cosmopolite

in nature and less exposed to different information sources. Finding revealed that 16.12 percent of the rural women had low contact with service providers which demands for strengthening and improving the communication strategy. Low contact with service providers might be the reason that some respondents may think that they have enough knowledge about livestock rearing. Contact with service providers pertains to one's contact with multifarious sources of farming knowledge and information. This results in cognitive change of the users with an eventual change in behavior and also in skill. They receive information from their neighbors, relatives and workmates etc. More contact with service provider could make coordination ability and ability to receive moved forward innovation. The rural women with more contact with service provider's scores are anticipated to use more wellsprings of data information on livestock rearing.

4.1.6 Training exposure

Training exposure score of the livestock rearing women ranged from 0 to 14 with a mean and standard deviation of 4.11 and 2.74, respectively. Based on the training exposure score, the women who rear livestock were classified into three categories (Mean ± Standard Deviation) namely 'no training', 'low', 'medium' and 'high' training exposure. The distribution of the livestock rearing women according to their training exposure is presented in Table 4.6.

Table 4.6 Distribution of the rural women according to their training exposure

Category	Range (days)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
No training	0	0-14	28	23.62	4.11	2.74
Low training	≤2		78	66.13		
Medium training	3-7		12	10.12		
High training	>7		26	22.23		
Total			118	100.0		

Table 4.6 indicates that the highest proportion (66.13 percent) of the livestock rearing women had low training exposure compared to 23.62 percent in no

training exposure and 10.12 percent in medium training exposure category, respectively and the rest women (22.23 percent) had high training. Training makes the women who rear livestock skilled and helps them to acquire deep knowledge about the respected aspects. Trained women who rear livestock can face any kind of challenges about the adverse situation in their livestock rearing. So, they show favorable behavior toward positive attitude towards livestock rearing.

4.1.7 Organizational participation

Organizational participation score of the livestock rearing women ranged from 2 to 8 with a mean and standard deviation of 4.59 and 1.55, respectively. Based on organizational participation score, the livestock rearing women were classified into three categories (Mean ± Standard Deviation) namely low, medium and high participation. The distribution of the women who rear livestock as per their organizational participation is presented in Table 4.7.

Table 4.7 Distribution of the rural women according to their organizational participation

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low participation	≤3	2-8	36	30.52	4.59	1.55
Medium participation	4-6		68	57.65		
High participation	>6		14	11.83		
Total			118	100.0		

Data reveals that the highest proportion (57.65 percent) of the women who rear livestock had medium organizational participation, while 30.52 percent had low organizational participation and the lowest 11.83 percent had high organizational participation. Table 4.7 showed that the maximum percentage is the category of the group of low to medium level organizational participation. It is because the rural women are religious and fallow the pardha system.

4.1.8 Financial facilities

The score financial facilities received by rural woman from different sources ranged from 8 to 15 with a mean and standard deviation of 11.92 and 2.16, respectively. Based on financial facilities received by rural woman score, the rural women were classified into three categories (Mean ± Standard Deviation) namely low, medium and high participation. The distribution of the rural woman as per their financial facilities is presented in Table 4.8.

Table 4.8 Distribution of the rural women according to financial facilities

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low facilities	≤9	8-15	42	35.51	11.92	2.16
Medium facilities	10-14		71	60.26		
High facilities	>14		5	4.23		
Total			118	100.0		

Data reveals that the highest proportion (60.26 percent) of the women had medium financial facilities, while 35.51 percent had low financial facilities and the lowest 4.23 percent had high received financial facilities category. Table 4.8 shows that the maximum percentage is the category of the group of low to medium received financial facilities category. It is because the rural women are the most targeted unit for the NGO to provide their loan with a view to improving their income generating workings through livestock rearing activities as well as others agricultural or non-agricultural workings.

4.1.9 Use of mass media

Use of mass media score of the rural women ranged from 7 to 18. The average and standard deviation were 11.80 and 2.48 respectively. Based on use of mass media, the women who rear livestock were categorized into three classes' (Mean ± Standard Deviation) namely low use, medium use and high use. The distribution of the livestock rearing women according to their use of mass media is presented in Table 4.9.

Table 4.9 Distribution of the rural women according to their uses of mass media

Category	Range (score)		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low use	≤9	7-18	26	22.13	11.80	2.48
Medium use	10-14		76	64.31		
High use	>14		16	13.56		
Total			118	100.0		

The observed data showed that most of the rural women (64.31 percent) had medium use while 22.13 and 13.56 percent of them had low, high use of mass media respectively (Table 4.9). In the rural area, there is little scope to contact any sort of mass media. If some cases they could not use them for a few confinements like as religious leader, social condition and so forth.

4.1.10 Livestock management practices

Livestock management practices score of the rural women ranged from 10 to 16 with a mean and standard deviation of 12.48 and 1.79, respectively. Based on livestock management practices score, the livestock rearing women were classified into three categories (Mean ± Standard Deviation) namely low, medium and high management practices. The distribution of the women who rear livestock as per their management practices is presented in Table 4.10.

Table 4.10 Distribution of the rural women according to their livestock management practices

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low practices	≤11	10-16	40	33.86	12.48	1.79
Medium practices	12-14		58	49.23		
High practices	>14		20	16.91		
Total			118	100.0		

Table 4.10 reveals that the highest proportion (49.23 percent) of the women who rear livestock had medium livestock management practices, while 33.86 percent had low livestock management practices and the lowest 16.91 percent

had high livestock management practices. Data shows that the maximum percentage is the category of the group of low to medium livestock management practices. It is because of existing poor extension contact, poor training on improved practices.

4.1.11 Marketing amenities

The score of marketing amenities on the study area ranged from 1 to 4 with a mean and standard deviation of 2.35 and 0.76, respectively. Based on marketing amenities score, the rural women were classified into three categories (Mean ± Standard Deviation) namely low, medium and high marketing amenities. The distribution of the rural women as per their marketing amenities is presented in Table 4.11.

Table 4.11 Distribution of the rural women according to marketing amenities

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low amenities	≤1	1-4	16	13.62	2.35	0.76
Medium amenities	2-3		97	82.17		
High amenities	>3		5	4.21		
Total			118	100.0		

Data reveals that the highest proportion (82.17 percent) of the women had medium marketing amenities, while 13.62 percent had low marketing amenities and the lowest 4.21 percent had high marketing amenities.

4.1.12 Knowledge on livestock rearing

Knowledge on livestock rearing scores of the rural women ranged from 11 to 25 against possible score of 0 to 30. The average score and standard deviation were 17.27 and 3.34, respectively. Based on the livestock rearing knowledge score were 17.27 and 3.34. Based on the knowledge on livestock rearing, the rural women were classified into three categories (Mean ± Standard Deviation) namely low, medium and high knowledge (Table 4.12).

Table 4.12 Distribution of the rural women according to their knowledge on livestock rearing

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low knowledge	≤ 13	11-25	13	11.02	17.27	3.34
Medium knowledge	14-21		90	76.33		
High knowledge	> 21		15	12.65		
Total			118	100.0		

Table 4.12 reveals that 76.33 percent of the rural women had medium livestock rearing knowledge, 11.02 percent had low knowledge and 12.65 percent had high knowledge on livestock rearing. Thus, an overwhelming majority (76.33%) of the rural women had medium knowledge. This lead to understanding that livestock production knowledge would reflected more by the medium knowledge on livestock rearing women group in the present study. Knowledge on livestock rearing of the rural women is mostly affected by the education of the rural women because education helps to enhance the eagerness to be acquainted with new variety or technology. Knowledge on livestock rearing of the respondent is also affected by the extension contact because with the increase of the communication exposure new thing can be taught. Knowledge on livestock rearing is very important aspects for creating positive attitude towards livestock rearing. Hence, rural women must require skill and modern knowledge to bring more yield and profit to ensure creating favorable attitude towards livestock rearing.

4.2 Attitude towards Livestock Rearing

Attitude towards livestock rearing of the rural women ranged from 4 to 16. On the basis of attitude towards livestock rearing, the respondents were categorized into three classes namely low favorable attitude, moderately favorable attitude and highly favorable attitude.

Table 4.13 Distribution of the rural women according to their attitude towards livestock rearing

Category	Range (score)		Rural women	
	Score	Observed	Number	Percent
Low favorable attitude	≤ 7	4-16	24	20.35
Moderately favorable attitude	8-13		78	66.13
Highly favorable attitude	> 13		16	13.52
Total			118	100.00

Table 4.13 shows that most of the rural women (66.13 percent) had a moderately favorable attitude towards livestock rearing while 13.52 and 20.35 percent of them had highly and low favorable attitude respectively. The attitude of the respondents expressed their perception about livestock rearing. It will be helpful for the researcher to judge or measure the acceptance/rejection of livestock rearing in the rural area.

4.3. Characteristics Related to Attitude of Rural Women towards Livestock Rearing

In order to estimate the attitude of rural women towards livestock rearing from the independent variables, multiple regression analysis was used which is shown in the Table 4.14.

Table 4.14 Multiple regression coefficients of contributing factors related to the rural women' attitude towards livestock rearing

Dependent variable	Independent variables	B	*p*	R^2	Adj. R^2	F	*p*
Attitude of rural women towards livestock rearing	Age	-0.09	0.216	0.631	0.603	12.349	0.001**
	Level of education	0.016	0.006**				
	Annual family income	0.006	0.498				
	Livestock rearing experience	0.118	0.008**				
	Contact with service providers	0.125	0.423				
	Training exposure	0.020	0.003**				
	Organizational participation	0.387	0.115				
	Financial facilities	0.394	0.016*				
	Use of mass media	0.225	0.024*				
	Livestock management practices	0.272	0.049*				
	Marketing amenities	0.074	0.810				
	Knowledge on livestock rearing	0.164	0.000**				

** Significant at $p < 0.01$;

* Significant at $p < 0.05$

Table 4.14 shows that level of education, livestock rearing experience, training exposure, financial facilities, use of mass media, livestock management practices and knowledge on livestock rearing had significant contribution to rural women attitude towards livestock rearing. Of these, level of education,

livestock rearing experience, training exposure and knowledge on livestock rearing were the most important contributing factors (significant at the 1% level of significance) followed by use of mass media, livestock management practices and financial facilities (significant at the 5% level of significance). Other variables were not found significant contributor to attitude of rural women towards livestock rearing.

The value of R^2 is a measure of how of the variability in the dependent variable is accounted for by the independent variables. So, the value R^2 0.631 means that independent variables accounts for 63% of the variation in attitude of rural women towards livestock rearing.

The adjusted R^2 indicates the loss of predictive power or shrinkage. Therefore, the adjusted value (0.603) tells us how much variance in Y (attitude of rural women towards livestock rearing) would be accounted if the model has been deprived from the populations from which the sample was taken.

The F ratio is 12.349 which is highly significance ($p<.001$). This ratio indicates that the regression model significantly improved the ability to predict the outcome variable.

The b-values indicate the individual contribution of each predictor to the model. Almost all predictors have positive b-values indicates if scores/ values of predictors (e.g. level of education) increases so do the extent of attitude of rural women towards livestock rearing. Level of education (b=0.016), this value indicates that level of education increase by one unit, attitude of rural women towards livestock rearing increase by 0.016 units. This interpretation is true only if the effects of all other predictors are held constant. However, each predictor may explain some of the variance in respondents' attitude towards livestock rearing conditions simply by chance. In summary, the models suggest that the DLS, DAE and NGOs should consider rural women's level of education, livestock rearing experience, use of mass media, training exposure, livestock management practices, financial facilities and knowledge on livestock rearing while implementing the programs towards livestock development.

4.4 Problem Faced by Rural Women towards Livestock Rearing

Problem faced by rural women towards livestock rearing scores ranged from 11 to 33 against possible score of 0 to 48. The average score and standard deviation were 21.5 and 5.45, respectively. Based on the problems on livestock rearing scores, the rural women were classified into three categories (Mean ± Standard Deviation) namely low problem, medium problem and high problem on livestock rearing (Table 4.15).

Table 4.15 Distribution of the rural women according to their problems on livestock rearing

Category	Range		Rural women		Mean	SD
	Score	Observed	Number	Percent		
Low problem	≤ 15	11-33	22	18.56	21.5	5.45
Medium problem	16-27		84	71.23		
High problem	≥ 27		12	10.21		
Total			118	100.0		

Table 4.15 reveals that 71.23 percent of the rural women had medium problems on livestock rearing, 18.56 percent had low problems on livestock rearing and 10.21 percent had high problems on livestock rearing. Thus, an overwhelming majority (71.23 %) of the rural women had medium problems on livestock rearing.

4.4.1 Rank order of problem faced by rural women

Rank order of the twelve strategies of problem faced by rural women towards livestock rearing is presented in the following Table 4.16. As per Problem Faced Index (PFI), lack of grazing land positioned the 1st, shortage of medicines in 2nd, Lack of proper training in 3rd and subsequently environmental hazards in last position regarding problems on livestock rearing. The findings indicated that grazing land is the main key factor for successful livestock production. To increase production there is no alternative of using land area

where the livestock population can easily access. Shortage of medicines is another problem to successful livestock production.

All problems regarding livestock production that are cited in the present study, was found to be a rank order in variation might be due to cause of importance, availability, required technical knowledge and performance and also cost effectively. Based on these criteria, problem faced by the rural women were ranked. The gradually low problems were as lack of grazing land, shortage of medicines, lack of proper training, lack of livestock rearing knowledge, improper management practices, lack of credit facilities, lack of qualified veterinary doctors, anthelmintic and diseases, lack of HYV breeds, high price of quality feed, marketing problem and environmental hazards.

Table 4.16 Rank order of problem faced by rural women in livestock rearing

Sl. No.	Nature of problems	PCI score	Rank
1.	Lack of grazing land	421	1st
2.	Shortage of medicines	406	2nd
3.	Lack of proper training	390	3rd
4.	Lack of livestock rearing knowledge	365	4th
5.	Improper management practices	348	5th
6.	Lack of credit facilities	331	6th
7.	Lack of qualified veterinary doctors	324	7th
8.	Anthelmintic and diseases	316	8th
9.	Lack of HYV breeds	301	9th
10.	High price of quality feed	295	10th
11.	Marketing problem	278	11th
12.	Environmental hazards	272	12th

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted in the Sadar upazila of Magura district to find out the attitude of rural women towards livestock rearing. According to Yamane's formula, the respondents comprised of 118 rural women constituted the sample of the study from the total population. A well-structured interview schedule was developed based on objectives of the study for collecting information. The independent variables were: age, level of education, annual family income, contact with service providers, livestock rearing experience, use of mass media, training exposure, organizational participation, livestock management practices, financial facilities, marketing amenities and knowledge on livestock rearing. The dependent variable of this study was the attitude of rural women towards livestock rearing. Data collection was started in 20 January, 2017 and completed in 20 February, 2017. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. In order to estimate the contribution of the selected characteristics of rural women to the attitude towards livestock rearing, multiple regression analysis was used. The major findings of the study are summarized below:

5.1 Major Findings

5.1.1 Attitude towards livestock rearing

The most of the rural women (66.13 percent) had a moderately favorable attitude towards livestock rearing while 13.52 and 20.35 percent of them had highly and poorly favorable attitude, respectively.

5.1.2 Selected characteristics of the rural women

Age: The young-aged rural women comprised the highest proportion (63.65 percent) and the lowest proportion by the old aged category (5.81 percent).

Level of education: Primary education constituted the highest proportion (56.87 percent) and the no respondents were found in can't read and sign category and above secondary category.

Annual family income: Medium annual income constituted the highest proportion (67.82 percent), while the lowest proportion in high income (14.43 percent) category.

Livestock rearing experience: The majority (71.23 percent) of the livestock rearing women fell in medium livestock rearing experience category, whereas the lowest 11.14 percent in high livestock rearing experience category.

Contact with service providers: The highest proportion (61.03 percent) of the rural women had medium contact with service providers and the lowest 16.12 percent fell in high contact with service providers.

Training exposure: The highest proportion (66.13 percent) had low training category and the lowest proportion (10.12 percent) had medium training.

Organizational participation: The highest proportion (57.65 percent) of the respondents had medium organizational participation and the lowest 11.83 percent had high organizational participation.

Financial facilities: 60.26 percent of the women had medium financial facilities category, while the lowest 4.23 percent rural women received high financial facilities category.

Use of mass media: Most of the rural women (64.31 percent) had medium use while 22.13 and 13.56 percent of them had low, high use of ICT in agriculture respectively.

Livestock management practices: The highest proportion (49.23 percent) of the women had medium livestock management practices, while the lowest 16.91 percent had high livestock management practices.

Marketing amenities: The highest proportion (82.17 percent) of the women had medium marketing amenities, while the lowest 4.21 percent had high marketing amenities.

Knowledge on livestock rearing: 76.33 percent of the rural women had medium livestock rearing knowledge, 11.02 percent had low knowledge and 12.65 percent had high knowledge on livestock rearing.

5.1.3 Characteristics related to attitude of rural women towards livestock rearing

Respondents' education, livestock rearing experience, use of mass media, training exposure, livestock management practices, financial facilities, and knowledge on livestock rearing were significant contributor and provided 63.1 percent contribution on rural women's attitude towards livestock rearing.

5.1.4 Problem faced by rural women towards livestock rearing

Majority (71.23 percent) of the rural women had medium problems on livestock rearing, 18.56 percent had low problems on livestock rearing and 10.21 percent had high problems on livestock rearing.

5.1.5 Rank order of problem confrontation

As per Problem Confrontation Index (PCI), lack of grazing land positioned the 1st, Shortage of medicines in 2nd, Lack of proper training in 3rd and subsequently environmental hazards in last position regarding problems on livestock rearing.

5.2 Conclusions

The findings and relevant facts of research work prompted the researcher to draw following conclusions.

i. It is important to realize about the temperament of human behavior which is very complex. The personality with its high complex elements manifests itself in different kinds of behavior. The nature of human behavior is determined to a more extent by those factors. To meet these resistances successfully, the extension personal should gradually try to bring about pleasing change in the attitude of people and establish a healthy relationship between them by all feasible means. It is, therefore, concluded that extension workers should vocation adequately with the farm people through various teaching methods and correctly envisaging those characteristics of the rural women which have some bearing on these activities.

ii. Level of education of the rural women showed the most important contributing factor in attitude towards livestock rearing. This means that high literacy and educational level among the rural women might have influenced high attitude towards livestock rearing. Conclusion could be drowned that these rural women could be more ameliorated in all aspects of socio-economic of life if government takes more educational project to make it more educated.

iii. It may be concluded that high livestock rearing experience encourage the rural women to rare more livestock.

iv. Conclusion could be drawn that if the rural women would be motivated to participate in training activities then the attitude towards livestock rearing would likely to enhance.

v. Financial facilities getting by the rural women had a significant contribution to the attitude towards livestock rearing. The above facts lead to the conclusion that financial facilities providing authority should introduce more customer friendly offers which would ultimately enhance the rural women attitude towards livestock rearing as well as livestock production.

vi. The findings revealed that use of mass media had a significant contribution to the attitude towards livestock rearing. Use of mass media increases the

outlook of the rural women which lead them to promote the attitude towards livestock rearing.

vii. Livestock management practices by the rural women had a significant contribution to the attitude towards livestock rearing. The above facts lead to the conclusion that necessary arrangements should be made livestock management practices which would ultimately increase the attitude towards livestock rearing as well as livestock rearing.

viii. Knowledge on livestock rearing of the rural women had a significant contribution to the attitude towards livestock rearing. The above facts lead to the conclusion that necessary arrangements should be made increase the knowledge of rural women which would ultimately increase the attitude towards livestock rearing.

5.3 Recommendations

5.3.1 Recommendations for policy

On the basis of observation and conclusions drawn from the findings of the study following recommendations are made:

i. It is, therefore, recommended that an effective step should be taken by the Department of Livestock Services (DLS) and Non-Government Organizations (NGOs) for strengthening the women's qualities in favor of attitude towards livestock rearing to a higher degree. It requires massive demonstration programs, training programs, field trips etc. should be implemented to bring about considerable changes in the rural women's attitude.

ii. Level of education of the rural women had a significant contribution to the attitude towards livestock rearing. It may be recommended that arrangements should be made for enhancing the education level of livestock rearing women by the concerned authorities through the establishment of night school, adult education and other extension methods.

iii. Livestock rearing experience of the rural women was important contributing factors to the attitude towards livestock rearing. Therefore, it is recommended that the extension workers should work with the experienced women to enhance the attitude towards livestock rearing.

iv. Since training exposure had significant contribution with the attitude towards livestock rearing, it is recommended that the concerned authorities should take necessary steps to mobilize the rural women towards training activities particularly arranged training on improved management techniques

v. It is recommended that financial facilities providing authority should be more flexible in case of providing financial supports to the rural women which would ultimately enhance the attitude towards livestock rearing as well as livestock production.

vi. The authorities provide extension support to the rural clienteles to increase the use of mass media. Therefore, it is recommended that the extension worker should provide supplementary supports to use mass media so that rural women themselves could come in contact with mass media.

vii. Livestock management practices of the rural women were important contributing factors to the attitude towards livestock rearing. Therefore, it is recommended that the extension workers should work with the rural women through practical management practices of livestock that would help to enhance the attitude towards livestock rearing.

viii. It should be selected on priority basis for any knowledge enhancing program Non-Government Organizations (NGOs) for gaining sustainable livestock production.

5.3.2 Recommendations for further study

On the basis of scope and limitations of the present study and observation made by the researcher, the following recommendations are made for future study.

i. The study area was purposively selected at Magura sadar upazilla due to resource and time limitations. Moreover, survey methodology used in this study, is limited in generalizing the findings. It is recommended that similar studies should be conducted in other areas of Bangladesh and compared with findings which would be effective and helpful for policy formulation.

ii. It is recommended that further study should be conducted with other characteristics i.e., aspiration of life, time spent in of rural women with their attitude towards livestock rearing.

iii. It is therefore suggested that future studies should be analyzed with other statistical techniques like stepwise regression, path analysis.

iv. The study was based on the attitude towards livestock rearing. Further studies may be conducted in respect of attitude of other crop production.

v. It is suggested that there should be continuous attitude research in various aspects for agricultural development in Bangladesh.

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APPENDIX-I

ENGLISH VERSION OF THE INTERVIEW SCHEDULE

Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University, Dhaka-1207

An Interview Schedule for the Study Entitled

ATTITUDE OF RURAL WOMEN TOWARDS LIVESTOCK REARING IN MAGURA SADAR UPAZILA

Name of the respondent: …… Serial No: ……

Union: …….

Village: ……..……..….

(Please provide following information. Your information will be kept confidential and will be used for research purpose only)

1. Age

How old are you? _____ years.

2. Level of education

Please mention your level of education.

a) I can't read and write ☐
b) I can sign only ☐
c) I have passed ……class.
d) I took _____ years non-formal education.

3. Annual family income

Please mention the amount of annual income from the following sources:

a) Income from agricultural crops

SL. No.	Crop Name	Production (Kg or Maund)	Income /Kg or Maund (Tk)	Total Income (Tk)
1.	Rice			
2.	Wheat			
3.	Maize			
4.	Jute			
5.	Potato			
6.	Pulse crop			
7.	Oil crop			
8.	Spice crop			
9.	Vegetables			
10.	Fruits			
Total				

b) Income from animals and fish resources

Sl. No.	Income resources	Production (Kg or Maund/Number)	Income /Unit (Tk)	Total Income (Tk)
1.	Livestock			
2.	Poultry			
3.	Fish resources			
Total				

c) Income from other resources

Sl. No.	Income resources	Total Income (Tk.)
1.	Service	
2.	Business	
3.	Day labor	
4.	Other family members	
5.	Others income source	
Total		

4. Livestock rearing experience

What is your present age of livestock rearing experience? ..... years

5. Contact with service providers

Mention the extent of contact with different service providers

Sl. No.	Name of information sources	Extent of contact				
		Regularly (4)	Frequently (3)	Sometimes (2)	Rarely (1)	Not at all (0)
1.	Livestock Field Assistant/ 3 months	≥ 8 times	6-7 times	4-5 times	1-3 times	
2.	Upazila Livestock Officer/6 months	≥ 10 times	8-9 times	4-7 times	1-3 times	
3.	Veterinary Surgeon/ Year	≥ 10 times	8-9 times	4-7 times	1-3 times	
4.	NGOs working for livestock programs/ 3 months	≥ 10 times	8-9 times	4-7 times	1-3 times	
5.	District Livestock Development Officer/ Year	≥ 5 times	3-4 times	2-3 times/ 3 months	1 times	
6.	Others (if any)	≥ 10 times	8-9 times	4-7 times	1-3 times	
Total						

6. Training exposure

Please mention about your training exposure on livestock rearing:

Sl. No.	Name of the training course	Organization	Days
01.			
02.			
03.			
04.			

7. Organizational participation

Please mention the nature of your participation:

Sl. No.	Name of organizations	Not involved (0)	Nature of participation		
			Ordinary Member (1)	Executive Member (2)	President/ Secretary (3)
1.	Co-operative society				
2.	BRAC				
3.	Grameen				
4.	Proshika				
5.	ASA				
6.	Others……				

8. Financial facilities

Please mention the financial facilities that your faced:

Sl. No.	Sources of financial facilities	Extent of financial facilities				
		Very High (4)	High (3)	Medium (2)	Low (1)	Not at all (0)
1.	Bank					
2.	Money lenders					
3.	Relatives					
4.	NGOs					
5.	GOs					
6.	Others (if any)					
Total						

9. Use of mass media

Please mention about your use of mass media:

Sl. No.	Mass media	Extent of usages of mass media				
		Regularly (4)	Frequently (3)	Sometimes (2)	Rarely (1)	Not at all (0)
1.	Radio					
2.	Television					
3.	Newspaper					
4.	Poster					
5.	Books, Magazines					
6.	Others (if any)					
Total						

10. Livestock management practices

Please mention the nature of your livestock management practices:

Sl. No.	Statement	Extent of management practices				
		Regularly (4)	Frequently (3)	Sometimes (2)	Rarely (1)	Not at all (0)
1.	Proper housing facilities					
2.	Proper feeding and drinking					
3.	Washing and cleaning					
4.	Using anthelmintic and disease control					
5.	Medication					
Total						

11. Marketing amenities

Please mention the following question:

Sl. No.	Question	Extent of livestock marketing				
		Very High (4)	High (3)	Medium (2)	Low (1)	Not at all (0)
1.	How are the marketing facilities of livestock in your area?					

12. Knowledge on livestock rearing

i. Knowledge on poultry rearing

Sl. No.	Questions	Full marks	Marks obtained
1.	How the poultry house should be cleaned and at what intervals?	2	
2.	Mention the types of feed for poultry rearing.	2	
3.	Name two improved breeds of chicken & duck.	2	
4.	Name two diseases of poultry.	2	
5.	What steps should be taken of disease affected poultry?	2	

ii. Knowledge on goat rearing

Sl. No.	Questions	Full marks	Marks obtained
1.	Mention two quality breeds of goat	2	
2.	What kind of shed is necessary for rearing goat?	2	
3.	Please mention the frequency of delivering offspring per year.	2	
4.	Mention two major diseases of goat	2	
5.	Please mention the name of two vaccine of goat.	2	

iii. Knowledge on cattle rearing

Sl. No.	Questions	Full marks	Marks obtained
1.	Mention the types of feed for cattle rearing.	2	
2.	Mention the way of keeping free from diseases of cattle house.	2	
3.	At what age cattle gets ready for its first offspring?	2	
4.	Mention two major diseases of cattle	2	
5.	Please mention the name of two vaccine of cattle.	2	

13. Attitude towards livestock rearing

Please express your opinion on the following issues:

Sl. No.	Statement	Extent of agreement/disagreement				
		SA	A	NO	D	SD
1(+)	It is possible to maintain a family through livestock rearing					
2(-)	It is difficult to get training regarding livestock rearing					
3(+)	Livestock rearing provides extra income					
4(-)	It is a difficult task to clean the house of livestock					
5(+)	Livestock rearing ensures nutrition of the family members					
6(-)	It is difficult to get credit regarding livestock rearing					
7(+)	Through livestock rearing women can contribute to family income					
8(-)	Natural calamities cause harm to the livestock					
9(+)	Livestock rearing can empower the rural women					
10(-)	The society doesn't support women to rear livestock					
11(+)	Women are interested to adopt technologies in livestock rearing					
12(-)	Unavailability of veterinary doctors causes high losses					
13(+)	Rural women can easily take care of livestock					
14(-)	Poor marketing system discourage livestock rearing					

N.B: SA= Strongly Agreed; A=Agreed; NO= No Opinion D=Disagreed; SD= Strongly Disagreed;

14. Problems faced by rural women in livestock rearing

Please express your opinion on the following problems:

Sl. No.	Nature of problems	Extent of problems				
		Very High (4)	High (3)	Medium (2)	Low (1)	Not at all (0)
1.	Lack of credit facilities					
2.	Marketing problem					
3.	Lack of qualified veterinary doctors					
4.	Anthelmintic and diseases					
5.	Lack of proper training					
6.	Lack of grazing land					
7.	Shortage of medicines					
8.	Lack of livestock rearing knowledge					
9.	Lack of HYV breeds					
10.	High price of quality feed					
11.	Environmental hazards					
12.	Improper management practices					

Thanks for your kind cooperation.

Dated: (Signature of interviewer)