

**PROBLEMS FACED BY THE RURAL WOMEN IN HOMESTEAD
VEGETABLE CULTIVATION: AN OPTION TO IMPROVE FOOD
SECURITY**

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**PROBLEMS FACED BY THE RURAL WOMEN IN HOMESTEAD
VEGETABLE CULTIVATION: AN OPTION TO IMPROVE FOOD
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BY

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CERTIFICATE

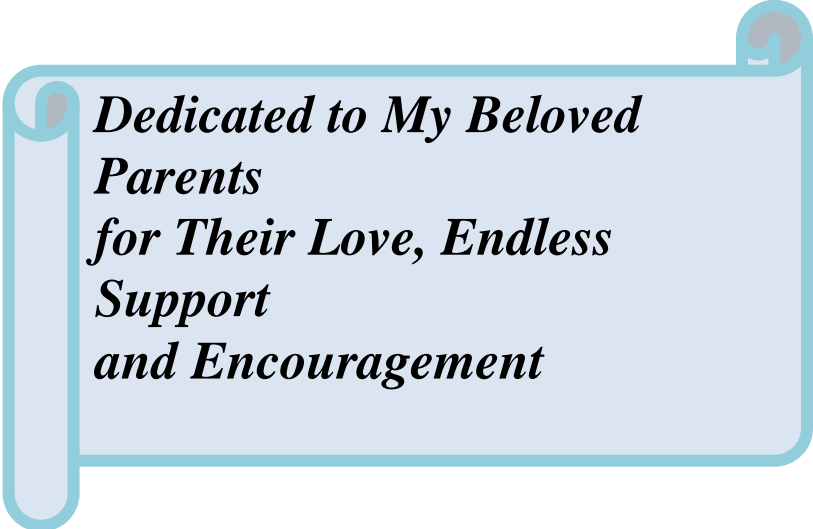
This is to certify that the research work entitled, **“PROBLEMS FACED BY THE RURAL WOMEN IN HOMESTEAD VEGETABLE CULTIVATION: AN OPTION TO IMPROVE FOOD SECURITY”** conducted by **MST. MUALLEMA KHANAM** bearing Registration No. **11-04250 (July-December/2018)** under my supervision and guidance in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE (M.S.) IN DEVELOPMENT AND POVERTY STUDIES** in the faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka-1207, Bangladesh. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information received during this study has been duly acknowledged by her.

Dated: December, 2018

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*Dedicated to My Beloved
Parents
for Their Love, Endless
Support
and Encouragement*

ABBREVIATION AND ACRONYMS

BBS	Bangladesh Bureau of Statistics
GDP	Gross Domestic Product
HIES	Household Income and Expenditure Survey
<i>et al.</i>	Latin phrase et alia which means "and others."
NGO	Non Government Organization
FAO	Food and Agriculture Organization
SPSS	Statistical Package for Social Science
BER	Bangladesh Economic Review
DAE	Department of Agricultural Extension
SD	Standard Deviation
ASA	Association for Social Advancement
BRAC	Building Resources Across Communities
RDRS	Rangpur Dinajpur Rural Service
HYV	High Yielding Variety

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The Authoress

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PROBLEMS FACED BY THE RURAL WOMEN IN HOMESTEAD VEGETABLE CULTIVATION: AN OPTION TO IMPROVE FOOD SECURITY

ABSTRACT

Vegetables play a very important role in human nutrition as source of fiber, trace minerals, vitamins, carbohydrates and proteins and help to prevent various diseases resulting from malnutrition and unbalanced diet. Along with the nutritional benefits, home-gardens provide potential food security to the house holder. The home-garden vegetables form an integral part of the family diet. Although every member of the family has some contribution, the major labour input was contributed by women. The purpose of the study was to find out the extent of problems faced by the rural women in homestead vegetable cultivation and to explore the relationships of the rural women's selected characteristics with their problems faced in homestead vegetable cultivation. The study was conducted in two selected villages Baikunthapur and Kasalbari under Akcha union of Thakurgaon Sadar upazilla under Thakurgaon district. Data were collected from a proportionately random sample of 74 rural women by using an interview schedule during the period from March, 2019 to May, 2019. The majority (62.2 percent) of the rural women faced medium problem in homestead vegetable cultivation, while 24.3 percent faced low and 13.5 percent faced high problem in homestead vegetable cultivation. Pearson's Product Moment Co-efficient of Correlation was used to examine the relationship of the selected characteristics of the rural women with their problems faced in homestead vegetable cultivation. Correlation analysis indicated that among nine selected characteristics of the rural women, four namely homestead area, farm size, knowledge on homestead vegetable cultivation and uses of information sources had significant negative relationship with their problem faced in homestead vegetable cultivation and the rest five characteristics namely, age, education, family size, annual family income, organizational involvement had no significant relationship with their problem faced in homestead vegetable cultivation. On the basis of Problem Faced Index, it was observed that "lack of homestead area" ranked first followed by " Insect and disease infestation, Cattle and goat destroy the vegetables, Lack of technical knowledge, Lack of quality seeds and seedlings were major four problems in homestead vegetable cultivation.

CHAPTER I

INTRODUCTION

1.1 General Background

Bangladesh is a developing country of about 158.9 million people(BBS,2015) inhabiting in its 147,570km²area. She has primarily an agriculture-based economy contributing 14.23% of country's GDP(BER,2018).The population in Bangladesh is predominantly rural. Rural population (% of total population) in Bangladesh was reported at 64.96 %, among them 33.17% are rural women (World Bank, 2016). An overwhelming majority of rural population is mainly dependent on agriculture sector both for its employment and livelihood. Development of socio-economic condition of Bangladesh fully depends upon the development of the village. An estimated 21.8% of the population in rural areas lives below the poverty line (HIES, 2018). They suffer from persistent food insecurity. Another 29 percent of the rural population is considered as moderately poor. Though they may own a small plot of land and some livestock and generally have enough to eat, their diets lack nutritional value (Wikipedia). For ensuring better quality of life for rural people ensuring food security as well as nutritional security is a major concern. Animal foods which are the richest sources of many micronutrients, including Vitamin A, are beyond most people's reach in Bangladesh. But the poor people can easily get vitamin A from consuming different vegetables such as carrot, winter squash, spinach etc. Hence, promoting the production and consumption of comparatively cheap vegetables and fruits is an important strategy for combating nutritional deficiency.

Vegetable farming can play an important role in reducing poverty by providing food, cash income, and employment opportunities for the rural poor. Vegetables are usually considered to be productive and high value crops. A homestead vegetable garden is the main supply source for vegetables, fuel wood, and fruits, and is also a reliable source of additional household income (Fariduddin *et al.*,2003). This additional income is generally utilized to purchase supplementary food items, household goods, chickens, medicines and for children's education. It also helps to improve rural nutrition. This type of gardening is feasible for even the poorest people since it relies on low-cost low-risk technology. Women are very actively involved in vegetable production, despite their routine domestic work. Women are largely responsible for all the tasks

associated with developing and maintaining the family's home garden, including land preparation, weeding, harvesting, and saving seeds. Socioeconomic development in Bangladesh very much depends on agriculture; however, a huge number of farmers are marginal or landless with less than 15 decimals (40 m²/decimal) of land beside their homestead areas(Biswas,2013). This sector of the population suffers from poverty, malnutrition, anemia, night blindness, poor growth and development of children, and micronutrient deficiency. Homestead vegetable cultivation can provide adequate nutrition to the women farmers and their family members, and generate income opportunities. Consuming diverse types of nutrient-dense vegetables regularly can help alleviate these problems (Biswas,2013).

All the leafy vegetables were found to be very popular as well as nutritious, and they are the major produce (72-75% of yield) from the homestead gardens with high remunerative value. In addition to regularly consuming the vegetables produced in homestead gardens, around 20-25% of women farmers sold the surplus vegetables to the market (Biswas,2013). By generating extra income, they were able to purchase other high value foods such as milk and eggs for their family, and some of them were able to buy books, pencils and pens for their children. In most of the cases, the women farmers share 35-50% of their total harvest with their neighbors, which builds up their confidence in the society and establishes good neighborhood relationships (Biswas,2013).

Despite their domestic work, rural women in Bangladesh are performing an active role in ensuring household food security. They not only ensure protein supply of the family by rearing livestock or poultry but also contribute to household diet by growing various vegetables and fruits in homestead garden. Women play a key role in home gardening and vegetable growing. Farm activities in the homesteads, ranging from selection of seed to harvesting and storing of crops, are predominantly managed by women. According to statistics, rural women contribute 25-50 percent of household income in rural families. (Karmokar,2018)

According to Dietary Guideline for Bangladesh,2013, per day at least 100g leafy and 200 g non-leafy vegetable consumption is recommended for an adult man / woman , whereas Bangladeshi people are consuming only around 166.1 g/head /day (Country Nutrition Paper

Bangladesh,2014). However, research findings also suggest that lack of nutritional knowledge contributes to the problem of malnutrition (Bhuyan *et al.*, 2001).

Cultivable land is a scarce resource in densely populated Bangladesh, which are mostly employed for production of rice and other field crops. However, many small homesteads of Bangladesh remain unutilized/ underutilized/not scientifically managed, which could be brought under round the year vegetable cultivation for improving household food security. Farmers generally grow different vegetables and fruits in the surrounding area of their households in unplanned and non-scientific manner. Scientific production and utilization of the homestead can reduce purchase of expensive vegetables from outside source, earn a small cash income by selling vegetables which may increase accessibility to other food thus in turn increase the diversification of the family's diet or meeting any basic need.

1.1.1 Status of rural women in Bangladesh

The social context in Bangladesh is characterized by female seclusion and subordination, which combine to relegate women to a restricted role, mainly involving domestic work. From childhood, most rural women have been taught to be obedient wives; their primary role is to bear children and maintain household responsibilities. The fact that they are expected to eat only after their husbands and sons have finished. Poverty, oppression, and illiteracy, combined with limited exposure to new information, have reduced the ability of many rural women to learn about life outside their homesteads and immediate surroundings; as a result, they are seldom consulted on the majority of household decisions. Under these conditions, most rural women are forced to depend on their husbands, who exercise complete control, which further damages any residual self-confidence they may have.

Many rural women in Bangladesh have completely internalized their inferior status; their self-image is very low, their creativity is stifled, and they believe that their inferiority is both real and inevitable. Ironically, the extremely poor women, who have no money, cannot afford to observe seclusion. As a result, they enjoy much more freedom, as they must leave home to work. In the recent decades many NGOs are working to improve the social status of rural women by engaging them in income earning activities. Some NGO emphasize on homestead vegetable gardening through providing knowledge, training, quality seeds to the rural women. Many of these poverty-

stricken women have learned how to earn money inside or outside household compounds and have been contributing to household economic well-being. These women are learning that they are valuable to society and to themselves and are gaining some sort of self-esteem and influence over business and general household decisions. The rural women who are actively involved in such type of different NGO programs contribute more in strengthening household food security.

1.1.2 Homestead vegetable gardening and its importance

A homestead is a house and surrounding land owned by a family often, it includes a farmhouse. A home garden refers to the traditional land use system around a homestead, where several species of plants are grown and maintained by the household members and their products are primarily intended to the family consumption.

A homestead garden is intended to utilize the space around a house to grow vegetables and limited food crops. Many vegetables can be grown in homestead such as cabbage, carrot, eggplant, cauliflower, tomato, radish, sweet gourd, wax gourd, bitter gourd, teasel gourd, pointed gourd, etc. Much care is not taken or necessary for growing these vegetable in Bangladesh (Weinberger and Genova, 2005). Little attention is given to cultivate these vegetables, though these are very important source of human nutrition. There is a great scope for increasing the production of vegetable throughout the year. Thus, homestead farming is the most significant system of production in rural Bangladesh.

Home gardens are defined as small areas of cultivated land immediately surrounding the home or homestead. These home gardens can play a vital role in the production of vegetables and fruits throughout the country and can promote household food self-sufficiency. An increase in the production and productivity of home gardens may be a viable alternative for providing food and nutritional security in poor households of Bangladesh. The important benefits of home gardens include improved food security, increased availability of food and better nutrition through food diversity, income and enhanced rural employment, decreased risk through diversification, as well as environmental benefits through recycling water and waste nutrients. Their potential contributions to food security, income and rural employment have widely been reported by the Food and Agriculture Organization of the United Nations, in Asia, for example, in Bangladesh, Sri Lanka, India, Indonesia and the Philippines, as well as beyond Asia.

Al-Mamun *et al.* (2010) argues that home gardening activities are centered on women and it can also increase the income of women, which may result in the better use of household resources and improved caring practices and empowerment. This empowerment of women also addresses a priority area of poverty alleviation and provides important socio-economic returns through lower health and welfare costs, lower fertility, and lower maternal and infant mortality rates. Undoubtedly, women can play a vital role if their full talent can be explored in homestead vegetable cultivation. If women can perform their roles in homestead vegetable cultivation properly and skillfully, they will be able to ensure food security and family nutrition, increase family income and contribute to the overall improvement of Bangladesh.

Home gardens are an integral part of local food systems and the agricultural landscapes of developing countries all over the world have endured the test of time (Galhena *et al.* 2013).

Several studies suggest that home gardens can be an option for food and nutritional security in disaster, conflict, and other post-crisis situations (Galhena *et al.*, 2012; Wanasundera *et al.*, 2006). Homestead perhaps the most important production unit in Bangladesh, which accounted about 25.36 million in the country with 21.90 million in the rural areas (BBS, 2011). These homesteads occupied about 0.54 million hectares of land (BBS, 2011). Therefore, considering the above importance more attention towards home gardening as a strategy to enhance household food security and nutrition is to be needed to utilize the fallow homestead land.

1.1.3 Vegetable consumption

Vegetables play a very important role in human nutrition as sources of minerals (Iron, calcium etc.) and different vitamins which are absent in adequate quantities in other food items. Fruits and vegetables serve the same nutritional purpose, but vegetables are much easier and cheaper to produce. Vegetables, in proper combination, not only supply carbohydrate and protein but also minerals and vitamins. This will greatly help to prevent various diseases which result from malnutrition and unbalanced nutrition.

According to Dietary Guideline for Bangladesh, 2013, per day at least 100g leafy and 200 g non-leafy vegetable consumption is recommended for an adult man / woman, whereas Bangladeshi people are consuming only around 166.1 g/head /day (Country Nutrition Paper

Bangladesh,2014). However, research findings also suggest that lack of nutritional knowledge contributes to the problem of malnutrition (Bhuyan *et al.*, 2001).

Vegetables are rich sources of essential vitamins such as A, C, niacin, riboflavin and thiamin and minerals such as calcium and iron. They contribute to the intake of essential nutrients from other foods by making them more palatable. They provide dietary fiber necessary for digestion and health and are essential for maintaining health curing nutritional disorders(Terry and Leon, 2011). In Bangladesh, the average per capita daily vegetable intake is 56g per day, whereas the recommended intake is 250g/day (FAO, 2015). Vegetables make up a major portion of the diet of human in many parts of the world and play a significant role in human nutrition, especially as sources of phytonutrient : vitamins (C, A, B1, B6, B9, E), minerals, dietary fiber and phytochemicals (Dias,2012).

According to Dietary Guidelines of Bangladesh (2013), fiber in vegetables helps to remove waste as well as eliminate excess cholesterol and some carcinogenic compounds. Regular consumption of these foods helps to prevent vitamin A deficiency and anemia. Research has shown that beta carotene and vitamin C in vegetables can prevent fat from depositing in blood vessels and also reduce the risk of some types of cancer. Bangladesh is fortunate in having a wide range of leafy vegetables and local seasonal fruits. They should be taken regularly as part of the diet, and especially of children and adolescents to keep them strong and healthy. It is suggested that everyone should eat a variety of vegetables during every meal. Experts suggest to eat at least 100g leafy and 200g non-leafy vegetables daily. Vegetables should be taken according to seasonal availability.

1.1.4 Food security

Food security is a measure of the availability of food and individuals' accessibility to it, where accessibility includes affordability. Home gardens play an important role in household food security of Bangladesh and have thus become an integral part of rural households (Roy, et. al, 2013). Home gardens are operational farm units, especially in tropical and subtropical countries, which mainly engage women family labor and sustain high agricultural production. However, production is still considered as supplemental rather than a main source of family consumption and income (Galhena, et. al, 2013). Homestead area is more effective and common production

unit for fulfilling various household basic needs such as food, fuel, timber and others including employment of female and aged household members. Vegetable intake largely provided required amount of Vitamin A, C, calcium and iron. Thus food security was increased; nutritional deficiency was reduced along with women empowerment. Home gardening is one of the most promising and suitable local practices in Bangladesh to meet the household as well as community level demands of vegetables and nutrition. Though homestead gardening is individual efforts, however it shares and transfers knowledge, technology and other logistics among the community to inspire vegetable gardening into their homestead. Moreover women are responsible for maintaining the homestead garden for their own household food security and get some financial solvency. Therefore, this approach provides other family to nurture homestead gardening for their own food sufficiency, local demand and urban market chain.

1.2. Statement of the problem

Problem refers to a matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome. In almost every problem solving methodology the first step is defining or identifying the problem. It is the most difficult and the most important of all the steps. It involves diagnosing the situation so that the focus on the real problem and not on its symptoms. A well-defined problem often contains its own solution within it, and that solution is usually quite obvious and straightforward. By defining problems properly, we can make them easier to solve, which means saving time, money and resources.

Four million people, including more than a million women, are engaged in commercial or homestead vegetable cultivation in Bangladesh. Farmers can earn considerably more from vegetable farming than from cultivating traditional crops such as rice and wheat. The vegetable sector thus plays an important role in improving the livelihoods of small farmers.

Due to its size and potential, the vegetable sector is also of great significance for the Government of Bangladesh. In Bangladesh women are not habituated generally in working outside and their movement is mostly restricted within the homestead area.

The success of a home garden is determined by the production of vegetables throughout the year. It is possible to produce a large number of nutritious local varieties of vegetables without significant amounts of money, time, and land.

With a view to conduct an investigation on the difficult situation confronted by rural women in homestead vegetable cultivation which significantly can contribute in food security, the researcher undertook this piece of study entitled “**Rural Women Participation in Homestead Vegetable Cultivation to Improve Food Security**”.

The purpose of this study was to know the answer of the following questions:

1. What were the characteristics of rural women?
2. What was extent of problems faced by the rural women in homestead vegetable gardening?
3. Which problem seems to be the most severe by the rural women in homestead vegetable gardening?
4. What were the relationship between the selected characteristics of the rural women and their problem faced on homestead vegetable cultivation?

1.3. Objectives of the study

The following specific objectives are formulated in order to get proper direction of the study:

- i. To describe the socio-economic background of the rural women engaged in homestead vegetable gardening.
- ii. To assess the extent of problems faced by rural women in homestead vegetable gardening.
- iii. To compare the problems of homestead vegetable gardening and
- iv. To explore relationship between women’s selected characteristics and their problems faced on homestead vegetable gardening

1.4. Scope of the study:

Many homestead areas from small to large farmers of Bangladesh remain fallow or unutilized, which is a common phenomenon. There is a chance to bring these homesteads under vegetable production round the year including growing and/or management of quick growing fruit trees in a scientific way.

Homestead gardening in Bangladesh is traditionally the responsibility of women. They face many problems in homestead vegetable gardening which make them sometimes reluctant for involvement in homestead gardening. When the problems can be minimized and making the rural women be involved in different programs related to homestead gardening, their participation in homestead vegetable cultivation will be increased to a great extent.

Identification of the problems faced by rural women in homestead vegetable production is therefore important particularly for policy formulation and programs interventions for development of women.

The researcher strongly hope that this publication will further help to advocate for homestead vegetable production programs and that these programs will receive the appropriate attention from governments and donors in the effort to combat malnutrition and poverty.

1.5 Assumption of the Study

The researcher had the following assumptions in mind while undertaking this study:

1. The selected respondents included in the sample were competent enough to reply the questions made by the researcher.
2. The responses furnished by the respondents were valid and reliable.
3. Information furnished by the respondents included in the sample was the representative opinion of the whole population of the study area.

4. The researcher who acted as interviewer was well adjusted to social and environment condition of the study area. Hence, the respondents were free from hesitation and furnish correct opinion.
5. All the data regarding the variables of the study were normally and independently distributed with mean and standard deviation.

1.6.Limitation of the study

In order to make the research meaningful and manageable from the practical point of view, considering the time, money and other resources available to the researcher the study was limited by the following constraints:

- i. The study was confined to selected two villages of Akcha union under Thakurgaon Sadar upazilla under Thakurgaon district.
- ii. The study only focused on the problems faced by the rural people in homestead vegetable gardening.
- iii. There were many rural women in the study area, but only 74 rural women were considered for this study.
- iv. There were many characteristics of the rural women but only some of them were selected for this study.
- v. For information about the study, the researcher depended on the data as furnished by the sampled respondents during the interview. As none of the respondents kept records, they furnished information to the different queries by recall.
- vi. All data and other information were collected within short possible time.
- vii. Because of time and resource constraints, conducting a comprehensive study in full depth and width has not been possible.

1.7 Definition of Terms

For ease of understanding, the terms which have been frequently used throughout the research work are defined and interpreted below:

Problems in homestead vegetable cultivation: Problem in homestead vegetable cultivation means any difficult situation which requires some actions to minimize the gap between “what ought to be” and “what is”. The term problem in homestead vegetable cultivation refers to extent of different problems faced by the rural women in homestead vegetable cultivation.

Rural Women: In the present study, rural women were housewives living in village and engaged in homestead vegetable cultivation directly or indirectly.

Respondent: The term “respondent” refers to the rural women who are involved in homestead vegetable cultivation and are included to the sample

Age: Age of a respondent defined as the period of his/her life and is operationally measured by the number of years from his/her birth to the time of interviewing. Age was measured in terms of years based on her response.

Education: Education was measured by assigning score against successful years of schooling by a rural woman.

Family size: Family size of house hold was defined as the number of individuals in the family including herself, her husband, children and other dependent members who live and eat together.

Homestead area: The homestead area for this study was defined as the raised land in which the household had its entire dwelling including living rooms, kitchen, cattle shed, goat shed, front yard, and area under vegetables, fruit trees, timber trees, backyard bushes, bamboo bunches etc.

Annual Income: Annual income refers to annual family income. It was defined as the total earning of the respondent and the members of her family from agriculture and other sources (services, business, labor etc.) during a year.

Farm Size: It refers to the total area of land owned by a woman or by her husband on which farming activities are carried out. Farm size of a respondent includes the cultivable land which may be owned and cultivated by own self, given to others or taken from others on sublease or lease system and area of pond.

Knowledge on Homestead Vegetable Cultivation: It refers to the rationalistic understanding of the rural women about different activities related to vegetable cultivation in the homestead area.

Uses of information sources: It refers the extent of getting information by the respondents and making benefitted themselves from different information sources.

Organizational involvement: Organizational participation of any respondent refers to her contact with and participation in various organizations within a specified period of time. One can take part in different activities of organizations as ordinary member, executive member or an officer.

CHAPTER II

REVIEW OF LITERATURE

This chapter is devoted to the review of past researches related to this study. The researcher made extensive effort to review the previous research works directly or indirectly relevance to the present study by different researchers in home and abroad. It was found that a good number of research activities concerning homestead vegetable cultivation which discussed problems faced in homestead vegetable gardening as a part of research have been made in many countries of the world including ours. The researcher also reviewed the thesis containing in the digital agricultural thesis archival web portal of Bangladesh established by Ali (2012).

However, The literature reviewed were presented in the following three major sections:

First section: Problems faced by rural women in homestead vegetables cultivation

Second section : Relationships between Selected Characteristics of the rural women and Problems faced by them in homestead vegetable cultivation

Third section : The Conceptual Framework of the Study

2.1 Reviews on problems faced by rural women in homestead vegetables cultivation

Kumar *et al.*(2017) concluded from a study which was conducted at Dzongu area, North Sikkim, India that input, technical and post-harvest/value addition constraints were the most serious constraints faced by the respondent/farmers in homestead farming.

Schreinemachers *et al.* (2015) mentioned that many women mentioned that seeds were too expensive, or that they were unavailable in small packs suitable for home production. In addition, many women reported that some of their vegetables had been stolen or eaten by foraging livestock and other animals. Many women also mentioned limitations in accessing water.

Jahan (2014) found from a study which was conducted in some selected villages under Brahmanbaria district that some selected problem e.g. lack of credit, lack of technical knowledge, insect and disease infestation, higher price of inputs, lack of quality seeds and

seedlings, cattle and goat destroy the vegetables, lack of homestead land, lower fertility of homestead land, lower market price of products, lack of required information in time all of which are orderly ranked according to her Problem facing index are confronted by the rural women in homestead vegetable gardening.

Khan *et al.* (2009) observed in a study that the constraints to the adoption of vegetable production by the farmers were non-availability of good quality seed and seedlings.

Rahman *et al.* (2008) found from a study that most of the respondent indicated “shortage of irrigation water in dry season” a highest problem. Actually irrigation was the most important factor for cultivation of vegetable, in the Rabi season. Irrigation of vegetable in home-garden is possible by water supply from tube well and shallow tube wells or other sources. In their study area most of the respondent’s household is in high land and in dry season draw down water level. Then maximum tube-wells were gone out of order. So they faced severe problem in irrigation problem. Lack of quality seed was identified as another major problem. Farmers always need high quality vegetable seeds, because they have lack of technical knowledge on quality seed production and seed preservation. Sometimes they lost their money and crops because of buying low quality seeds.

Rahman *et al.* (2008) also found that high input cost was identified as another major problem. Farmers need to purchase required inputs. Sometime input dealers and agencies cheat the farmers by taking high price for inputs. Poultry and livestock were identified as a problem in homestead vegetable gardening. Poultry and livestock damaged vegetables. So home gardening needs protections and sometimes it is too expensive. Lack of storage facility was also a problem. Sometimes respondents produced excess vegetable, which they could not consume. So a large amount of vegetables were in wastage loss. Respondents had no technical knowledge of preservation.

Rahman *et al.* (2008) also stated that lack of marketing facility was another problem. Respondents sold their vegetable in the local market due to communication facilities .So they did not got good price. Lack of capital was a problem of the study area. Respondents initially need financial support to establish a home garden. Lack of technical knowledge on vegetable

production and preservation, insect/pest attack on vegetables and consuming vegetable as food were identified as problem.

Uddin (2004) in his study identified five aspects of constraints in commercial cultivation of vegetables viz. seed constraints, disease and insect infestation constraints, field management constraints, marketing of vegetable constraints and extension work constraints. Among these aspects of constraints, he revealed disease and pest infestation constraints severely faced by the farmers.

Rahman (2003) stated that major constraints of home-garden management are scarcity of land, poverty and inadequate technical support.

2.2 Reviews of literature concerning relationships between rural women's characteristics and their problems faced in homestead vegetable cultivation

Unfortunately, no research work had found directly related to the problem confrontation in homestead vegetable cultivation. However some reviews collected from research works related to problem confrontation by the farmers in different aspects of agriculture are presented below:

2.2.1 Age and problem faced

Elias (2015) found from a study on farmers' problem confrontation in crop diversification that there was significant negative relationship between farmer's age and their problems faced in crop diversification.

Mortuza (2015) found that age had no significant relationship with their problems faced in maize cultivation

Panditet *al.* (2013) found no significant relationship between farmer's age and their problems confronted in commercial vegetable cultivation.

Hossain *et al.* (2011) revealed that age of the respondents had no significant relationships with problem confrontation towards seed potato production.

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

2.2.2 Education and problem faced

Hossain (2016) found that respondent's age had significant negative contribution to their constraints in vegetable cultivation.

Elias (2015) found from a study on farmers' problem confrontation in crop diversification that there was significant negative relationship between farmer's education level and their problems faced in crop diversification.

Mortuza (2015) found that level of education had no significant relationship with their problems faced in maize cultivation.

Panditet *al.* (2013) revealed that education had significant negative correlation with the constraints faced by the farmer in commercial vegetable cultivation.

Rahman (2008) found from a study that the education of the farmers had negative significant relationship with farmers' problem confrontation of the farmers in vegetable cultivation.

2.2.3 Family size and problem faced

Mortuza (2015) found that respondent's family size had no significant relationship with their problems faced in maize cultivation

Panditet *al.* (2013) revealed that family size had significant negative correlation with the constraints faced by the farmer in commercial vegetable cultivation.

Pk (2007) revealed that family size of the farmers had no significant relationship with their constraints faced in oil seed and pulse cultivation.

Rahman (2008) found from a study conducting on vegetable cultivation that the relationship between family size and problem faced by the farmer in vegetable cultivation was not significant.

Rahman (2006) stated that a negative relationship was found to exist between family size of the growers and constraints of disease in banana cultivation. He also found that there was negative correlation between family size of the growers and constraints of agricultural credit in banana cultivation. He noted that there was positive correlation between family size of the growers and constraints of field Management in Banana Cultivation.

2.2.4 Homestead area and problem faced

Islam (2017) found from a study titled by problems faced by the bean farmers of Pabna District that bean cultivation area had non-significant relationship with their problems faced in bean cultivation.

Chowdhuri (2016) revealed from a study which was undertaken to examine problems faced by the farmers in floating vegetable cultivation that there was significant negative relation between the area under floating vegetable cultivation and the problems faced by the farmers in floating vegetable cultivation.

Imran (2016) found from a study that betel leaf cultivation area had a nonsignificant relationship with the problems faced by farmer in betel leaf cultivation.

Mortuza (2015) found from a study which was conducted to examine problems faced by maize cultivator that total maize cultivation had significant negative relationship with their problems faced in maize cultivation.

Rahman (2008) revealed from a study conducting on vegetable cultivation that the relationship between area under cultivation and problem faced by the farmer in vegetable cultivation was not significant.

2.2.5 Annual income and problem faced

Elias (2015) found from a study on farmers' problem confrontation in crop diversification that there was no significant relationship between farmer's annual income and their problems faced in crop diversification.

Mortuza (2015) found that annual family income had no significant relationship with their problems faced in maize cultivation.

Baten (2014) revealed that annual family income had no significant relationship with their problem faced in cotton cultivation.

Hossain *et al.*(2011) found from a study that annual income of the respondents had no significant relationships with problem confrontation towards seed potato production.

Rahman (2008) found from a study that relationship between farmer's annual income and their problems confrontation was not significant.

2.2.6 Farm size and problem faced

Hossain (2016) found that the effective farm size of the vegetable farmers had highest significant positive contribution to their constraints in vegetable cultivation.

Elias (2015) found from a study on farmers' problem confrontation in crop diversification that there was no significant relationship between farmer's farm size and their problems faced in crop diversification.

Mortuza (2015) found that farm size had no significant relationship with their problems faced in maize cultivation.

Panditet *al.* (2013) revealed that farm size had significant negative correlation with the constraints faced by the farmers in commercial vegetable cultivation.

Rashid (2003) found from a study that the farm size had no relationship with problem confrontation in selected agricultural production activities.

2.2.7 Knowledge of homestead vegetable gardening and problem faced

Mortuza (2015) revealed that knowledge on maize cultivation had significant and negative relationship with their problems faced.

Baten (2014) revealed that there is no relationship between cotton cultivation knowledge of the farmers and their problems faced in cotton cultivation.

Panditet *al.* (2013) revealed that knowledge of vegetable production had significant negative correlation with the constraints faced by the farmers in commercial vegetable cultivation.

Kabir *et al.* (2011) also observed significant negative relationship between knowledge on nursery management and constraints faced by the nursery owners' in sapling production.

Hossain *et al.* (2011) found that knowledge on potato production had significant negative relationships with their problem confrontation towards seed potato product.

2.2.8 Information sources uses and problem faced

Mortuza (2015) revealed that extension media contact had significant and negative relationship with their problems faced.

Panditet *al.* (2013) revealed that extension media contact had significant negative correlation with the constraints faced by the farmers in commercial vegetable cultivation.

Hossain *et al.* (2011) found that knowledge on potato production had significant negative relationships with their problem confrontation towards seed potato product.

Rahman (2008) revealed from a study conducting on vegetable cultivation that the relationship between extension contact and problem faced by the farmer in vegetable cultivation was significant and negatively related.

Halim (2003) revealed that there was significant negative relationship between farmers' extension contact and constraints faced by them in adopting crop diversification.

2.2.9 Organizational involvement and problem faced

Islam (2017) observed negative significant relationship between organizational participation and problem faced by the bean farmers.

Hossain (2016) found that Organizational participation had no significant effect on constraints faced by the farmer in vegetable production.

Elias (2015) found from a study on farmers' problem confrontation in crop diversification that there was no significant relationship between farmer's organizational involvement and their problems faced in crop diversification.

Rahman (2008) revealed from a study conducting on vegetable cultivation that the organization involvement and problem faced by the farmer in vegetable cultivation was significant negatively related.

Huque (2006) found that extension media contact of the farmers had high significant negative relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) also found that organizational participation of the farmers had significant negative relationship with their constraints faced in banana cultivation of Sonargaon Upazilla under Narayangonj district.

2.3 Conceptual Framework

Conceptual frameworks are often visual in nature and allow those reading the framework to understand the flow of research. In other words, the conceptual framework is the researcher's understanding of how the particular variables in his/her study connects with each other. Thus, it identifies the variables required in the research investigation. It is the researcher's "map" in pursuing the investigation. In scientific research, selection and measurement of variables constitute an important task. This study is concerned with the "problems faced by the rural women in homestead vegetable gardening: an option to increase food security." It is evident from the past studies that every occurrence or phenomenon is the consequence of a number of variables, which may or may not be interdependent or interrelated with each other. In other words, no single variable can contribute wholly to an incident. Variables together are the cause and the occurrence is effect and thus, there is cause- effect relationship everywhere in the universe. Thus, the problems faced by the rural women in homestead vegetable gardening was the focus or dependent variable and 9 selected characteristics of the rural women were considered as the causal or independent variables to the study. Considering the above mentioned

discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure 2.1:

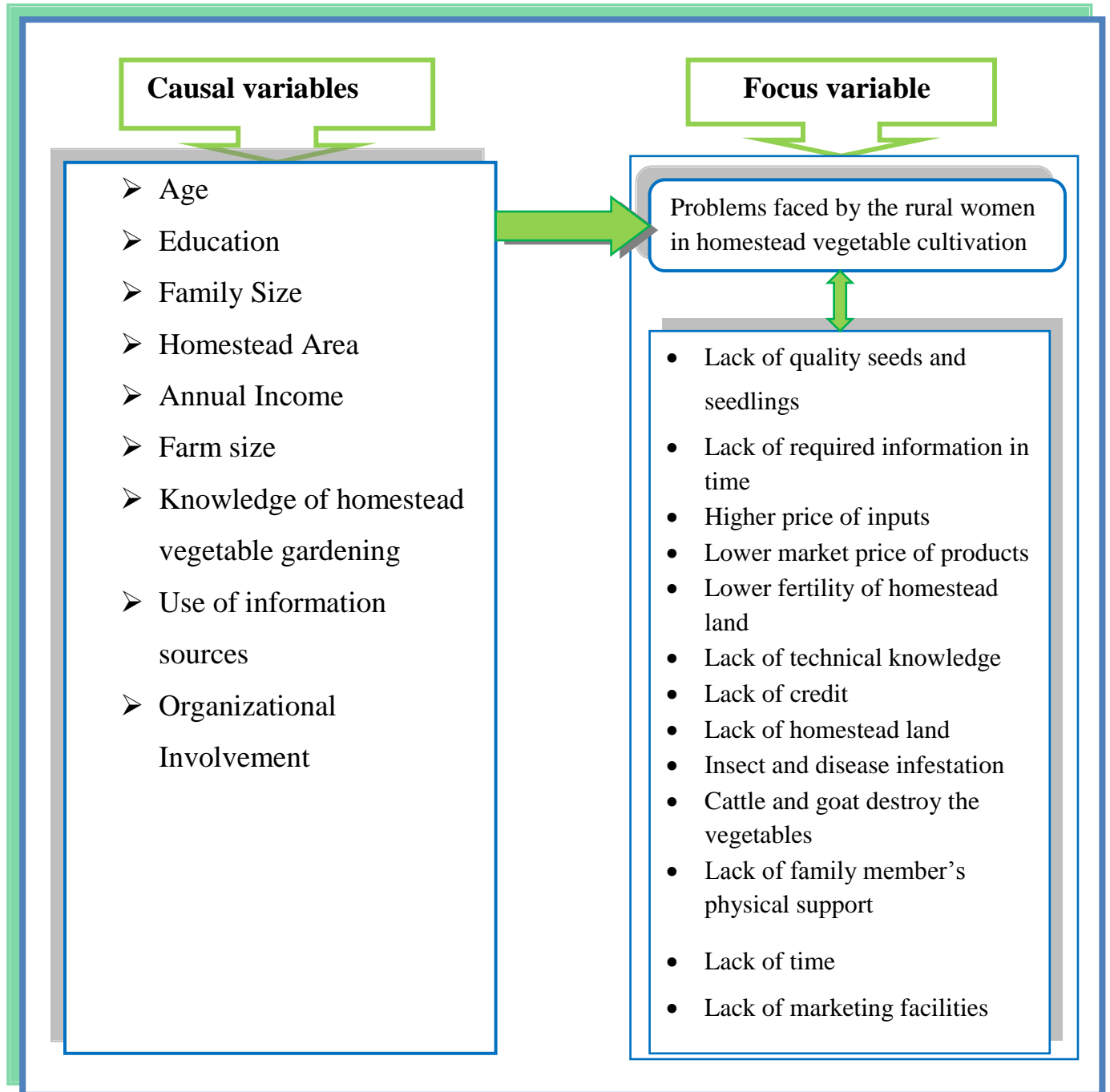


Figure 2.1 The conceptual framework of the study

CHAPTER III

MATERIALS AND METHODS

Methodology is an indispensable and integral part of any study. Methodology is simply the means by which we collect and analyze data. Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: How was the data collected or generated? How was it analyzed? The purpose of this chapter is to answer of these two questions.

3.1 Locale of the study

Thakurgaon Sadar Upazila of Thakurgaon district was selected purposively for this study. There are 22 unions in Thakurgaon Sadar upazila. The study was conducted at two villages of Akcha union of Thakurgaon Sadar upazila under Thakurgaon district. There are 7 villages in Akcha union. Out of 7 villages two villages namely Baikunthapur and Kasalbari were selected purposively. The main reasons for selecting study area were as follows:

- a) Easy accessibility and good communication facilities.
- b) Expected better cooperation from the respondent since the area and language of the respondent is well known to the researcher.
- c) No such type of study was conducted previously in the study area.

A map of Thakurgaon district showing Thakurgaon Sadar upazila is presented in Figure 3.1 and a map of Thakurgaon Sadar upazila showing the study area is presented in Figure 3.2

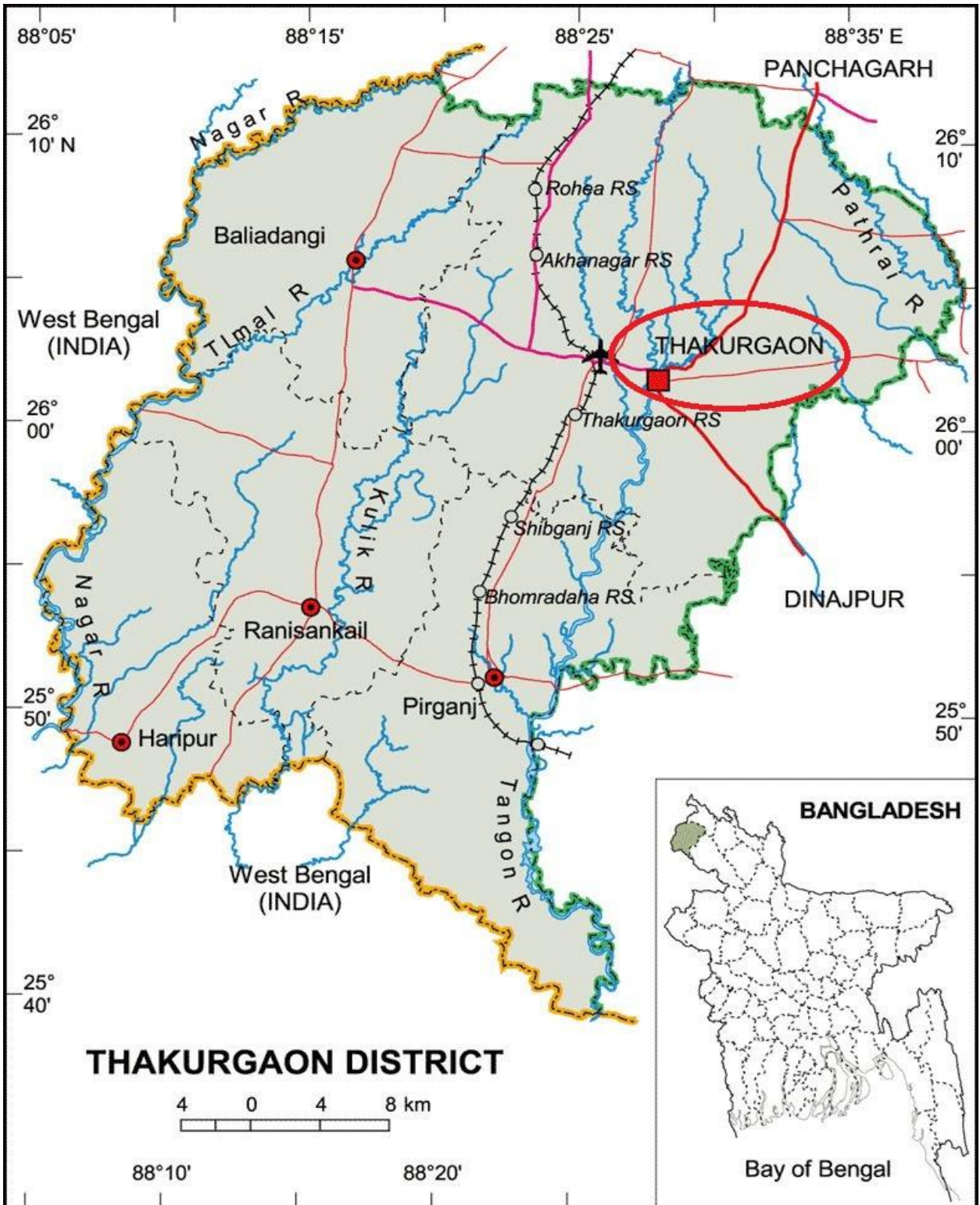


Figure 3.1: A map of Thakurgaon district showing Thakurgaon Sadar upazila

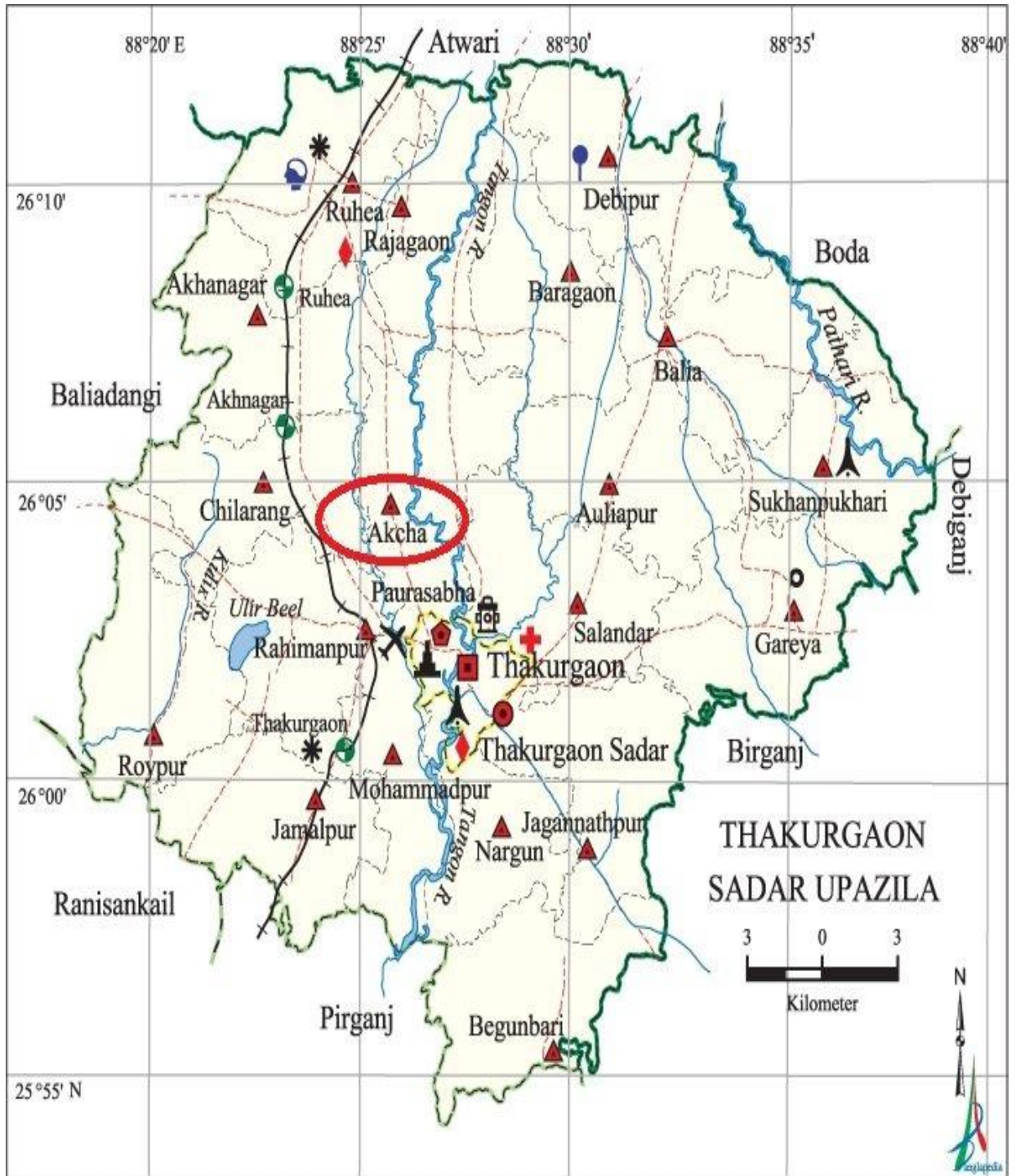


Figure 3.2: A map of Thakurgaon Sadar upazila showing the study area

3.2 Sample Size and Sampling procedure

The rural women involving in homestead gardening of the selected two villages constituted the population of the study. A probable list of rural women who are currently cultivating homestead vegetable was prepared with the help of Sub Assistant Agriculture Officer, union block supervisor, and the local rural women. There are 428 and 312 households in Baikunthapur and Kasalbari village respectively. Out of them about 176 households in Baikunthapur and 120 households in Kasalbari are cultivating homestead gardening. Thus the population size is 296. About 25 percent of the population was selected from the villages as the sample by following proportionate random sampling method. Thus the total sample size was 74 of which 44 were from Baikunthapur and the other 30 were from Kasalbari. Actually sample size stood at 74.

Table 3.1: Distribution of population and sample of the selected villages

Villages	Population	Sample
Baikunthapur	176	44
Kasalbari	120	30
Total	296	74

3.3 Data Collection Procedure

This study is based on survey methodology and generally the household women were interviewed with a pre-tested interview schedule. In survey research an interview schedule is very helpful in order to collect reliable and valid information from the respondent. Before preparing the final schedule, draft schedule was prepared keeping the objectives of the study in mind. Then the schedule was pre- tested to verify the relevance of the questions and the nature of the respondent. After pre testing and necessary adjustment, final survey schedule was developed. Data for this study were collected through personal interview by the researcher herself during

March to May 19, 2019. Data were collected from the respondents in face-to-face situation using the structured questionnaire. During Interview all possible efforts were made to explain the purpose of the study to the respondents in order to attain valid and pertinent information from them. An English version of the interview schedule is enclosed at Appendix-I.

3.4 Variables of the study

A variable is an attribute that describes a person, place, thing, or idea. The value of the variable can "vary" from one entity to another. Research cannot be possible without taking into consideration measurable factors that are subject to change due to circumstances. In a descriptive social research, selection and measurement of the variable constitute an important task. The variables should be determined in accordance with the research purpose and components. According to research objectives independent and dependent variables were used in this study. Independent variable is a variable we can manipulate, but it's not dependent on the changes in other variables. But the dependent variable variables are expected to change as a result of an experimental manipulation of the independent variables. In statistical point of view, there is no existence of the independent and dependent variables in correlation test. In correlation, in every case the concerned two variables are dependent to each other. Therefore, the present researcher tried to use the term "Focus Variable" for constraints faced by the rural women in homestead vegetable cultivation. The selected characteristics of the respondents which must have relationship with problems faced in homestead vegetable cultivation were treated as the "Causal Variables"

In this study the causal variables are age, education, family size, homestead area, farm size, annual family income, knowledge on homestead gardening, use of information sources and organizational involvement. The focus variable is "problems faced by the rural women in homestead vegetable gardening."

3.4.1 Measurement of causal variables:

The causal variables used in this study were mentioned earlier. The process for measuring the variable has been discussed below-

3.4.1.1 Age:

Ages of respondent were determined by the number of years from their date of birth to the date of interview on the basis of their response. A score of one (1) was assigned for each year of one's age. Since Bangladeshi rural women usually do not keep record of their date of birth, the age mentioned by them seems to be estimation on guess. This variable has been shown in the question no. iA of the interview schedule.

3.4.1.2 Education:

Education was measured by the number of one's year of schooling. Score 1 was given for passing each year in the educational institution. For example, if a respondent passed the SSC examination, she was assigned a score of 10 for education. A score of 0.5 was given to those respondents who did not know how to read and write but could sign her name only. This variable has been shown in the question no. iB of the interview schedule.

3.4.1.3 Family Size

The family size of a respondent was computed by the total number of her family members including herself, her husband, children and other dependents eating and staying together. This variable has been shown in the question no. iC of the interview schedule.

3.4.1.4 Homestead Area

Homestead area of a respondent was measured by her actual homestead holdings. It was expressed in terms of decimal. This variable has been shown in the question no. iD of the interview schedule.

3.4.1.5 Annual Income:

Annual income was measured in terms of total financial return of a household from agriculture (Crops, livestock, poultry and fish) and non-agriculture sources (service, business, day labor and others) in one year. The value was expressed in Taka. This variable has been shown in the question no. iiA of the interview schedule.

3.4.1.6 Farm Size

Farm size of a respondent was measured by the total land area on which her family carried out farming operation, the area being in terms of full benefit to the family. Computation included the cultivated area either owned by the respondent family or cultivated on share cropping, land taken on lease and own pond. It was measured by the following formula:

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

Where, FS = Farm size

A = Own land under own cultivation

B = Land given to other as sharecropper

C = Land taken from others as sharecropper

D = Land taken from others on lease

E = Own pond

The data was first recorded in local measurement unit and then converted into hectare. This variable has been shown in the question no. iiB of the interview schedule.

Dilzahan (2015), Afrin (2015), Mozumdar (2010) also used the above formula to measure farm size of the respondents in their thesis study.

3.4.1.7 Knowledge on homestead vegetable gardening

Knowledge on homestead vegetable gardening of the respondent women was measured in score by asking 12 selected questions related to various activities related to homestead vegetable gardening. 2 score was assigned to each of the questions. Full mark was given for appropriate answer and partial score was given for partially correct answer whereas 0 (zero) score was given to wrong or no answer. This variable has been shown in the question no. iiiA of the interview schedule.

3.4.1.8 Use of information sources

It was measured by one's extent of exposure with 10 selected information sources. Each respondent was asked to mention the frequency of her contact with each of the 10 selected sources such as frequently, occasionally, rarely and not at all. Weights were assigned as 3, 2, 1 and 0 respectively. Communication exposure score of a respondent was computed by summing up all the scores for ten different sources. This variable has been shown in the question no. iiiB of the interview schedule.

3.4.1.9 Organization involvement

This was measured by participation of a respondent in an organization. Different weights were assigned such as 0, 1, 2 and 3 for no participation, general member, executive member and executive officer respectively. Involvement score for a respondent was found out by summing up all the scores for different organizations. Scoring of the organizational involvement was done using the following formula and in the following way-

$$OI = (Pom \times D) + (Pem \times D) + (Peo \times D)$$

Where, OP = Organizational Involvement score,

Pom = Involvement as ordinary committee member,

Pem = Involvement as executive committee member, Peo = Involvement as executive committee officer (president/ secretary).

D = Duration of involvement

Dilzahan (2015), Afroj (2013) also used the above formula to measure the score for organizational involvement in their research studies.

This variable has been shown in the question no. iiiC of the interview schedule.

3.4.2 Measurement of focus variable

The process for measuring the variable has been discussed below-

“Problems faced by the rural women in homestead vegetable cultivation” was the focus variable of the study. To measure the extent of problem faced by the rural women respondents were asked to give their response against 13 selected problems using 5-point rating scale. These 13 major problems were selected for the study after thorough consultation with the supervisors, co-supervisors and the rural women. The respondents were asked to five alternative responses as 'very high', 'high', 'medium and 'low 'and 'not at all problem' for each of thirteen selected problems. Scores were assigned to those alternative responses as 4, 3, 2, 1 and 0 respectively. Score for particular problem was measured by Problem Faced Index (PCI).The problem score could vary from 0 to 52, where 0 indicating ‘no problem’ and 52 indicating ‘highest problem’.

In order to determine the extent of problem faced of a specific statement Problem Faced Index (PFI) for each problem was measured using the following formula:

$$PFI = (Pf_{vh} \times 4) + (Pf_h \times 3) + (Pf_m \times 2) + (Pf_l \times 1) + (Pf_n \times 0)$$

Where,

PFI= Problem Faced Index

Pf_{vh} = No. of the respondent faced very high problem

Pf_h = No. of the respondent faced high problem

Pf_m = No. of the respondent faced medium problem

Pf_l = No. of the respondent faced low problem

Pf_n = No. of the respondent faced no problem

Elias (2015), Hossain (2011), Rahman et al. (2007), and Roy (2013) also used the above formula to measure the score of particular problem with a view to making rank order of the selected problem on their research methodology.

Thus, total observed score of faced problem could be ranged from 0 to 296 while 0 indicating “no problem” and 296 indicating “highest problem” faced by the respondents.

This variable has been shown in the question no. IV of the interview schedule.

3.5 Data processing

After completion of field survey, all the data were coded, compiled and tabulated according to the objectives of the study. Local units were converted into standard units. All the individual responses to questions of the interview schedule were transferred into a master sheet to facilitate tabulation, categorization and organization by using computer. In case of qualitative data, appropriate scoring technique was followed to convert the data into quantitative form.

3.6 Data Analysis

Both descriptive and statistical tools were used in this study. The descriptive measures such as range, means, standard deviation, number and percentage distribution were used to describe the variables. Data were analyzed by using software named SPSS (version 22). Pearson's Product Moment Correlation Coefficient (r) was used in order to explore the relationships between the concerned variables. Five percent (0.05) level of probability was the basis for rejecting any null hypothesis throughout the study. The SPSS computer package was used to perform all these process.

3.7 Statement of the hypothesis

A hypothesis is a proposition which can be put to a test to determine its validity. It may be seen contrary to or accordance with common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test. In broad sense, hypothesis may be broadly divided into two categories, a) research hypothesis (H_1) and b) null hypothesis (H_0). When an investigator tries to find out relationship between variables, then formulates research hypothesis which states anticipated relationships between the variables. On the other hand, when a researcher tries to perform statistical test, then it becomes necessary to formulate null hypothesis. A null hypothesis states that there is no relationship between the concerned variables.

The following null hypothesis was formulated to explore the relationships between independent variables and mixed cropping.

“There is no relationship of each of the selected characteristics (age, education, family size, homestead area, annual income, farm size, knowledge of homestead gardening, use of information sources and organizational involvement) of the rural women with the problem faced by them in homestead vegetable cultivation.”

The alternative hypothesis was formulated as below,

“Each of the 9 selected characteristics (age, education, family size, homestead area, annual income, farm size, knowledge of homestead gardening, use of information sources and organizational involvement) of the rural women has significant relationship with the problem faced by them in homestead vegetable cultivation.”

CHAPTER IV

SOCIO-ECONOMIC PROFILES OF THE RURAL WOMEN

There were various characteristics of the rural women that might have influences to problems faced by the rural women in homestead vegetable gardening. There were various socio-economic factors that were likely to affect the problems faced by respondents but in this study selected nine characteristics were considered for research purpose. These are age, education, family size, homestead area, annual income, farm size, knowledge of homestead gardening, use of information sources and organizational involvement. A short description of these factors are given below-

4.1 Age distribution

The age of the rural women respondents has been varied from 18 to 55 years with a mean and standard deviation of 32.89 and 7.63 respectively. Considering the recorded age, the rural women were classified into three categories namely “young”, “middle aged” and “old aged” following MoYS (2012). The distributions of the rural women in accordance of their age are presented in Table 4.1:

Table 4.1: **The distributions of the rural women in accordance of their age**

Category	Basis of categorization (years)	Observed range (years)	Rural Women		Mean	SD
			Number	Percent		
Young Aged	Up to 35	18-55	53	71.6%	32.89	7.63
Middle Aged	36-50		16	21.6%		
Old Aged	Above 50		5	6.8%		
Total			74	100		

Table 4.1.1 reveals that the young-aged rural women comprised the highest proportion (71.6 percent) followed by middle-aged category (21.6 percent) and the lowest proportion were made by the old aged category (6.4 percent). Data also indicates that the young and middle aged category constitute almost 93.2 percent of total respondents. The young and middle aged women were more involved in homestead vegetable cultivation than the old aged.

4.2 Level of Education

The level of educational scores of the rural women ranged from 0.5 to 17 with a mean and standard deviation of 7.40 and 3.87 respectively. Based on the educational scores, the women were classified into four categories. The distributions of women according to their level of education are presented in Table 4.2.

Table 4.2: The distributions of women according to their level of education

Category	Basis of categorization (score)	Observed range (score)	Rural Women		Mean	SD
			Number	Percent		
Illiterate (Do not read and write, can sign only)	0.5	0.5-17	9	12.2%	7.40	3.87
Primary	Class I-V		8	24.3%		
Secondary	Class VI-X		39	52.7%		
Above secondary	>X		8	10.8%		
Total			74	100		

Table 4.2 shows that rural women under secondary education category constitute the highest proportion (52.7 percent) followed by primary education (24.3 percent). On the other hand, 12.2 percent were in can't read and write but can sign only category. Therefore the data revealed that

87.8% of the rural women were literate which is better than the average literacy rate of Bangladesh as female literacy rate is 70.2% here (BER,2018).

4.3 Family size

Family size of the rural women ranged from 3 to 7 with the mean and standard deviation of 4.86 and 0.98 respectively. According to family size the rural women were classified into three categories viz. “small”, “medium” and “large” family. The distribution of the respondents according to their family size is presented in Table 4.3.

Table 4.3: The distribution of the respondents according to their family size

Category	Basis of categorization (score)	Observed range (score)	Rural Women		Mean	SD
			Number	Percent		
Small family	≤ 3 (Mean-1SD)	3-7	3	4.1	4.86	0.98
Medium family	4-5 (Mean ± SD)		53	71.6		
Large family	> 5 (Mean+1SD)		18	24.3		
Total			74	100		

Table 4.3 indicates that the medium size family constitute the highest proportion (71.6 percent) followed by the large size family (24.3 percent). Only 4.1 percent rural women had small size family. Here average family size is 4.86. The average family size is consistent with national average of Bangladesh which is 4.06 according to Household Income and Expenditure Report, 2016.

4.4 Homestead area

The homestead area of the rural women ranged from 1.50 decimal to 15 decimal with a mean and standard deviation of 6.80 and 3.35 respectively. Based on their homestead area, the rural women

were classified into three categories namely having “small”, “medium” and “high” homestead area. The distribution of the rural women according to their homestead area is presented in Table 4.4.

Table 4.4 Distribution of rural women according to their homestead area size

Category	Basis of categorization (decimal)	Observed range (decimal)	Rural Women		Mean	SD
			Number	Percent		
Small area	≤ 3 (Mean-1SD)	1.50-15	10	13.5	6.80	3.35
Medium area	4-10 (Mean \pm SD)		53	71.6		
Large area	> 10 (Mean+1SD)		11	14.9		
Total			74	100		

Table 4.4 indicates that the medium homestead area constituted the highest proportion (71.6 percent) followed by large homestead area (14.9 percent), whereas the lowest 13.5 percent rural women had small homestead area. With the lack of homestead area the rural women had a little scope to practice homestead vegetable gardening, so most of the respondents had middle or large size of homestead area. Thus lack of homestead area is one of the major constraints to practice homestead vegetable gardening.

4.5 Annual family income

Annual family income of the respondents ranged from 57.6 to 525 thousand taka. The mean was 205.5 thousand taka and standard deviation was 109.2. On the basis of annual family income, the respondents were categorized into three group namely “low”, “medium” and “high” annual income. The distribution of the rural women according to their annual family income is presented in Table 4.5

Table 4.5 Distribution of the rural women according to their annual family income

Category	Basis of categorization ('000 TK)	Observed range ('000TK)	Rural Women		Mean	SD
			Number	Percent		
Low Income	≤ 96 (Mean-1SD)	57.6-525	14	18.9	205.5	109.2
Medium Income	96-315 (Mean ± SD)		47	63.5		
High Income	>315 (Mean+1SD)		13	17.6		
Total			74	100		

Table 4.5 indicates that the medium annual family income of the rural women constituted the highest proportion (63.5 percent) followed by the small family income (18.9 percent). Remaining 17.6 percent rural women had high annual family income. This might be due to the fact that respondents are becoming an earning member besides their husband. They contribute their family income by selling their extra produce of home garden after meeting their own need. The respondents belonging to high annual income had large amount both from agriculture and non-agriculture sources.

4.1.6 Farm size

Farm size of the respondents' family ranged from 0 hectare to 1.61 hectare. The mean was 0.50 and standard deviation was 0.40. According to the farm size of the rural women, they were classified into five categories as suggested by DAE (2018), "Landless (below 0.02 ha)", "Marginal (0.02 to 0.2 ha)", "Small (0.21-1 ha)", "Medium (1.1-3 ha)" and "Large (>3ha)". The distribution of the rural women according to their farm size is shown in Table 4.6.

Table 4.6 Distribution of Rural Women According to their Farm Size

Category	Basis of categorization (Hectare)	Observed range (Hectare)	Rural Women		Mean	SD
			Number	Percent		
Landless	below 0.02 ha	0-1.61	3	4.1	0.50	0.40
Marginal	0.02 to 0.2 ha		19	25.7		
Small	0.21-1 ha		43	58.1		
Medium	1.1-3 ha		9	12.1		
Large	>3ha		0	0		
Total			74	100		

Data presented in the Table 4.6 demonstrate that rural women having small farm size constituted the highest proportion (58.1 percent) followed by the rural women having marginal farm size (25.7 percent). There was no respondent having large farm size and only 12.1 percent women had medium farm size. A small portion of rural women (4.1 percent) were landless. This might be due to the fact of dividing land into many sections for growing population and their increasing need in various sectors. In rural area of Bangladesh 7.7% households are landless, 66.9% are marginal farmer, 21.5% household has small size farm, 3.4% has medium farm size and only 0.6% household own large size farm (HIES,2016). But in the study area most of the respondent had small farm size.

4.7 Knowledge on homestead vegetable gardening

Knowledge on homestead vegetable cultivation scores of the rural women ranged from 6 to 17 against possible score of 0 to 24. The average score and standard deviation were 12.09 and 2.14 respectively. Based on the knowledge on homestead vegetable cultivation scores, the rural women were classified into three group namely low knowledge, medium knowledge and high knowledge on homestead vegetable cultivation (Table 4.7).

Table 4.7 Distribution of rural women according to their knowledge on homestead vegetable cultivation

Category	Basis of categorization (Scores)	Observed range (Scores)	Rural Women		Mean	SD
			Number	Percent		
Low Knowledge	≤ 10 (Mean-SD)	6-17	13	17.6	12.09	2.14
Medium knowledge	11-14 Mean ± SD		53	71.6		
High Knowledge	> 14 (Mean +SD)		8	10.8		
Total			74	100		

Table 4.7 reveals that 71.6 percent of the rural women had medium knowledge on homestead vegetable cultivation, 17.7 percent had low knowledge on homestead vegetable cultivation and the lowest 10.8 percent had high knowledge on homestead vegetable cultivation. Thus, an overwhelming majority (89.2 percent) of the rural women had low to medium knowledge on homestead vegetable cultivation. The reason may be low contact with different information sources. Generally people having high uses of information sources assume that they have more information regarding homestead vegetable cultivation.

4.8 Uses of information sources

The observed score of uses of information sources of the rural women ranged from 2 to 22 against the possible range of 0 to 30. The average score of the rural women was 6.51 with a standard deviation of 4.26. The rural women were classified into three categories on the basis of their uses of information source scores namely low, medium and high uses of information sources. The distribution of the rural women according to their uses of information sources is given in Table 4.8.

Table 4.8 Distribution of the rural women according to their uses of information sources

Category	Basis of categorization (Scores)	Observed range (Scores)	Rural Women		Mean	SD
			Number	Percent		
Low Uses	≤ 3 (Mean -SD)	2-22	14	19.0	6.51	4.26
Medium Uses	3-11 Mean ± SD		52	70.2		
High Uses	> 11 (Mean +SD)		8	10.8		
Total			74	100		

Data presented in the table 4.8 indicate that majority (70.2%) of the rural women had medium uses of information sources and 19.0 percent having low uses of information sources. Only 10.8 percent had high uses of available information sources. Thus, an overwhelming majority (89.2%) of the rural women had low to medium uses of information sources. Contact of rural women with extension worker is almost absent in the study area. A few number of NGO works to group rural women and provide knowledge on homestead vegetable gardening and some other matters.

4.9 Organizational Involvement

Organizational involvement score of the homestead vegetable cultivators ranged from 0 to 17 against unknown observed scores with a mean and standard deviation of 5.50 and of 4.06 respectively. Percentage of organizational involve among the rural women in the selected area was high. Based on organizational participation score, the homestead vegetable cultivators were classified into three categories as shown in Table 4.9

Table 4.9 Distribution of the farmers according to their organizational involvement

Category	Basis of categorization (Scores)	Observed range (Scores)	Rural Women		Mean	SD
			Number	Percent		
Low involvement	≤ 2 (Mean -SD)	1-17	25	33.8	5.50	4.06
Medium involvement	3-10 Mean \pm SD		40	54.0		
High involvement	> 10 (Mean +SD)		9	12.2		
Total			74	100		

Data presented in the table 4.9 indicate that majority (54.0%) of the rural women had medium organization involvement and 33.8 percent having low organizational involvement. Only 12.2 percent had high organizational involvement. Thus, an overwhelming majority (87.8%) of the rural women had organizational involvement. At present many NGO such as Grameen bank, ASA, BRAC, RDRS work in village to provide loan in different purpose. Mainly rural women are their target customer in the rural area. So most of the women in the villages was member of these organizations for loan purpose.

CHAPTER V

EXTENT OF PROBLEMS FACED BY RURAL WOMEN IN HOMESTEAD VEGETABLE GARDENING AND COMPARATIVE SEVERITY OF THE SELECTED PROBLEMS

The role of women is very significant in homestead vegetable gardening. If women can perform their roles in homestead vegetable cultivation properly and skillfully, they will be able to ensure food security and family nutrition, increase family income and contribute to the overall improvement of Bangladesh. In the present study, an attempt had been made to identify and analyze the major problems and constraints faced by the rural women which act as barriers and make them reluctant for homestead vegetable gardening. This chapter has made a brief discussion about the extent of problems faced by the rural women in homestead vegetable gardening and their comparative severity.

5.1 Extent of problems faced by rural women in homestead vegetable cultivation

Problem refers to a matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome. Problem faced, therefore, refers to the extent or degree to which individual faces troublesome circumstances about which something should be finished. Growing vegetables in their homesteads has brought good fortune to the distressed and landless women living in some area specially char area in Bangladesh (Roy, 2016). The rural women face different problems in homestead vegetable gardening some of which were selected in the present study. The scores of problem faced in homestead vegetable cultivation of the respondents ranged from 16 to 29 against the possible range of 0 – 52 with an average of 23.15 and standard deviation of 3.05. Based on the observed scores of problem faced in homestead vegetable cultivation, the respondents were classified into the three categories i.e. low problem, medium problem and high problem faced. The distribution has been shown in Table 5.1

Table 5.1 Distribution of the rural women according to their problem faced in homestead vegetable cultivation

Category	Basis of categorization (Scores)	Observed range (Scores)	Rural Women		Mean	SD
			Number	Percent		
Low problem	≤ 20 (Mean +SD)	16-29	18	24.3	23.15	3.05
Medium problem	21-26 Mean ± SD		46	62.2		
High problem	> 26 (Mean +SD)		10	13.5		
Total			74	100		

Table 5.1 reveals that 62.2 percent of the rural women faced medium problems in homestead vegetable cultivation where 24.3 percent farmers faced low problems in homestead vegetable cultivation and the 13.5 percent farmers faced high problems in homestead vegetable cultivation. Thus, an overwhelming majority (86.5 percent) of the rural women had low to medium problems in homestead vegetable cultivation. Pandit *et al.*(2013), Hossain (2016), Islam (2017) also found similar findings in their research study. As most of the respondents face medium to high problems in homestead vegetable gardening so it is very important to take necessary steps to mitigate the problems for improving food security. Besides improving food security vegetable gardening helps the rural women to generate some extra income which in turn brings them some degree financial solvency, so it is obvious to undertake necessary steps to mitigate the problems confronted by rural women in homestead vegetable gardening.

To undertake necessary steps with a view to reduce the extent of problems faced by the rural women in homestead vegetable gardening knowledge about their comparative severity is very important. Therefore, comparative severity of the selected problems has been made by analysis and computing PFI (problem facing index) for each of them in the table 5.2.

5.2 Comparative severity among the selected problems

Rank order of the selected thirteen problems faced by the rural women in homestead vegetable cultivation is presented in Table 5.2. As per descending order of the Problems Faced Index (PFI), Lack of homestead land ranked the 1st and Lack of marketing facilities ranked as last position.

The problems faced by the rural women in homestead vegetable cultivation according to descending order of PFI, lack of homestead land ranked first followed by insect and disease infestation, cattle and goat destroy the vegetables, lack of technical knowledge, lack of quality seeds and seedling, lack of required information in time, lower fertility of homestead land, lack of credit, Lack of family member's physical support, higher price of inputs, lower market price of products, lack of time and lack of marketing facilities respectively. (Table 5.2)

The result showed that the highest problem faced by the rural women in homestead vegetable cultivation is lack of homestead land. This may be caused in view of expanding populace and partitioning an enormous property zone into a few residence regions for the family posterity. Again we became know from above discussion that maximum respondent's had medium size household area. Therefore lack of homestead area might be due to unplanned use of homestead area.

Table 5.2 Rank order of problems faced by the rural women in homestead vegetable cultivation

Sl. No.	Nature of Constraints	PFI	Rank
1	Lack of homestead land	197	1 st
2	Insect and disease infestation	188	2 nd
3	Cattle and goat destroy the vegetables	173	3 rd
4	Lack of technical knowledge	167	4 th
5	Lack of quality seeds and seedlings	155	5 th
6	Lack of required information in time	146	6 th
7	Lower fertility of homestead land	129	7 th
8	Lack of credit	129	8 th
9	Lack of family member's physical support	96	9 th

Table5.2 Rank order of problems faced by the rural women in homestead vegetable cultivation (cont'd)

10	Higher price of inputs	94	10 th
11	Lower market price of products	92	11 th
12	Lack of time	87	12 th
13	Lack of marketing facilities	80	13 th

The lowest problem faced by the rural women in homestead vegetable cultivation at the study area was lack of marketing facilities. This might be happened on the grounds that proximity of market or availability of male member who carry the vegetable item to market or they are reluctant to sell vegetables in market, they cultivate only for family consumption.

The possible reasons behind these problems and probable solutions have been briefly described below-

With increasing population both homestead land and crop land are divided in many segments. So lack of homestead area is the major problem of maximum respondents. This problem can be mitigated through teaching them about various modern method of homestead vegetable gardening such as sack gardening, vertical gardening, bottle gardening etc.

According to PFI insect and disease infestation is the second major problem of rural women in homestead vegetable gardening. Most women could not identify the insect or disease and did not get the proper insecticide or pesticide. The concerned authority should take necessary steps to mitigate this problem.

The third problem is destroying vegetable by domestic animal and bird such as cattle, goat, hen etc. In many cases this problem was due to improper fencing. If the animal or bird could enter in the garden huge loss was occurred. So knowledge of proper fencing should be provided to the rural women.

The fourth problem was lack of technical knowledge. Due to lack of technical knowledge they didn't know the right time of sowing seed, scientific use of available homestead area, insect and pest management. Therefore they could not increase production. Training program on homestead

vegetable gardening should be arranged and the rural women's participation should be ensured in the program to provide them technical knowledge.

Lack of quality seed and seedling was the fifth major problem and lack of required information in time was the sixth major problem according to PFI. Most of the respondents reported that sub assistant agriculture officer never meet them. There was a huge gap between the extension worker and the rural women. So they did not get quality seed, seedlings and required information in time when necessary. Sometime their seed did not germinate well, sometimes the plant became stunting. So the extension worker should be cooperative for the rural women.

In case of lower fertility of homestead gardening necessary organic or inorganic fertilizer should be suggested to the rural women. Most of the rural women face credit shortage problem. Micro loan with very easy condition should be made for them. Different inputs necessary for homestead vegetable cultivation should be made available at lower price for the rural women. In the village market vegetable price is lower even than the nearest urban market. So necessary measures should be undertaken to ensure a good price for their produce.

From the above discussion we get a clear concept about different problems faced by rural women in homestead vegetable gardening and likely solutions of these. The above facts lead to conclude that necessary arrangements should be made to increase the knowledge of rural women which would ultimately reduce the problems faced by them in homestead vegetable cultivation.

CHAPTER VI

RELATIONSHIP BETWEEN THE SELECTED CHARACTERISTICS OF THE RURAL WOMEN AND THEIR PROBLEMS FACED IN HOMESTEAD VEGETABLE CULTIVATION

From the review section it can be known that different selected characteristics had relationship with the constraints faced in different crop cultivation for example, Hossain (2016), Elias (2015), Pandit *et al.* (2013), Chowdhuri (2016), Hossain *et al.*(2011) and so on. The purpose of this section is to examine the relationship of nine selected characteristics of the rural women with their problem faced in homestead vegetable cultivation. Coefficient of correlation was figured so as to explore the relationship between the selected characteristics of the rural women which are the causal variables of the study and their problems faced in homestead vegetable cultivation.

In order to determine the relationship of each of nine selected characteristics of the rural women (age, education, family size, homestead area, annual income, farm size, knowledge of homestead gardening, use of information sources and organizational involvement) with problems faced by the them in homestead vegetable cultivation, Pearson's Product Moment Correlation was used. Co-efficient of correlation (r) has been used to test the null hypothesis concerning the relationship between the concerned variables. Five percent level of significance was used as the basis for rejection of any null hypothesis.

From the analysis it was seen that some selected characteristics had significant relationship with the problems faced by the rural women in homestead vegetable gardening. The results of the Co-efficient of Correlation indicating the relationship between each of the selected characteristics of the rural women and their problems faced in homestead vegetable cultivation are shown in Table 6.1. For clarity of understanding Appendix-II may be seen.

Table 6.1 Results of Co-efficient of Correlation Showing Relationship between each of the Selected Characteristics of the rural women and their Problems Faced in homestead vegetable Cultivation

(n=74 with df=72)

Dependent Variable	Independent Variable	Computed "r" value	Tabulated "r" value	
			At 0.05% level	At 0.01% level
Problems faced by the rural women in homestead vegetable cultivation	Age	0.179 ^{NS}	0.2287	0.2977
	Education	-0.170 ^{NS}		
	Family size	0.059 ^{NS}		
	Homestead area	-0.234*		
	Annual income	-0.189 ^{NS}		
	Farm size	-0.456**		
	Knowledge of homestead vegetable cultivation	-0.256*		
	Uses of information sources	-0.325**		
	Organizational involvement	-0.060 ^{NS}		

^{NS} Not significant

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

6.1 Relationships between homestead area of rural women and their problems in homestead vegetable cultivation

Relationship between homestead area of the rural women and their problem faced in homestead vegetable cultivation was determined by testing the following null hypothesis: “There is no relationship between homestead area of the rural women and their problem faced in homestead vegetable cultivation”.

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.234 as shown in Table 6.1. The following observations were recorded regarding relationship between homestead area of the rural women and their problems in homestead vegetable cultivation on the basis of correlation coefficient:

- i. The computed value of “r” (-0.234) was found to be higher than the tabulated value (0.2287) with 74 degrees of freedom at 0.05 level of probability as but lower than tabulated value (0.2977) at 0.01 level of probability shown in Table 6.1.
- ii. The null hypothesis could not be accepted.
- iii. The relationship between the concerned variables was significant at 0.05 level of probability.
- iv. The relationship showed a negative trend between the concerned variables.

Based on the above findings, it can be said that homestead area of the rural women had negative and significant relationship with the problems faced in homestead vegetable cultivation. This means that rural women having larger homestead area face lower problems in homestead vegetable cultivation. Having larger area rural women can cultivate various types of vegetables. Besides feeding their family part of the homestead garden harvest, they could also distribute some to their relatives and neighbors. They would be satisfied if they could sell a significant quantity of homestead vegetables. This finding was similar to Chowdhury (2016) and Mortuza (2015).

6.2 Relationships between farm size of rural women's family and their problems in homestead vegetable cultivation

Relationship between homestead area of the rural women and their problem faced in homestead vegetable cultivation was determined by testing the following null hypothesis: "There is no relationship between farm size of the rural women's family and their problem faced in homestead vegetable cultivation".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.456 as shown in Table 6.1. The following observations were recorded regarding relationship between farm size of the rural women and their problems in homestead vegetable cultivation on the basis of correlation coefficient:

- i. The computed value of "r" (-0.456) was found to be higher than the tabulated value (0.2977) with 74 degrees of freedom at 0.01 level of probability as shown in Table 6.1.
- ii. The null hypothesis could be rejected
- iii. The relationship between the concerned variables was significant at 0.01 level of probability.
- iv. The relationship showed a negative trend between the concerned variables.

Based on the above findings, it can be said that farm size of the rural women had negative and significant relationship with the problems faced in homestead vegetable cultivation. This means that with larger farm size the rural women confront fewer problems in homestead vegetable gardening. In most cases the respondents who had larger farm size, also had larger homestead area. They had available fertilizer and pesticide or insecticide to use in homestead vegetable gardening. Thus they face fewer problems in homestead vegetable gardening. Pandit *et al.* (2013) also found similar relationship.

6.3 Relationships between knowledge of homestead vegetable cultivation of rural women and their problems faced in homestead vegetable cultivation

Relationship between rural women's knowledge of homestead vegetable cultivation and their problem faced in homestead vegetable cultivation was determined by testing the following null

hypothesis: “There is no relationship between knowledge on homestead vegetable cultivation of the rural women and their problem faced in homestead vegetable cultivation”.

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.286 as shown in Table 6.1. The following observations were recorded regarding relationship between knowledge of homestead vegetable gardening of the rural women and their problems in homestead vegetable cultivation on the basis of correlation coefficient:

- i. The computed value of “r” (-0.286) was found to be higher than the tabulated value (0.2287) with 74 degrees of freedom at 0.05 level of probability as but lower than tabulated value (0.2977) at 0.01 level of probability shown in Table 6.1.
- ii. The null hypothesis could be rejected.
- iii. The relationship between the concerned variables was significant at 0.05 level of probability.
- iv. The relationship showed a negative trend between the concerned variables.

Based on the above findings, it can be said that knowledge on homestead vegetable cultivation of the rural women had negative and significant relationship with their problems faced in homestead vegetable cultivation. This implies that with the increased of knowledge on homestead vegetable production technologies of the rural women, their constraints in homestead vegetable cultivation is decreased. Knowledge on vegetable production technologies expand rural women’s capability to analyze any situation related to constraints in vegetable cultivation. They could easily identify and handle many problems faced in homestead vegetable cultivation. So, they would be progressive minded to reduce their constraints in homestead vegetable cultivation. Mortuza (2015), Pandit *et al.* (2013), Kabir *et al.* (2011) and Hossain *et al.* (2011) also found similar findings in their study.

6.4 Relationships between uses of information sources by rural women and their problems faced in homestead vegetable cultivation

Relationship between rural women’s uses of information sources and their problem faced in homestead vegetable cultivation was determined by testing the following null hypothesis: “There

is no relationship between level of information sources uses by the rural women and their problem faced in homestead vegetable cultivation”.

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.325 as shown in Table 6.1. The following observations were recorded regarding relationship between uses of information sources of the rural women and their problems in homestead vegetable cultivation on the basis of correlation coefficient:

- i. The computed value of “r” (-0.325) was found to be higher than tabulated value (0.2977) with 74 degrees of freedom at 0.01 level of probability shown in Table 6.1.
- ii. The null hypothesis could be rejected.
- iii. The relationship between the concerned variables was significant at 0.01 level of probability.
- iv. The relationship showed a negative trend between the concerned variables.

Based on the above findings, it can be said that uses of information sources of the rural women had negative and significant relationship with their problems faced in homestead vegetable cultivation. This means that uses of information sources of the rural women played important role for their problems in homestead vegetable cultivation. This implies that rural women with higher uses of information sources were likely to have lower level of problem faced in homestead vegetable cultivation. Continuous contact with different information sources rural women were concerned about their constraints in vegetable cultivation, learn the technique to minimize their constraints, become trained, get benefitted and so on, which increase their capability to reduce problems in homestead vegetable cultivation. Pandit *et al.* (2013), Hossain *et al.* (2011) and Rahman (2008) revealed similar findings from their study.

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on the summary in the light of the discussion made in the earlier chapters. Conclusion has been made on the basis of experimental result. Policy recommendation has been made on the basis of conclusion as a part of the present study which will help to formulate strategic plan with a view to mitigate the problems faced by rural women in homestead vegetable gardening. This chapter exhibits the summary of findings, conclusions and recommendations of the study.

7.1 Summary of findings

The major findings of the study are summarized below:

7.1.1 Individual characteristics of the farmers

Findings in respect of the nine selected characteristics of the rural women are summarized below:

Age: The highest proportion (71.6 percent) of the respondent rural women was young aged while 21.6 percent was middle-aged and 6.8 percent was old aged.

Level of Education: Secondary education constituted the highest proportion (52.7 percent) and the lowest 10.8 percent in above secondary category. Besides only 12.2 percent are in can't read & write but can sign only.

Family Size: The highest proportion (71.6 percent) of the rural women had medium family size, while 24.3 percent had large family size and 4.1 percent had small family size.

Homestead area: The highest proportion (71.6%) of the respondents had medium homestead area, while 13.5 percent and 14.9 percent belonged to the small area and large area respectively.

Annual family income: The highest proportion (63.5%) of the rural women had medium annual family income compared with 18.9 percent having low income and 17.6 percent having high annual family income

Farm size: The highest proportion (58.1%) of the rural women had small farm size compared with 25.7 percent having marginal farm size and 12.1 percent having medium farm size.

Knowledge regarding homestead vegetable gardening: The highest proportion (76.1%) of the rural women had medium knowledge compared with 17.6 percent having low knowledge and only 10.8 percent having high knowledge.

Uses of information sources: The highest proportion (70.2%) of the rural women made medium uses of information sources compared with 19.0 percent having low uses and only 10.8 percent having high uses of information sources.

Organizational Involvement: The highest proportion (54.0%) of the rural women had medium organizational involvement compared with 33.8 percent having low involvement and only 12.2 percent having high organizational involvement.

7.1.2 Problem faced by the rural women in homestead vegetable cultivation

The observed overall problem faced score of the rural women in homestead vegetable cultivation ranged from 16 to 29 against the possible range of 0 to 52 scores. The mean score was 23.15 and the standard deviation 3.05. Majority (62.2 of the respondents faced medium problem in homestead vegetable cultivation and 13.5 percent faced high problems and 24.3 percent faced low problems.

7.1.3 Comparative severity among the problems faced by the rural women in homestead vegetable cultivation

In order to compare the problem faced by the rural women in 13 selected items of homestead vegetable production, a Problem Faced Index (PFI) was computed for each item. Rural women faced highest problems in “lack of homestead area” which ranked first followed by “Insect and disease infestation”, “Cattle and goat destroy the vegetables”, “Lack of technical knowledge”, “Lack of quality seeds and seedlings”, “Lack of required information in time”, “Lower fertility

of homestead land”, “Lack of credit”, “Lack of family member’s physical support”, “Higher price of inputs”, “Lower market price of products” and “Lack of time”. “Lack of marketing facilities” was the least problem faced by the rural women.

7.1.4 Relationship between selected characteristics of the rural women and their problems faced in homestead vegetable cultivation

Among nine selected characteristics of the rural women, four namely, homestead area, farm size, uses of information sources and knowledge of homestead vegetable gardening had significant negative relationship with their problems faced in homestead vegetable cultivation and the rest 5 characteristics namely, age, education, family size, annual family income and organizational involvement had no significant relationship with their problems faced in homestead vegetable cultivation.

7.2 Conclusions

Findings of the study and the logical interpretations of their meaning in light of other relevant facts provoked the researcher to draw the following conclusions:

- i. The findings revealed that more than two-third (75.7 percent) of the respondents had medium to high category problem faced in homestead vegetable cultivation at the study area. It may be said that the composite problem faced in homestead vegetable cultivation needs to minimize to encourage the rural women.
- ii. Homestead area of the rural women showed the important contributing factor to the problem faced in homestead vegetable cultivation. Homestead area had significant negative relation with their problems faced in homestead gardening.
- iii. Farm size of the rural women had a negative significant role to their problem faced in homestead vegetable cultivation. Therefore it may be concluded that higher the farm size lower the problem faced by the rural women.

- iv. Knowledge of homestead vegetable gardening negatively and significantly affects problems confronted by rural women in homestead vegetable gardening. This means the more knowledge they would gather the less problems would be faced by them. Therefore steps taken to improve knowledge of rural women will help to reduce to reduce their problems in homestead vegetable gardening.
- v. Uses of information sources of the rural women had a negative significant effect on the problems faced by them in homestead vegetable gardening. Higher uses of information sources help to achieve more knowledge and thus face fewer problems.
- vi. On the basis of PFI, the rural women faced highest serious problems in lack of homestead land followed by Insect and disease infestation, Cattle and goat destroy the vegetables, Lack of technical knowledge, Lack of quality seeds and seedlings and Lack of required information in time are major six problems.

7.3 Recommendations

On the basis of experience, observation and conclusions drawn from the findings of the study, the following recommendations were made-

7.3.1 Recommendations for policy implications

- i. Findings of the study indicate that inadequate homestead area was the highest problem of the respondents in achieving household food security though maximum of them had medium size of homestead area. So it is necessary to give more emphasis on the rural women who have comparatively smaller homestead area to teach the rural women how to best utilize the available homestead area through cultivation of vitamin-rich vegetable using low-cost, low-risk methods. Thus even very poor, landless or near landless people can practice gardening on small patches of homestead land, vacant lots, roadsides or edges of a field, or in containers.
- ii. Findings of the study indicate that farm size of rural women had a negative significant relationship with their problems faced in homestead vegetable gardening. Therefore, the people having small or marginal farm size should be emphasized for providing

- training on comprehensive homestead gardening and new technologies on cultivation such as vertical plantation, sack gardening etc. Thus Vegetables grown in individual's homestead will be positively contributed to household nutrition, particularly among women and children by providing enhanced food supply and increased diversity of food to some extent.
- iii. The study reveals that knowledge on homestead gardening of rural women had a negative significant relationship with their problems faced in homestead vegetable cultivation. It is, therefore, recommended that an effective step should be taken by the Department of Agricultural Extension (DAE) and Non-Government Organizations (NGOs) should arrange adequate satisfactory programs for the respondents and other instructional strategy to increase their knowledge on homestead vegetable gardening. The concerned personnel should be well updated with the new technology of vegetable cultivation, easy way to control insect and pest infestation and careful to provide required information to women in time when necessary.
 - iv. Findings of the study reveals that the more uses of information sources the lower problems faced by the rural women. Therefore the concerned authority should try to reach the rural women to provide them necessary information on homestead vegetable gardening.
 - v. Extension services should be strengthened particularly for rural women. Due to social system and religion, rural women are hesitant to come in contact with male extension worker. So, more women extension workers should be engaged for effective and successful implementation of the development activities.
 - vi. Local extension workers should build friendly rapport with the rural women. Extensive development programs should be designed and implemented by GOS and NGOs considering homestead as production unit and women as the key operator. Necessary inputs such as HYV seeds/seedling, chemical fertilizers, insecticides, pesticides need to be made available to the respondents at right time and at fair prices.

7.3.2 Recommendations for further study

A small and limited research work cannot provide unique and universal information related to actual impact of improving socio-economic status of the rural women. Further studies should be undertaken on related matters. Based on the scope and limitations of the present study and observations made by the researcher, the following recommendations are made for further study:

- i. The present study was conducted in some selected villages of Thakurgaon sadar upazila under Thakurgaon district. It is recommended that similar studies should be conducted in other areas of Bangladesh which will be helpful for effective policy formulation.
- ii. This study investigated the contribution of nine characteristics of the rural women to their problems faced in homestead vegetable cultivation as dependent variables. Therefore, it is recommended that further study should be conducted with other characteristics of the rural women with their problems and to identify other problems faced by them in homestead vegetable cultivation.
- iii. It is difficult to explore all the problems faced by the rural women in homestead vegetable cultivation. Measurement of problems is not free from questions also. More reliable measurement of the concerned variable along with various other characteristics is necessary for further study.
- iv. The study was based on the rural women's problems faced by them in homestead vegetable cultivation. Further studies may be conducted in respect of other problems faced by the rural women in other sector of livelihood.

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APPENDIX-I

AN ENGLISH VERSION OF THE INTERVIEW SCHEDULE

Department of Development and Poverty Studies

Sher-e-Bangla Agricultural University, Dhaka- 1207

A Questionnaire for research study on

Problems Faced by The Rural Women in Homestead Vegetable Cultivation: An Option to Improve Food Security

From Rural Women's Perspective

Respondent no _____ Date _____

Name of the Respondent _____

Village _____ Union _____

Upazila _____ District _____

I. Socio-demographic characteristics of rural women

Sl. No.	Query	Answer
iA.	Age (in years)	
iB.	Education	(a)Do not know reading and writing (b)Do not know reading and writing but can sign only (c)Never attended school but can little read and write (d)Studied up to _____ class
iC.	Family size (total members)	
iD.	Homestead area (in decimal)	

II. Economic characteristics of rural women

Sl. No.	Query	Answer																																																																																								
iiA.	Annual Income	<p>(a) From agricultural sources _____</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Income Sources</th> <th>Production (kg)</th> <th>Value per unit (TK)</th> <th>Total Value (TK)</th> </tr> </thead> <tbody> <tr><td>1.</td><td>Paddy</td><td></td><td></td><td></td></tr> <tr><td>2.</td><td>Wheat</td><td></td><td></td><td></td></tr> <tr><td>3.</td><td>Maize</td><td></td><td></td><td></td></tr> <tr><td>4.</td><td>Sugarcane</td><td></td><td></td><td></td></tr> <tr><td>5.</td><td>Jute</td><td></td><td></td><td></td></tr> <tr><td>6.</td><td>Pulse crop</td><td></td><td></td><td></td></tr> <tr><td>7.</td><td>Mustard</td><td></td><td></td><td></td></tr> <tr><td>8.</td><td>Vegetables</td><td></td><td></td><td></td></tr> <tr><td>9.</td><td>Poultry</td><td></td><td></td><td></td></tr> <tr><td>10.</td><td>Fisheries</td><td></td><td></td><td></td></tr> <tr><td>11.</td><td>Livestock</td><td></td><td></td><td></td></tr> <tr><td>12.</td><td>Others</td><td></td><td></td><td></td></tr> <tr> <td colspan="2">Sub-total</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(b) From non-agricultural sources _____</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Income Sources</th> <th>Total value (TK)</th> </tr> </thead> <tbody> <tr><td>1.</td><td>Service</td><td></td></tr> <tr><td>2.</td><td>Business</td><td></td></tr> <tr><td>3.</td><td>Day labor</td><td></td></tr> <tr><td>4.</td><td>Others</td><td></td></tr> <tr> <td></td> <td>Sub-total</td> <td></td> </tr> </tbody> </table> <p>Total=</p>	Sl. No.	Income Sources	Production (kg)	Value per unit (TK)	Total Value (TK)	1.	Paddy				2.	Wheat				3.	Maize				4.	Sugarcane				5.	Jute				6.	Pulse crop				7.	Mustard				8.	Vegetables				9.	Poultry				10.	Fisheries				11.	Livestock				12.	Others				Sub-total					Sl. No.	Income Sources	Total value (TK)	1.	Service		2.	Business		3.	Day labor		4.	Others			Sub-total	
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iiB.	Farm size			
	Sl. No.	Types of land	Area of land	
			Local unit	Hectare
	i.	Own land under cultivation		
	ii.	Own land given to others on share cropping		
	iii.	Land taken from others on share cropping		
	iv.	Land taken from others on lease		
	v.	Own pond		
vi.	Others			
	Total			

III. Psychological factors of rural women

iiiA. Knowledge of homestead vegetable gardening

Please answer the following questions-

Sl. No.	Questions	Score	
		Weighted	Obtained
1.	How do you prepare land to cultivate homestead vegetables cultivation?	2	
2.	Mention the name of some vegetable which are mostly cultivated in the homestead area	2	
3.	Mention the name of five vegetables which are cultivated in summer season	2	
4.	Mention the name of five vegetables which are cultivated in winter season	2	
5.	Mention the name of two modern varieties of bottle gourd	2	
6.	Mention the name of two modern varieties of bean	2	

7.	Mention the name of three high yielding varieties of brinjal grown in your area	2	
8.	Mention the name of two important diseases of tomato	2	
9.	Mention the name of two important diseases of brinjal	2	
10.	Mention the name of three mostly used manure/fertilizer	2	
11.	Mention the name of three mostly used insecticide/pesticide	2	
12.	Mention the name of three insecticides available in local market	2	
	Total	24	

iiiB. Use of information sources

Sl. No.	Information sources	Extent of use of information sources			
		Regularly	Occasionally	Rarely	No association
1.	Sub-Assistant Agricultural Officer	3 times per month	2 times per month	1 time per month	
2.	Group discussion	7-9 times per year	4-6 times per year	1-3 times per year	
3.	Farm radio talk	7 times per week	3-4 times per week	1-2 times per week	
4.	Agricultural programs in television	5-7 times per month	3-4 times per month	1-2 times per month	

5.	Leaflet	5-7 times per year	3-4 times per year	1-2 times per year	
6.	Neighbor	5-7 times per month	3-4 times per month	1-2 times per month	
7.	Ideal farmer	5-7 times per month	3-4 times per month	1-2 times per month	
8.	Progressive women	5-7 times per month	3-4 times per month	1-2 times per month	
9.	Elder family member	5-7 times per month	3-4 times per month	1-2 times per month	
10.	Participation in agricultural training course	≥4 times/ life	2-3 times/ life	1 time / life	

iiiC. Organizational Involvement

Are you a member of any village organization?..... () Yes / () No

If yes, please tell the name of organization with status

Sl. No.	Name of the organization	No participation (0)	General member (1) & duration	Executive committee member (2) & duration	Executive officer (3) & duration
1.	Women Youthclub				
2.	Union parishad				
3.	NGOs				
4.	School committee				
5.	Others				

IV. Problem Faced in Homestead Vegetables Cultivation

Please indicate the extent of problem that you usually face during the homestead vegetable cultivation

Sl. No.	Items/Operation	Extent of problem				
		Very high (score-4)	High (score-3)	Medium (score-2)	Low (score-1)	No problem at all (score-0)
1.	Lack of quality seeds and seedlings					
2.	Lack of required information in time					
3.	Higher price of inputs					
4.	Lower market price of products					
5.	Lower fertility of homestead land					
6.	Lack of technical knowledge					

7.	Lack of credit					
8.	Lack of homestead land					
9.	Insect and disease infestation					
10.	Cattle and goat destroy the vegetables					
11.	Lack of family member's physical support					
12.	Lack of time					
13.	Lack of marketing facilities					
	Total Score					

Thank you for your kind co-operation

Date:

Signature of Interviewer

Appendix II

Correlation matrix among the variables of the study (N=74)

Variable	X1	X2	X3	X4	X5	X6	X7	X8	X9	Y
X1	1									
X2	-.551**	1								
X3	0.316**	-0.117	1							
X4	0.008	0.234*	0.211	1						
X5	0.201	0.092	0.269*	0.518**	1					
X6	0.117	0.181	0.179	0.536**	0.605**	1				
X7	0.192	0.037	0.142	0.084	0.191	0.359**	1			
X8	0.063	0.175	0.154	0.251*	0.130	0.149	0.331**	1		
X9	-0.175	0.119	0.009	0.146	-.298**	0.216	0.165	0.190	1	
Y	0.179	-.170	0.059	-.234*	-.189	-.456**	-.286*	-.325**	-.060	1

*. Correlation is significant at the 0.05 level of probability

** . Correlation is significant at the 0.01 level of probability

X1=Age	X6=Farm size
X2= Education	X7=Knowledge of Homestead Vegetable Cultivation
X3= Family Size	X8=Uses of Information Sources
X4=Homestead area	X9=Organizational Involvement
X5=Annual Family Income	Y=Problem Faced by Rural Women in Homestead Vegetable Cultivation

