

Improving Livelihood of Rural Women through Income Generating Activities in Bangladesh

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von
Shonia Sheheli

Präsident der Humboldt-Universität zu Berlin
Prof. Dr. Jan-Hendrik Olbertz

Dekan der Landwirtschaftlich-Gärtnerischen Fakultät
Prof. Dr. Dr. h.c. Frank Ellmer

Gutachter:

1. Professor Dr. Dr. Uwe Jens Nagel
2. Professor Dr. Christine Bauhardt
3. Dr. Jutta Werner

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List of abbreviations

ADB	Asian Development Bank
ANC	Antenatal Care Coverage
ANOVA	Analysis of Variance
ASA	Association for Social Advancement
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
BMET	Bureau of Manpower, Employment & Training
BMMS	Bangladesh Maternal Mortality Survey
BRAC	Bangladesh Rural Advancement Committee
BSCIC	Bangladesh Small and Cottage Industry Corporation
BTV	Bangladesh Television
CARE	Cooperative for Assistance and Relief Everywhere
CECI	Centre for International Studies and Cooperation
CEGIS	Center for Environmental and Geographic Information Services
CI	Constraint index
CIDA	Canadian International Development Agency
CLSS	Cumulative Livelihood Status Score
CPEP	Compulsory Primary Education Program
CPD	Centre for Policy Dialogue
CPR	Contraceptive Prevalence Rate
CPS	Cumulative Percentage Score
CLS	Cumulative Livelihood Status
DAE	Department of Agricultural Extension
DFID	Department for International Development
DLS	Department of Livestock Services
DOF	Department of Fisheries
DoPE	Directorate of Primary Education
DSAP	Development of Sustainable Aquaculture Project
DYD	Department of Youth Development
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GDP	Gross Domestic Product

GED	General Economics Division
GoB	Government of the People's Republic of Bangladesh
GO	Government Organization
HIES	Household Income and Expenditure Surveys
HKI	Helen Keller International
ICDDR	Institute of Cholera and Diarrhoeal Diseases and Research, Bangladesh
ICM	Integrated Crop Management
IDS	Institute of Development Studies
IFID	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGA	Income Generating Activity
IIED	International Institute for Environment and Development
IPHN	Institute of Public Health Nutrition
IRWFS	Individual rural woman field score
IRWPMS	Individual rural woman possible maximum score
IRWPS	Individual rural woman percentage score
IUD	Intrauterine Device
LI	Livelihood Indicator
LGD	Local Government Division
MBBS	Bachelor of Medicine and Surgery
MDG	Millennium Development Goal
MFI	Micro Finance Institution
MLGRDC	Ministry of Local Government Rural Development and Cooperatives
MHFW	Ministry of Health and Family Welfare
MICS	Multiple Indicators Cluster Survey
MMR	Maternal Mortality Ratio
MSW	Ministry of Social Welfare
MWCA	Ministry of Women and Children's Affairs
NCBP	NGO Committee on Beijing Plus Five in Bangladesh
NCB	Nationalized Commercial Bank
NER	Net Enrolment Ratio
NFE	Non-Formal Education
NGO	Non-Government Organization
NIPORT	National Institute of Population Research and Training

OLS	Ordinary Least Squares
PI	Participation Index
PPP	Purchasing Power Parity
PRA	Participatory Rural Appraisal
PRSP	Poverty Reduction Strategy Papers
RQ	Research Questions
RWI	Rural Women Income
SAAO	Sub Assistant Agriculture Officer
SAIP	Smallholder Agricultural Improvement Project
SCD	Scored Causal Diagram
SLA	Sustainable Livelihoods Approach
SPSS	Statistical Package for Social Science
SUS	Sabalamby Unnayan Samity
SVRS	Sample Vital Registration System
TANGO	Technical Assistance to Non-Governmental Organizations
TLM	Total Literacy Movement
UN	United Nations
UNCT	United Nations Country Team
UNCDF	United Nations Capital Development Fund
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
UN WFP	United Nations World Food Program
WFP	World Food Program
WHO	World Health Organization
WO	Women's Organization

1 Introduction

Why is it worthwhile to investigate the level of participation of rural women in various income generating activities? What is the social, economic and cultural context, in which rural women are embedded? Does a rural woman, as a social construct, have a contribution on household income?

This chapter presents possible answers to these questions. After a general problem statement of the investigation with its research questions and purpose, the objectives of the research, possible users as well as hypotheses and limitations are described in this chapter. Finally the organization of the study is sketched out.

1.1 Statement of research problem

Bangladesh is a small South Asian country and has the highest population density in the world with 142,319 thousand people in a 147,000 square km area, where the average population density is about 964 inhabitants per square kilometer (BBS, 2011). It has an agro-based economy with agriculture accounting for 21% of the country's GDP and employing 52% of its labour force (NATIONAL AGRICULTURE POLICY, 2010). In Bangladesh, 75% of the population depends - directly or indirectly - on agriculture for their livelihood, since it provides income and food (BBS, 2006). The land-person ratio is one of the lowest in the world estimated at 0.12 ha, but it is not evenly distributed (FAO, 2001). According to the Human Development report of UNDP (1996), 10% of the landowners possess 49% of the agricultural land. The favored 20% of the population enjoy 49% of the national income and the share of the bottom 20% is only 7.5%. Rapid population growth and in consequence, reduction of cultivated land, erosion, loss of soil fertility and biodiversity result in a decreasing agricultural productivity and negative effect on people's income as well as accelerated rural poverty.

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

poverty line, and 33% of them belong to the hard core poor- those living on less than \$1.25 US per day, i.e., extreme poverty (UNDP, 1996). Women are poor because lack of entitlement to the absolute minimum necessities for living. The absolute minimum necessities for living include food, education, clothing, housing and health. The level of entitlement to basic household necessities depends on the employment, income opportunities, control over assets, current income level and endowment of that household (ADB, 2007; NATIONAL WOMEN DEVELOPMENT POLICY, 2008).

In Bangladesh, about half of the total population is female and a majority of them, 80%, live in rural areas (AGRICULTURAL DIARY, 2007). Among the rural women, about 43% are involved in the agricultural sector, and 70% are unpaid family labor (KHAN et al., 2004). They constitute 42% of the total labor force (FAO, 2006). Most of the rural women have little opportunity to participate in intra-household, socio-economic and political decision-making processes as well as very limited interaction with people outside of the home (SHEKH, 2003; PARVEEN, 2005; WORLD BANK, 2005; QUISUMNG and MCCLAFFERTY, 2006). These factors isolate women from development activities as well as from acquiring income, knowledge, skills, etc., which make it difficult for them to be economically and socially independent (DFID, 2000; FAKIR, 2008). This vulnerable situation resulted in an overall dependency of women on their male kin. Women are often treated as burdens, while men are seen as assets to families. They suffer discrimination because of their sexual category, limited access to markets, scarce income-earning opportunities, education and health care, leading to a lower level of well-being in the family that retards the developmental goals of the state. The status of Bangladeshi women has been ranked the lowest in the world on basis of twenty indicators related to health, marriage, children, education, employment and social equality (NCBP, 2000). Poverty has engulfed rural women, and they face many challenges to achieve and maintain their livelihood. They are vulnerable to income shocks and their systems of livelihood are often so fragile and finely-balanced that a small misfortune can destabilize the households for many years. Rural women are most susceptible to hunger and food insecurity due to lack of productive assets and depend on irregular and low-paying, physically demanding daily wage labor (HALDER and MOSLEY, 2004; AHMED, et al., 2005; MATIN et al., 2008). Thus, the low and irregular incomes, or both, have long term effects on rural women's livelihood. Historically, rural women are socially oppressed, legally ignored, politically exploited and technologically deprived and subordinated as a production unit for bearing and rearing children (AHMED, 2001). In reality, the Gender Development Index (GDI) ranked Bangladesh

109th out of 179 countries globally (USAID, 2009). Therefore, Bangladeshi rural women can be considered as underprivileged and less developed.

Ensuring the income of women is an essential precondition for the elimination of poverty and the upholding of human rights (DFID, 2000), in particular at the individual level, as it helps to build a base for social change. When different dimensions of the livelihood issue are considered, the incidence of income is the most important. Living standard of the rural poor would only be uplifted when they receive income from the economic activities (AHMED et al., 2007; AL-AMIN, 2008; AHMED, 2009). Income generating activities (IGAs) change the livelihood of the poor in terms of living condition, housing, nutrition, savings, dress, medical treatment, health, sanitation, liberalization and education (ULLAH and ROUTRAY, 2007). Overcoming widespread poverty and improving livelihood requires confronting the widening disparity of rural women's income (KANDIYOTI, 1988; FAKIR, 2008).

The work of women in Bangladesh is mostly confined to the homestead due to cultural, religious and social restrictions. However, with the great decline of their socio-economic situation, rural women are breaking through the traditional norms and coming forward to participate in the development activities outside their homestead. Currently rural women in Bangladesh have an anchoring role in the management of their families as well as participation in different income generating activities like crop production, livestock and poultry rearing, aquaculture etc. (ADB, 2007; AL-AMIN, 2008; HOQUE and ITOHARA, 2009). Women from the poorest households sometimes work outside the home as paid laborers for their family's survival (ADB, 2001). Even though the economic contribution of rural women is substantial, it is largely unacknowledged (ADB, 2004).

The level of income and endowment of a household depends on the availability of employment opportunities for the adult members of that household. Since suitable jobs and agricultural land are scarce in a country like Bangladesh, the creation of self employment opportunities becomes the most important objective of households to enhance income, and thus, to enhance the chance to cover the basic necessities. But the poor households do not have the amount of capital that is required for starting up a self employment activity. In the study area, access of rural women to credit and insurance is relatively low, especially for poor and vulnerable households. Therefore, financial support is one important part of the maintenance of income strategies. To pursue their livelihood strategies, people must have

access to five forms of capital assets such as natural, physical, human, social and financial assets (DFID, 1999). The amount of capital assets of rural women in combination with socio-economic structures and institutions determines the available set of livelihood strategies and leads to certain outcomes like higher income or well-being.

It is expected that the participation of women in IGAs can contribute to enabling households to cope with income shocks, to ensure food security, to avoid an increase in poverty or to prevent vulnerable households from falling below the poverty line. Women's income is important for achieving economic growth and sustainable development in Bangladesh and thus, their economic contributions should be given importance in policy design (KABEER, 2003). Unfortunately, existing societal opportunities and structures have hindered rural women from fully participating in IGAs. To eliminate the distressed condition of rural women and bring them to the main stream of development for achieving a sustainable livelihood, they need to be involved in income activities much more actively. Furthermore, they need to improve in all sorts of areas such as income, information, knowledge and skills, education, and access to capital through the services of the intervening agencies. In Bangladesh, apart from government initiatives, a large number of non-government organizations are operating in rural areas, concentrating on rural women to change their livelihood. Due to the direct and indirect support from these organizations, the capabilities of the involved women are increasing day by day, motivating them to participate in various income activities which are expected to eventually contribute to their household income. In order to formulate suitable strategic measures for the improvement of the studied women's livelihood, this research focuses on socio-economic characteristics of women and their existing livelihood situation and examines their income strategies, along with their scopes and constraints of participation in IGAs.

1.2 Research questions

This research has been conducted around five main research topics. A number of research questions (RQ) have been developed and grouped under each research topic.

Research topic 1: Livelihood issues

RQ 1: How do rural women express their existing livelihood status? Existing livelihood status is measured by seven livelihood indicators and the following sub-questions are formulated:

- What is the present condition of housing, water facilities, health situation, sanitation and extent of participation in social activities?
- Which activities are likely to affect sanitation?
- How do they make decision regarding cash expenditure?

RQ 2: What are the factors influencing household income as well as livelihood of rural women?

Research topic 2: Income strategies of rural women

RQ 1: What are the existing income generating activities (IGAs) in the study area?

RQ 2: What extent of women participation in different IGAs?

RQ 3: Which group of women is earning more from IGAs?

RQ 4: Which IGAs are currently playing an important role in income generation?

RQ 5: How are personal income of rural women and household income correlated?

Research topic 3: Impact of income generating activities

RQ 1: What is the impact of IGAs on the personal income of women and their livelihood?

Research topic 4: Constraints issues

RQ 1: What are the existing economic, social, cultural/religious constraints that hinder the participation of women in IGAs?

Research topic 5: Suggestions of rural women

RQ 1: What are the suggestions by rural women to improve their livelihood status?

RQ 2: What are the suggestions of rural women to overcome barriers which hindered the participation in IGAs?

1.3 Purpose, objectives and users

The main purpose of this research project is to provide sound information which can help to improve livelihood through income generating activities for the surveyed women of the Netrokona district in Bangladesh.

The field research in four villages of the Netrokona district provided the data base regarding livelihood situation and income strategies of rural women in which they used assets such as human, social, financial, physical and natural assets to secure and manage or overcome their vulnerable situations. Special attention is paid to the association of rural women with NGOs

to better understand the functions of non-government organizations toward livelihood development.

The objectives of this study are as follows:

1. Determine the existing livelihood status of rural women through seven livelihood indicators.
2. Identify suggestions by rural women to improve their livelihood status.
3. Assess income generating strategies of rural women.
4. Examine the differences between women who are working or not working with NGOs (“NGO women” and “non-NGO women”) considering their characteristics.
5. Explore the relationships between the selected characteristics of rural women and their household income.
6. Analyze and determine the livelihood of rural women through examining their household income.
7. Identify the existing economic, social, cultural/religious constraints that hinder women’s participation in IGAs.
8. Collect and formulate rural women’s suggestions for increasing participation in IGAs.
9. Frame suitable measures for improving the livelihood status of rural women.

The findings of the study are particularly applicable to the four villages of the Netrokona district in Bangladesh. However, they may also be of relevance to other areas of Bangladesh where the socio-cultural, psychological and economic situation of the people do not differ much from those of the study area. Results of this research will assist policymakers and planners to identify and formulate effective strategies for rural women toward improving quality of living with a specific focus on participation in IGAs and utilization of existing livelihood assets. Government organizations such as the Department of Agricultural Extension (DAE), Ministry of Women and Children’s Affairs (MWCA), Ministry of Health and Family Welfare (MHFW), and Ministry of Social Welfare (MSW) along with NGOs will benefit from these findings to improve their action plan and exposure to the field of gender-specific programs like gender awareness, dissemination of knowledge and technology. In addition, the development institutions will get valuable information about the opportunities or

limitations of their organizations, which help them to reorganize their organizational set up and action plans. The finding of the study may also be helpful to academicians and researchers to add knowledge and supplement empirical evidence regarding different aspects of livelihood situation and may be used to contribute to a theory of livelihood. Ultimately, as a consequence of all these, poor rural women will be able to minimize their vulnerable economic condition.

1.4 Hypotheses of the study

Generally, a hypothesis means an assumption or supposition to be proved or disproved. Hypotheses are divided into two main categories: (i) research hypotheses (H_a) and (ii) null hypotheses (H_0). A researcher first formulates research hypotheses to find out anticipated relationships between variables. Furthermore, it is necessary for a researcher to formulate null hypotheses while performing any statistical test. In order to fulfill the research objectives in a comprehensive manner, four hypotheses have been developed in the present study and tested by suitable statistical tools. The following research hypotheses (H_a) and null hypotheses (H_0) have been formulated:

Broader research hypothesis

Income generating activities have a significant impact on improving rural women's livelihood in Bangladesh.

Working hypotheses

The broader hypothesis has been proven through testing the working hypotheses below:

Hypothesis 1: It is assumed that the extent of participation of rural women in ten selected IGAs does not differ by association with non-government organizations (H_0). It is also assumed that there are no mean differences between “NGO women” and “non-NGO women” among the different selected characteristics (H_0). The selected fifteen variables are age, education, marital status, family size, family type, farm size, occupation of male, personal income of rural women, food consumption behavior, daily time utilization, household expenditure, savings, loans repayment, length of association with loan sources and cumulative livelihood status. The following measure is used to quantify the above null hypotheses:

- Independent sample t-test

Hypothesis 2: Personal income of rural women is a very important factor, having a linear relationship with household income (H_a). The null hypothesis (H_0) is that personal income of rural women and household income are not correlated, and it is judged in the following analysis:

- Single line regression analysis

Hypothesis 3: It is assumed that the selected characteristics of rural women considered as independent variables correlate to the dependent variable household income (H_a). The null hypothesis (H_0) is that there are no relationships between the independent variables and dependent variable. The following statistical analyses are carried out to measure this null hypothesis:

- Pearson's correlation analysis
- Multiple regression analysis

Hypothesis 4: A number of economic, social, cultural/religious constraints are faced by rural women in performing income activities (H_a). The following measures have been used to judge this research hypothesis:

- Ranking pre selected constraints according to their index values
- Scored causal diagram (SCD)

1.5 Limitations of the study

In order to conduct and complete this study in a meaningful and manageable way with the available funds, time and resources, some limitations have been identified, especially in methodology. The recognized limitations are as follows:

1. The data collection was restricted to four villages in the Netrokona district in Bangladesh, which may fail to represent the actual scenario of the whole country as people develop their livelihood strategies according to the concrete situation they face.
2. Only the women involved in IGAs were considered for this study. Due to limitations of time and other resources, it was not possible to work with a larger sample and the respondents were limited in terms of size and composition. Only 100 rural women were considered for the study from a population of 402 women. In addition, fifty percent of the women have an association with non-government organization.

3. Characteristics of the women were many and varied, but only fifteen characteristics were selected for investigating the relationship with the dependent variable in the study.

4. There are several indicators cited by different authors or researchers on women livelihood, but in this study only one indicator, household income, was used for measuring rural women's livelihood.

5. Several methods, scales and statistical tests have been utilized in this study over a relatively short period of time. During the interviewing process, the researcher faced problems in explaining the questions regarding annual household income. Rural women sometimes confused the difference between income and expenditure. Household income has been measured by sum of proxy-measure of household expenditure and saving, and there is still much debate amongst researcher as to how rural women's household income can be measured effectively.

1.6 Organization of the study

This research report consists of eight chapters followed by a reference section. At the end, an appendix section has been included for further information on some specific issues. A brief outline of the chapters is as follows:

Chapter 1: Introduction

The first chapter introduces the reader to the problem and reasoning of the study, leading to research questions, purpose and objectives, hypotheses and limitations.

Chapter 2: Situation of women in Bangladesh: A brief overview

This chapter provides a detailed review of the prevailing socio-economic situation of women in Bangladesh. In addition, the importance of income generation activities for improving the livelihood of women, the impact of microfinance NGOs on the development of rural women and major obstacles that hamper women's participation in IGAs are discussed.

Chapter 3: Theoretical background

Theories related to rural women's livelihood are outlined in this chapter. Based on theories and empirical work available in literature, this chapter finally sketches out a framework to

conceptualize the different forms of livelihood assets and factors influencing income at household level and pathways of intervention.

Chapter 4: Research methodology

This chapter is split into three main sections. The first section gives the background information about study area and sampling design. The second section deals with the methodological design, methods of data gathering including instruments and techniques. The third section outlines in detail the data processing and analysis methods.

Chapter 5: Operational procedure

This chapter illustrates in detail the techniques and procedures of the research project and is arranged into four main sections. The first section presents the procedures followed for determining the existing livelihood status of rural women. The second, third and fourth sections explain the measurement procedure of variables and relevant terms in the study.

Chapter 6: Results and discussion

This chapter constitutes the main part of the study, including the descriptive and analytical findings of the socio-demographic characteristics of rural women. Seven indicators of livelihood and case studies are presented. It also focuses on perception of key informants, some important findings from focus group discussion (FGDs) and researcher observations regarding livelihood and IGAs of the study area. The income strategies of rural women, the analysis of rural women's livelihood and the factors influencing it are also presented. This chapter concludes with a discussion on major constraints that hindered participating in IGAs of rural women.

Chapter 7: Conclusion, recommendation and implication

This chapter discusses and synthesizes the key findings and conclusions based on empirical findings, and also offers a range of suggestions to formulate an inclusive and equitable strategy for upgrading the livelihood of rural women. This chapter closes with some suggestions for future studies.

Chapter 8: Summaries

This chapter presents summaries of the study in English and German.

2 Situation of women in Bangladesh: A brief overview

This chapter provides the present scenario of women in Bangladesh with a special emphasis on the field of education, health, sanitation, water facilities, housing, food availability, decision-making ability, economic situation, and income generation activities. In addition, the role of microfinance NGOs in rural development and different obstacles faced by women in their life are outlined.

2.1 The socio-economic and socio-cultural context

2.1.1 Education

In 1990, Bangladesh signed the declaration at the World Conference on ‘Education for All’ in Jomtein, Thailand (ADB, 2004). Bangladesh has adopted various strategies to educate the general population, and especially children and women. However, the country still has many challenges to attain an acceptable standard of education and literacy. The literacy rate of women (7 years old and older) in 2004 was 46.2% and increased to 52.7% in 2007. Concerted efforts in collaboration with development partners led to significant improvements in the adult literacy rate from 37% in 1990 to 58.3% in 2007, for males it is 63.1 % and for females 53.5 % (GoB and UN, 2009).

The education system in Bangladesh comprises four separate systems: government-run schools, private schools, Madrassa (Islamic religious schools), and schools run by non-governmental organizations (NGOs). Government schools educate the vast majority of students. Half of the annual budget of Bangladesh for education sector goes towards primary education. However, the total budget for education in Bangladesh is only 2.4 % of the GDP and this is lower than any other country in South Asia (UNESCO, 2006). Government schools are concentrated mostly in urban centers, resulting in a lack of educational access to the majority of children in the rural areas. The literacy rate is 70% in rural areas compared to 77% in urban areas (BBS and UNICEF, 2009). In rural areas, most of the government schools are too far away, discouraging parents from sending their children to school. Parents are especially protective of girls and rather than making them travel long distances to school, they tend to keep them at home. This has to be taken into consideration when planning to increase the literacy rate in rural areas.

2.1.1.1 Structure of formal education

Formal education in Bangladesh has three major stages - primary, secondary and tertiary/higher education. Primary education is a 5-year cycle, while secondary education lasts 7 years with three sub-stages: 3 years of junior secondary, 2 years of secondary and 2 years of higher secondary. Higher education starts in the college/university after passing higher secondary level. Engineering, agriculture, medical science and information technology, etc. are the major technical and technological education areas for university level.

i. Primary level education: In the recent past, Bangladesh has achieved considerable progress in terms of primary education enrollment (ADB, 2008). In 1992, the government of Bangladesh made primary education compulsory (CPEP) for all children between the ages of six and ten. To keep students in the schools, there are many different actions being taken by the government at the program and the policy levels (BANGLADESH PRIMARY EDUCATION ANNUAL SECTOR PERFORMANCE REPORT, 2009). The ongoing interventions include the food for education program, the female scholarship scheme at the primary and secondary levels, etc. Female enrollment rates have improved significantly from 75% to 95% in 1996 during the past ten years (BBS and UNICEF, 2009), and the rate for girls now equals that for boys. The net enrollment ratio (NER) in primary education for girls at 94% outnumbered the enrollment of boys at 88% (BBS, 2008a).

ii. Secondary level education: Enrollment rates for children aged 11-15 years (secondary level) are 64% (GED, 2008a). The enrollment rates specially for girls in secondary schools in rural areas is not satisfactory due to socio-economic and cultural factors like early marriage, distance to school, lack of female teachers, girls' physical and moral safety concerns and inadequate sanitation (GED, 2008b).

iii. Tertiary level education: Unlike the success at the primary and secondary education levels, gender parity at the tertiary education level remains low at 32% (76% boys vs. 24% girls). During the last ten years, the enrollment of students at the tertiary level has increased significantly, but with a more rapid increase in the number of male students (GED, 2009). It is necessary to emphasize here that the achievement of tertiary level of education of females has remained considerably lower in rural areas. Several factors account for this outcome: social and cultural attitudes still reinforcing girls/women's subordinate position in the society, various forms of violence and sexual harassment on the street and in educational institutions

discouraging attendance at the school. Early marriage (despite legal marriage age set at 18 years) and poverty hinder girls from continuing their education at a higher level. Furthermore, the fact that the attainment of higher education does not guarantee any future economic benefit for girls due to the male-biased job market (formal sector) may not provide enough incentives for girls to pursue education (JAHANGIR, 2008).

2.1.1.2 Non-formal education (NFE)

Non-formal education is targeted to a part of the population who, for a variety of reasons, failed to gain access to or dropped out of formal education. The NFE program is designed to meet the learning needs of educationally disadvantaged persons of all ages and backgrounds, flexible in terms of organization, time and place and may cover basic and continuing educational programs to impart basic literacy. The non-formal education policy was adopted by the Government of Bangladesh to reach the national and global target of education for all and improve peoples' life conditions by 2015 (BANGLADESH INSTITUTE OF DEVELOPMENT STUDIES, 2009). The NFE providers usually adopt different types of NFE programs throughout the country. These may be mainly divided into two categories i) education extension program and ii) education support program, which is presented in box 2.1. Through different NFE programs, disadvantaged children attain physical, psycho-social, cognitive and language development skills along with a social consciousness on the issues like health-care, nutrition, first aid, sanitation, civic responsibilities, etc. They also receive the opportunity for pre-school education, second-chance primary education for catching up with mainstream education and skills development training for earning livelihoods. Beside children, the NFE also addresses adolescents and adults to educate them as caring parents, productive workers and responsible citizens, with a special emphasis on females. As a whole, NFE contributes to the development of human potential for better learning, life and livelihoods of a large population of the country. The main objective of the NFE is to link education with formal and informal employment generation. This kind of link can accelerate the economic growth leading to alleviation of poverty at the grassroots. The benefit of the non-formal education intervention in education system in Bangladesh and its citizens' life are both immediate and long-term (NATH and SYLVA, 2007). The clientele groups of NFE program are presented in box 2.2.

Box 2.1: Non-formal education program in Bangladesh

i. Education extension program

Through expansion programs, the basic literacy education is usually provided to different age groups of non-literate people. Three age groups are normally targeted as: (i) child education, (ii) adolescent education, and (iii) adult literacy.

ii. Education support program

Apart from extension program, the second important aspect of the literacy related activities of the NGOs is connected with education support program. These activities are: education materials development, NFE training, material support, financial support, technical support, individual assistance, continuing education support, and higher education support.

Source: BBS and UNICEF, 2009

Box 2.2: The clientele groups for NFE programs in Bangladesh

- 3-5 year old children of poor families
- Primary school drop-outs and non-enrolled or dropped out (16-25)
- Adolescents (16-24) and young adults (25+) who dropped out or never enrolled
- Children living in remote locations, engaged in hazardous jobs and suffering social exclusion
- Non-literate adults
- Adolescents, youths and adults already engaged in the world of work and those who need constant upgrading of knowledge and skills for advancement of the quality of performance in the changing national and global contexts
- Parents/Caregivers of 0-3 age-group children

Source: BBS and UNICEF, 2009

According to international experts, Bangladesh has achieved commendable success in the area of non-formal education (UNESCO, 2008). Non-formal primary education contributes 7% of total primary enrollment (AHMAD and NATH, 2005). Apart from the government, a good number of NGOs and international donors have played and are playing a commendable role in the operation of NFE sub-sector in Bangladesh. At present, there are about 1500 NGOs of various sizes operating different types of NFE programs, which are adding values to the overall development of this sub-sector (ADB, 2008).

2.1.2 Health situation

This part provides a review of the health situation of the country including the current situation of mortality, morbidity and nutrition as a snapshot of the most important aspects of deprivation in this regard in Bangladesh.

2.1.2.1 General health security

While women are generally considered as an inferior sex in most rural families, women's health has been considered by the Bangladesh Government as one of the indices of human development. The Government is cognizant of human development as a long-run sustainable development strategy for Bangladesh and has been maintaining an emphasis on it over the last three decades (6th and 7th COMBINED REPORT, 2001~2009). Although a remarkable improvement has been made in the area of health over the last years, malnutrition rates among women and child, and maternal mortality rate in Bangladesh remain highest among the world (WORLD BANK, 2008a).

Information on morbidity (defined as the proportion of sick household members to total members during the last one month preceding the survey) or sicknesses of the population is very sparse in the country. WHO (2001) estimate that morbidity rate for females is higher than for males. This is because women at this age are exposed to three pressures, namely prime reproductive responsibility, entire task of domestic chores, and pressures of earning livelihood as income earner, often in extremely adverse circumstances. As a result, they are likely to be more susceptible to health hazards than their male counterparts in the same age cohorts (BEGUM and SEN, 2009). Approximately 70% of women experience anemia at the child bearing age caused by nutritional deficiency and consequently, 45% of the new-born suffer from low-birth weight (NIPORT, 2009). Vitamin-A deficiency is observed in a significant proportion of poor and lactating women (AHMED et al., 2003). Over 43% of pregnant women are found to be deficient of iodine, and night blindness among pregnant and lactating women in rural Bangladesh is 1.99 % and 1.86 %, respectively (HKI/IPHN, 2005).

2.1.2.2 Child mortality

According to GoB and UN (2009), Bangladesh has made considerable progress in child survival rate over the last several decades. The recent Millennium Countdown Report - Countdown to 2015 (UNICEF, 2008) places Bangladesh among only 16 countries in the world

that are on track to achieve MDG 4 on child mortality. The successful programs for immunization, control of diarrheal diseases and vitamin-A supplementation are considered to be the most significant contributors to the decline in child and infant deaths.

2.1.2.3 Maternal health

Maternal Mortality Ratio (MMR)

Although Bangladesh experienced a remarkable decline in MMR from 574 in 1990 to 391 in 2002 and after 2002, the ratio was not reduced at the desired level (BBS, 2008b). The major causes of pregnancy related deaths are post-partum hemorrhaging, eclampsia, obstructed labor and unsafe abortion (BMMS, 2001). The high incidence of home deliveries, adolescent births and the presence of low-skilled health professionals during delivery, non-utilization of delivery kits during home deliveries, etc. are some of the significant causes of the high maternal morbidity that also leads to higher fatalities during childbirth (MITRA, 2007; CHAUDHURY and CHAUDHURY, 2008). According to GoB and UNCT (2005), 12,000 to 15,000 women die every year from maternal health complications. The MMR in Bangladesh is still one of the highest in South Asia (CHAUDHURY, 2007). Furthermore, there are wide variations in MMR estimates by rural-urban areas and administrative divisions. SVRS (2008) shows that MMR in rural areas (393/100,000 live births) is nearly 40% higher than that in urban areas (242/100,000 live births).

In Bangladesh, women from the richest quintile, with secondary education, are more likely to have access to institutional or skilled care during delivery. The overall proportion of births attended by skilled health personnel has increased nearly fivefold in the last two decades (5% in 1991 to 24.4% in 2009), but the rate is still low (BBS and UN, 2009). According to the MICS (2009) survey, only 1 out of every 4 births was attended by a skilled health professional during delivery. Thus, achieving the MDG target of 50% skilled delivery attendance by 2015 will be extremely challenging. BDHS (2007) shows that the proportion of skilled attendance at delivery is ten times higher among the richest (51%) compared to the poorest (5%) households. MICS (2006) reported that greater use of emergency obstetric care is a positive trend in Bangladesh. However, access to this care remains uneven as the gap between poor and rich is significant.

2.1.2.4 Contraceptive prevalence rate (CPR)

According to the latest available estimate by BDHS (2007), the contraceptive prevalence rate (CPR) has been static in Bangladesh since 1999. Overall, 58% of married women are currently using some contraceptive methods and 11% are relying on traditional methods. Another study of BDHS (2004) shows that the pill (28%) is the most popular form of contraceptive followed by injectables (11%), female sterilization (5%) and condoms (4%). Despite ongoing efforts, only 7% of married women use long acting methods (IUD, Norplant, female and male sterilization).

The percentage of married women who have an unmet need for family planning services is 17% (Unmet need includes women who are not using family planning for spacing and limiting children and want to use methods). If the current unmet need is addressed, the CPR may increase to 69% by 2015. This increase will not be sufficient to attain replacement level fertility in Bangladesh (CPR of 70% or more is required to achieve total fertility rate of 2.1) (BDHS, 2007).

2.1.2.5 Adolescent birth rate

Two in three women marry before the legal age limit, i.e., 18 years, and one in three women start childbearing before age 20 (BDHS, 2007). According to SVRS (2008), the adolescent birth rate has declined, from 77 per 1000 women in 1991 to 60 in 2008. The rate has declined very slowly after 2003 and a linear estimate hints that the rate may decrease to 45 in 2015. The country still bears a high rate of teenage marriages and this continues to lead to high adolescent fertility. Even in the context of South Asian countries, this is comparatively high. As expected, early childbearing is more common in rural areas, among the poor and less educated.

2.1.2.6 Antenatal care coverage (at least four visits)

Antenatal care coverage (ANC) is an essential component of safe motherhood. BDHS surveys (2007) on the status of treatment received by pregnant women indicate that 60% of the women received antenatal care with at least one visit in 2007. On the contrary, only 21% of the women had such visits four times or more during their whole pregnancy period in 2007. In 2009, GoB and UN recommended that there should be at least four visits. The estimate shows that such care (1 visit) will increase over 85% by 2015, while the rate of pregnant women who

make four visits will reach only about 30 % in the same time. However these gains will not be sufficient to reach even half of the target set for 2015.

MICS surveys indicate (2006) that inequalities in ANC exist according to rural/urban settings, administrative divisions and household wealth. Out of 64 districts, 7 districts have ANC of less than 40%. On the contrary, almost half of the districts have ANC of more than 56%. Women in the highest wealth quintile are almost thrice (84%) more likely to receive at least one ANC than the women in the lowest wealth quintile (31%). In addition, institutional delivery is higher in those districts where the ANC is high. Thus, ANC is a significant determinant of institutional delivery. There is a need to promote care during pregnancy to save pregnant women from the burden of morbidity as well as mortality during childbirth.

Although health outcomes have improved, more than 60% of the population has very limited access to basic healthcare (BANGLADESH MINISTRY of HEALTH and FAMILY WELFARE, 2004). The utilization rate of government services remains even lower among the poor. Differences in services available to the poor in rural and urban areas persist, but progress has been substantial. Most curative care is obtained from a pharmacy or through private/informal, untrained providers (ADB, 2001). Another recent survey found out that 60% of the health service users prefer unqualified medical practitioners like local healers, 27% use private medical practitioners and only 13% turn to government health services (BANGLADESH MINISTRY of HEALTH and FAMILY WELFARE, 2003). The overall maternal health status of Bangladesh is shown in table 2.1.

Table 2.1: Maternal health status of Bangladesh

→ = on Track	↓ = Lagging behind				
Indicator	Base year 1991	Current status 2007	Estimate 2015	Target 2015	Remark
1. Maternal Mortality Ratio (per 100,000 live births)	574 (1990)	351	317	144	↓
2. Proportion of births attended by SHP (percent)	5.0	18.0	26.9	50.0 (2010)	↓
3. Contraceptive Prevalence Rate (percent)	39.7	59.0	69.4		
4. Adolescent birth rate (per 1,000 women)	77	59	43		↓
5. Antenatal care coverage (at least 1 visit) (percent)	27.5 (1993)	60.3	84.5	100	Close to the target
6. Antenatal care coverage (Four+ visits) (percent)	5.5 (1993)	20.6	29.1	100	↓
7. Unmet need for family planning (percent)	19.4 (1993)	17.6	12.5		

Source: GoB and UN, 2009: Indicator 1, Indicator 3, Indicator 4, Indicator 7 (SVRS, 2007); Indicator 2, Indicator 5 Indicator 6 (BDHS, 2007)

2.1.2.7 Efforts made by development agencies in promoting child and women's health

Good health is one of the most important aspects of human development and is a resource for a meaningful everyday life. This is also one of the most effective tools for overcoming income poverty and has more positive long-run impacts when they are paired with improvements in other forms of human capital, such as education. It has contribution both to human well-being and in economic performance (6th and 7th COMBINED REPORT, 2001~2009). At the macro level, the improved health status of the people contributes to the economic growth in different ways, presented in box 2.3

Box 2.3: Impact of improved health status of the people to the economic growth

- i. It reduces the work loss and the production loss due to illness and eventually increases income (ACEMOGLU and JOHNSON, 2007)
- ii. It increases enrollment in school, contributes to improved performance at schools, and thus helps to enhance future productivity (BHARGAVA et al., 2001; MIGUEL and KREMER, 2004)
- iii. It decreases in maternal mortality and increases life expectancy (JAYACHANDRAN and LIERAS-MUNEY, 2008)

In order to improve the health situation, especially maternal and child mortality, childhood diseases, and malnutrition, some joint ventures among the GO (Ministry of Health and Family Welfare), NGOs (e.g. BRAC, Proshika, Dhaka Ahsania Mission and Bangladesh Red Crescent Society), development partner agencies (e.g. UNFPA, UNICEF, World Bank and WHO) and other stakeholders (private sector) have been initialized. However, technical expertise and capacity at the individual or institutional level to plan, implement, manage and monitor child health programs is still limited. Another issue is lack of clarity in responsibilities of district or Upazila level managers working in various maternal and child health programs. The current challenge of Bangladesh is to improve effective service delivery especially in primary health care and neonatal health services with increased home based essential newborn care by skilled health workers as well as community health volunteer workers. The Government undertake several initiatives both at institutional and program levels to address the health needs of women and to minimize the discrimination towards women in the health sector. A comprehensive revised health policy is in process in which the gender issue is one of the priority areas (GOB and UN, 2009).

2.1.3 Sanitation and water facilities

Sanitation is defined as access to a covered-pit latrine in which the feces are kept isolated from the environment. Sanitation also includes safe disposal of children's feces, proper hand-washing practices before eating and after defecation, and hand-washing after cleaning the feces of a child (BBS and UNICEF, 2009). Like in many other developing countries, sanitation facilities are still a major challenge in Bangladesh. The low sanitation coverage (43% household) in Bangladesh poses a serious public health concerns. Among the 43%, only 13% use sanitary latrines and another 30% uses home-made pit latrines (WORLD BANK, 2010a). It is estimated that 71% of rural households and 40% of urban households practice open defecation or use unhygienic latrines. The conditions are worse in rural areas where

ignorance, poverty, the traditional practice of open defecation, the use of hanging latrines (flimsy structures built on stilts over rivers and streams), and lack of knowledge about hand-washing pose a serious threat to hygiene and the environment. In addition, LGD (2005) reported that 42 % households do not have latrines due to lack of financial resources, lack of awareness and so on (table 2.2 and table 2.3).

Table 2.2: Households with hygienic, unhygienic or no latrine

Area/ Region	Number of households (%)	Household with hygienic latrines (%)	Household with unhygienic latrines (%)	Household with no latrines (%)
National	21,394,093	33	25	42
Rural	18,326,332	29	24	47
Urban	3,067,761	60	27	13

Source: LGD, 2005: 5

Table 2.3: Reasons for not having a latrine

Area/ Region	Number of households with no latrines (%)	Lack of money (%)	Lack of awareness (%)	Lack of space (%)	Preference for open defecation (%)
National	8,982,551	73	25	11	4
Rural	8,595,626	73	25	10	4
Urban	386,925	80	21	18	3

Source: LGD, 2005: 6

Inadequate access to safe water and sanitation leads to various health problems of people. Water and vector-borne diseases like diarrhea, dysentery, typhoid, worm infestation, polio, malaria, hepatitis and other parasitic infections are too common in Bangladesh and cause numerous deaths. In rural areas, about 69,000 children below the age of five die of diarrhea every year because of inadequate sanitation (WHO, 2009), which is easily preventable by improving sanitation and creating awareness to practice hygiene such as simple hand washing with soap. GoB, UNICEF and ICDDR (2008) reported that less than 1% of Bangladeshis wash their hands with soap before they eat and fewer than 17% wash their hands with soap or ash after defecation. According to WHO and UNICEF (2006), about 22% of the population of the country is still exposed to drinking water which does not comply with WHO standards. On the other hand, surface water is usually polluted and requires treatment. Many parts of the country have arsenic contamination in the ground water (UNICEF, 2006; UNDP, 2006). Still, the government claims that about 90% of people have the access to safe water (BBS, 2008b).

The government of Bangladesh, several non-government organizations, bi-lateral development partners, and the United Nations jointly declared their commitment to ensure the right to safe water in Bangladesh (PARTICIPATORY HUMAN RIGHTS ADVANCEMENT SOCIETY, 2011). In order to cover safe drinking water and sanitation nation-wide, the government of Bangladesh, NGOs, development partners, civil society, media and private sector institutions are currently pursuing an integrated approach by promoting a package of increased tube well installation, improved sanitary practices like the promotion of home-made pit and water seal latrines combined with health education so that the spread of waterborne and other contagious diseases can be reduced or even prevented.

2.1.4 Rural housing situation

Among the basic needs of human beings, shelter or housing ranks high. In literature it usually follows after water, health, and food (GAILLARD, 1995). To maintain a good quality of life, a household or an individual should own a good house (NABI et al., 1999). Bangladesh has to cope with a huge problem in the housing situation and related services (such as portable water, sanitation, energy and sewerage facilities) which not only is affecting the lives of the inhabitants but also disturbing the natural balance of environment through pollution and degradation. Rapid population growth, unequal social structures, topographic limitations, resource constraints and an unclear governmental view on housing (leading to inadequate policy making) have all contributed to the housing problem in Bangladesh (UNITED NATIONS, 2005). The housing shortage in the rural areas is increasing rapidly. According to the 1991 census, the backlog in housing was 3.1 million units (2.15 million units in the rural areas and 0.95 million in urban areas). In 1996, the Bangladesh government estimated that by the year 2000 the housing shortage would be likely to exceed 5 million. However, after the census of 1996, no recent report was found in the literature regarding present housing shortage in Bangladesh. The poor economic situation, income inequality, lack of access to land, improved building materials and technology form constraints for access to quality housing (UNITED NATIONS, 2000). It was estimated that close to half of all housing units in the country were made of temporary materials and needed replacement within a one - to five-year period (GOB, 1996). In rural Bangladesh, the present facilities in respect to housing are very inadequate, a large proportion (85%) of dwelling structure are in some way temporary in nature and in unsatisfactory construction conditions in terms of structural quality. The rural poor are virtually without proper shelter, which can hardly withstand the vicissitudes of nature (wind,

rain and flood). Since the rural poor do not have enough resources at hand, they are unable to construct decent houses to live in. In addition, rural housing conditions have deteriorated seriously due to the natural process of wear and tear and lack of repair. The situation is hardly better in urban areas (UNITED NATIONS, 2005).

At present, about 30% of the rural families do not have their own homestead. They live in *Ijmali* (shared properties), mortgaged or rented homesteads (GOB, 1998). Housing design and constitution of room number (one, two or more) depend on the socio-economic status of the owner. Large farmers usually possess a more elaborate housing structure than those economically less well off (UNWFP, 2006). But this must not be the rule, since often the houses are generally inherited and their structure and design tend to be the reflection of aspiration and status of ancestors (BBS, 2000).

The Government acknowledges the acute shortage of affordable housing in rural areas and has implemented a few sporadic rural housing projects viz. cluster/ideal village projects. These are very meager as compared to the needs of the vast majority of rural people (UDDIN et. al., 2000). Recently, the government has been working on a new housing program with the main objective to reach the population that needs the most assistance. Priority would be given to rural women-headed households and disadvantaged women, such as widows, single and divorced women with income below the poverty line and marginal families in urban areas who are not able to obtain loans from banks or co-operative societies. The reality though is that the poorest population still is not served by these programs (UDDIN et al., 2000). Besides government efforts, a large number of NGOs, private banks and private companies are providing finances to the people for housing. It must be recognized that most of the private sector has very high interest rates and is usually involved in urban housing. For example, Delta-BRAC Housing charges an interest rate of about 16% annually (HOUSING FINANCE GROUP, 2006). According to RAHMAN (2007), the present housing finance system in Bangladesh is extremely small and highly segmented as follows:

- Formal mortgage finance is only available to households with incomes above Tk. 25,000 per month (well above the 10th percentile of the urban income distribution). Government subsidized housing finance through the Bangladesh House Building Finance Corporation, while the nationalized commercial banks are decreasing their housing loan portfolios. Recently, many private housing finance institutions have started to operate in this market.

- Non-collateralized credit for house-construction by microfinance institutions (MFIs) is available to only a small proportion of poor rural households that have participated in income-generation credit programs.

In the study area, there is no form of policy or regulation that has direct impact on the housing practice to improve living conditions and secure the life. Most households that aspire home ownership are dependent on their own savings with additional contributions from relatives, friends or employers, or short-term money lenders.

2.1.5 Food availability and consumption situation

Over the past 30 years or so, Bangladesh has made significant achievement in food grain production and food availability though food availability is still a major problem (WFP, 2005). The net domestic production is not sufficient to meet the requirement of cereals and every year the food gap is filled by the import of food grain (government commercial import, import under food aid and private import), which is gradually increasing. On the other hand, government reports (BBS, 2008b) try to portray Bangladesh as self-sufficient or nearly self-sufficient in food grain production.

Dietary diversity remains generally poor and the Bangladeshi diet is very much carbohydrate-based, lacking sufficient amount of protein and micronutrients (BOSE and DEY, 2007). The normal diet is seriously imbalanced with an inadequate intake of fat, oil, fish/animal protein, fruits and vegetables (TANGO, 2004). Carbohydrates contribute nearly 74% to the total dietary energy (BBS, 2005). Food grain is still the principal source of food calorie and protein supply, though dietary pattern changes over time (WFP, 2009). Rice alone constitutes the lion's share (96%) of total food grain produced in Bangladesh. As staple dietary item rice consumption is about 166 kg/year (BBS, 2007). It alone provides 76% of the calorie and 66% of the total protein requirement for daily food intake. After reviewing the literature, researchers identified the following factors that affect food availability in rural Bangladesh:

- i. Family characteristics such as family size, old aged men or women (along with isolation from other family members), female household heads, disability of a prime income earner, and chronic illness of any family member(s);
- ii. Work and wage-related factors, labor constraints, seasonal unemployment and labor exploitation in the workplace;

- iii. The traditional system of subsistence agricultural, feudal land tenure arrangements and exploitative loan and mortgage systems in the rural credit market;
- iv. Natural calamities (like river erosion, flood and drought) often disrupt markets and lead to a loss in sources of income and damage assets, resulting in immediate food shortages;
- v. On a macro-economic level, inappropriate economic policies including pricing, marketing, tax and tariff policies, population growth rates that offset increased production or imports, market and transportation system.

The diet of the poor is a direct reflection of their current economic status. Extremely poor households generally eat only two meals a day while the transient poor eat three meals more frequently (HOSSAIN, 2003). He also found that the poor adapt their eating habits in terms of quality and quantity of food to cope with food shortages. The poor households eat alternative (famine or wild) foods to supplement their food intake during periods of scarcity that are not part of their regular diet (UNWFP, 2006). Within the household, children, disabled, and pregnant and lactating women face the greatest nutritional risk (WFP, 2005).

2.1.6 Freedom in cash expenditure and decision-making ability

In a traditional patriarchal society like Bangladesh, freedom in cash expenditure opportunities for rural women including household decisions remains quite restricted (PARVEEN, 2007; SULTANA, 2011). Both, decision-making powers and economic control are vested in the hands of men as the household authority (SULTANA, 2010). Usually, household decisions are made by male members of the family and in most of the cases the man takes decisions alone rather than consulting with his wife (HOQUE and ITOHARA, 2008). Regarding economic matters such as land acquisition, purchasing agricultural inputs, crop production, marketing (HAIDER and AKHTER, 1999), sale or pawn of large animals, such as cows and oxen (MILLER, 2001; IFID, 2004), the important decisions are still taken by men. Women tend to have control over small animals such as goats, sheep, poultry and pigs (WORLD BANK, 2008b). Women's participation in agricultural decision-making is also very limited (HOSSAIN et al., 2004). Still, rural women are the dominant decision-makers in areas such as home gardening, cattle, goat and poultry rearing, and post-harvest activities such as seed production and storage (BOSE et al., 2009). An overview of decision making process of rural women regarding household and agriculture related activities are presented in table 2.4 and table 2.5, respectively. Active participation of women at all levels of decision making is important in

order to achieve equality and peace in family as well as the development of the country (HOQUE and ITOHARA, 2008).

Table 2.4: Role of rural women in household decision-making process

Decision making by women (%)	Dhakua	Kushtia	Char Moslanda
Agriculture			
Production process	10	50	40
Selection of variety & inputs	30	0	0
Post harvest	80	60	60
Marketing	20	0	0
Tenure aspects	40	-	0
Homestead vegetable garden	80	90	90
Seed preservation and storage	80	80	80
Livestock, poultry			
Rearing	80	60	70
Health care	40	40	50
Sales	40	0	20
Household management			
Family income & expenditure	40	10	40
Family saving	80	50	60
Sanitation and safe water	80	50	70
Health care	40	50	80
Education	70	60	30
Purchase of assets	60	-	40
Membership of NGO	70	-	40

Source: MALLORIE, 2003: P – 8; ‘-’ means data is not available

Table 2.5: Involvement of family members in agricultural decision making process

	Percent of farms reporting involvement of:			
	Husband	Wife	Both	Children
What crops to grow	62	0	4	19
Seed variety selection	65	2	2	16
When to apply fertilizer, pesticide	60	0	0	19
When, where and what price to sell crop	52	0	12	12
How much crop to keep for home consumption	14	0	52	2
Whether to send paddy to mill for husking	37	2	21	12
How many people to hire and wages	48	0	17	23
For what job is labor to be hired	50	0	15	25
Whether livestock should bought/sold	46	0	15	11
Whether chickens should bought/sold	8	0	86	10
Who should sell homestead products	4	2	85	17

Source: MALLORIE, 2003: P - 8

Different studies from Bangladesh, India and Malawi find that access of women to credit improves the nutrition of girls, while men's access to credit does not (HAZARIKA and GUHA-KHASNOBIS, 2008). When women have more influence in their families' economic decisions, their children are better fed (SMITH et al., 2003) and their families allocate more of their income to food (THOMAS, 1997; DOSS, 2006), to health (THOMAS, 1997), to education (QUISUMBING and MALUCCIO, 2000; DOSS, 2006) and to children's clothing (QUISUMBING et. al., 2001; BOBONIS, 2009). Furthermore, when women are the ones taking out loans, their children are better fed (KHANDKER, 1998), more likely to be enrolled in school and more likely to be literate (PITT and KHANDKER, 1998; HOLVOET, 2004). Some of the findings are enumerated in box 2.4 to further clarify the degree of freedom of rural women regarding cash expenditure.

Box 2.4: Freedom of rural women regarding cash expenditure

- About 63% of loans to women are actually invested by male relatives, while women bear the formal responsibility for repayment (GOETZ and GUPTA, 1996);
- 140 loans made by ACTIONAID to women in Bangladesh about 50% were used for men's productive activities;
- A survey of loans to women borrowers in the Grameen Bank, Save the Children Fund and BRAC registered a loss of direct control over loan use (ACKERLY, 1995);
- An assessment of K-REP confirmed that men try to control income from women's enterprises;
- According to a more recent study of women borrowers in the Grameen Bank, 10 of 40 women in the sample were passing on all or most of their loans to male family members under circumstances that gave them little control over the use of this capital (TODD, 1996).

It is praiseworthy to note that different research studies confirmed that economic freedom of rural women improved substantially over the last two decades in Bangladesh due to their participation and involvement in different micro-credit programs through NGOs. The economic freedom has had a positive impact on the decision-making process of rural women with regard to the education of children (QUISUMBING and MALUCCIO 2003; HOQUE and ITOHARA, 2008), to purchasing personal items, to the health care of a child (PARVEEN, 2007), and to the selection of crop varieties (PAUL and SADULLAH, 1991).

2.2 The economic context

2.2.1 Poverty

In spite of steps to reduce poverty over the last three decades, Bangladesh remains one of the world's poorest and least developed countries (ADB, 2005), with a per capita income of only \$470 in 2007 (USAID, 2009). Bangladesh has, however, experienced greater progress in reducing human poverty, which includes education, health and other sources of human capital, than in reducing income poverty alone (UNWFP, 2006). The level of poverty is closely linked to the level of deprivation (socio-economic, political and psychological) and to the nature of inequality prevailing in the country. Female poverty in Bangladesh is quite visible: the average monthly income of women is significantly lower, their health is poorer, they work in unpaid or less paid jobs and face an inequitable income. More women were in poverty compared to men in the period preceding 2005 (6th and 7th COMBINED REPORT 2001~2009). According to UNDP (2004), earned income of PPP US \$1,150 for females and PPP US \$2,035 for males (PPP or Purchasing Power Parity means, \$1 has the same purchasing power in the

domestic economy). Rural women face limited employment opportunities and are more vulnerable to poverty, as they are directly and indirectly discriminated against within the household in terms of ownership of resources (NAWAZ, 2009). While poverty affects the household as a whole, women bear a disproportionately greater burden in managing household production and consumption under conditions of severe scarcity. Women's poverty has also other dimensions. E.g., women become poor due to the loss of the male earning member of the family because of abandonment, divorce, or death. The HIES (2005) reported that about 29.6% of women are divorced or widowed in Bangladesh.

In the context of widespread poverty, Bangladesh introduced a number of measures to improve the income status of women such as the introduction of quotas to ensure women's participation in government administration, in public service and local government; and of special measures to increase girls' enrollment in schools. Apart from government initiatives, a large number of non-governmental organizations (NGOs) are operating in Bangladesh to establish small-scale manufacturing and service unit for poor women through soft credit and skills development training.

2.2.2 The rural economy

The rural economy of Bangladesh comprises both farm and non-farm activities. According to the WORLD BANK (2010b), the rural economy is agriculture-dominated, though the contribution of agriculture to the country's GDP has been steadily declining from 31.6% in 1999 to 21.0% in 2010. Agriculture includes farm level livestock, fisheries, forestry enterprises, crops and vegetables. Seventy-five percent of the agricultural contribution to GDP coming from crops and vegetables (GOB, 2008). Aquaculture and fisheries currently make up one of the most important sectors, playing a significant role in nutrition, employment, income generation, foreign exchange earnings. They account for 5% of gross domestic product, 6% of export earnings and provide the Bangladesh households with about 63% of their dietary protein requirements (DOF, 2007). Among other agricultural subsectors, livestock is also considered important for creating jobs and alleviating poverty. The contribution of this sector in 2006-2007 to GDP is 2.9% with an increasing trend in the production of milk, meat, and eggs from 2002 to 2008 (GOB, 2007 and NATIONAL MEDIUM-TERM PROGRAM FRAMEWORKS, 2010). The non-farm production enterprises are cottage industry and hand-made things. The activities at household level individually, or complementary with farm activities are considered as non-farm activities including agricultural labors, rickshaw pullers, petty traders,

and other self-employed activities. The share of the non-farm sector in rural economy has increased and the rural economy has experienced significant structural changes during the recent decades. Firstly, cultivated land for crop cultivation has been shrinking, which meant a reduction of the average farm size from 1.70 to 1.48 acres (1 ha = 2.47 acres) in the period 1996 to 2005 (BBS, 2007) with a simultaneous increase in fragmentation and subdivision of holdings. Secondly, the numerical dominance of marginal and small farms has increased as fast as 2.7% per annum, while those of the medium and large farms have fallen (MANDAL and ASADUZZAMAN, 2002). According to a Government of Bangladesh National survey conducted in 1996, 29% of people had no land, 24% had land between 0.01-0.5 acres, 14% had land between 0.5-1 acres, 20% had land between 1-2.5 acres and 11% had land between 2.5-7.5 acres and only 2% had land of more than 7.5 acres. Thirdly, a decrease in the amount of agricultural labor occurred between two census years (ISLAM et al., 2010), as household members temporarily reside outside of the village to find more desirable work (TOUFIQUE and TURTON, 2003). Fourthly, leasing agricultural land and sharecropping is a traditional practice in farming communities in Bangladesh (WEINBERGER and GENOVA, 2005). Land tenurial agreements are changing fast with fixed rent contracts gaining importance over sharecropping tenancy (SAHA, 2003). There are a number of government institutions established to ensure sustainable growth of the rural economy. However, they fail to change the rural economy in Bangladesh. For sustained growth of a diversified agriculture and increased rural incomes, rural non-farm economy needs to be mainstreamed in the policy debates and documents.

2.2.3 Financial sources for rural women

Money is the essential basis for conducting income generating activities, and without finance no business can run or flourish (HAQUE and YAMAO, 2008). In Bangladesh, access to productive assets and financial capital by the poor is an acute problem (HOSSAIN and RAHMAN, 1999; ISLAM and AKTARUZZAMAN, 2001; CHOWDHURY, 2007). Due to small incomes, people can hardly save any money to generate capital (NAWAZ, 2009). The monetary issues are usually remaining out of the control of female members (HAQUE and YAMAO, 2008), and rural women very seldom get financial support from their husbands (AFRIN et al., 2008). In addition, women have limited access to natural resources. Women's access to agricultural land and the use of natural resources such as water or trees is dependent on the rights of husbands or male kin. Inheritance laws continue to be religiously based. Muslim women are entitled to inherit from their father half the share of their brothers, but many women leave their portion of the land with their brothers as a form of insurance against

marital breakdown and to ensure visits to the parental home. Hindu women's formal entitlements are negligible; they inherit 1/8 of their husband's land if there are no living sons or grandsons. These factors seriously cripple women's capacity to start small businesses, since they are unable to manage land or funds (MOMEN and BEGUM, 2006). Sustainable credit facilities create new opportunities to save and invest in income activities, and help individuals or households to build up or acquire funds for all kinds of investments (ZELLER and MEYER, 2002). ALAM and MIYAGI (2004) found that inadequate cash flows create obstacles to initiate and run income activities. Finance is the core problem for expansion of activities in all categories of entrepreneurs in rural areas (RAHMAN et al., 2000; MOMEN and BEGUM, 2006; AFRIN et al., 2008). As a matter of fact, rural women are fully dependant on institutional financial sources for capital to run their IGAs or expand their business. From review of literature researcher has found that microfinance activities in Bangladesh are provided by formal institutions (commercial banks like Bangladesh Krishi Bank, Government sponsored micro finance projects or programs like BRDB, Swanirvar Bangladesh and Grameen Bank), semi-formal institutions (NGOs like BRAC, Proshika, ASA, etc.) and informal sources (such as friends, relatives, money lenders).

Women's access to formal credit is also extremely restricted, as collateral requirements, complex procedures, constrained with many hassles and bribes, poor communication and an inadequate banking network, and also the lower literacy rate of women makes the formal banking sector less accessible to them (MOMEN and BEGUM, 2006; HAQUE and YAMAO, 2008). As a consequence, mostly semi-formal and informal credit sources of various kinds are accessible to the poor rural women. KHAN and RAHAMAN (2007) mention that most of the rural women started their IGAs by taking a loan from surrounding available sources such as microfinance NGOs, relatives, friends, money lender (*Mahajon*). Microfinance service of NGOs plays a pivotal role in the development of rural economy by generating income for the unutilized and underutilized rural women (HARPER, 2003), but these sources are exploitative and inadequate. Usually, NGOs provide loans at 15% interest per month, which is very high. In addition, the loan amount is very small and the recovery starts from the next week of loan distribution which discourages rural women's income activities. Consequently, the client has to pay from the loan amount without producing and selling (HAQUE and YAMAO, 2008; NAWAZ, 2009).

The Government of Bangladesh has adopted some important steps/measures both at policy and implementation levels regarding women entrepreneurship development in rural Bangladesh, but many complications have arisen at the time of implementation.

2.2.4 Markets and Infrastructure

Markets have been the domain of men, who have done all shopping for household items as well as selling agricultural products. However, women may directly sell minor items like eggs and vegetables either at their doorsteps to itinerant traders or through children to the market. Otherwise, they give the produce to their husbands or other male members of the family who take the produce to the market. In recent years, a number of rural women have started to go to the market to sell their products (AHMED, 2008). Younger women go in groups, but divorced and widowed women often go alone. Women vendors usually cover 6 to 10 villages in a week. KELKAR et al. (2004) found that women collect eggs from their neighbors and take them by rickshaw to the depot, one place at which eggs can be sold. MALLORIE (2003) also found women collecting vegetables from producers (often women group members) and selling to wholesalers. However, both KELKAR et al. (2004) and MALLORIE (2003) reported that there is a greater acceptance for women going to markets as buyers than as sellers. There are strong social norms against women being sellers. MALLORIE (2003) also mentioned that the reason for the small number of women in the market is not just the strength of the idea of loss of respect for such women, but also, and perhaps even more importantly, the various types of harassment that women are subject to in public spaces. This ranges from the aggressive “male gaze” and rumor mongering, and can go up to pinching and other sexual harassment. The construction of “women’s sections” in markets as a separate area for women sellers, with their own toilet facilities, etc., will certainly help women to enter the markets as sellers. KELKAR et al. (2004) report that when women depend on men to sell products in the market, it inexorably leads to lessening women’s control over income. This lessening of control often leads women to prefer sale at the doorstep to itinerant traders, though the price realized may be lower than for sales in the market. In addition, market income is inevitably reduced by men, for tea and cigarettes, and women obviously feel that, on balance, they benefit more and have better control by selling at the lower doorstep price. MALLORIE (2003) found that it is easier for women to become hawkers, travelling from village to village. Although security can be a problem, such women get direct access to women customers on their doorsteps. Women who have access to sufficient capital may become wholesalers, who can then more easily sell via other traders.

Rural manufacturing, construction, services (especially building of roads, culverts, bridges and markets places, etc.) have been the most dynamic sectors helping to increase farm and non-farm output, employment and incomes of rural people (AKANDA, 2005), thus contributing to economic growth (TANGO, 2006). DFID (2006) indicate that improvements in transport foster economic growth, increase employment opportunities, reduce the cost of essential commodities, increase the accessibility of social services and reduce the vulnerability of the poor communities. Infrastructure improvements have brought rural and urban areas closer to each other in terms of marketing and socio-economic linkages (TANGO, 2006). Poverty reduction and improved livelihood are closely linked to the adequacy of infrastructure services.

2.3 Relation of income generation activities with livelihood improvement of women

Rural women are playing pivotal roles in almost every aspect of our society from time immemorial. They have made important contributions in creating access to human, natural, financial, physical and social capital for making their livelihood sustainable (UNIFEM, 1998). All phases of agricultural activities from seed sowing to harvesting and processing of crops are intimately done by rural women. The women are participating in both farming and non-farming activities directly or indirectly with men. The small farmland and homestead area is being used intensively mostly by women (ADB, 2004). However, the majority of new livelihood opportunities are still considered to fall under the male domain, including work in the private sector, in small-scale businesses, or at the marketplace. In rural areas, interest of resource poor women in income-generating activities is high and they are involved in various non-farm income activities (ADB, 2001; ZEZZA, 2007). KHAN and RAHAMAN (2007) state that at the individual level, IGAs are perceived to be the ultimate liberator, which bring about a positive change to poor women's income and provide not only the financial help to household but also have positive impact on other factors of daily life. Some of the literature indicates that women's income is the key to sources of power and opportunities that may otherwise hinder their lives (e.g. AL-AMIN, 2007; RAHMAN and NAOROZE, 2007; HOQUE and ITOHARA, 2008; FAKIR, 2008). The involvement of women in income-generation activities changes their attitudes (AHMED et al., 1997). A number of studies recognize that women's IGAs are not only crucial but also an urgent priority to reduce poverty and improving their livelihoods or living standard (AFRIN et al., 2008). It has been found that growing economic power of

women entails significant improvement in women's participation in household decision making, family planning, children survival rate, health and nutrition and children education especially girls' education (STEELE, et al., 2001; PARVIN et al., 2005; CHOWDHURY, 2007). In Bangladesh, rural women are working not only in the family but are also involved in different entrepreneurial activities. According to BBS (2008b), in 25% of male-headed households and 40% of female-headed households, women worked as wage laborers, mostly in agriculture. The proportion is much higher for functionally landless households (owning under 0.2 ha of land) because these households have higher number of family members and lower number of capable male earning members. The participation of women in income generation and domestic tasks are varied by region, religion, and class (ZEZZA, 2007).

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

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

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

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

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

Aquaculture: Traditionally, fishing is an occupation for the peoples of Hindu religion and only men are involved in catching fish, with women in the supporting roles of making nets and in sorting and drying of fish (SULTANA, 2006). In coastal areas, rural women are directly or indirectly involved in fishery activities - mostly processing and marketing (SHELLY, 2005; SULTANA et. al., 2005). However, women do cultivate ponds, especially small ponds close to

homestead (known as *pagar*) for generating income. Pond fish culture can create employment and improve the quality of life (SHELLY and COSTA, Undated; RAHMAN and NAOROZE, 2007).

Non-agricultural activities: Traditionally, women are practicing non-farm self-employment activities such as handicrafts (dressmaking, *nakshikatha*, wall mats, household accessories, baskets making, jute bags, bamboo work, embroidery) or cigarette (*biri*) making (AL-AMIN, 2008). They conduct small businesses such as shop keeping, trading CDs or video cassettes etc. Some women operate grocery shops (especially if adjoining their homes), or travel from village to village to selling clothes and other items (FAKIR, 2008; FARID et al., 2009). The poorest women are finding work such as gathering firewood, laboring in brick fields, and earthwork on roads, and in rural industries. Women are also engaged in rice/paddy trading, rent of rickshaws, studio business, preparing and supplying fishing nets and other fishing instruments, and so on. They also work as domestic helpers in other people's houses (HOSSAIN and BOSS, 2004; TANGO, 2006), where payment is often minimal. Earnings may be very low, but such home work has the advantage of being flexible, fitting in around other domestic and agricultural tasks (KABEER, 2008). With access to micro-credit, women are also investing in a range of non-farm businesses (confirmed in KELKAR et al., 2004).

Due to have limited employment opportunities in the rural areas, many women migrate from villages to the city in search of jobs. Mainly they employed in the garment industry with minimum salary. In Bangladesh, over 3 million peoples are working in the garment industry and fully 85 percent of these workers are women (ALAM et al. 2011). In addition, every year Bangladeshi women also migrate to Middle-East countries for earning. A total of 24,838 Bangladeshi female workers secured their overseas employment in 2010 (BMET, 2011).

2.4 Impact of microfinance program

A review of literature shows that there are numerous NGOs which have played a significant role in the field of poverty reduction, livelihood improvement and social protection in rural areas since 1980. NGOs provide services such as social, financial, and community organization, in independent and disconnected ways. THORNTON (2003) report that with the exception of a few national level NGOs, most of the local NGOs are often disconnected from the local bureaucratic and political system. The Association of Development Agencies in Bangladesh listed a total of 2,152 NGOs were working in Bangladesh in the year 2004

(WORLD BANK, 2006). In Bangladesh, almost all NGOs provide microfinance services to their members. UNCDF (2004) reported that microfinance plays three key roles in development:

- helps very poor households meet basic needs and protects against risks,
- associated with improvements in household economic welfare,
- helps to empower women by supporting women's economic participation and so promotes gender equity.

A number of studies have been undertaken so far on the impact of income generating microfinance programs. The evaluation reports of different researcher regarding the impact of micro-credit on poverty alleviation and different aspects of wellbeing is very mixed [see for example, TODD, 1996; SEBSTAD and CHEN, 1996; HULME and MOSLEY, 1997; NASER, 1998; WRIGHT, 2000; ZOHIR and MATIN, 2004; KHANDKER and PITT, 2005; CHOWDHURY et. al., 2005; ABED and MATIN, 2007, SWAIN et al., 2008; HOSSAIN and KNIGHT, 2008]. Some impact evaluation studies have found that the access to credit by the poor has a positive impact both on household outcomes and on individual outcomes as well as large and permanent effect on living standards. However, other studies have found that the living standards have not improved through micro-credit, but rather that poor households simply become poorer through the additional burden of debt (HULME and MOSLEY 1996; HASHEMI, 2001; AMIN et al., 2003; MATIN and HULME, 2003; DATTA, 2004; AHMED et al., 2006; HAQUE and YAMAO, 2008; GEHLICH-SHILLABEER, 2008; DALEY-HARRIS and ZIMMERMAN, 2009). A impact study of microfinance in Uganda concluded that there is a measurable impact on social development but no impact on economic development (MAGGIANO 2006). HAQUE and YAMAO (2008) in Bangladesh identified that large number of households are unable to afford high interest rates in microfinance. SULAIMAN and MATIN (2008: 4) also state that 'it is now widely recognized that microfinance alone is largely inadequate for the poorest'.

Over last two decades, microfinance became an important tool for alleviating poverty in Bangladesh (SEBSTAD and CHEN, 1996; KHANDKER and CHOWDHURY, 1996; PITT, et al., 1998; NASER, 1998; KHANDKER, 1998; WRIGHT 2000; ZAMAN, 2000; KHANDKER, 2001; KHANDKER, 2003; ROGALY et al., 2004; KHANDKER and PITT, 2005; ABED and MATIN, 2007; SWAIN et al., 2008). The main objective of microfinance institutes is to create self-employment opportunities for the rural unemployed and underemployed people especially for rural women to generate income, allow them to care for themselves and their family members and reduced their dependency on others (SANKARAN, 2005).

The positive impacts of microfinance programs might be discussed in two ways. *Firstly*, microcredit programs create employment opportunities, increase productivity, increase income and provide economic security, improve nutritional and health status, and improve housing condition of rural women (HOSSAIN and SEN, 1992; PITT et al., 1998; NAVAJAS et al., 2000; CHOWDHURY, 2007; FAKIR, 2008; RAZZAQUE, 2010). The use of high-yielding variety is higher among the borrowers, which helps to increase agricultural productivity of small and marginal farm households (ALAM, 1988). The impact of microfinance programs is more visible in the non-farming sector such as trading, shop-keeping, etc. In 2008, GRAMEEN BANK reported that 46% of total trade loans went to crop trading in 1985 and 22% went to livestock and fisheries (AFRIN et al., 2008). Trading and shop-keeping activities have positive impact on the development of local market by boosting local production and creating new market opportunities for selling those products locally (SHAHIDUR et al., 1998).

Secondly, microfinance programs have a significant influence on social empowerment, awareness and education, self-esteem, sense of dignity, organizational and management skills, mobilization of collective strengths, etc. (PITT and KHANDAKER, 1996; KHANDKER, 1998; NAHAR, 2007). This socio-economic change subsequently increases the control of women over their own lives, improves freedom in the family, helps the rural women to be more independent and more financially solvent in their families, and increases convincing power for both in their families and society as well (PITT and KHANDKER, 1996; HASHEMI, 1996; FAKIR, 2008). Furthermore, women's participation in such programs increases their mobility to visit market places for buying and selling products, health centers for medication, cinema halls for watching film, neighbors or other houses in the village, and outside villages for more relations. It enhances the ability to make small and large purchases. Small purchases include small items used for daily in preparation for the family (e.g. kerosene oil, cooking oil, spices), for oneself (e.g. hair oil, soap, glass, etc.), buy ice-cream or sweets for the children. The large purchases are related to pots and pans, children clothing, own clothing (e.g. *saries*), family's daily food, etc. The credit programs enable women to negotiate gender barriers (RAHMAN and NAOWREZ, 2007; HOQUE and ITOHARA, 2008; RAHMAN, 2008).

2.5 Barriers in women's life

Due to the chauvinistic attitude of men and other cultural barriers, women are restricted to perform their productive roles and household chores (PARVEEN, 2007). From an early age, women are taught to be submissive and self-sacrificing, and are prevented from interacting with society (FAKIR, 2008). Women and girls are in a disadvantaged situation compared with men in many aspects of their lives in the society, especially in developing countries like Bangladesh (ADB, 2007). Resulting from this situation, women are denied participation in income activities as well as restricted mobility denies them to access in market facilities (SULTANA, 2010). After reviewing of literature, four sub-systems and multiple factors within each sub-system were identified which function as potential barriers to participate in economic activities (box 2.5). All of these sub-systems are interrelated parts of the broader social system of Bangladesh that exist around women. Women themselves are considered as an internal sub-system, due to their own reluctance or willingness that may influence their participation in IGAs. The other three sub-systems are considered as external sub-systems. It is assumed that government and other agencies need to take initiative to help increase participation in IGAs of rural women that may gradually eliminate the widespread barriers of rural women's life.

Box 2.5: Four sub-systems derived from the literature that potentially impact on women and their participation in IGAs

Women themselves: Willingness, reluctance, education

Family sub-system: Parents' educational background, gender-biased attitude and investment, husband's attitude, household responsibilities, restricted mobility, unequal access to land or resources.

Financial sub-system: Poverty, cost of production, inadequate facilities of financial institutions, perceived low return on investment for female.

Socio-cultural sub-system: established socio-cultural and religious beliefs (*Purdah*) and practices, patriarchal social domination and perceptions, negative social concepts, lack of infrastructure facilities, early marriage, son preference, male harassment, shortage of female extension worker and lack of market facilities.

Concluding remarks

In this chapter, the facts and discussions lead to a conclusion that the overall situation of women in Bangladesh is far from being satisfactory. Their precarious condition is characterized by the poverty, low literacy rate, less working opportunity, insecure maternal health status, inadequate access to sanitation and safe water, acute shortage of affordable housing, scarce food availability, scanty participation in decision-making process, less opportunity in cash expenditure, insufficient access to get credit, low governmental support, and inadequate infrastructures especially market facilities. In addition, multiple factors are identified that potentially impact on women and their participation in IGAs. From the last few years, women are contributing in family and social level in different ways through their income. Participation of women in IGAs is important for achieving economic growth and improving livelihood as well as overall development in Bangladesh. Considering the above facts, the researcher motivated to undertake an empirical investigation entitled “Improving livelihood of rural women through income generating activities in Bangladesh” to analyze the existing situation of studied women and suggest policy measures to increase their participation in income activities for improving livelihood. In this study, main focus is on income of rural women through IGAs. This is for two reasons. First, involvement of women in IGAs usually upholding three fundamental pillars: economic, environmental and social benefits, those are assumed to be interlinked in order to improve livelihood. Second, the poor women mainly live in the rural areas, and unfortunately they are deprived of development and have not received much attention in the past.

3 Theoretical background

Research is a continuous process and for any scientific investigation previous findings provide the foundation to new research projects. The review of literature is one of the important aspects in the research process which helps the researcher to keep her work going in the right and appropriate direction. The challenging title of this research requires some explanations before describing how the research was conducted and what its outcomes are. Hence, an attempt has been made to provide information on concepts and theories related to rural women livelihood based on insights gained from existing literature and own considerations. In addition, a conceptual framework is outlined aimed at a future transformation of the rural society in which there will be better opportunities for rural women.

3.1 Key concepts linked to sustainable livelihood

There are a number of researchers and development agencies who provide the conceptual underpinning on the term livelihood and sustainable livelihood in many dimensions, some of which are enumerated in the section below.

3.1.1 Sustainable livelihood

The two main concepts i.e., environmental sustainability and social sustainability are basis for sustainability of livelihoods. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets on which livelihoods depends, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable which can cope with and recover from stress and shocks, and provide for future generations (CHAMBERS and CONWAY, 1991: i).

Livelihoods can be defined as “a means of gaining living”, which refers to the way of living rather than income and consumption alone (STROUD, 1996; AVNIMELECH, 1998; CHAMBERS and CONWAY, 1991). A livelihood comprises people, their capabilities and activities for means of living, including assets (tangible and intangible). Tangible assets are resources and stores, and intangible assets are claim and access (AVNIMELECH, 1998). Afterwards, several researchers used this definition with minor modification (CARSWELL, 1997; SCOONES, 1998). The theory of livelihood encompasses not only the income generating activities pursued by a

household and its individuals, but also entails the social institutions, intra-household relations, and mechanisms of access to resources through the life cycle (ELLIS, 2000; ARCE, 2003).

According to CHAMBERS and CONWAY (1991: 5), sustainable livelihoods concept is based normalatively on the ideas of capabilities, equity, and sustainability, each of which is both end and means. A livelihood provides the support for the enhancement and exercise of capabilities (an end); and capabilities (a means) enable a livelihood to be gained. Equity must include adequate and decent livelihoods for all (an end); and equity in assets and access are preconditions (means) for gaining adequate and decent livelihoods. Sustainable stewardship of resources is a value (or end) in itself; and it provides conditions (a means) for livelihoods to be sustained for future generations.

The sustainable livelihoods idea was first introduced by the Brundtland Commission on Environment and Development as a way of linking socio-economic and ecological considerations in a cohesive, policy-relevant structure. The 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, especially in the context of Agenda 21, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication. It stated that sustainable livelihoods could serve as an integrating factor that allows policies to address development, sustainable resource management, and poverty eradication simultaneously (UNDP, 1997). Livelihoods are studied and analyzed because these provide holistic information that can reveal how, and why, people survive (or fail to survive) difficult times so as to reduce vulnerability. Many development agencies have adopted the livelihood concept as central to their development strategies and activities with further minor modifications (GUPTA, 1992). Most of the discussion on sustainable livelihood so far has focused on rural areas and situations where people are farmers or make a living from some kind of primary self-managed production.

The standard definition of sustainable livelihoods has been provided by CHAMBERS and CONWAY (1992: 6), and the present research work follows their concept: A “livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term while not undermining the natural

resource base”. On this definition various international agencies like DFID, CARE, OXFAM, IDS team and the United Nations Development Program base their livelihood approaches (CARNEY et al., 1999).

Sustainable livelihood refers to the maintenance or enhancement of resource productivity on a long-term basis. The concept of “sustainable rural livelihoods” is increasingly central to the debate about rural development, poverty reduction and environmental management. Collectively, these definitions reveal that livelihoods are a multi-faceted concept, being both what people do and what they accomplish by doing it, referring to outcomes. The livelihood approach is founded on a belief that people require a range of assets to achieve positive livelihood outcomes: no single category of assets sufficiently provides many and varied livelihood outcomes that people seek. An access of poor people to any of category of assets tends to be limited. The ability to move out of poverty is critically dependent on access to assets (WARNER, 2000). Access to resources indicates that individuals, households or groups are able to use these, and access gives them capability to build their livelihoods (BEBBINGTON, 1999).

3.1.2 Sustainable livelihoods approach (SLA)

The SLA is prominent in recent development programs that aim to reduce poverty, improve livelihood status and decrease vulnerability in communities engaged in small-scale income activities (EDWARDS, 2002; NEILAND and BENE, 2004). It is increasingly being used by many development agencies and NGOs to achieve a better understanding of livelihood capital management systems (ALLISON and HOREMANS, 2006). The livelihood approach seeks to improve rural development policy and practice by recognizing the seasonal and cyclical complexity of livelihood strategies (CARNEY, 2002; ALLISON and ELLIS, 2001). It embraces a wider approach to people’s livelihoods by looking beyond income generating activities in which people engage (CHAMBERS and CONWAY, 1992; FARRINGTON et al., 1999; SHANKLAND, 2000). The sustainable livelihood approach is a holistic and people-centered approach (FARRINGTON et al., 1999); and seeks ways to improve people’s livelihoods by building on their assets.

In this study, sustainable livelihoods approach (SLA) has been applied. The SLA is a tool for understanding how households draw on capabilities and assets to develop livelihood strategies made up of a range of activities. The sustainable livelihoods approach has been advocated as

one way of both understanding the situation of rural women (using the sustainable livelihoods framework) and changing the way of their situation is addressed (using the sustainable livelihoods principles) (CARNEY, 1998). The livelihood framework facilitates holistic thinking about the things that the poor might be very vulnerable to, the resources that help them strengthen assets, enhance capabilities and reduce vulnerability, and the policies and institutions in the wider environment which affect on their livelihoods (DFID, 1999). The framework shows a way of thinking on livelihoods through the differing contexts such as constraints and opportunities, and ensuring that important factors are not ignored (ASHLEY and CARNEY, 1999). There are several livelihood models developed by researches but in most models the main elements are similar and addresses of these are as follows:

Context: The external environment in which households exist and which is responsible for many of their hardships (social, economic, political and environmental dimensions, conditions and trends).

Assets and capabilities (financial, natural, physical, human, political and social capital): The resources poor people possess or have access to and use to gain a livelihood.

Policies, institutions and processes (sometimes called transforming structures and processes): The institutions, organizations, policies and legislation that determine access to assets and choice of livelihood strategies.

Livelihood strategies: The ways which lead to the building up of assets and capabilities to improve their livelihoods (i.e., consumption, production, processing, exchange and income-generating activities).

Outcomes: Successful livelihood strategies should lead to more secure income and more economically sustainable livelihoods of people. These include better health, nutrition, water, shelter, education, etc. increased well-being, reduced vulnerability and more sustainable use of the natural resource base. The framework of livelihood presents the main factors, which constrain or enhance livelihood opportunities of people as well as the typical relationships between these. The widely used sustainable livelihoods framework that contains these elements has been presented below (Figure 3.1).

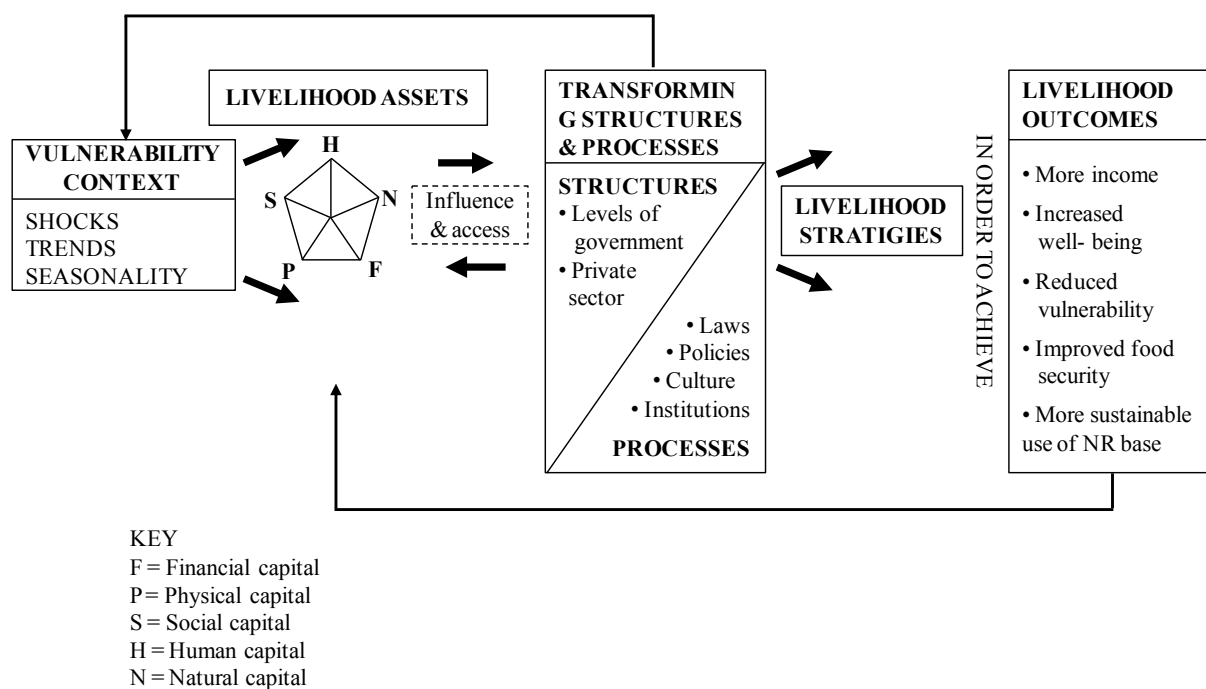


Figure 3.1: DFID sustainable livelihoods framework (Adapted from: CARNEY et al., 1999: 9)

3.1.3 Frameworks for the analysis of livelihood of rural women

There are several frameworks developed by different agencies to help understand the complexity of livelihoods, illustrate the linkages between different factors that influence livelihoods, and identify where interventions can be made. The framework of DFID, UNDP and CARE - Bangladesh, which are relevant to this study, are summarized in table 3.1.

Table 3.1: Key aspects of the livelihoods approaches used by different development agencies

Agency	Asset categories	Sectors in which it is applied	Core ideas and principles	Levels
DFID	Human, social, natural, physical and financial (consideration of political as a further asset).	Rural (Livelihoods + NR), urban, conflict and situations of chronic instability, transport and infrastructure, enterprise, literacy and livelihoods, health and HIV/AIDS.	Six Guiding Principles: People-centered, Responsive and Participatory, Multi-level, Partnership that promote SL in the context of poverty elimination. Various types of Sustainability, Dynamic. Additional principles being considered Holistic and Strength-based as well as integration of Rights Based Approaches and gender issues.	Policy level, project programming framework, external partnerships with NGOs, governments and multi-laterals.
CARE	Social, physical, human, political, financial and natural	Rural, urban, conflict and situations of chronic political instability, disaster.	Four principles of HLS: people, holistic, disasters and development, micro and macro. Integration of RBA to livelihood programming.	Household level, urban management, country-specific.
UNDP	Human, social, natural, physical and economic (sometimes adds political).	Uses at the field and country level (with the exception of the PEI). Applications in rural and urban environments, agriculture and NR, environment and local planning.	People-centered, participatory approaches, holistic vision of development agenda. Established SL unit in its Social Development and included in initiatives concerning income-generation, NRM, people's Poverty Elimination Division – but disbanded in 2001.	Country level, field level, local institutions and organizations.

Source: HUSSEIN, 2002: 50-51pp.

3.1.4 Household livelihood security

Household livelihood security is defined as adequate and sustainable access to income and resources to meet basic needs (including adequate access to food, potable water, health facilities, educational opportunities, housing, time for community participation and social integration). If any of these basic needs is not met, the household is considered to be living in absolute poverty (FRANKENBERGER, 1996). However, simply satisfying one's basic needs are not adequate to ensure that people can rise above and stay above absolute poverty

(BECKWITH, 2000). Livelihoods can be made up of a range of on-farm and off-farm activities which together provide a variety of procurement strategies for food and cash. Thus, each household can have several possible sources of entitlement which constitute its livelihood. These entitlements are based on the household's endowments and its position in the legal, political and social fabric of society (DRINKWATER and MCEWAN, 1992). The risk of livelihood failure determines the level of vulnerability of a household to income, food, health and nutritional insecurity. Therefore, livelihoods are secure when households have secure ownership of, or access to, resources and income earning activities, including reserves and assets, to offset risks, ease shocks and meet contingencies (CHAMBERS, 1989). Households have secure livelihoods when they are able to acquire, protect, develop, utilize, exchange and benefit from assets and resources (GHANIM, 2000).

3.1.5 Indicators of livelihood

There are many indicators used to monitor complex changes in livelihoods and to understand the processes that have produced such change. CARE (2004) identified 26 livelihood indicators usually used to measure around 9 livelihood outcome “themes”, and these have been presented in table 3.2.

Table 3.2: Some important indicators used by different organizations in Bangladesh at household level

Livelihood outcome	Indicators used by different organization
Nutritional security	<ul style="list-style-type: none"> • % children with low birth rate (UNICEF) • Per capita food intake (Kcal) (PROSHIKA) • % women have BMI of at least 18.5 (CARE) • Appropriate breast feeding and weaning practices for new-born (CARE)
Food security	<ul style="list-style-type: none"> • HHs with homestead gardens (HKI) • Cropping intensity (FAO) • Gross crop and livestock income (HKI) • % income used to procure food decreases (CARE)
Health security	<ul style="list-style-type: none"> • %HHs with less than \$1/day income (UNICEF) • % decrease in general diseases(CARE) • % decrease in neonatal mortality, morbidity rates (CARE) • % decrease in maternal mortality, morbidity rates (CARE) • children with access to immunization (CARE)

Table 3.2: Continued

Economic security	<ul style="list-style-type: none"> • % HHs with manual labor as principal occupation (HKI) • Amount cultivated land/land ownership (HKI) • Income from agricultural sales • HHs dependent on manual labor (HKI) • % HHs using loans for business enterprise activities (CARE) • % HHs with increasing assets (CARE) • % women with adequate income equal to wage or agriculture labor index (CARE) • % women with accumulated savings/investment above mandatory savings (CARE) • HHs identified several alternative livelihood options (income diversity) (CARE) • Increased level of savings used for productive activities rather than for crisis management (CARE)
Health security	<ul style="list-style-type: none"> • %HHs with less than \$1/day income (UNICEF) • % decrease in general diseases(CARE) • % decrease in neonatal mortality, morbidity rates (CARE) • % decrease in maternal mortality, morbidity rates (CARE) • children with access to immunization (CARE)
WATSAN security	<ul style="list-style-type: none"> •% HHs using functional latrines (CARE) • % HHs with access to safe water (drinking, cooking, bathing, washing) (CARE) • % HHs affected by salinity and arsenic (CEGIS)
Education security	<ul style="list-style-type: none"> • Adult literacy rates (CEGIS) • % women with basic numeracy skill (CARE) • Increased access to improved learning environment for students (CARE)
Shelter	<ul style="list-style-type: none"> • Housing: roof materials, wall materials, floor materials, number of living rooms (CARE) • Access to electricity (CARE)
Community participation	<ul style="list-style-type: none"> • Membership in local groups (savings, gardening, etc.) (HKI) • % women engaged in community organizations (CARE) • % women invited to more social (community) events and gatherings (CARE) • NGO membership (CARE)
Access to institution or service	<ul style="list-style-type: none"> • Access to and use of government and other services (CARE) • Extreme poor with increased access to savings services (CARE)
Gender	<ul style="list-style-type: none"> • Women's access to institutions and services Increased (CARE) • Mobility of women expanded (CARE) • Women involved in decision making regarding marriage, education, mobility, and control related to their children and assets at HH level (CARE)

Source: Adapted from CARE, 2004: 14-17pp.

3.2 Conceptual framework of the study

Both, conceptual ideas and available empirical studies have been taken into consideration for developing the conceptual model. The framework considers context, livelihood assets, existing structures and processes and livelihood strategies which directly and indirectly influence rural women's participation in income activities to continue their personal income and eventually increase household income, well-being, living standard and reduce poverty. Institutions, organizations and policies may support (or inhibit) the availability, opportunities and productivity of assets as well as peoples livelihood. The key components of the conceptual framework are as follows:

Environment of rural society

The rural society of Bangladesh is characterized by poverty, population density, poor health status, restricted mobility of women, illiteracy and poor sanitation as well as social evils like early marriages, dowry, and so on, as mentioned in box 3.1. In addition, the society is dominated by informal rules of patriarchy that hinder the development of women. Apart from these, natural disaster such as storms, excessive rainfall, floods and disease outbreaks are exacerbating the rural women's situation and also affect the rural society. The livelihood systems of poor rural households are often very fragile and finely balanced such that small trouble can destabilize them for many years (WORLD BANK, 1999). It is assumed that different factors in the society hamper the participation of rural women in IGAs. To improve the situation of women's participation, three basic ideas of sustainable livelihood, such as capability, equity and social sustainability needs to be considered. CHAMBERS and CONWAY (1991) suggest some strategic measures to improve the capability, equity and social sustainability which are presented in box 3.2.

Box 3.1: Environment of the rural society

High fecundity, illiteracy, lack of stable source of income, lack of income to educate children, little or no savings to start own business, poor access to information, less participation or unable to participate in social activities, poor health due to poor sanitation and poor water facilities, lack of shelter and poor housing situation, less freedom in cash expenditure, food is scare, high rate of unemployment, poor institutional support, non-ownership of land and cattle and other resources, lack of goods and services and too few opportunities to build a life.

Box 3.2: Strategies for improving capability, equity and social sustainability**Enhancing capability**

- education,
- health, both preventive and curative to prevent permanent disability
- bigger and better baskets of choices for agriculture, and support for farmers' experiments
- transport, communications and information services
- flexible credit for new small enterprises

Improving equity

- redistribution of tangible assets, especially land
- secure rights to land, water, trees and other resources
- protection and management of common property resources and equitable rights of access for the poorer
- enhancing the intensity and productivity of resource use
- rights and effective access to service, especially education, health and credit
- removing restrictions which impoverish and weaken the poor

Increasing social sustainability

- peace and equitable law and order
- disaster prevention
- counter seasonal strategies to provide food, income and work for the poorer at bad times of the year
- health services that are accessible and effective in bad seasons, including treatment for accidents
- conditions for lower fertility

Source: Adapted from CHAMBERS and CONWAY, 1991

Livelihood assets of rural women

Rural households have access to both tangible and intangible assets that allow them to meet their needs. It is important to note that livelihood security is dependent on a sustainable combination of each of these resources and in some cases one is prerequisite to others, as which are interlinked. So, people require a range of assets to achieve positive livelihood outcomes (SCOONES, 1998). Different combinations and components of capital assets are required for rural women to engage in income activities. The presence or absence of various components of capital assets can facilitate or hinder, respectively, the likelihood of success. For example, rural women with limited access to finance and land, and with limited education and restricted mobility have an effect on income generation, as they cannot use the labor power for production purpose. Livelihood framework draws attention to five forms of capital

upon which rural women's livelihood depends. These livelihood assets are measured by a set of variables. Box 3.3 shows livelihood assets along with the study variables.

Box 3.3: Forms of capital that influence livelihood security

Human capital: It consists of skills, knowledge, ability to work and good health that permits people to follow their different livelihood strategies and achieve their livelihood objectives. Age, education, family type, family size, time utilization, occupation, food consumption behavior.

Natural capital: Natural capital represents the natural resource stock like land, water, tree, wild cook and wider environmental goods are critical for individual in any production. Farm size.

Financial capital: It refers to incomes, savings and credit, which enable people to pursue their livelihood objectives. Income, savings and loans, cash expenditure.

Physical capital: The basic infrastructure like transport, road, communication, shelter, market, electricity, water supply, sanitation and health facilities are the physical capital that needed to support livelihoods.

Social capital: Social capital in the form of networks, membership in groups, relationships of trust, cultural norms and other social attributes have significantly helped in exchanging experiences, sharing of knowledge and cooperation among rural households, upon which people depend when pursuing their livelihood objectives. Association with NGOs, marital status, length of association with loan sources.

Livelihood strategy of rural household

In rural society, the household is the base upon which the role of rural women is negotiated and enforced. Rural women usually play diversified roles in the household by performing different kinds of activities including household activities, on-farm activities like vegetable cultivation, livestock and poultry rearing and non-farm activities such as small business, handicraft, etc. The term of access to association with NGOs and credit, women member of NGOs have access to NGO credit to start IGAs. It is hypothesized that both, the credit facilities and association with NGOs will change three important dimensions of rural women at household level. These dimensions are building social capital, raising awareness and building capability, presented in box 3.4.

Box 3.4: Three important dimensions of rural women

Building social capital: Participation of rural women in income activities and association with the credit-based micro-entrepreneurial activities of NGOs can build an opportunity to create a strong social network and improve the socialization of women. Socialization may increase the mobility connectivity of women and by helping and providing suggestions regarding IGAs and other matter of life within group members and non-members. In addition, in the process of socialization, women can gain confidence and self-esteem through group meetings and discussions.

Raising awareness: Micro-credit NGOs emphasize weekly group meetings where women can express their views, share ideas and exchange information. Various training programs may improve their financial capacity, their assets and businesses, taking care of children, raising socio-economic and political awareness, by which they become aware about their lives. FAKIR (2008) strongly argued that rural women can enter into the social network system and income activities through different credit program which ultimately increase their decision-making power and that have significant and positive impact on the livelihood status of women. Furthermore, effective awareness of women can liberate their lives from many social vices and enable them to reduce poverty.

Building capability: Rural women can achieve financial capability by performing different kinds of activities such as on-farm and off-farm activities, which was simply impossible before joining in the income generating activities. Financial capability may give them social identity, which strengthens their individual and social power as well as reduces their economic subordination. Financial capability also influences other capabilities such as: act on their own choices, increase capability to control assets, contribute to household welfare, gain access to household resources, make major household decisions, enhance self-confidence and self-esteem, and improve bargaining power. Therefore, women can exercise economic power as an active and potential income owner in the family which helps to increase personal as well as household income.

Transforming structures and processes

Transforming structures and processes are the institutions, organizations, policies and legislation that shape livelihoods. The institutional processes and organizational structures have a profound influence on access to assets and allow the identification of barriers and opportunities to sustainable livelihoods (DFID, 1999). An absence of appropriate structures and processes is a major constraint to the development of women in rural Bangladesh. The study assumes several major transforming structures and processes that might facilitate the generation of desirable outcomes for rural women (Table 3.3). Appropriate policies, legal instruments and enforcement can remove constraints to the development of rural women. Poor

rural women have limited resources at their disposal, and innovative approaches are required to build capital. Government agencies, NGOs and the private sector can provide support to rural women. Private and public institutions can catalyze and facilitate the development of rural economic sector. These development agencies have not played much of a role in the development of the rural economy in general. Thus, a lack of institutional and administrative help, poor infrastructure and inadequate extension services all have an effect on livelihoods of rural women. Typically, as a range of development institutions operate within a community, it is hypothesized that various kinds of initiatives (education and skills development, training, gender awareness campaigns) provided by various development agencies (government, non-government and women's organizations) and by local actors (religious leader and community leader) will encourage rural women's participation in different income activities and eventually influence their livelihood outcomes. It is important to acknowledge that each of these institutions maintain different organizational structures that can have positive or negative effects on local livelihood systems. However, the proper functioning of these institutions depends on government policies, priorities of donors, infrastructural facilities.

Table 3.3: Components of transforming structures and processes to the development of rural women

Component	Example
Policies	i. Relevant government policies (technical support) ii. Rules and regulations for rural society iii. Environmental protection (control pollution and diseases)
Institution	i. Government and development agencies, research and private institutions, and NGOs ii. Public and private partnership (entrepreneurship development, marketing)
Service and facilities	i. Extension services and training facilities ii. Credit facilities iii. Infrastructure development (communication, roads, markets)
Social culture	i. Conflict prevention (land ownership, dowry payments) ii. Minimize power relation (poor farmers, rich farmers, moneylenders)
Labor market	i. On-farm employment opportunities through intensification and diversification of production systems ii. Off-farm employment opportunities (mill and industries)

Livelihood outcomes

Transforming structures and processes directly influences livelihood strategies as well as livelihood outcomes. Livelihood assets, formal and informal institutions and organizations, socio-economic and cultural barriers and background characteristics of women are key determinants of livelihood outcomes (figure 3.2). It has been assumed for the women studied that increased household income as an outcome of livelihood process is linked with various aspects like association with NGOs, length of association with loan sources, food availability, education, farm size, improved housing situation, health, water and sanitary facilities, and freedom of choice (e.g. to go outside the household, participation in community program and family decision making process).

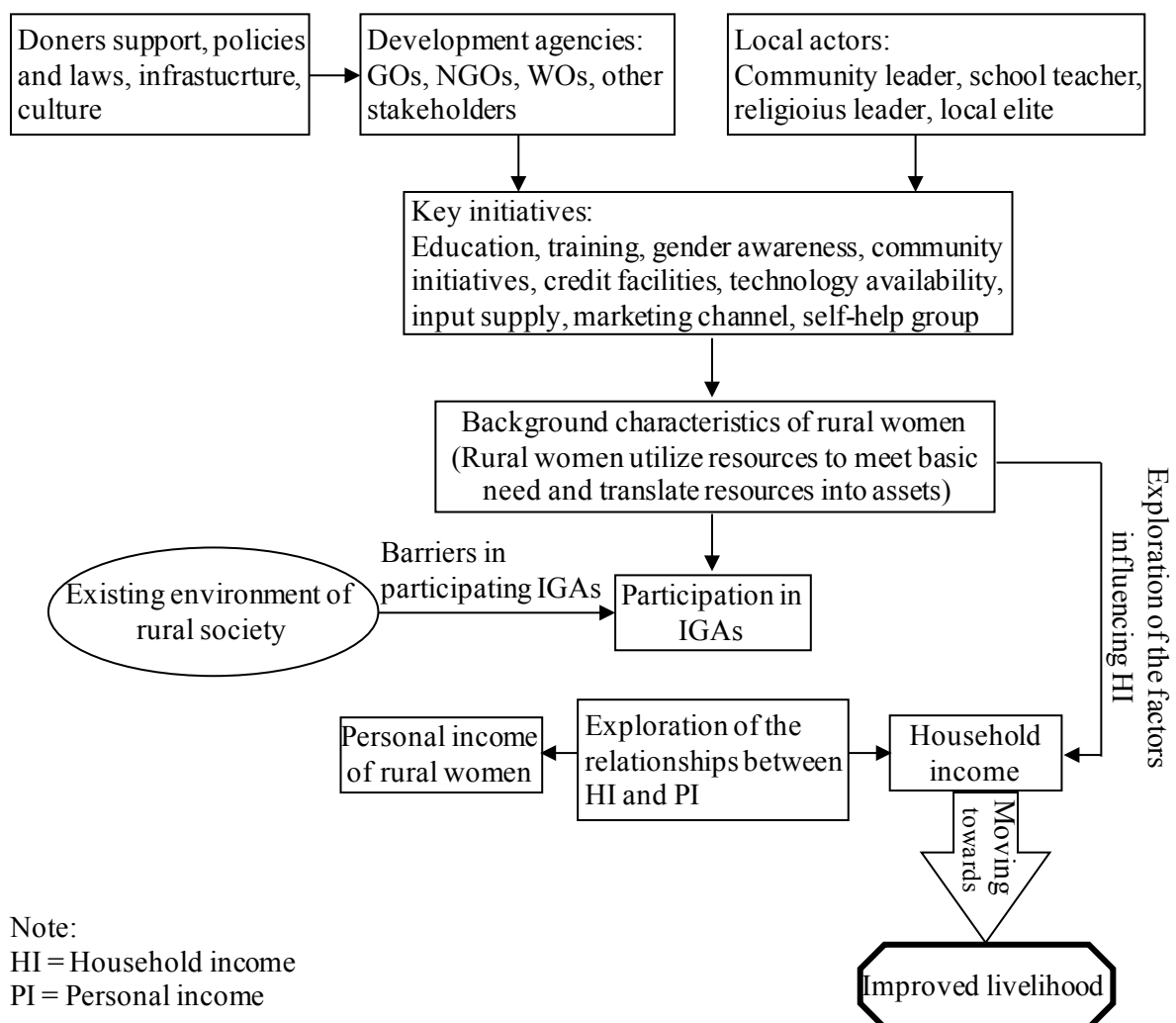


Figure 3.2: Conceptual framework of rural women's improved livelihood process adopted in the study

4 Research methodology

According to MINGERS (2001), research methodology is a structured set of guidelines or activities to generate valid and reliable research results. This chapter of the thesis illustrates the research methodology and procedures used to collect and analyze the data for answering the research questions and attaining the purposes. It is arranged into four main sections where the first section explains the selection of study area, sample size and characteristics of the rural population, the second section deals with the methodological design, methods of data gathering including instruments and techniques, and the third section presents data processing and analysis methods. The last section explains the critical consideration of the applied methodology.

4.1 General features of the study area

The empirical research was conducted from January until April, 2009 in the Netrokona district of Bangladesh, which is bounded by Garo Hill on the north. The socio-economic conditions of the people in the Netrokona district are under average in comparison with other districts of Bangladesh. The main occupations are agriculture with 52.05%, fishing 1.87%, agricultural labor 21.97%, wage labor 3.09%, commerce 7.61%, service 2.94 % and others 10.47% of the population (BBS 2005). The district was purposely selected because here rural women's involvement with different income generating activities (IGAs) is quite common. In addition, it is unique in having many educational institutions, women's organizations, health facilities, GO and NGO activities, communication facilities and cottage industries (*Bidi* work, ice factory, oil mill, tailoring, etc.). The Netrokona district consists of 10 upazilas, out of which two upazilas, namely Netrokona Sadar and Atpara, were selected randomly.

Netrokona Sadar is situated almost in the center of Netrokona district and Atpara upazila is situated 20 km east from Netrokona district town. From each upazila, one union, namely Challisha union of Netrokona Sadar upazila and Sunai union of Atpara upazila, was randomly selected. Two villages from each union, i.e. the villages Rajendrapur and Bamonmoha from the Challisha union of Netrokona Sadar upazila and the villages Panchgoj and Guatala from the Sunai union of Atpara upazila were selected randomly. These four villages are more or less similar in terms of their agricultural farming system, nature and conditions of living,

language, infrastructural facilities, access to extension services, organizational environment and their income generating activities. After the selection of these four villages, a thorough discussion with the personnel of government and nongovernment organizations and local villagers was conducted in order to cover the research topics and better to address the validity and reliability of this study. The location of the two selected upazilas is illustrated in figure 4.1.

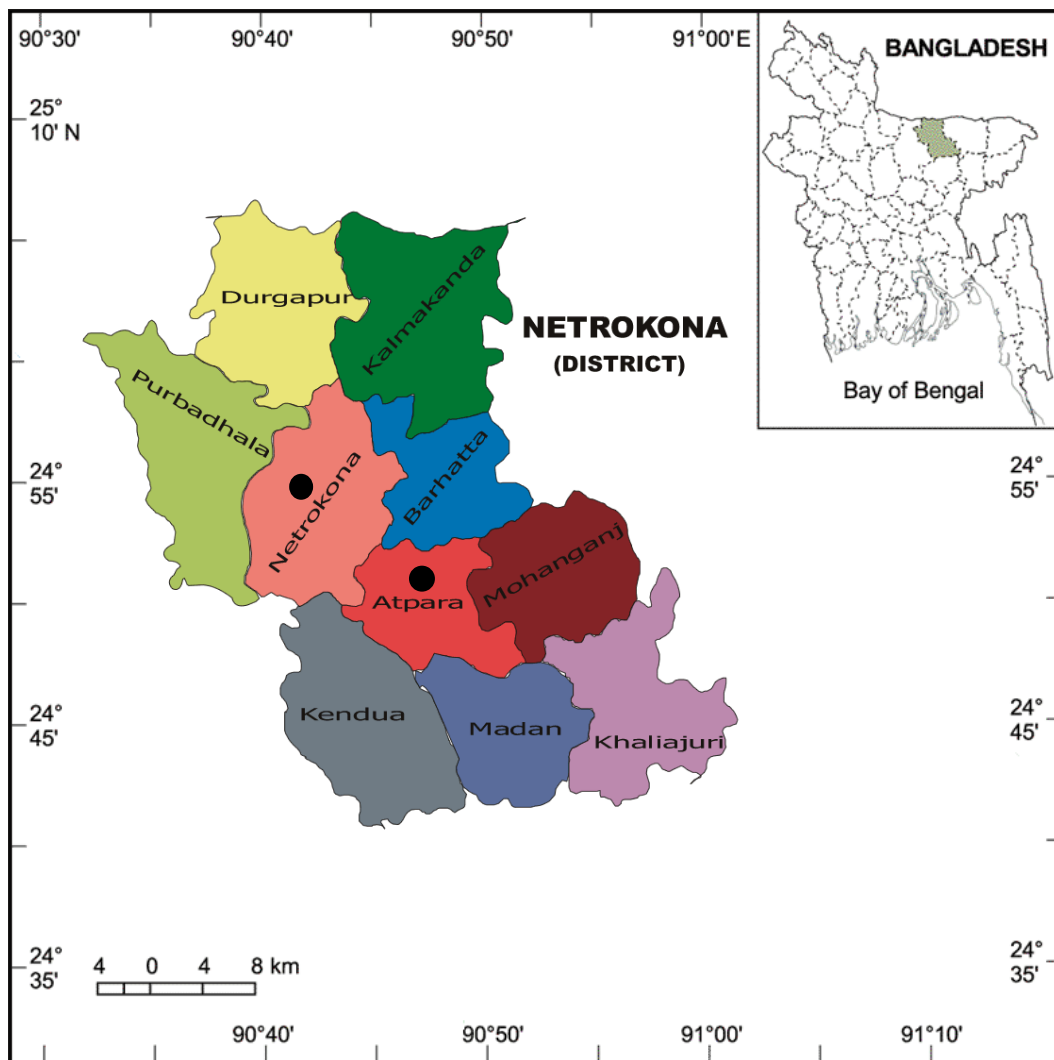


Figure 4.1: Map of Bangladesh and location of the study areas (black circles)

4.1.1 Fundamental attributes of the study villages

The population of the study areas consists of small, subsistence-based farmers and nearly everyone is directly or indirectly involved in the production or processing of agricultural goods and related activities like livestock rearing, fisheries and forestry. The economy of the study villages primarily depends on agricultural production, principally of rice, potatoes,

oilseeds, pulses, wheat, jute and some vegetables. The villages are largely self-sufficient in rice and potato, but other agricultural products are not sufficient to meet their demand. In addition to agricultural products some village households produce handicrafts that are being sold further away, reaching regional and national markets. However, village households in general face a serious economic crisis and they are living below the poverty line. Many village households depend on income from urban areas for their livelihoods.

Generally, rural people build their house in a cluster form called '*Bari*' and many generations (2 to 3) live together within a '*Bari*'. Houses in villages are situated on high land and linked to walking roads. The shape of the house is commonly rectangular and usually made of dried mud, bamboo, straw, iron sheet or bricks with thatched roofs. The interior decoration is very simple and furniture is minimal, often consisting only of low stools. People sleep on wooden or bamboo platform like as a cot. Houses have verandas usually in the interior front, and many of the activities of daily life take place under the eaves of verandas. Most commonly, a kitchen (*ranna ghor*) is separated from the living house and during the dry season particularly in winter many women construct hearths in the household courtyard for cooking. Rural houses are simple and functional, but are not generally considered aesthetic showcases. On average, a household consists of 5 - 6 persons. Most of the village households have a pond used for daily household needs, a nearby river that provides fish, trees that provide fruit and timber (mainly mango and jackfruit), and a piece of garden.

The landowning status mainly reflects socio-economic class position in rural areas, although occupation and education also play a role. Larger farm owners are at the top of the socio-economic scale, small subsistence farmers are in the middle, and the landless rural households are at the bottom of the socio-economic class position. Another most obvious symbol of class status is dress. The traditional garment for men is *lungi and shirt*; for women, the *sari*. The poor people usually wear cheap, rough green or dark colored cotton cloth, while the rich people wear bright colored with elaborate and finely worked cloths. Gold jewelry indicates a high social standing among women as very few households have gold purchasing capacity. Islam is the predominant religion in the study area.

Physical infrastructures for public and health services are inadequate. Most of the roads are earthen roads and rickshaw, auto-rickshaw '*tempo*' and tractors are the main means of transportation. Only one community clinic has been found among the four villages and

pharmacies are the major place where rural people seek treatment. Also, sanitation and water facilities are not adequate. Residents use unsanitary pond water for washing, bathing and cooking. Open defecation beside the pond is a common practice and most of the toilets are also situated within close distance of the ponds. There are very limited electrification facilities in the study area and people are mainly dependent on petroleum oil for lighting during the night and lifting ground water for irrigation. To reduce fuel costs, people go to bed as early as possible after sunset. Almost all the children at school age are deprived of education. The literacy rate of the study area ranged from 26 to 49%. There are many GOs, NGOs and civil-society organizations in the study areas which are working for development and improving the livelihood of the villagers. Table 4.1 shows and compares major features of the study villages.

Table 4.1: Major features of the study villages

Criteria	Information			
Upazila	Netrokona Sadar		Atpara	
Union	Challisha		Sunai	
Villages	Rajendrapur	Bamonmoha	Panchgoaj	Guatala
Area (ha)	160	156	242	158
Total population	1604	2078	2031	2388
Literacy rate	49.11	44.95	28.03	26.22
Farm family	166	170	435	554
Sex Ratio (Male:Female)	1:1	1:1	1:1.1	1:1.01
Major cultivated crop	Paddy, mustard, potato, wheat, cabbage	Paddy, wheat mustard, vegetables	Paddy, wheat, jute, vegetables, mustard	Paddy, jute, wheat, pulses, vegetables
Net cropped area (ha)	63	67	138	290
Cropping intensity (%)	200%	198%	198%	185%
No. of pond	28	26	19	30
No. of poultry farm	1	1	No	3
No. of Nursery	18	2	No	1
No. of shallow tube-well	21	16	7	2
No. of rice mill	1	1	3	4
No. of power tiller	3	4	4	5
No. of hand tube-well	32	55	25	21

Table 4.1: Continued

Primary School	No	No	1	1
Secondary School	No	No	No	No
Collage	No	No	No	1 (Technical)
Women's organizations	1	1	2	2
Infrastructural facilities:				
<i>Pukka</i> road	0.5 km	2.5 km	1 km	0.5 km
Earthen road	3 km	5 km	1.5 km	2 km
Electrification	No	No	1 km	0.5 km
Health clinic	No	No	No	1
Sanitation facilities	85.00%	86.00%	75%	80%
Post-office	No	No	No	No
Union porishod office	No	No	No	1
Means of transport	Rickshaw, tractor, tempo	Rickshaw, tractor, tempo	All Traffic	All Traffic
Distance to upazila	5 km	6 km	1 km	0.5 km
Access to extension services:				
GO activities	DAE, DOF, DLS	DAE, DOF, DLS	ICM-Club DAE, DOF, DLS	ICM -Club DAE, DOF, DLS
NGO activities	BRAC, SUS, Grameen Bank	BRAC, SUS, Grameen Bank	BRAC, SUS, Grameen Bank	BRAC, SUS, Grameen Bank
House type (%)				
<i>Kacha</i> (made by clay)	27	31	24	18
Tin making	20	19	75	80
Bricks making	19	14	1	2

4.1.2 Rural women

By custom, a patriarchal, patrilineal, and patrilocal social system exists in the study villages, thus dominating the life of a woman. Traditionally, a woman derives her status from her family. On average, women marry before reaching the age of 20 (BBS, 2008b). After marriage, the guardianship of the married women transfers from her father to her husband, which includes permission for further education, employment, hospitalization, shopping or going outside of the residence. In general, as head of the household, the husband makes most

of the important decisions. In addition to their routine domestic work, women are actively involved in agricultural production. Women in the study basically depend on agriculture and non-agriculture related activities for their livelihoods. They are always trying to improve their livelihood status by performing different activities which are available in their existing situation. Rural income generating activities include cow fattening and milking, goat farming, backyard poultry rearing, sericulture, home gardening, food processing, garment making, fishnet making, small business and handicrafts including cane and bamboo works. They also engage in wage labor and rural construction work to minimize the poverty and food crisis. Although various GO/NGOs are working for the development of women's livelihoods, there is a scarcity of capital, access to resources, improved technology, proper marketing system, etc., that hinder the development of rural women.

4.1.3 Population and sample

In order to cover the research topics and better address the validity and reliability of the study, household selection was based on the following criteria: involvement in IGAs, association with NGOs, and participants should not have been interviewed before. At first, four villages were randomly selected representing 20% of the 20 villages within the two unions. In preparing the population frame, voter lists were used and sub-assistant agriculture officer (SAAOs), NGO workers and local elites were consulted. To ensure involvement of respondents in IGAs, all women in each village were divided into two categories: (a) women involved in IGAs and (b) women not involved in IGAs. The women who were involved in IGAs within the four villages were the population of the study. A total number of 402 women were identified in the study area involved in IGAs and they were categorized into two groups such as (i) association with non-government organization ("NGO women") and (ii) not association with non-government organization ("non-NGO women"). From each group 50 women were randomly selected for interviewing and data collection. Consequently, the sample size stood at 100. Table 4.2 shows the population and sample size of different villages included in the study.

Table 4.2: Distribution of population and sample of the respondents

District	Upazila	Union	Villages	Population	Sample size	Reserve list
Netrokona	Netrokona	Challisha	Rajendrapur	80	19	2
	Sadar		Bamonmoha	120	31	2
	Atpara	Sunai	Panchgoj	100	25	2
			Guatala	102	25	2
Total				402	100	8

4.2 Methodological design

There are different types of quantitative and qualitative approaches available for data collection, and each approach is suitable for a particular situation and purpose. Qualitative methods are appropriate when the phenomena of the study are complex and social in nature and little pre-informative exists (LIEBSCHER, 1998). Participatory research methods are useful when the respondents are mostly illiterate and unable to provide information through a structured set of questions. Both quantitative and qualitative approaches have their strengths and weaknesses and the possibilities of integrating both perspectives are characteristic for complex social studies (BANNAN-RITLAND, 2003). BEGLEY (1996) expresses the view that the final choice of method should depend on the research questions to be answered. However, the constraints of time and resources and the researcher's particular skills may also influence the decision. It is therefore important to be able to identify and understand the research approach suitable for any given study because the selection of a research approach influences the methods chosen, the statistical analyses used, the inferences made and the ultimate goal of the research (CRESWELL, 1994). Furthermore, according to BRYMAN (2001) an area can be explored in two ways, with an unstructured approach to data collection in which participants' meaning are the focus of attention, and more structured approach of quantitative research to investigate a specific set of issues. A triangulation method is used to analyze a given phenomenon, with information coming from different methods, researchers, places and time, and opinions (DENZIN, 1978). There are different scenarios for combining qualitative and quantitative methods (TASHAKKORI and TEDDLIE, 2003). Some of these are as follows:

- a) Qualitative measures to develop quantitative tools;
- b) Qualitative methods to explain quantitative results;
- c) Quantitative methods to enlarge on a qualitative study; and
- d) Qualitative and quantitative methods equal and parallel.

According to BRYMAN (2001) qualitative research can be used to improve the design of survey questions for structured interviewing (scenario a). This study employs both quantitative and qualitative techniques to explore the factors and underlying facts influencing rural women's livelihood. Thus, two kinds of data were obtained: qualitative data on the general perspectives of the people studied; and quantitative data that allow exploring specific issues in which the researcher was interested. In selecting a suitable approach for the present study, the merits and demerits of various methods were considered and an integrated approach was chosen based on the complexity and sensitivity of the research subject matter.

The principal purpose of the current research is to identify the existing livelihood status of rural women and to measure the extent of their participation in IGAs, along with the impact of IGAs to improve their livelihood. Based on this, it is intended to formulate a clear and rational strategy for underlying causes of income insecurity and existing livelihood status of a rural woman. Accordingly, the current study follows the mixed methodology mode of GREENE et al. (1989), focusing mainly on triangulation to enhance the consistency of findings and accuracy of the data analysis. The reasons for adopting this mixed approach in the present study are as follows:

- The quantitative part of the methodology measures the effects of socio-economic, socio-cultural and other household variables on women's livelihood, while participatory research methodologies provide realistic insights to rural women's livelihood. Participatory methods also complement the quantitative approach and help in interpretation of the livelihood issue and additionally facilitate in creation of a successful development policy.
- The qualitative techniques like focus group discussions (FGDs), scored causal diagram (SCD), key informant interviews, case studies as well as direct observations influence rural women's capacity to analyze and solve their own problems, raising the awareness of their rights and responsibilities and thus, providing local solutions, which may also be adopted in other regions with similar problems.
- This mixed strategy explains the reasons for women's scope and opportunities in qualitative and quantitative terms. These results may assist the government in

designing and formulating as well as prioritizing the policy that reflects the needs of rural women livelihood.

A similar research methodology was also suggested and followed by different researchers to clarify the multidimensional concepts like livelihood, poverty, destitution and empowerment (SHARP, 2003; CHANT, 2003; KANBUR, 2003; RAO and WOOLCOCK, 2004; BARRETT, 2004).

4.2.1 Data collection methods and tools

4.2.1.1 Qualitative data collecting methods and tools

A group of (six) qualitative methods with participatory tools was used to capture the interaction between social, cultural and economic factors that act on the improvement of rural women's livelihood. All methods and tools are described below.

Key informant interviews

A key informant is an individual who has a great depth of knowledge about a specific field and can offer perceptive information to the researcher. Eight key informants, who included sub-assistant agriculture officers (SAAO), NGO members, and community leaders, were selected from four villages for qualitative assessment. Key informant interviews are semi-structured interviews and help to guide the interview process.

The interviews should be conducted in a natural and relaxed situation and the interview process must be kept flexible and more open than the structured interviewing with open questions. Semi-structured interviewing based on interview guidelines complements most participatory research methods. Interviews and discussions can be carried out with selected or randomly chosen individuals (IIED, 1994).

The key informant interview topical outline sought information about:

- The change in socio-economic issues over the last five years;
- Obstacles faced by rural women regarding their livelihood and IGAs issues;
- Strategies to overcome obstacles.

Focus group discussions (FGDs)

Focus group discussions can generate quantitative data along with qualitative information. A total of eight FGDs were conducted. Two sessions were conducted in each village, each group comprising eight participants. The participants discussed the specific issue in a group (BRYMAN, 2001). Four groups from NGO participants and another four groups from non-NGO participants were selected for FGD. Gathering information from FGD proved useful in comparing perceptions and priorities. The FGDs included the following themes:

- Livelihood strategies;
- Identification of different income generating activities (IGAs);
- Impact of IGAs on rural women's livelihood;
- Potentiality of IGAs;
- Ranking of seven livelihood indicators based on importance perceived by rural women;
- Constraints in implementing different IGAs;
- Suggestions to improve livelihood situation.

Scored causal diagram (SCD)

Scored causal diagram (SCD) is a technique which helps both the rural women and researcher to identify together the linkages and causal relationships between different constraints (GALPIN et al., 2000). In this study, SCD was used to discover 'root causes' or 'constraints' preventing rural women to participate in IGAs and to understand the nature of each constraint more exactly. It also helped in identifying possible key solutions and the effects of those solutions. Finally, the participating rural women ranked these constraints according to their importance. A small group of ten members was randomly selected to constitute a SCD. In the SCD, the 'end problem' was defined and visualized. The immediate causes of this 'end problem' were also written up in different circles. Arrows were then drawn from the end problem to the cause. The total process was conducted in consultation with the rural women who identified the constraints they faced in participating IGAs and the linkages between them.

Observation

Observation is an important technique to collect data when the information is considered sensitive and when a high degree of reliability and accuracy is required (NARAYAN, 1996). The direct observation was done throughout the period of field survey with information and

noted down in a dairy. The participatory observation was used to record daily time utilization of rural woman (GERSTER-BENTAYA, 2005). Special observation or field observation was noted while holding discussions with the respondents and key informants (WERNER, 1993). The researcher also spent a significant amount of time to observe women's interaction with other family members, as well as sanitation, child care, wealth and types of technologies used.

In this study participatory observation, direct observation and special observation were used in order to achieve authenticity, validation and cross-checking of the collected data on IGAs, current livelihood status, IGAs distribution, participation in different organization, constraints of performing activities within their household and scope of rural women, etc.

Case study

The case study method is applied specially to answer the “how” and “why” questions particularly when exploration is called for. According to YIN (1984: 23), it is a kind of empirical inquiry which “investigates a contemporary phenomenon within its real-life style context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”. Livelihood strategies, women empowerment, decision-making processes, use of social capital and so on were issues on which information was collected by using the case study method.

After completion of the survey, four case studies were conducted in the first and second week of March 2009 to explore the in-depth understanding of rural women's livelihood status from different position. Four respondents were chosen for the case studies based on marital status, educational level, household income, family type, association with NGO and family size. One married woman with a large family income, one widowed woman living with joint family, one educated divorced “NGO woman” and one separated “non-NGO woman” in a small family were interviewed to collect data. Original name of the case study women have been changed to ensure and protect privacy of their information.

Daily work timetable (adapted from WESTPHAL et al., 1994 cited in GEPPERT, 1997)

The daily work timetable shows the structure of the daily activities of rural women. The daily work timetable was obtained for five “NGO women” and five “non-NGO women” in an individual interview.

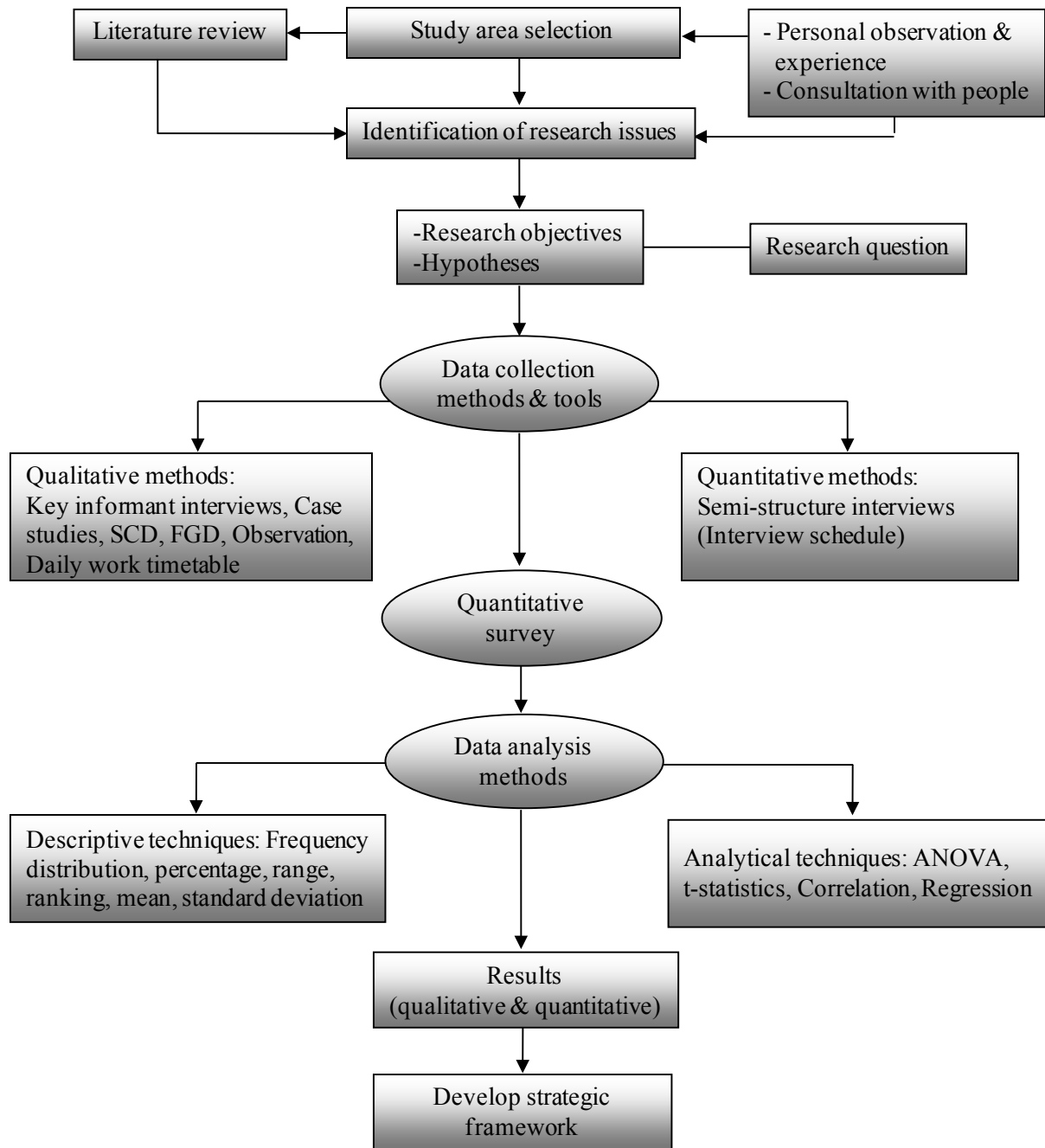


Figure 4.2: Schematic presentations of research

4.2.1.2 Quantitative data collecting method

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

4.2.2 Data collection instruments

Structured and different semi-structured interview schedules were prepared to reach the objectives of the study. A structured interview schedule was prepared containing open and closed questions. The open questions allowed for the respondents to give answers using their own language and categories (CASLEY and KUMAR, 1998). The questions in this schedule were formulated in a simple and unambiguous way and arranged in a logical order to make it more attractive and comprehensive. The instruments were first developed in English and then translated into Bengali. The survey tools were initially constructed based on an extensive literature reviews in Germany at Humboldt-Universität zu Berlin and thereafter, pre-tested in Bangladesh. The schedule was pre-tested with 15 randomly selected rural women in the study area. The pre-test was helpful in identifying faulty questions and statements in the draft schedule. Thus, necessary additions, deletions, modifications and adjustments were made in the schedule on the basis of experiences gained from pre-test. The questionnaires were also checked for validity by supervisor and educational experts at Humboldt-Universität zu Berlin. Finally, based on background information, an expert appraisal and the pre-test, the interview schedule was finalized. Data was gathered by the researcher personally. During data collection, necessary cooperation was obtained from field staff of different GOs and NGOs and local leader. The primary data were collected from January to April 2009. Books, journals, reports and internet documents were used as secondary sources of data supporting or supplementing the empirical findings of the study.

The interview schedule solicited data about the following information:

- Age, education, marital status, family size, family type, farm size, occupation of male, income strategies of rural women, household income, food consumption behavior, association with a non-government organization, daily time utilization, household expenditure, savings, loans repayment, length of association with loan sources, food availability, housing condition, water facilities, health situation, sanitation, participation in social activities and freedom in cash expenditure;
- Problems faced by rural women to participate in IGAs; and
- Suggestions for policy guidelines.

As already mentioned, different semi-structured interview schedules were also prepared to conduct FGDs, case studies, daily work timetable and key informant interviews.

4.3 Data processing and analysis methods

BOGDAN and BIKLEN (2006) insist that data analysis is an on-going part of data collection. Initially, all collected data were carefully entered in Access, exported to Microsoft Excel. Exported data were checked randomly against original completed interview schedule. Errors were detected and necessary corrections were made accordingly after exporting. Further consultation with research assistants and in some cases with the community people were required. Finally, data were exported from the program Microsoft Excel to SPSS/windows version 17.0, which offered statistical tools applied to social sciences. In addition, Microsoft Statgraphics was used. Qualitative data were converted into quantitative numbers, if required, after processing, scaling and indexing of the necessary and relevant variables to perform subsequent statistical analysis for drawing inferences.

As outlined earlier, there are many different forms and methods that can be used to analyze both quantitative and qualitative data in accordance with the objectives of the study. Quantitative and qualitative findings were inter-linked at the end of the analysis. Both descriptive and analytical methods were employed in order to analyze the data. Descriptive techniques have been used to illustrate current situations, describe different variables separately and construct tables and graphs presented in results. These included: frequency distribution, percentage, range, mean, median, standard deviation and coefficient of variance. In most cases the opinions of respondents were grouped in broader categories. Analytical techniques have been utilized to investigate relationships between two variables and compare the difference between two groups of participants and significant differences/association among them. Statistical test like independent sample t-test, correlation, and regression were used in this study. Each statistical technique is used under specific conditions and depends on the measurement scale of different variables.

4.3.1 Independent sample t-test

In this study, this technique was used to determine the differences between two groups of women “NGO women” and “non-NGO women” on the selected characteristics of rural women.

4.3.2 Correlation

Statistical correlations were symmetrically used in order to find relationships between various factors (e.g. mentioned independent variables) with a dependent variable. The correlation technique explains how different entities vary together (KALANTARI, 2003). Relational research was conducted to explain or predict phenomena. The correlation coefficients have a descriptive purpose, and thereby may not assume the null hypothesis (MILLER, 1998). The correlation coefficient, sometimes also called the cross-correlation coefficient, is a quantity that gives the quality of a least squares fitting to the original data. The correlation coefficient is also known as the product-moment coefficient of correlation or Pearson's correlation. The main result of a correlation is called the correlation coefficient (or "r"). It ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related (MILES and SHEVLIN, 2001).

In this study, Pearson's Product Moment Correlation Coefficient (r) was performed to determine the relationship between various factors (age, education, marital status, family size, family type, farm size, occupation of male, personal income of rural women, food consumption behavior, association with a non-government organization, daily time utilization, household expenditure, savings, loans repayment, length of association with loan sources and cumulative livelihood status with annual household income). Here, the dependent variable is the livelihood of the rural women measured as annual household income from different sources.

4.3.3 Regression

Regression analysis was used to identify the linear combination between independent variables used collectively to predict the dependent variables (MILES and SHEVLIN, 2001). Regression analysis helps us understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Ordinary Least Squares (OLS) is used most extensively for

estimation of regression functions. In short, the method chooses a regression where the sum of residuals, $\sum U_i$ is as small as possible (GUJARATI, 1995).

The factors that contribute to the household income of rural women are analyzed using a regression model. As shown in Equation (1) the explanatory variable included in the model consist of those measuring various asset endowment and demographic characteristics of the rural women. The dependent variable is the livelihood of the rural women measured as household income from different sources. Both step-wise, backward elimination and forward selection technique was used for selection of significant variables in multiple regression. For testing the significance of individual variables selected in the model, the coefficients of relevant variables were tested by t-statistic. The overall quality of fit of the model has been tested by ANOVA specifically F and R^2 test. Before doing the regression analysis, the assumption of OLS is checked by different diagnostic checks such as Chi-square normality test and Durbin-Watson statistics (test results are available in Appendix 1).

Equation (1) is estimated using the survey data from rural women in the study areas.

$$Y = \alpha + \beta_1 \text{AGE} + \beta_2 \text{EDU} + \beta_3 \text{TFM} + \beta_4 \text{FS} + \beta_5 \text{ANGO} + \beta_6 \text{LREP} + \beta_7 \text{LALS} + \beta_8 \text{CLS} + \text{Error}, \dots\dots\dots (1)$$

Where

Y = annual household income (taka)

α = constant

β_1 to β_8 = coefficients of variables

AGE = age (years)

EDU = education (years)

TFM = total family members (number)

FS = area under cultivable land (ha)

ANGO = dummy for association with a non-government organization

LREP = loans repayment amount (taka)

LALS = length of association with loan sources (years)

CLS = cumulative livelihood status (score)

Error

The regression line was also utilized to assess the rural women's personal income contributed to the household income through participating in IGAs.

4.4 Critical consideration of the applied methodology

The presented work is based on the information obtained from rural women. During the interviews, the researcher first established rapport with the respondents and explained the objectives of the study clearly by using the local dialect. Excellent co-operation was received from the respondents, key informants, NGO personnel and local leaders in various manners such as appointment for interview, locating houses, etc. This information was triangulated with the stories from other participants. Thus, a holistic picture could be obtained. Data can be considered to be reliable since the information provided by the rural women, case study, focus group discussions, key informant interviews, scored causal diagrams and observations was congruent. Moreover, the respondents selected for the study were competent enough to answer the queries made by the researcher. Additionally, information was cross-checked with the experiences by other researchers. Since there were no disturbances or contrasting information, the research results presented here are scientifically sound and can be considered as valid.

The researcher who acted as interviewer was well acquainted with the social environment and had gained the confidence of the local population as several pre-visits were made to the study villages before data collection. Traditionally, rural woman are reluctant to talk with other people about their lifestyle, income strategy, problems, scope, experiences. But the researcher used different participatory tools such as case studies and SCD and women reacted in a surprisingly open manner. For them, it was a chance to share their experiences since they are usually not listened to. Furthermore, all interviewees had a high interest to talk about their experiences and very willingly shared their experiences with the researcher.

For some topics of the structured survey, the focus group might have been sufficient or even more appropriate than individual interviews. This holds true for problem identification, prioritization and existing IGAs at the study villages because information obtained from personal interview sometimes seemed imprecise. Discussion and the collection of information from focus group might have helped to obtain more complete information.

5 Operational procedure

This chapter describes the techniques and procedures of the research project and is arranged into four main sections. The procedures followed for determining the existing livelihood status of rural women are illustrated in the first section. The second section explains the measurement procedure of household income, i.e., the dependent variable of the study. The procedures to determine the situation of seven socio-economic characteristics of rural women are presented in section three, i.e., the explanatory variables. At the end of this chapter, procedures followed for defining and measuring other independent variables and relevant terms of rural women are portrayed.

5.1 Existing livelihood status of rural women

The identification and determination of the prevailing livelihood status of rural women was one of the major objectives of the study. The livelihood status of rural women refers to their household's living conditions related to the socio-economic status in the study areas. Current livelihood status of rural women was measured by computing a 'cumulative livelihood status score' (CLSS). CLSS is constructed by considering seven livelihood indicators, namely food availability, housing condition, water facilities, health situation, sanitation, participation in social activities, and freedom in cash expenditure. These seven indicators were first systematically measured and the CLSS consequently developed.

5.1.1 Livelihood indicators of rural women

The following discussion illustrates the operational definitions and techniques used to measure the seven livelihood indicators of rural women. These livelihood indicators were measured based on the present situation.

i. Food availability

Food availability was measured on the basis of accessibility to basic food throughout the whole year for her family. Scoring for availability of food was '3' for adequate, '2' for inadequate and '1' for shortage of food. The cumulative scores of twelve months indicate the food availability of a rural woman's family. Therefore, the possible food availability score

varied from 12 to 36, where 12 indicates the ‘lowest’ and 36 indicates the ‘highest’ level of food availability.

Months	Food availability		
	Adequate = 3	Inadequate = 2	Shortage = 1
April (<i>Chaitra-Baishakh</i>)			
May (<i>Baishakh-Jaistha</i>)			
June (<i>Jaistha-Ashar</i>)			
July (<i>Ashar-Sraban</i>)			
August (<i>Sraban-Vadra</i>)			
September (<i>Vadra-Ashwin</i>)			
October (<i>Ashwin-Kartrik</i>)			
November (<i>Kartrik-Agrahaon</i>)			
December (<i>Agrahaon-Poush</i>)			
January (<i>Poush-Magh</i>)			
February (<i>Magh-Falgun</i>)			
March (<i>Falgun-Chaitra</i>)			

ii. Housing condition

This indicator refers to the present situation of the house inhabited by rural women. To determine the housing conditions, six characteristics of houses were considered, namely roof, walls, floor, kitchen position, furniture, and general impression. The overall housing condition of each respondent was calculated by summing the score obtained from these six characteristics of the house. The possible score could vary from 6 to 19, where by 6 indicates a ‘very poor’ and 19 indicates a ‘very good’ housing condition.

Roof	3 = Brick	2 = Tin	1 = Straw	
Walls	4 = Brick	3 = Tin	2 = Clay	1 = Straw
Floor	2 = <i>Pukka</i>	1 = Clay		
Kitchen position	2 = Inside	1 = Outside		
Furniture	4 = Very good/new/a lot	3 = Good/average	2 = Simple/old/bad	1 = Very old/bad/little
General impression	4 = Very good/new/a lot	3 = Good/average	2 = Simple/old/bad	1 = Very old/bad/little

In addition, a synopsis of the housing condition based on farm size and income group was drawn from FGDs.

iii. Water facilities

The water facilities indicator was measured by three sub-dimensions, including water sources, drinking water availability and quality of drinking water. The score of water facilities of each respondent was calculated by summing scores of the above three sub-dimensions.

Source of water

Source of water was measured on the basis of type of water source from where rural women mainly draw water for cooking, drinking, bathing and domestic washing. Total number of water sources were 4, whereby the most available source got score 4 and least available source scored 1. Therefore, the possible score for water sources varied from 1 to 4. The sources of water and their corresponding score are given below:

Water sources	Score
Tube well	4
Shallow well	3
Pond/ <i>Qup</i>	2
Rivers	1

Availability of drinking water

Availability of drinking water was measured on the basis of abundance throughout the year. The scoring of drinking water availability for each month was '3' for adequate, '2' for inadequate and '1' for scarcity of drinking water. The scores of twelve months obtained from each respondent were added to yield a drinking water availability score which varied from 12 to 36. The scoring technique was as follows:

Months	Availability of drinking water		
	Adequate = 3	Inadequate = 2	Scarcity = 1
April (<i>Chaitra-Baishakh</i>)			
May (<i>Baishakh-Jaistha</i>)			
June (<i>Jaistha-Ashar</i>)			
July (<i>Ashar-Sraban</i>)			
August (<i>Sraban-Vadra</i>)			
September (<i>Vadra-Ashwin</i>)			
October (<i>Ashwin-Kartrik</i>)			
November (<i>Kartrik-Agrahaon</i>)			
December (<i>Agrahaon-Poush</i>)			
January (<i>Poush-Magh</i>)			
February (<i>Magh-Falgun</i>)			
March (<i>Falgun-Chaitra</i>)			

Quality of drinking water

Quality of drinking water was measured based on 4 items and the possible score varied from 1 to 4. The scoring technique was as follows:

Quality of drinking water	Score
Good	4
Clean but containing Fe	3
Bad smell	2
Arsenic contaminated	1

Finally, the scores of three sub-dimensions of water facilities were summed which ranged from 14 to 44, whereby 14 indicated a poor and 44 indicated a very good water facility. In addition, the daily water use of rural women from different sources for domestic purposes was sketched out by FGDs.

iv. Health situation

Health is a condition in which the functions of the body and the soul are in harmony with the outside world (NILSSON and PETTERSON, 1998). Health situation was defined and measured

by two sub-dimensions, namely health status; and the ability to get health treatment. The summation of two sub-dimensions score yielded the health situation score.

Health status

This indicator was measured on the basis of 5 items. The possible score of health status varied from 1 to 5.

Category	Weight
Good	5
Disabled	4
Short term illness	3
Long-term illness	2
Weak	1

Ability to get health treatment

The opportunities of rural women to get treatment from different providers available in the study area were determined. Total number of health treatment providers was eight. Scoring for availability of health treatment providers was ‘2’ for frequently, ‘1’ for seldom and ‘0’ for not at all. Health treatment ability was measured by summing scores of eight items and the possible score varied from 0 to 16. The measurement technique was used as follows:

Health treatment providers	Ability to take health treatment		
	Frequently = 2	Seldom = 1	Not at all = 0
Village pharmacy			
Self treatment (traditional)			
<i>Kabiraz</i> (herbal medicines and sacred text)			
Homeopath			
Village doctor			
General health practitioner			
Visit government health station			
Visit doctor in GO hospital (MBBS)			

Considering the health status and ability to get health treatment, the score of health situation varied from 1 to 21, whereby 1 indicates a ‘very bad’ and 21 indicates a ‘very good’ health situation.

v. Sanitation

Sanitation was defined and measured by two sub-dimensions, namely possession of a toilet and toilet condition. Summation of the score of two sub-dimensions yielded the sanitation score.

Possession of a toilet

This indicator refers to the ownership of a toilet in the household. Data was collected on three items with a score of 2, 1, and 0 for having own toilet, using other people's toilet, and having no access to a toilet, respectively. The possible score for toilet possession ranged from 0 to 2.

Toilet condition

This indicator refers to the physical condition of the toilet possessed by rural women. Roof, walls, floor and the position of toilet were considered to measure toilet condition. The scores thus obtained were added together to yield the toilet condition score. The range of a possible toilet condition score varied from 4 to 12; whereby 4 indicates a 'very bad' and 12 indicates a 'very good' toilet condition.

Roof	Brick = 4	Tin = 3	Straw = 3	Open = 1
Walls	Brick = 4	Tin = 3	Jute stick/ <i>Chatai</i> = 3	Leaves = 1
Floor	<i>Pukka</i> = 2	Clay = 1		
Position of toilet	Inside = 2	Outside = 1		

After summing the score of two sub-dimensions, the sanitation score ranged from 4 to 14, whereby score 4 indicate rural women have poor sanitation facilities and score 14 indicate they have very good sanitation facilities. Additionally, access of rural women to a hygienic toilet facility was determined from FGDs based on type of toilet use and income group.

vi. Participation in social activities

Participation in social activities is defined as the degree to which rural women attend different social events. It was measured by computing a 'social participation score' based on the participation in five selected social events. Scoring of participation was '2' for regularly, '1' for occasionally, and '0' for no participation. The scores of five social events were then added to calculate the total score of participation in social activities. Therefore, the participation in

social activities score could vary from 0 to 10, whereby a 0 indicates ‘no participation’ and a 10 indicates ‘regular participation’.

Social events	Pattern of participation		
	Regularly = 2	Occasionally = 1	Not at all = 0
Family program (marriage, <i>chehlum</i> , invitation etc.)			
Voluntary help (work with people to help victims during flood, fire, tornado, etc.)			
Negotiation (mediating quarrels among neighbors, relatives)			
Cultural program			
Attending meetings arranged by village community			

vii. Freedom in cash expenditure

This indicator refers to the freedom of a rural woman to spend money on various aspects of her family affairs. Eight aspects of expenditure were considered to measure the freedom in cash expenditure as follows:

Subject for expenditure	Level of decision in cash expenditure			
	4	3	2	1
Daily expenditure				
Investment on land				
Household repair				
Child education				
Health				
Household assets				
Take loan and use				
Loan repayment				

A 4 point Likert-type scale was used to define the freedom of cash expenditure where 4, 3, 2 and 1 indicate expenditure decision dependent on ‘herself’, ‘husband’, ‘together’, and ‘other family members’, respectively. Finally, the total score was obtained by summation of score of all eight aspects. Possible score could vary from 8 to 32, where 8 indicate ‘low freedom in cash expenditure’, i.e., the respondent depends highly on other family members to take decisions, and a score of 32 indicates ‘high freedom in cash expenditure’, i.e. the respondent takes all decisions by herself.

5.1.2 Development of a cumulative livelihood status score (CLSS)

To obtain valid and reliable data for the livelihood status of rural women, the CLSS was developed using both qualitative and quantitative data. It is necessary to combine the indicators into more complex indices in order to capture the meaning of any multi-dimensional phenomenon (SHARP, 2003). The CLSS thus aims at attaining a comprehensive view of the livelihood status of rural women.

The CLSS was determined in two steps. Firstly, a cumulative percentage score for each of the seven livelihood indicators was determined. After that, the cumulative livelihood status was computed based on the scores of these seven indicators. The procedure of measuring the cumulative percentage score and cumulative livelihood status score of a rural woman is summarized below:

Computation of cumulative percentage score

The computation of 'cumulative percentage score' for each indicator was measured in two stages: (i) determination of an individual rural woman's percentage score, and (ii) determination of a cumulative percentage score.

(i) The individual rural woman's field score was divided by the corresponding possible maximum score and expressed as a percentage. The following formula was used to determine the individual rural woman's percentage score:

$$IRWPS = IRWFS/IRWPMS \times 100$$

Where, IRWPS = Individual rural woman's percentage score

IRWFS = Individual rural woman's field score

IRWPMS = Individual rural woman's possible maximum score

(ii) The cumulative percentage score was obtained by dividing the sum of individual rural woman's percentage score by the sample size. The following formula was used to determine the cumulative percentage score:

$$CPS = \Sigma IRWPS / N$$

Where, CPS = Cumulative percentage score

$\Sigma IRWPS$ = Sum of individual rural woman's percentage score

N = Sample size

Computation of cumulative livelihood status score

The cumulative livelihood status score of a rural woman was measured by dividing the sum of cumulative percentage score of livelihood indicators by seven. The following formula was used to attain the cumulative livelihood status score:

$$CLSS = \Sigma CPS / LI$$

Where, CLSS = Cumulative livelihood status score

ΣCPS = Sum of cumulative percentage score of seven livelihood indicators

LI = Livelihood indicators (7)

The CLSS is further complemented by the perception of rural women based on the seven livelihood indicators. The quantitative data obtained from 100 rural women by administering a simple scale 0 - 3 for the score of seven livelihood indicators, whereby 0 stands for 'do not know', 1 for 'lower situation', 2 for 'middle situation' and 3 for 'higher situation'.

In addition to the quantitative measurement, the qualitative data obtained through eight focus group discussions (FGDs) was analysed. In FGDs, rural women were asked to rate seven livelihood indicators by putting a specified numbers of seeds (ranging from 1 to 10, 1 indicate the lowest and 10 indicate the highest value) according to their perceived importance. All weights (number of seeds) were added together to get the total score for each indicator. A rank order of seven indicators was listed based on the total scores according to ascending order from least important to most important, whereby rank 1 denotes 'least important' and rank 7 denotes 'most important' (Table 5.1). A similar exercise was used to assess the role of gender in the success of business by the women entrepreneurs in Zimbabwe (NJOVANA, 2001). In addition, PARVEEN and LEONHÄUSER (2004) employed this procedure to study empowerment of rural women in Bangladesh.

Table 5.1: Livelihood indicators and cumulative livelihood status score from both quantitative and qualitative data

Livelihood indicators	Qualitative rank ¹	Evaluation scale (0 - 3) ²	CLSS range ³	CLSS range ⁴
Water facilities	1	0 - 3	0 - 21	43 - 73
Sanitation	2	0 - 3		
Freedom in cash expenditure	3	0 - 3		
Participation in social activities	4	0 - 3		
Food availability	5	0 - 3		
Health situation	6	0 - 3		
Housing condition	7	0 - 3		

¹ Rank orders was made based on total score obtained from FGDs, such as 7 = 78, 6 = 69, 5 = 62, 4 = 56, 3 = 49, 2 = 44 and 1 = 38

² Evaluation scale used to measure livelihood status for perception technique

³ Cumulative livelihood status score (CLSS) was the sum of seven livelihood indicators score obtained from perception technique

⁴ Cumulative livelihood status score (CLSS) was the sum of seven livelihood indicators score obtained from percentage technique

5.2 Household income

The annual household income of rural women is a significant marker of their livelihood, and an attempt has been made to also determine the livelihood of rural women based on household income. ISLAM et al. (2006) measured fishing households' livelihood through household income. Household annual expenditure is a proxy measure of annual household income that has proven to be a more reliable measure than income itself (TANGO, 2007; AHMED, 1993). The collection of data on income in the present study and other surveys understated actual income, as it is often difficult to capture because rural households typically employed a diverse range of income strategies involving several members of the household. In this study, the annual household expenditure was measured by summation of annual costs for different purposes of a family. Afterwards, the household expenditure and savings were added to obtain the annual household income. It was expressed in Bangladeshi currency, Taka. A score of 1 was assigned for each thousand Taka (1,000 Taka) to compute the annual household income. The household income was measured by using the following formula:

Annual household income = Annual household expenditure + Annual household savings

5.3 Explanatory variables

It is assumed that characteristic attributes of rural women influence the household income to a significant extent. Seven characteristics of rural women were selected as interpreter variables in order to explore their significance on household income as well as on rural women's livelihood. The procedure followed for defining and measuring these variables are follows:

i. Age

Age was recorded on the basis of response of a rural woman during interviewing. A unit score was assigned for each year of age.

ii. Education

Education was measured in terms of grades passed by the respondent. Score 1 was given for each class/level passed in an educational institution. For example, if a rural woman passed the secondary school certificate examination after ten years of schooling, her educational score was given as 10. If a rural woman did not go to school, her educational score was given as 0. A score of 0.5 was given to women who did not go to school but participated in different adult learning programs and who could read/write.

iii. Family size

It was measured by counting the number of members in a family, whereby family members included rural woman herself, her husband, children and other dependents living and eating together and sharing their earnings. A unit score was assigned for each member of the family. For example, if a rural woman had four members in her family, the family size score was given as 4.

iv. Farm size

The farm size was measured by the total area of land owned by the household including homestead, area under cultivation, ponds and others at the time of interview and expressed in hectare. The total area of land expressed in hectare was considered as farm size score of a rural woman. Shared-in, leased-in, and mortgaged-in lands are not considered as owned land whereas shared-out, leased-out, and mortgaged-out lands were included. Farm size was measured by using the following formula:

Farm size (ha) = A + B + C + D

Where, A = Agricultural land under cultivation

B = Homestead area

C = Pond

D = Other (if any)

v. Association with a non-government organization

Organizational association of a rural woman was measured on the basis of her involvement with any non-government organization. The respondent was confronted with a dichotomous (Yes/No) choice question and coded 1 for 'Yes' and 0 for 'No'. If yes, a unit score was assigned for association with each non-government organization. Furthermore, fifty women who had no association with non-government organization were asked to indicate why they did not join any organization. The remaining fifty women who had association with non-government organization were asked why they did join the organization.

vi. Loans repayment

Loans repayment is an arrangement in which a borrower repays the money ('000' Taka, Bangladeshi currency) to a lender, along with interest at the end of a time period. Each monthly installment rate has the same value over time. Usually there is a predetermined time for repaying a loan. Interest rates are normally expressed as a percentage rate over the period of one year. Interest rates on loans vary from organization to organization and also with the purpose of investment. In the Sabalamby Unnayan Samity (SUS), a NGO, interest on loan is 12.5% for IGAs to a rural woman. Loans repayment amount was expressed in Bangladeshi currency in Taka. A score of 1 was assigned for Tk 1,000 (one thousand) to compute the loan repayment amount.

vii. Length of association with loan sources

This was measured by counting the total number of years associated by rural women with different loan sources. A score of one (1) was assigned for every year of involvement. For example, if a rural woman was involved for 3 years, her score was given as 3.

5.4 Other independent variables and relevant terms

i. Marital status

Married: When an adult woman forms a legal union with a man as his wife, she has the status of a married woman. The husband is her guardian and can dispose of all her belongings as he sees fit. The main criteria of a married woman are: (a) she must have a legal husband who is living and (b) they both must live together. Married women were scored as 4.

Divorced: Divorce or the dissolution of a marriage is the final termination of a marital union, canceling the legal duties and responsibilities of marriage and dissolving the bonds of matrimony between the parties. In Bangladesh, divorce requires the sanction of a court or other authority in a legal process. When the final termination of marriage is confirmed by the court or the authority in a legal process, the male and female who were treated as each other's spouse become totally separated. The female member is defined as a divorced woman and was scored as 3.

Separated: When a wife of a husband live apart but the legal marriage bond is still remaining, remarriage of either party is criminal; the wife is considered a separated woman. Separated women were scored as 2.

Widowed: A widow is a woman whose spouse has died and who has not remarried. This was scored as 1.

ii. Family type

Family type was defined as nuclear family, clan family and joint family.

Nuclear family: A two-generation family consisting of father, mother and their children or a single possibly widowed parent and his/her children. Nuclear families meet basic needs of their individual members and available resources are divided among the members (scored as 1).

Clan family: Having parents, sons, daughter-in-law, children and others, sharing the same yard but some of them eating separately (scored as 2).

Joint family: Is also known as “extended family”, where three or more generations live together in a house, with a single line of authority, either patrilineal or matrilineal. In the joint family setup, the workload is shared among the members, often unequally. The women are often housewives and cook for the entire family. The patriarch of the family (often the oldest

male member) lays down the rules and arbitrates disputes. The house often has a large reception area and a common kitchen. The members of the household look after each other (scored as 3).

iii. Occupation of male

In the present study, occupations of male family members of the survey women were considered. Seven occupations were identified by field survey and data was recorded on the basis of response of a rural woman during interviewing. A unit score was assigned for each occupation.

iv. Personal annual income of rural women

Annual income is the amount of money generated by a woman herself within a year. Income of a rural woman was measured by summing of money earned from selected ten sources, including agricultural and non-agricultural sources. It was expressed in 1,000 Taka (Bangladeshi currency). Different income sources are presented below:

Major categories of income source	Sub-categories of income source
Agriculture	Cattle and goat rearing, poultry, aquaculture, vegetable cultivation, bee keeping
Non-agriculture	Small business, wage labor, tailoring, handicraft, street vendor

v. Food consumption behavior

The data for food consumption behavior of rural women are based on (a) habitual dietary consumption patterns and (b) habitual consumption behaviour during shortage of food. Recall method over the last 24-hour period was used for recording to know the food consumption behaviour of rural women.

Habitual dietary consumption patterns

The rural women were asked about 13 selected food items to gather information on the habitual dietary pattern. They were given a dichotomous (Yes/No) choice question with 'Yes' as 1 and 'No' as 0. Thus, the score could vary from 0 to 13.

Habitual consumption behavior during shortage of food

Habitual food consumption behavior in case of insufficient food supply was measured by asking respondents to identify the family member who sacrificed meals under such circumstances. A numerical weight of 4, 3, 2 and 1, was given for the woman herself, husband, others and children, respectively.

vi. Daily time utilization

Daily time utilization refers to the amount of time spent for different activities during the last 24 hours and was measured in hours. The concept of time may, however, not be clear to many of the rural women in the survey. Furthermore, rural women often perform several activities at the same time and time consumed by an activity may differ from day to day. It was, therefore, very hard to collect accurate information on time allocation of daily activities and the researcher did not use a list to query about hours spent on specific activities. Rural women were asked to report their activities in a sequential manner from early morning till evening. The daily work timetable showed the structure of the daily activities of the rural women. Furthermore in this study, due to simplicity and relatively low cost, the 24-hour recall method was adopted to know the time-use pattern of rural women. In addition, the 24-hour recall ensured that the error in reporting would be quite small. Other studies in Bangladesh regarding time utilization also used a 24-hour recall method successfully (KHUDA, 1982; FAROUK, 1980; FAROUK, 1985; KHAN and HUDA, 2005). Time spent on various activities was approximated by referring to certain time-dependent phenomena, such as sunrise, noon, afternoon, sunset, night. Respondents were asked to select one seed against the activity which consumed the least time (one seed denoting 30 minutes) and 20 seeds against the activity that consumed the maximum time. Further, they were asked to put 2-19 seeds against other activities using their own judgment. Soon afterwards the researcher again went through the whole sequence of activities with the rural woman to check how far the time consumed by each activity conforms to the total time. The amount of time consumed in each activity was calculated by converting total numbers of seeds into 24 hours (AFSANA et al., 1998). Daily activities of rural women were aggregated under five headings: household activities, helping in agriculture, income generating activities, social activities and personal care.

Household activities basically represent household maintenance, cleaning, washing, cooking, fuel and water collection, serving meals, childcare, nursing the sick and entertaining guest.

Helping in agriculture include working in the field for crop production as well as post harvest activities.

Income generating activities refer to those activities through which a rural woman earns an income, produces marketable output and maintains capital equipment or assets. Livestock, aquaculture, vegetable cultivation in the homestead, handicraft, selling various products, working as a wage labor, etc., all fall under this category.

Social activities are defined as those in which the social aspect is more important than individual necessity. This category includes the following events: attending social functions and informal social gatherings, visiting neighbours and friends as well as religious activities.

Personal care refers to those activities which only satisfy basic personal needs. Hence, this category includes eating, bathing, dressing, praying, watching TV, listening radio, taking rest, leisure time and sleep.

vii. Household expenditure

Household expenditure is the amount of money spent for consumption and non-consumption purposes of a household. Household consumption expenditure includes all money spent by the various members of the household on goods and services for their own consumption or for the consumption of the whole household for the direct satisfaction of the needs and wants of its members. In recording household expenditure, both the diary keeping and recall methods were used (BBS, 2002). Household expenditure data were collected under nine main groups:

Food expenses: for buying rice, wheat, pulse, tuber, leafy vegetables, other vegetables, meat, fish, dairy products, eggs, fruits, oil, sugar, and spices;

Housing and related expenses: Maintenance and repairs; utilities such as fuel, oil, electricity, cell phone; domestic services such as childcare, furniture, toilet materials; other household expenses and miscellaneous equipment;

Education: Tutorial fees, admissions, textbooks;

Loan repayment: Loan repaid to microfinance NGOs, money lender, relatives and friend, Bangladesh Krishi Bank;

Clothing: Clothing for family members and footwear;

Health: Medical services and medicine;

Transport and communication: Public transportation, rentals, vehicle maintenance and repairs;

Recreation and culture: Personal care, social events, cinema, theatre and other entertainment;

Others: Tobacco and smoking, betel leaf and betel nut, televisions, radio, miscellaneous goods and services.

To improve the quality of the data, different reference periods (DCS, 2006) were imposed on nine expenditure groups and sub-groups. Long reference periods were used for expenditure on costly goods and services consumed infrequently, and short reference periods were used for expenditure on goods and services consumed frequently, also for minor purchases, whether they were consumed frequently or not. For example, for expenditure on food items, beverage and fuel, seven consecutive days were taken as the reference period. In the case of expenditure on apparel, cleaning products and transport, the reference period was 1 month; and a period of 12 months was used for house maintenance, health, recreation, education, purchases of furniture, vehicles, radio and television and durable goods.

viii. Savings

Savings were measured in terms of money (taka) saved annually. Different forms of savings, such as cash savings at home, in *Shamiti* (NGOs) and in the bank were considered when measuring savings of the rural women. The two questions posed to the rural women were, “Do you save?” and “Where do you save?” On the basis of these questions, the savings variable was defined.

ix. Loans

A range of questions was asked about loans taken by rural women:

(a) do you have any loans, (b) how many existing loans do you have, (c) where did the loan come from, (d) the amount of the loan, (e) the interest rate, (f) for what purposes the loan is used and (g) what are the problems to pay back loans. The loan variable was defined on the basis of these seven questions.

x. Extent of participation of rural women in different IGAs

Participation of rural women in IGAs was measured by computing a ‘Participation in IGAs Score’. Ten IGAs were identified by the field survey, FGDs and consultations with key informants. Rural women were asked to indicate to what extent they participated in selected

IGAs. A 4-point rating scale (HOQUE and ITOHARA, 2008) was used to measure the extent of participation in IGAs: ‘frequently’, ‘occasionally’, ‘sometimes’, and ‘never’, and a numerical weight of 3, 2, 1, and 0 was awarded for each response, respectively. The score of a rural woman could thus range from 0 to 30, where 0 indicates no participation and 30 indicates the highest participation in IGAs. The four-point scale used in this measurement needs to be explained to enable one to make sense of the implicit ideas that each of the point holds:

- ♦ **Frequently** - refers to regular participation in a particular IGA to achieve an outcome;
- ♦ **Occasionally** - refers to the irregular participation;
- ♦ **Sometimes** - refers to a rare participation;
- ♦ **Never** - is employed in case of no participation of rural women in a particular IGA.

Frequency counts of responses were recorded to compute the Participation Index (PI) of each IGA. The PI was calculated to compare the extent of participation of the rural women to an individual IGA. Participation Index of IGAs was computed by using the following formula:

$$\text{Participation Index (PI)} = (N_1 \times 0) + (N_2 \times 1) + (N_3 \times 2) + (N_4 \times 3)$$

Where, N_1 = Number of women who did not participate in the IGAs

N_2 = Number of women who participate in the IGAs sometimes

N_3 = Number of women who participate in the IGAs occasionally

N_4 = Number of women who participate in the IGAs frequently

The PI for each of the IGA could range from 0 to 300; where 0 being the lowest and 300 being the highest level of participation.

xi. Potentiality of the selected IGAs

The most effective IGA with the highest potential was determined by seven indicators, and these indicators were evaluated by the rural women themselves in focus group discussions according to their own experiences. Each indicator was scored as 3, 2 and 1 for high, medium, and low responses, respectively, except in case of risk factor indicator where 3 was assigned for having low risk and 1 was assigned for having high risk. The value of all indicators for each IGA was added. The IGA having highest score was listed as having the highest potential and being the most effective IGA.

Table 5.2: Criteria for listing the most effective and potential IGA

S.N.	Indicators	Score of IGA		
1	Resource for IGA	High	Medium	Low
2	Market facilities	High	Medium	Low
3	Profitability	High	Medium	Low
4	Contribution to income	High	Medium	Low
5	Easy to implement	High	Medium	Low
6	Risk factor	Low	Medium	High
7	Site suitability	High	Medium	Low
	Total score			

Source: Adapted from Centre for International Studies and Cooperation (CECI) Nepal, 2003 with modification

xii. Impact of IGAs on the income of rural women and their livelihood

Opinion of rural women regarding the impact of IGAs on their own income

The impact of IGAs on rural women's personal income was measured by using a five-point scale. The rural women were asked to indicate the impact of IGAs on their own income during the last three years with 4 representing 'increased significantly', 3 for 'increased slightly', 2 for 'stayed about the same', 1 for 'decreased slightly', and 0 for 'decreased significantly'.

Reasons for declining income of rural women during the last three years

There were eight items selected after pretest results which concerned the decline of income of rural women during the last three years. The possible score of these items varied from 1 - 8 and the measurement technique used as follows:

Reasons	Weight
Project failure	8
Market failure	7
Loan interest	6
Exposure to natural disaster	5
Prolong illness	4
Loss of asset	3
Loss of employment	2
Loss of crop/animal	1

Reasons for increasing income of rural women during the last three years

Nine items were considered after pretest which contributed to increase rural women's income during the last three years. The possible score of these items varied from 1 - 9 and the measurement technique were as follows:

Reasons	Weight
Increased production in agriculture and non-agriculture	9
Increased cropping intensity	8
Increased credit facilities	7
Used better varieties in agriculture farming	6
Opportunity of new IGAs	5
Enhanced ability in disaster management	4
Less pest attack	3
Increased the area of cultivation	2
Getting a new/better job	1

Opinion of rural women regarding impact of IGAs on their livelihood

The impact of IGAs on rural women's livelihood was measured by using a 3-point Likert-type modified scale, with twelve respective statements regarding the predispositions in rural women's opinion. The rural women were asked to give an opinion for each of the items, where the opinions were: 'improved', 'same as before' and 'decreased' over the last three years and the scores were assigned to each of the responses as 2, 1 and 0, respectively.

Statement	Opinion of rural women		
	Improved = 2	Same as before = 1	Decreased = 0
Family income			
Position in the family			
Dependency on husband			
Housing condition			
Health situation			
Water facilities			
Sanitation			
Food availability			
Participation in social activities			
Freedom in cash expenditure			
Family misery			
Overall livelihoods			

xiii. Constraints of rural women in participating in IGAs

Nineteen potential constraints, related to economic, social, cultural/religious aspects were selected based on the results of the pre-test. Rural women were asked to indicate their response for each constraint on a four-point scale (RAHMAN et al., 2007) where 3 assigned for 'severe', 2 for 'significant', 1 for 'insignificant' and 0 for 'not at all'. As 19 constraints were considered, the possible score for constraint in IGAs of a rural woman could vary from 0 to 57. Finally, a constraint index (CI) was calculated for ranking the constraint as follows:

$$\text{Constraint Index (CI)} = C_3 \times 3 + C_2 \times 2 + C_1 \times 1 + C_0 \times 0$$

Where, C_3 = frequency of rural women faced 'severe' constraints in participating IGAs

C_2 = frequency of rural women faced 'significant' constraints in participating IGAs

C_1 = frequency of rural women faced 'insignificant' constraints in participating IGAs

C_0 = frequency of rural women faced 'not at all' constraints in participating IGAs

Constraint index (CI) could range from 0 to 300 where '0' indicate lowest constraint and '300' indicate highest constraint faced by rural women to conduct IGAs.

Furthermore, a scored causal diagram (SCD) was constructed by a small group containing ten women to measure the constraints encountered to participate in IGAs. At first, the topic

‘participation in IGAs’ was critically discussed with the participants. Various constraints to participation in IGAs were listed through discussion. Formulating the end problem as ‘low participation in IGAs’ and writing it on an elliptical card, they were asked to mention the direct causes of this constraint. As the direct causes were identified and written on separate cards by the rural women, the cards were placed on a large paper on the ground and arrows were drawn to represent the causal relationships between the constraints. Each constraint was represented on the ground only once. The causes of those constraints were identified and added to the diagram. These could be from the original list or might be newly identified. The process continued until the participants were satisfied that all the constraints had been included and all the connections identified. The constraints at the edge of the diagram with no identified ‘causes’ were determined as the ‘root’ causes. Scoring was done by moving counters (bean seeds) up from the end constraint by dividing them between the causes of each subsequent constraint. In the present study, 100 bean seeds were used as counters as the total score for the end constraint/problem.

The procedural steps of scoring used for constraint identification in this research are as follows (adapted from GALPIN, et al. 2000: 19):

1. After drawing the causal diagram, even numbers (100) of beans were placed on the end problem.
2. The rural women were asked to divide the 100 beans between the causes of the end problem (i.e. the arrows entering the problem) to represent how important the causes were.
3. The scores (number of seeds) were further divided between the causes of the next problem using the same procedure as in step 2.
4. If no causes of the problem had been identified on the diagram, i.e. there was no arrow entering the problem, then the score remained on that problem. If there was only one cause of the problem, the whole score was moved back to that cause. At each stage the scores were written on the diagram before the beans were moved on.
5. If a cause had more than one effect, then the scores from those effect arrows were added together. This total was then divided between the different causes of the problem, as in step 2.
6. The scoring was continued until all the problems on the diagram had been scored. The beans were placed on the ‘root’ causes.

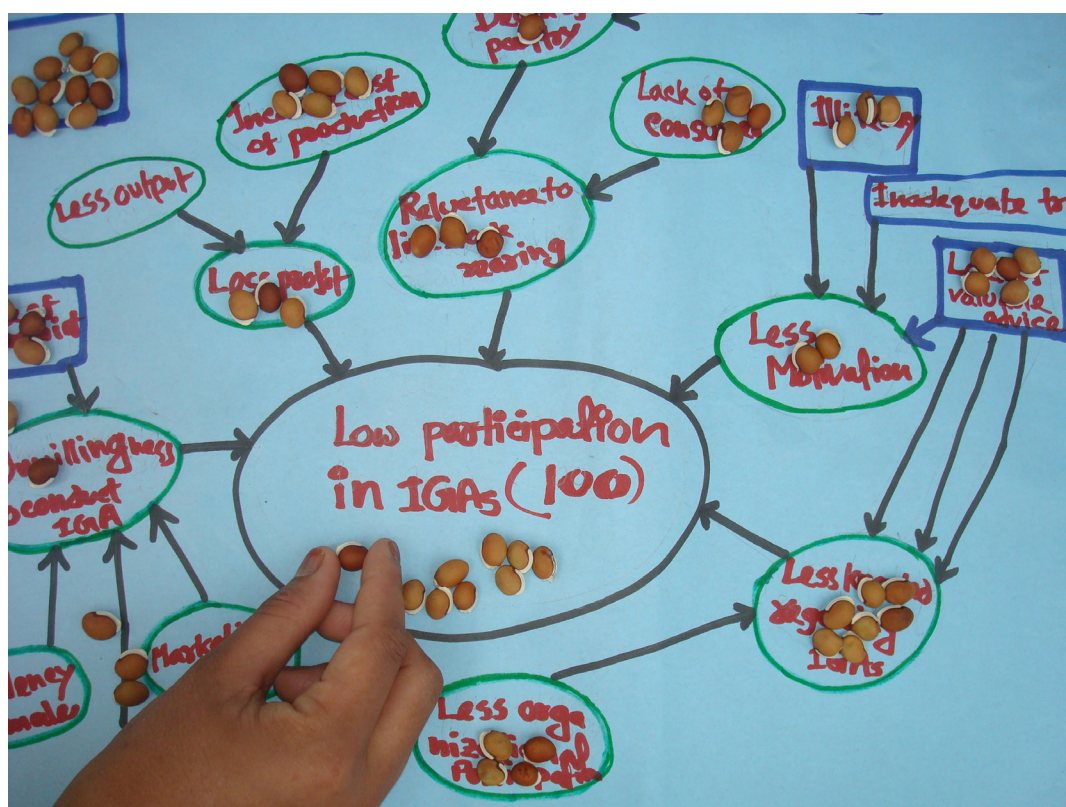


Figure 5.1: Participatory constraints analysis

7. On completion of the scoring process, the relative scores of the 'root' causes were compared. The higher score indicated a more important problem. These scores and the reasoning behind the scores (i.e. the causes and effects on the diagram) were clarified with the participants.
8. Finally, possible solutions of the 'root' causes were traced back on the diagram.

6 Results and discussion

This chapter presents the descriptive and analytical findings of the research work conducted in Bangladesh in 2009. For the field survey, 100 rural women were selected from four villages in two Upazilas in the Netrokona district, among them 50 women who had involvement with non-government organizations. Besides the field survey, case studies, focus group discussions (FGDs), scored causal diagrams (SCDs), key informants interviews and personal observation of researcher were made to supplement and validate the survey data especially concerning the livelihood status of rural women in the study area. Findings derived from the analysis of both quantitative and qualitative data are being presented in four sections, keeping the objectives of the study in mind. The salient features of rural women who were engaged in income generating activities (IGAs) in the study area are presented in the first section of this chapter. In the second section, the expert views of key informants, some important findings from FGDs and researcher observations regarding livelihood and IGAs of the study area are illustrated. The income strategies of rural women are discussed in section three. The analysis of rural women's livelihood and the factors influencing it are presented in section four. At the end of this section, the major constraints that hinder the participation of rural women in IGAs are clearly sketched. Necessary explanations, interpretations are also made, showing the possible and logical basis of the findings whenever necessary.

6.1 The salient features of rural women in the study area

The socio-economic and cultural profiles of rural women who were engaged in income generating activities (IGAs) having a support from NGOs or other sources are presented at the beginning of this section (6.1.1). The selected seven livelihood indicators are also briefly discussed (6.1.2).

6.1.1 Socio-economic and cultural profiles of rural women

Personal, social, economic and cultural attributes of rural women are presented in this section to get an overall picture of the study area. Furthermore, characteristics of rural women also facilitate the discussion regarding concerned livelihood indicators in the next three chapters.

6.1.1.1 Age distribution

The age of selected rural women varied from 19 to 56 years with a mean, median and standard deviation of 38, 39 and 9 years, respectively. Most belonged to the age group from 20 to 49 years (table 6.1). The number of rural women below 20 years of age and above 49 years of age was very low. The age group 40 - 44 had the highest rural women.

Table 6.1: Distribution of rural women by age group (n = 100)

Age group * (in years)	Number of women	Observed range	Mean	Median	Standard deviation	CV (%)
15 - 19	1	19 - 56	38	39	9	24
20 - 24	10					
25 - 29	12					
30 - 34	12					
35 - 39	17					
40 - 44	20					
45 - 49	17					
50 - 54	9					
55 - 59	2					

* Age group adopted from BBS, 2008b

In Bangladesh, people are considered as young who are in the age range of 15 - 29 years (DYD, 2007). Considering this categorization and based on the observed age score, rural women were classified into three broad categories, namely “young” (up to 29 years), “middle-aged” (30 to 50 years) and “old” (above 50 years) and their distribution are shown in figure 6.1.

The data generated from the survey shows that 74% of the rural women were within the age bracket of 30 - 50 years, which actually represents the economically active population. Most of the economic activities are labor-intensive and that might explain the reason why the middle-aged group formed the majority. The need for women’s welfare is usually higher at this period and the needs of their growing children could also call for additional resources. According to GED (2009), the participation rate of rural women in the labor force increases with the increase of age within an age limit of 20 to 44 years, where highest participation is recorded for the age group 40 to 44. In the present study 23% of rural women belonged to the young (up to 29 years) and only 3% was old (above 50 years).

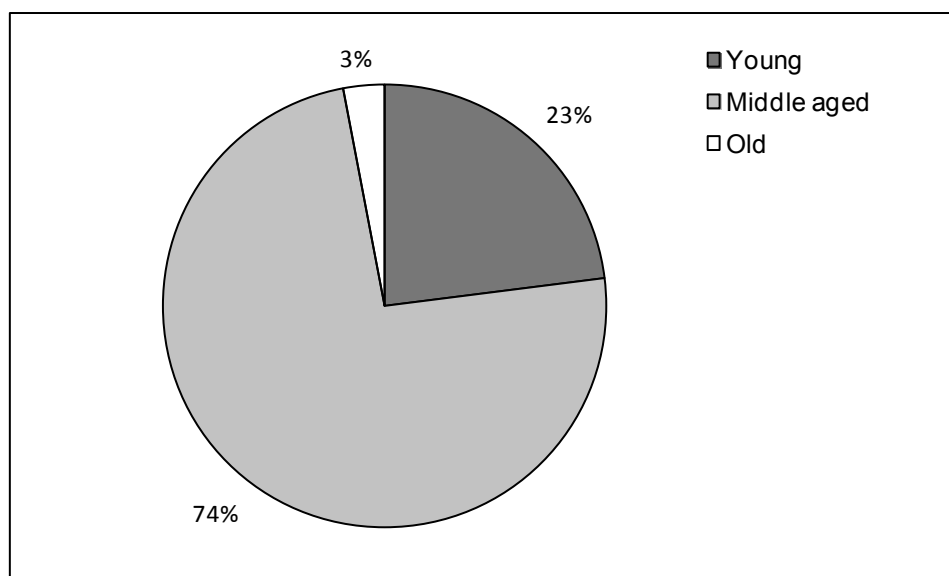


Figure 6.1: Distribution of rural women by age groups (n = 100)

The age of rural women has a great influence on their ability to take part in economic activities and, of course, influences benefit from the IGAs in the survey area (FAKIR, 2008). Before involving a rural woman in a micro-credit program, micro-credit institutions consider her age. For example, the NGO SUS of the study area does not work with rural women over 50 years old for operating IGAs. The choice of income activities also depend on age. Young women of the study area reported that they are less interested to conduct such IGAs where they need to go to the market regularly and are obliged to sit for a long time at one place such as grocery shop, dry fish business, or wood business. Young women also reported that they often are bothered and face problems from bad elements of the society when they conduct income activities in the market place, while such problem is relatively low for middle-aged women.

6.1.1.2 Educational background

Education levels of rural women ranged from 0 to 12 having a mean, median and standard deviation of 2.68, 3.0 and 0.96, respectively. Based on education scores, five different categories were used to define education level namely illiterate (0), non-formal education (0.5), primary (1 - 5), secondary (6 - 10) and college/higher secondary (10 - 12). Non-formal education is the type of education offered to adults who have not had the chance to benefit from formal education, and the aim is to teach them how to read and write. As per educational levels, the distribution of rural women is presented in figure 6.2.

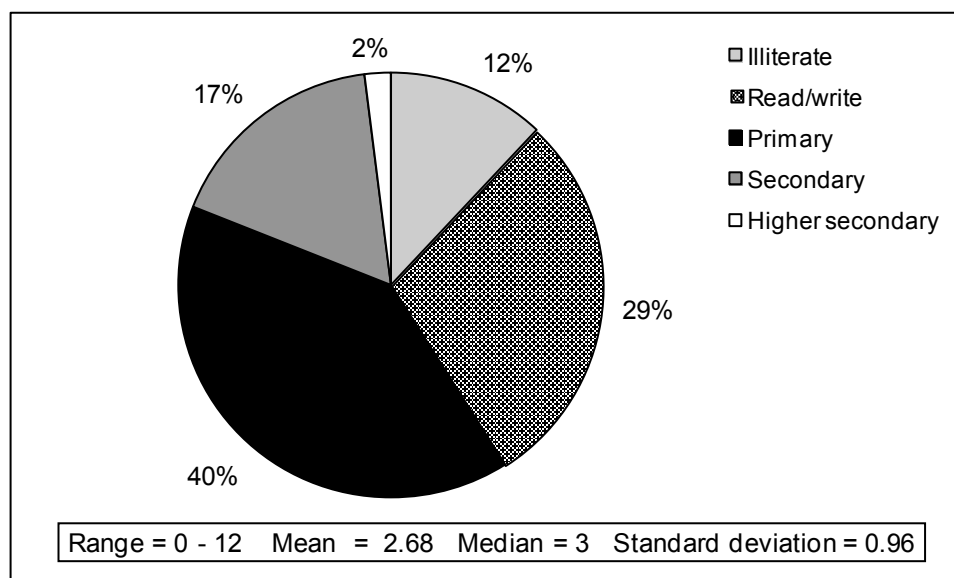


Figure 6.2: Educational background of rural women (n = 100)

Of the rural women, 12% had no education, 29% had non-formal education and 40% had elementary education up to the primary school level. Among selected rural women, 17% had education up to secondary school and only 2% had higher secondary/college level education. In the rural society, girls usually take part in the household work, and parents are more willing to send boys to school for education. A general belief among rural people is that girls will get married one day and move out to stay at their husband's house. Educating boys is therefore deemed more worthwhile than educating girls. That is why large numbers of rural women are deprived from education and possess a low educational status. It is interesting that though 41% of the surveyed rural women (among them 12% in the illiterate and 29% in the read/write group) had no formal education, they still performed different income activities without recourse to their educational background. In the study area, rural people were less interested in continuing their education because of poverty and less opportunity of educational institutes. Under poor socio-economic conditions children are bound to leave school and to engage themselves in work for generating income. In recent years, to promote girls education, the government has taken some important initiatives like establishment of new schools, free distribution of books, stipends for girls, education fee waivers and food for education programs. These initiatives have greatly improved the present scenario of educational enrolment of girls in the institutions in the recent years and may increase education levels even further in future. However, in this study the present educational status of rural women is reflected and these measures may not get had an impact.

6.1.1.3 Marital status

Marriage is almost universal in Bangladesh, which is a tradition and social institution and is highly cherished for social and economic reasons (BBS, 1991). The mean age at marriage of women in the study area was 18.48 years (GED 2009). Most of the women reported that late marriage is not desirable and, to gain prestige in the society, most women have to marry. Infertile women are usually neglected while married women with children are more respected. SATTAR and HUQ (1992) reported that the most important social status that a woman achieves is that of a wife and mother. In addition, rural women pointed out that in their cultural community, the unmarried, separated and divorced women are often shunned.

Table 6.2: Marital status of rural women in the study area (n = 100)

Type of women	Marital status (in percent)			
	Married	Divorced	Widowed	Separated
Non-NGO women (n = 50)	40	3	6	1
NGO women (n = 50)	29	8	10	3
Both category (n = 100)	69	11	16	4

A large portion of the surveyed women (69%) was married and lived with their husbands in the family, 4% were separated, 16% were widowed and the remaining 11% had been divorced. The number of divorced, widowed and separated women was high in the “NGO women” category. This finding indicates that the vulnerable women are more involved in non-government organizations and that they try to change their existing socio-economic condition by using micro-credit. In households where women are the main breadwinner, there is always pressure on their small resources for keeping the household going (ANSOGLANG, 2006), which ultimately increases the level of engagement with microfinance non-government organizations.

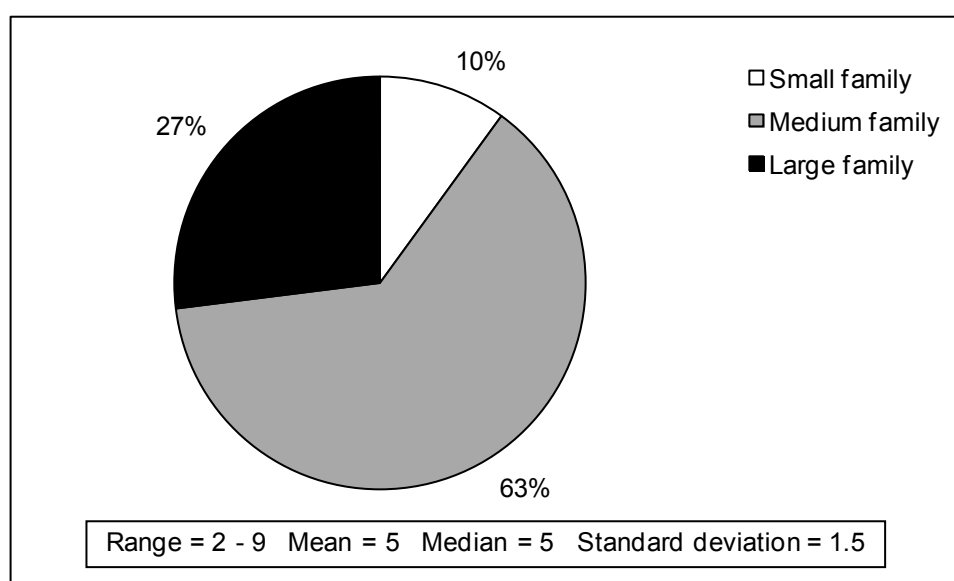
6.1.1.4 Family size

Family is the oldest social unit responsible for managing a household (BBS, 2008b). The distribution of rural women by number of family members is shown in table 6.3.

Table 6.3: Distribution of rural women by number of family members (n = 100)

Number of family members	Number of women	Observed range	Mean	Median	Standard deviation
2	1	2 - 9	5.45	5	1.5
3	9				
4	19				
5	23				
6	21				
7	18				
8	8				
9	1				

The number of family members of the rural women ranged from 2 to 9 with an average of 5.45, median 5 and standard deviation 1.5. The national average family size in Bangladesh is 5 (BBS, 2008b). The average family size of the study area was therefore relatively large compared to the national average.

**Figure 6.3:** Distribution of rural women based on their family members (n = 100)

Based on the number of family members, the rural women were divided into three broad categories, namely small (up to 3), medium (4 to 6) and large (above 6) family. The situation of family size is shown in figure 6.3. The highest proportion of rural women (63%) had medium family, 10% had a small family and the remaining 27% had a large family.

6.1.1.5 Family type

The highest proportion (54%) of the rural women was part of a nuclear family, while 40% lived in a clan type and only 6% in a joint family type situation (table 6.4). In the study area, 75% of rural women reported that they had less likelihood to enjoy freedom and less opportunity of controlling the household resources when staying in a joint family. This may be the overriding cause of breaking up the joint family structure and increasing the number of nuclear families. Furthermore, 84% of rural women expressed that they are interested in living in a nuclear family and in the recent years, the proportion of nuclear families has increased in Bangladesh (BBS, 2008b). In the Bangladeshi social and cultural context, decisions in a joint family about different household matters are commonly made by the family head, husband or mother-in-law and sister-in-law (FAKIR, 2008). Furthermore, in a nuclear family, women manage household work with little intervention and enjoy comparatively more freedom and self-esteem. ROY and NIRANJAN (2004) reported that in Indian society, when a husband is family head, women are in better position to bargain with their husband on various issues. When the family head is the father-in-law or others, then her position is more submissive and weak. This shows clearly that different family types may have a different impact on a rural woman's status in the family.

Table 6.4: Distribution of rural women based on their family type (n = 100)

Category (Based on score)	Absolute value
Nuclear family	54
Clan family	40
Joint family	6

6.1.1.6 Farm size

Land is the most important and valuable asset for farm households because farm families depend mainly on agriculture. The household size may be a central matter in basic need measurement and livelihood analysis, but its output measurement is difficult to determine. The minimum farm size of surveyed rural women was 0.02 hectare and the maximum was 1.0 hectare with a mean of 0.38, median of 0.43. According to the Department of Agricultural Extension in Bangladesh (DAE, 1999), the farm household is classified into five groups on the basis of land owned by the family. These are landless households (≤ 0.02 ha), marginal farm households (0.021 to 0.20 ha), small farm households (0.21 to 1.00 ha), medium farm households (1.1 to 3.00 ha) and large farm households (> 3.00 ha). In the study area only

three household categories were found, i.e. landless, marginal and small households. Their distribution is presented in figure 6.4. The highest proportion (59%) of the rural women belonged to the ‘marginal farm household’ category, 26% to the ‘landless household’ and only 15% to the ‘small farm household’ category.

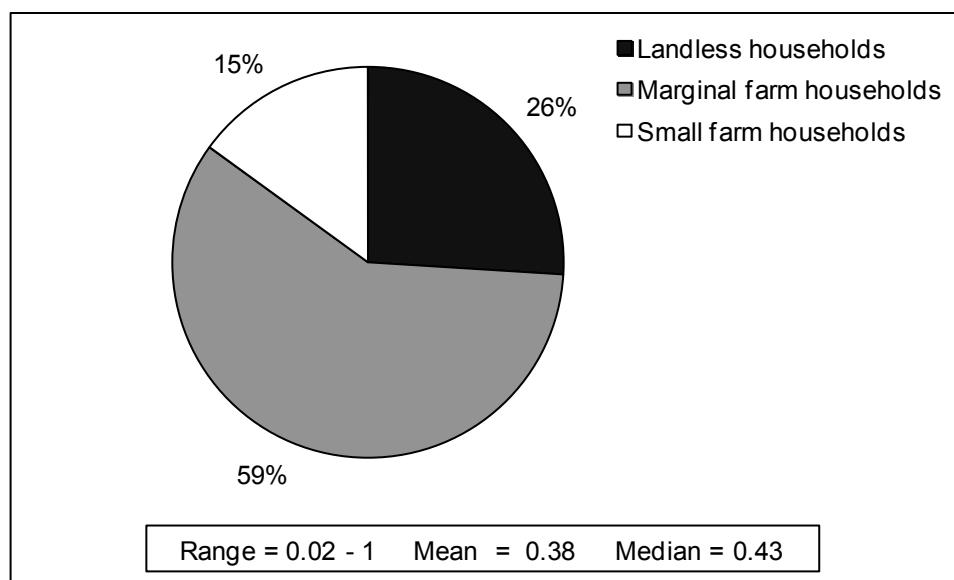


Figure 6.4: Distribution of rural women based on their farm household size (n= 100)

In the study area, per capita arable land is very low and agriculture is characterized by mixed farming, including field crops, poultry and cattle rearing, fish culture, etc., allowing households to get a maximum output from their limited resources as well as meeting household requirements and minimizing risk and uncertainty. The rural women usually practice homestead agro-forestry within this small area throughout the year and they grow different types of vegetables, fruits, spices, timber yielding trees, bamboo, etc., to promote micro-nutrient intake levels, overall food consumption and income of household (BEGUM et al., 1999-2000; IFPRI, 2001). Sometimes they sell these items to overcome a period of crisis. Poor livelihood status therefore was more prevalent in small household size with few income earners. WFP (2005) have also documented that the size of a household and the availability of income earners are very important elements of vulnerability. Therefore, household size is the most potent means for improving rural women’s personal as well as household income, dietary quality, food security and livelihood.

6.1.1.7 Occupational profile of male family members

Women usually work as housewives and are simultaneously involved in different IGAs. The latter activities were not their main occupation and are presented in section 6.3. For this reason, we considered the occupation of the male member of the family to study occupational profile of the survey area. Most of the male members (54%) had farming as principal occupation and secondarily worked as wage labor (22%). Here, farming included crop production, livestock, aquaculture and integrated farming. The dependency on livestock increased as both a main and secondary occupation, and it was often considered as supplementary activity for small farmers. Figure 6.5 shows the occupational structure of male income earners of the sampled rural women. It is remarkable that very few male members had salaried jobs.

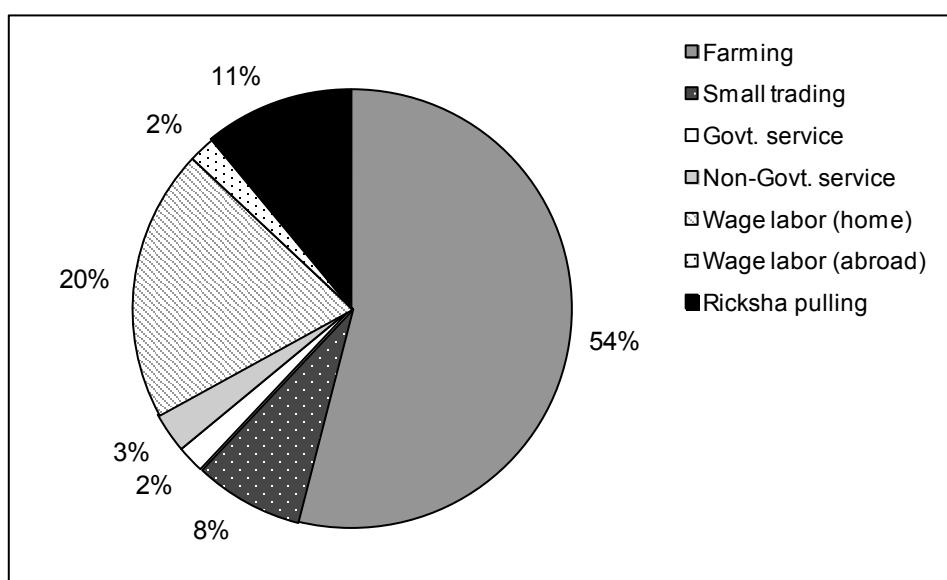


Figure 6.5: Distribution of male earning members based on their occupation (n = 100)

6.1.1.8 Household income

The lowest household income of rural women was Tk. 32,930 (€1 = Taka 100) and the highest income was Tk. 148,650 per year (figure 6.6). The mean, median and coefficient of variance for annual household income were as Tk. 75,300, Tk. 80,100 and 34.91%, respectively. Based on household annual income, the rural women were classified into three categories namely 'low income' (\leq Tk. 50 thousand), 'medium income' (Tk. 51 - 100 thousand), and 'high income' (Tk. > 100 thousand), and their distribution is shown in figure 6.6.

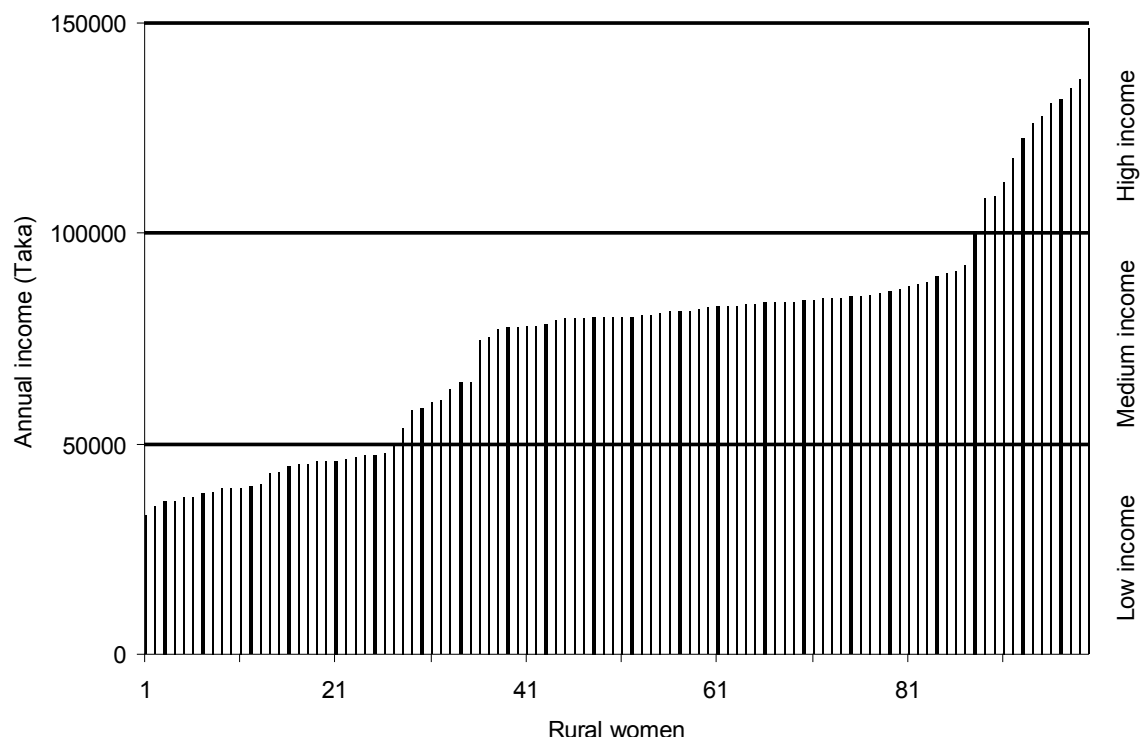


Figure 6.6: Distribution of household income of rural women (n = 100)

With regard to total household income, a high variability was observed, where the majority of women (87%) fell under low to medium income categories and very few had a high income (13%). This result is consistent with the findings of NAHER et al. (1999 - 2000), PARVEEN (2005), and AL-AMIN (2008). The reason might be the lack of opportunity to get a better occupation. In the study area, household livelihood strategies of rural women are characterized by diversified farming to meet households' requirements and they are mainly dependent on agriculture, share-cropping or wage labor (figure 6.5 shows occupational structure of male income earners in the study area). Rural women in the study reported that they need electricity (87%) and better road connection (100%) with Upazila Head Quarter and district levels. They felt the need for factory employment (68%) so that they can engage themselves in work during lean periods (people had no work to do in February, April, July to August, and November to December). Many of them reported that they suffer from lack of capital during crop growing period because credit disbursing procedures usually are complex and lengthy for formal government microfinance organizations. That is why they are bound to go to local loan sources such as *Mahajon*, microfinance NGOs, etc., for finance, all of which charge very high interest rates. In the Bangladesh context, PARVEEN (2005) found that very specific human resource development factors, such as education, training, skills and experience are pre-requisites for raising total household income. Infrastructure facilities,

electrification, local institutions and extension services also have an impact on total household income. According to GED (2009) total household income varies greatly depending on the farm size, some background circumstances such as household size, total family members, dependence ratio of the family and number of income earners. The findings of the present study and corresponding supportive material indicate that different intervening variables influence the household income.

According to the present survey, monthly average per capita income was Tk. 1,200 and median was Tk. 1,120. Fifty percent of the households received less than Tk.1,120 per month at the time of survey which was slightly higher than the national average of Tk. 1,100 (BBS, 2008b). The causes for the low per capita income mentioned by rural women are: many dependent household members, loss of farm income, insignificant earning of household members and chronic illness of the main earners. In addition, eight items were identified as the main reasons for a decline in the personal income of rural women (section 6.3.6, table 6.36).

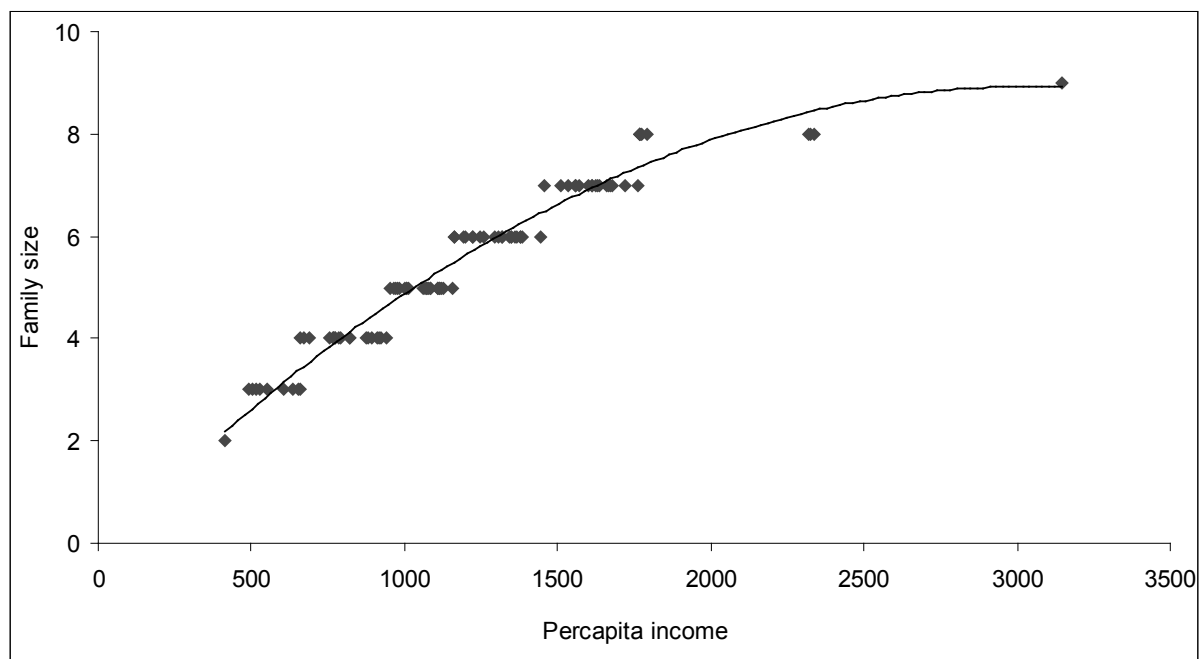


Figure 6.7: Distribution of per capita income of rural women's household (n = 100)

6.1.1.9 Personal income of rural women

In the study area, the personal annual income of rural women ranged from Tk. 4,000 to Tk. 29,000 with the mean, median and coefficient of variance was Tk. 13,062, Tk. 12,900 and

43%, respectively. Based on personal annual income, rural women are classified into three categories, namely 'low income' (< Tk. 13 thousand) 'medium income' (Tk. 13 - 20 thousand), and 'high income' (Tk. > 20 thousand), and their distribution is shown in figure 6.8.

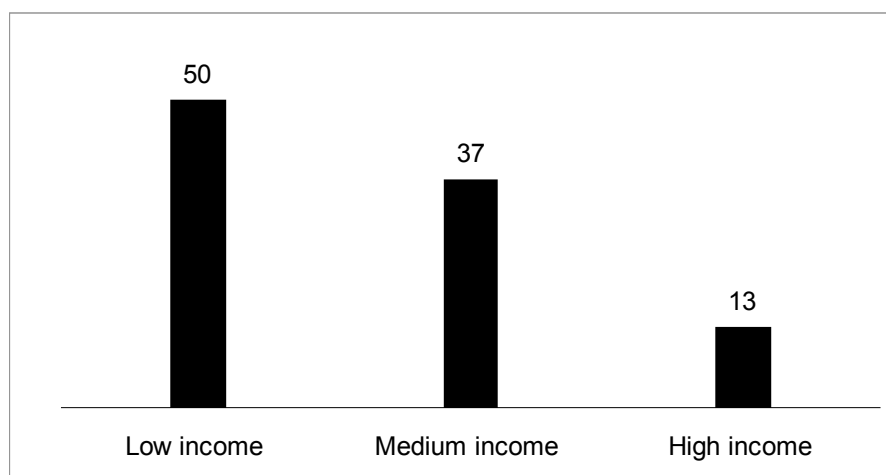


Figure 6.8: Distribution of rural women based on their personal annual income (n = 100)

The majority of the rural women belonged to the low to medium income classes (87%), while 13% to the high income group.

6.1.1.10 Food consumption behaviour

Food is consumed by individuals as essential item of living to maintain health and to revive strength. This part is designed to discuss the food items consumed by rural women over a 24 hour period. At the same time food consumption behaviour during shortage of food prevails in the study area is discussed.

Food items consumed by rural women

Following the report of HIES (2005) and as a pretest result, 13 food items were selected and the proportion of rural women intake of each food item during 24 hours prior to data collection period was recorded and is presented as weekly basis in table 6.5.

Table 6.5: Weekly pattern of food items consumed by rural women (n = 100)

Food items consumed	Rural women (%)
1. Grain staples	
Rice	96
Wheat	04
2. Tubers (potato, sweet potato)	46
3. Green leafy vegetables (<i>pui shak/kolmi shak/data shak/palong shak</i>)	52
4. Other vegetables (carrot, tomato, gourd)	37
5. Pulses (<i>musuri, mug, keshari</i>)	46
6. Fruits (mango, jactfruit, banana, others)	24
7. Meat (poultry, beef)	22
8. Fish (fresh fish, dried fish)	23
9. Eggs	37
10. Milk and dairy products (cow milk, goat milk, card)	35
11. Oils and fats (soybean oil, mustard oil, ghee)	62
12. Sugar/gur/honey	28
13. Beverages (tea, <i>Sarbat</i> , bettle leaf and bettle nut)	18

Ninety six percent rural women ate rice as their staple food and the remaining 4% ate wheat. It is remarkable that only 22%, 23%, 24%, 35% and 37% of rural women consumed meat, fish, fruits, milk, and eggs, respectively. In the study area women consumed considerable amount of green leafy vegetables (52% of women). Sixty-two percent of rural women reported that they consumed oil and pulses, but the amount of intake was very low. It is very clear that the diet of rural women is predominately starchy staples. Among animal products, rural women frequently consumed eggs followed by milk, fish and meat. They ate only few seasonal fruits which were usually grown in the homestead. Therefore, the pattern of food consumption clearly indicates that rural women of the study area have an imbalanced diet. Hence, a food security program is demanded for the study area to increase food and food variety for ensuring nutrient adequacy. Otherwise, rural women will be afflicted by nutrient deficiency and will not continue a healthy life.

Food consumption behaviour during shortage of food

Eighty percent of rural women took a smaller number of meals during periods of food shortage, whereas the percentage of husbands, other family members and children was 6%, 11% and 3%, respectively (table 6.6). Eighty-seven percent of the studied women mentioned

that the daily meal is first served to the husband or senior male member of the family and that they have the best share of the food. After that, the children and other family members get the second priority in meal distribution, while rural women take the meal at the end and usually eat a smaller amount of food in case of shortage.

Table 6.6: Distribution of household members based on food consumption behaviour during shortage (n = 100)

Category (based on scores)	Frequency
Women	80
Husband	6
Other family members	11
Children	3

6.1.1.11 Association with a non-government organization (NGOs)

Access to social capital enables rural women to secure resources and opportunities. To understand the dynamics of social capital in the context of rural Bangladesh, this study inquired about rural women memberships with different NGOs working with the communities. Fifty percent of rural women were selected having membership with NGOs and the remaining 50% were not involved with NGOs. Among those involved with non-government organizations, 82% had membership with one, 10% with two and the remaining 8% with three NGOs (Table 6.7).

Table 6.7: Distribution of rural women based on membership with NGOs (n =100)

Category	Frequency of rural women
No membership with non-government organizations	50 (100)
Membership with one non-government organizations	41 (82)
Membership with two non-government organizations	5 (10)
Membership with three non-government organizations	4 (8)

(Values in the parentheses indicate percentage)

Perception of rural women regarding lack of association with NGOs

The “non-NGO women” were asked why they do not join an NGO. In response to the questions, the “non-NGO women” pointed out five reasons, presented in table 6.8. Fifty

percent of “non-NGO women” said that they have interest to join with NGOs, but family barriers such as their husband, father-in-law and mother-in-law do not give consent regarding this issue. Twenty-two percent of women thought that they do not need NGO support, 16% reported that the interest rates of NGOs are too high, 8% informed that they do not get opportunities to join with NGOs and the remaining 4% told that they do not know about the activities of NGOs.

Table 6.8: Opinion of rural women regarding lack of association with NGOs (n = 50)

Main reasons	Absolute number	Percentage
Family restriction	25	50
Don't need NGO support	11	22
Interest rate high	8	16
Failed to get into the NGOs	4	8
Do not know about the NGOs' activities	2	4

Perception of rural women regarding association with NGO

“NGO women” mentioned three positive elements that influenced them to be associated with NGOs (Table 6.9). Credit was the overwhelming reason to join NGOs, given by 100% “NGO women”. They mentioned that NGO gave them loans without a hassle and also provided various other welfare services. Fifty percent of “NGO women” reported that they joined to get different facilities. The major facilities provided by NGOs are arrangement of non-formal education, distribution of good vegetable seeds, improve breeds of goat, tube wells, support and services in the fields of family planning, training, information about health care including tuberculosis, diarrhea, child immunization and nutrition. Furthermore, they also supported rural women in managing livestock and poultry diseases. The remaining 20% of “NGO women” mentioned that they join in NGOs due to influence by others including relatives, neighbours and NGO staff.

Table 6.9: Opinion of rural women regarding association with the NGOs (n = 50)

Main reasons	Absolute number	Percentage
Receive credit	50	100
Obtain facilities	25	50
Influence by others	10	20

6.1.1.12 Daily time utilization

This part describes the daily timetable of rural women, as well as list of tasks performed and time-use pattern with the different tasks.

Daily time table of rural women

Rural women usually leave the bed early in the morning to feed animals, pray and prepare breakfast. Additionally, they accomplish the household tasks. They start their work early in the morning and stop before they sleep. The time spent by rural women in different activities ranged from 8 - 14 hours daily. The timetable of a typical rural woman is presented in table 6.10. The daily work schedule of a “NGO-woman” was mostly similar to a “non-NGO woman” but not identical. The “non-NGO women” worked an average of 12.5 hours daily, while “NGO women” work 12.3 hours. In addition to daily work, “NGO women” usually spent 1 hour extra per week to attend the group meeting.

Table 6.10: Daily time table of a rural woman

Time	Activities
5:00 - 6:00 am	Getting up (when rooster crows and/or call to prayer <i>Azan</i>)
6:00 - 9:00 am	Praying, feeding domestic animals, cleaning yards, preparing breakfast, serving food to family member, preparing children for going to school and having breakfast
9:00 - 1:00 pm	Washing utensils and clothes, hanging clothes out to dry, collecting firewood and vegetables, fetching water, processing and cooking for a day
1:00 - 2:00 pm	Serving food to family member
2:00 - 5:00 pm	Taking part in different income earning activities, bathing, eating lunch, washing utensils, taking part in religious activities and informal social gathering
5:00 - 7:00 pm	Taking care of children and other family members, serving food, watching television, praying, having dinner and sharing with husband regarding family matters
7:00 - 8:00 pm	Going to bed

List of tasks performed by a rural woman

During pretest, a total of 34 tasks of rural women were identified. Various tasks were lumped together to reduce the number of separate activities. Usually, all rural women did not engage

with similar types of tasks, while some tasks were seasonal or occasional and some were also time-consuming. We categorized these 34 activities under five headings, i.e., household activities, helping in agriculture, income generating activities, social activities and personal care. They are presented as follows:

Household activities

1. Cooking 2 or 3 times/day (cleaning rice, washing vegetables, grinding spices, cleaning fish, etc.)
2. Cleaning home and yard (sweeping, washing the floors and tending mud floors to keep out dust)
3. Washing utensils 3-4 times/day
4. Washing clothes and hanging clothes out to dry
5. Collecting firewood or other materials for fuel, making fuel from cow dung
6. Collecting water
7. Childcare, teaching children and helping their education (bathing, dressing, tending, feeding, putting to bed, etc.)
8. Serving meals
9. Caring for the sick
10. Caring for husband
11. Entertaining guests
12. Making beds, hanging and taking down mosquito nets
13. Managing the household (organizing activities and expenses)

Helping in agriculture

14. Preparing soil, planting seedlings, weeding, etc., for paddy cultivation
15. Harvesting
16. Collecting, drying and storing seeds
17. Rice husking
18. Drying paddy straw

Income generating activities

19. Livestock maintenance: (feeding, cleaning, milking cattle and goats, other livestock care)
20. Poultry and duck rearing: (cleaning, feeding, medical care, collecting eggs)
21. Mini pond culture: (cleaning, feeding and nursing)

22. Bee keeping: (nursing bees, taking care of them, harvesting and marketing of honey)
23. Street vendor: (selling various products such as puffed rice, pounded rice, dry fish, egg, milk, honey, soap)
24. Running small business: (grocery shop, firewood business, tea shop, call center)
25. Tailoring: (dress making, *Katha* sewing, mending clothes)
26. Handicrafts: (basket, mats, nets, holders to hang pots, *Dala*, *Chalun*, *Kula*, *Sika*, *Jharu*)
27. Working as a wage labor
28. Vegetable cultivation: (preparing plot, watering, weeding, other care of vegetables)

Social activities

29. Attending social gatherings: (weddings, *Chehlum*, invitation)
30. Informal social gatherings: gossiping
31. Visiting neighbours and friends
32. Religious activities
33. Participating in *Shamity* - NGO groups

Personal care

34. Personal care: eating, bathing, dressing, swing, watching TV, listening radio, rest, leisure time and sleeping.

Time-use pattern of rural women

The daily time-use patterns of rural women in five categories are presented in table 6.11.

Table 6.11: Time-use pattern of rural women (n = 100)

Type of activities	NGO women (n = 50)		Non-NGO women (n = 50)		Average hours
	Mean time (h)	Range (h)	Mean time (h)	Range (h)	
Household activities	6.3 (26.25)	5.4 - 7.8	6.6 (27.5)	5.4 - 7.8	6.45 (26.86)
Helping in agriculture	1.8 (7.5)	1.0 - 2.4	2.1 (8.75)	1.2 - 2.4	1.95 (8.13)
Income generating activities	2.6 (10.83)	0.5 - 4	2.4 (10)	0.5 - 4	2.5 (10.42)
Social activities	1.6 (6.67)	0.5 - 2.7	1.4 (5.83)	0.5 - 2.2	1.5 (6.25)
Personal care	11.7 (48.75)	10.1 - 14.8	11.5 (47.92)	9.2 - 13.4	11.6 (48.34)
Total hours/day	24		24		

(Values in the parentheses indicate percentage)

Both groups of women spent much time on household activities, while “NGO women” spent an average of 6.3 hours and “non-NGO women” spent 6.6 hours. According to the culture, rural women are responsible for cooking, looking after children and serving food to all family members. Maintaining the household is one of the important and primary activities for them. Rural women spend a significant amount of time on their children to take care of them by holding, bathing and feeding them. In the study area, rural women spent 26.86% of their time for household activities in a day, while 8.13%, 10.42%, 6.25% and 48.34% of their time was used for helping in agriculture, income generating activities, social activities and personal care, respectively. The hours spent for income generating activities was quite low in both groups of women.

6.1.1.13 Household expenditure

The estimated total annual household expenditure was Tk. 73,180 with average Tk. 73,731, median Tk. 76,544 and standard deviation Tk. 25,921. Expenditure on food, housing and related expenses, and education were the highest, totaling to about Tk. 2,252,320, Tk. 1,627,310 and Tk. 881,760, respectively (table 6.12). The combined contributions from these three items of expenditure made up 65% of the total household expenditures. About one-third of total household expenditure was on food. Expenditure for recreation and culture was lowest at Tk. 65,880 and contribution from this item made up 1% of the total household expenditure. Rural household spent least on personal care, social events, cinema, theater and entertainment.

Table 6.12: Household expenditure of rural women (n =100)

Item of expenditure	Expenditure (Taka)	Percentage
Food expenses	2,252,320	31
Housing and related expenses	1,627,310	22
Education	881,760	12
Loans repayment	627,631	9
Clothing	615,750	8
Health	399,420	5
Transport and communication	145,380	2
Recreation and culture	65,880	1
Others	757,729	10
Total	7,373,180	100

6.1.1.14 Savings

The savings mechanisms reported by rural women included informal (cash savings at home) and formal savings (cash savings in *Shamiti* of NGOs). In the study area, the savings performance of rural household was calculated based on both informal and formal saving mechanisms. The overall household savings in the study area were very small (mean: Tk. 1,494.33; median: Tk. 1,144; Table 6.13). Savings performance varied significantly among the two categories of rural women: “NGO women” saved more money compared to the “non-NGO women”. Average household savings of “non-NGO women” was Tk. 788.78 and “NGO women” was Tk. 2,199.88. A saving account is mandatory for the member of NGO. To save money every week is compulsory and each member has to pay at least Tk. 10 per week in the group savings fund. This is the reason why “NGO women” made significant progress in savings.

Table 6.13: Savings behaviour of rural household (n = 100)

Type of women	Mean	Median	Standard deviation	Savings performance (%)	Saving place
Non-NGO women (n = 50)	788.78	995	294.14	1.3	At home
NGO women (n = 50)	2,199.88	2,000	1,206.71	2.5	In <i>Shamiti</i>
All category (n = 100)	1,494.33	1,144	1,126.56	1.99	

6.1.1.15 Loans

Sources of loans

The common sources of loans for the women were microfinance NGOs, money lenders, relatives and friends, and the Bangladesh Krishi Bank (table 6.14). Overall, microfinance NGOs were the principal sources of loans, 38% of rural women taking their loans from there. Thirty-five percent of rural women took loans from money lenders, 14% from relatives and friends, and 9% from Bangladesh Krishi Bank. Money lenders remain quite active in rural communities and distribute a significant amount of loans. “Non-NGO women” depend relatively more on money lenders for their credit needs and 60% of their loans were drawn from this source. Rural women drew the lowest number of loans from government credit institutes, namely Bangladesh Krishi Bank, though Bangladesh Krishi Bank had the lowest interest rates (table 6.14). Due to complex and lengthy loan sanction procedures, rural women were reluctant to take loans from Bangladesh Krishi Bank. In addition, land mortgage is the

precondition to get loans from Bangladesh Krishi Bank and most of the women in the study area are landless or marginal land owners, making them ineligible for loans from Bangladesh Krishi Bank.

Table 6.14: Distribution of rural women based on loan sources (n = 100)

Loan sources	Non-NGO women (n = 50)	NGO women (n = 50)	Total	Interest rate (%)
Microfinance NGOs	0 (0)	38 (76)	38	12.5
Money lender	30 (60)	5 (10)	35	Flexible
Relatives and friends	12 (24)	6 (12)	14	Flexible
Bangladesh Krishi Bank	8 (16)	1 (2)	9	8

(Values in the parentheses indicate percentage)

Existing loans

On an average, 82% of rural women had at least one outstanding loan (i.e., 46% of “non-NGO women” and 36% of “NGO women”), 10% had two loans, 7% had three loans and 1% had four loans to repay. The tendency to take an increased number of loans appeared to be higher among “NGO women” compared to “non-NGO women” (table 6.15). The possible reasons, firstly, “NGO women” have more options to take loans (i.e., micro credit program) compared to “non-NGO women”. Secondly, the requirement of money for “NGO women” is higher as they spend more money in IGAs and loan repayment. Thirdly, cross borrowing to pay weekly loan instalment of microfinance NGO.

Table 6.15: Distribution of rural women based on number of existing loans (n = 100)

No of existing loans	Non-NGO women (n = 50)	NGO women (n = 50)	Total
1	46 (92)	36 (72)	82
2	2 (4)	8 (16)	10
3	2 (4)	5 (10)	7
4	0 (0)	1 (2)	1

(Values in the parentheses indicate percentage)

Loan amount and repayment

“NGO women” had more access to institutional credit and took substantially larger amounts of loans (average Tk. 14,200) than “non-NGO women” (average Tk. 11,294). There was a

great variation in repayment of loans between the two groups, where “NGO women” took relatively large amounts of loans and repaid comparatively less and the “non-NGO women” took smaller amount of loans but repaid more (table 6.16). The study revealed that the repayment ratio was higher for “non-NGO women” (49.63%) compare to the “NGO women” (39.13%).

Table 6.16: Various aspects of loans taken by rural women (n = 100)

Type of women	Statistics	Loan amount (Tk.)	Amount repaid (Tk.)	Repayment ratio (%)
Non-NGO women	Range	3,000 - 40,000	1,000 - 27,600	49.63
	Mean	11,294	5,755	
	Std. Deviation	10,457	4,858	
	Median	9,000	4,384	
NGO women	Range	5,000 - 51,000	1,667 - 29,121	39.13
	Mean	14,200	5,578	
	Std. Deviation	7,995	4,897	
	Median	12,000	4,378	
Total	Range	3,000 - 51,000	1,000 - 29,121	44.45
	Mean	12,747	5,666	
	Std. Deviation	7,579	4,878	
	Median	10,000	4,378	

Some problems with loans repayment

There were three main reasons identified by rural women for problems in loan repayment (table 6.17). Fifty-eight percent of rural women reported that lack of income is the primary cause of problems to repay loans. Eight percent of rural women had trouble with repayments as a result of project failure. Twenty percent of rural women reported that in order to meet basic needs such as purchasing food, medical expenses, child education, buying cloths, etc., they cannot repay loans in a timely fashion. The remaining 14% of rural women mentioned that dowry and social events also problems to pay off loans.

Table 6.17: Problems confronted by rural women during loans repayment (n = 100)

Key problems (according to importance)	Non-NGO women (n = 50)	NGO women (n = 50)	Average (%)
Lack of income	31 (62)	27 (54)	58
Failed income projects	2 (4)	6 (12)	8
Spending on basic needs	7 (14)	13 (26)	20
Others	10 (20)	4 (8)	14

(Values in the parentheses indicate percentage)

Loan use

Rural women reported seven items which are important areas of loan use (table 6.18). On average, 59% of women used loans for income earning projects, of which 58% were “non-NGO women” and 60% were “NGO women”. Twelve percent of rural women used the credit for loan repayment, 11% used loans to meet consumption needs such as purchase of food, 7% used credit for other household expenses (education, cloths, toiletries, house repairing, etc.), 6% used it for dowry payments, 3% used loans for medical expenses and 2% used credit for other purposes such as land purchase or lease investment on land, mobile bills, etc. Therefore, 41% of women used credit as a safeguard in different family purposes, which do not yield an economic return. As a result, some rural women were unable to repay loans and the debt results caused a series of cross-borrowing that led to excessive debt levels. When debt burden increased beyond the capacity of the debt management strategies, rural households were forced by credit institutions to sell assets, including land, thereby degrading household livelihoods in order to repay loans.

Table 6.18: Loan use by rural women in different sectors (n = 100)

Major area	Non-NGO women (n = 50)	NGO women (n = 50)	Average (%)
IGAs project	29 (58)	30 (60)	59
Loans repayment	5 (10)	7 (14)	12
Consumption	6 (12)	5 (10)	11
Housing related expenses	3 (6)	4 (8)	7
Dowry payments	4 (8)	2 (4)	6
Medical expenses	2 (4)	1 (2)	3
Other purpose	1 (2)	1 (2)	2

(Values in the parentheses indicate percentage)

6.1.1.16 Length of association with loan sources

The length of association of rural women with loan sources ranged from 3 to 12 years with an average of 4.28 years. Based on the length of association with loan sources, rural women are grouped into five categories and are presented in table 6.19.

Table 6.19: Distribution of rural women towards their length of association with loan sources (n = 100)

Length of association	Non-NGO women (n = 50)	NGO women (n = 50)	Average (%)
1 year	2 (4)	1 (2)	3
2 year	13 (26)	5 (10)	18
3 year	14 (28)	13 (26)	27
4 year	11 (22)	9 (18)	20
More than 4 year	10 (20)	22 (44)	32

(Values in the parentheses indicate percentage)

The highest proportion (32%) of rural women was associated with loan sources for more than 4 years, of which 20% were “non-NGO women” and 44% were “NGO women”. Only 3% had one year, 18% had two years, 27% had three years and 20% had four years associated with loan sources. The association period with loan sources of “NGO women” (mean: 5.2 years) was higher than the “non-NGO women” (mean: 3.4 years).

6.1.2 Brief description of the seven livelihood indicators

Seven livelihood components are considered as indispensable in the everyday life of human beings. Actually, these are part of everyone’s basic needs. Some elements of basic needs touch rural women more cruelly than males, especially food availability, housing condition, water and sanitation facilities. Insufficient opportunity in fulfilling these elements does not affect all rural women equally in the society.

6.1.2.1 Food availability

Table 6.20 shows the picture of food availability of rural women throughout the year. The food availability was high for a majority of rural women (70%), while 20% were in the medium and the remaining 10% in the low food availability category.

Table 6.20: Access of rural women to the available food (n = 100)

Categories of rural women (based on score)	Number of rural women	Observed range	Mean	CV (%)
Low food availability (12 - 19)	10	12-36	30.25	22.81
Medium food availability (20 - 28)	20			
High food availability (29 - 36)	70			

Rural women reported that their food availability depends on their habits, seasonal availability of foods, household income, number of family members, preference, religion, tradition, culture, time constraints and nutritional constraints. Most of the rural women in the study area also mentioned that they spend more money for purchasing food items when their income increases.

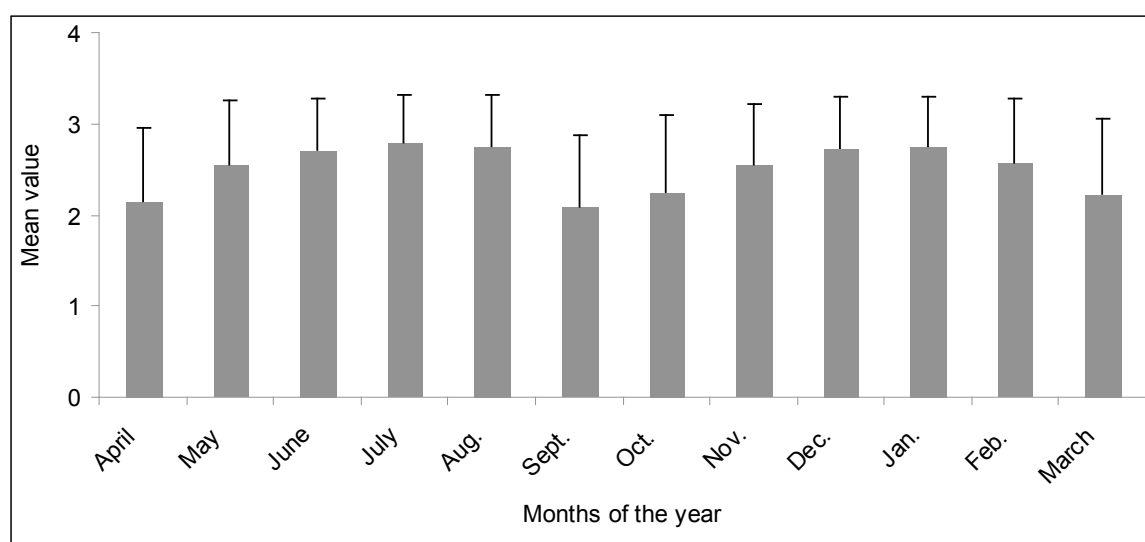
**Figure 6.9:** Monthly distribution of food availability of rural women (n = 100)

Figure 6.9 illustrates that food availability was extremely low during the lean period compared to the normal time of the year. In the study area, the lean period occurs twice a year. The longest lean period exists during the Bengali month *Kartrik*, which corresponds to mid-September and continues until mid-November, at the end of the *Amon* season and just prior to harvest. Another lean period is found in the Bengali month *Chaitra*, which is shorter in length and lasts from mid-March to the harvest of *Boro* rice in mid-April. From May to August, following the *Boro* harvest period, was the best time when rural women had high food availability. In the study area, food availability was low during the two lean periods

(*Kartrik and Chaitra*). TANGO (2006) reported that poor rural women suffer from food insecurity during the months of *Kartrik and Chaitra* of Bengali year in Bangladesh. In the present study, most of the rural women mentioned that they suffer from food crises before the annual harvest almost every year. Food insecurity may occur due to the traditional system of subsistence agriculture. In addition, natural calamities, especially river erosion, flood and drought add to worsen such food insecurity. The directly observed typical lean season scenarios in the study area are presented in box 6.1.

Box 6.1: Direct observations on food shortage during lean period in *Chaitra*, 2009

- Crops are in the field waiting to be harvested
- No employment in the agricultural fields
- The household level food stock almost consumed
- Inadequate supply of food grain in the market
- The price of rice in the market is very high
- Lack of non-farming earning opportunities
- Vulnerable groups do not have any jobs to support their living
- The poor rural women and the day laborers run out of food and cash.

In order to gain a better understanding about food availability of rural women, the results of four case studies are illustrated in box 6.2.

Box 6.2: Case illustrations of food availability of rural women, 2009

Morzina Akther has 6 members in the family and possesses 1.00 ha land. Paddy production is surplus for her family and does not suffer from food crisis.

Nargis Begum responded that she has to spend most of her income for food only. Her income was so small and insufficient that she could not provide good food like fish, meat, eggs, fruits, etc., to her children.

Afroza Khatun reported that she usually faces a food crisis twice a year during lean periods and at the same time her scope of work to earn money decreases, affecting her and her family members tremendously.

Khaleda Begum replied that though her family is small she cannot manage to get sufficient food required throughout the year. During the case study her daily income was Tk. 40 and she had to pay Tk. 21 for purchasing rice only. She mentioned that it is very difficult to maintain a family with this poor income.

6.1.2.2 Housing condition

Housing is an important component of physical capital and serves as a key indicator in determining the status of livelihood. The houses owned by rural women are constructed with various qualities of materials such as brick, tin, straw and soil depending on their economic capabilities. The interior decoration of houses also varied greatly along the socio-economic status of the rural family.

Table 6.21: Condition of houses possessed by rural women (n =100)

Items	Mean \pm Sd	Type of construction materials			
Roof	1.72 \pm 0.40	Brick (1)	Tin (76)	Straw (23)	
Walls	1.44 \pm 0.50	Brick (10)	Tin (26)	Clay/soil (36)	Straw (28)
Floor	1.03 \pm 0.17	<i>Pukka</i> (13)	Clay (87)		
Kitchen	1.05 \pm 0.22	Inside (15)	Outside (85)		
Furniture	2.27 \pm 0.81	Very good/new/a lot (6)	Good/average (32)	Simple/bad/old (46)	Very old/little/bad (17)
General impression	2.27 \pm 0.85	Very good/new/a lot (6)	Good/average (35)	Simple/ bad/old (39)	Very old/ little/bad (20)

(Figures in the parentheses are percentage)

A large proportion of rural women possessed dwellings with corrugated tin roof (76%), exterior walls made of soil (36%) and earthen floors (87%). Twenty-eight percent had dwellings made of straw walls and 23% had a straw roof. *Pukka* (made of a mixture of cement, sands and bricks) floor was very rare (13%) as the construction cost is very high and beyond their means. The majority of kitchen (85%) were located outside, separated from the living house, but there were only few households (15%) having an attached kitchen. About half of all houses (46%) had simple furniture and 17% of rural women owned very old furniture. Considering the general impression of the house, 39%, 35%, 20% and 6% of households had simple, good, very old and very good general impression, respectively. The respondents who had a very good general impression of their houses also had very good furniture. The housing conditions of the study area indicated that majority of the rural women lived in poorly framed houses. Regarding housing condition, four individual cases are presented in box 6.3.

Box 6.3: Cases illustrating housing conditions of rural women, 2009

Morzina Akther pointed out that she had huge pains for living after her marriage due to the poor structure of her house. She spent Tk. 15,000 from her IGA's savings for the reconstruction of her house, and after that she has had no problem living for the last 10 to 12 years. Now there is no question of spending money for repairing and no hazard of maintenance. In her eyes, the house is the place of happiness, and where there is no good house for living there is no happiness.

Nargis Begum stated her housing condition in a different way. She pointed out that she lives in a two-room house along with her nine family members. She has trouble when the rainy season comes because her kitchen has no roof and is situated outside of the main part of house. When the problem is aggravated due to excessive rain, she has to cook food at her neighbor's kitchen.

Afroza Khatun stated that she has only one room where she lives with five family members. She also keeps her ducks and chickens in a corner of the same room. She repaired the roof of her single roomed house last year with the money generated from rearing ducks and chickens. Now she has fewer problems for living.

Khaleda Begum lives in a very distressed condition because of her housing condition. She told that her house has no protective wall and as a result, her two little children suffered from respiratory problems due to the chilling effect of cold wind in the winter nights of last year. She also mentioned that the roof of her house has broken and she is very concerned about her house because rainy season comes soon.

A synopsis of housing conditions based on farm size and income group is outlined from FGDs and presented in table 6.22. Research findings from FGDs prove that the housing condition of rural women depended on their income group and farm size. The variation in house construction materials and housing conditions due to change in socio-economic status is also reported by TANGO (2006), supporting the findings of the present study.

Table 6.22: Housing condition from FGDs based on income group and farm size (n = 64)

Household Farm size (ha)	Income group		
	Low income	Medium income	High income
Landless (≤ 0.02)	Straw roof and walls, earthen floors, not well structured kitchen, very old and little furniture, 1 room.	Straw or tin roof, Straw or earthen walls and earthen floors, not well structured kitchen, very old and few furniture, 1 - 2 rooms (<i>Chatai</i> partition).	-
Marginal (0.021 - 0.20)	Tin roof, earthen walls and floors, very few straw walls and roof, structured kitchen (only shade), simple furniture, 1 - 2 rooms (<i>chatai</i> partition).	Tin roof and walls (<i>Chowchala</i> house), earthen floors, structured kitchen (only shade), simple and average furniture, 2 - 3 rooms.	Tin roof, tin/brick walls, earthen floors, structured and inside kitchen, simple and good furniture, 2 - 3 rooms.
Small (0.21 - 1)	-	Tin roof and walls, (<i>Chowchala</i> house), earthen or <i>Pukka</i> floors, structured kitchen, simple and good furniture. 2 - 3 rooms.	Tin/brick roof, brick walls, <i>Pukka</i> floor, well structured and inside kitchen, very good furniture, 3 - 4 rooms.

6.1.2.3 Water facilities

Sources of water

Access of rural women to various water sources has been summarized in figure 6.10. Fifty-two percent rural women had access to tube wells as their primary source of water, 15% of rural women collected necessary water from shallow tube wells or deep tube wells and the rest largely depends on surface water sources such as ponds/*Qup* (28%) and rivers (5%). Surface water is mostly unprotected and contaminated, and a huge number of children suffer from diarrhea and cholera every year due to the use of contaminated surface water. Therefore, access of women to safe water sources needs to be increased in the study area.

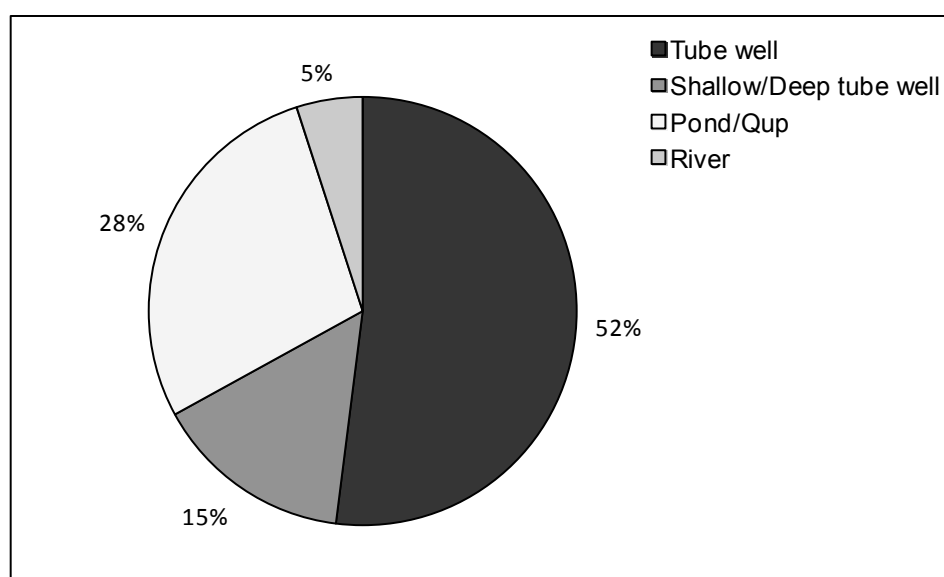


Figure 6.10: Available water sources of rural women in the study area (n = 100)

The details of daily water use for domestic purposes obtained from FGDs are presented in table 6.23. As a whole, approximately 99% and 68% of women used underground water for drinking and cooking purposes, respectively. This result suggests that women prefer safe water for consumption purposes collected from tube wells, although around half of the rural women had no tube well and used tube well water from neighbors. For bathing and domestic use such as washing clothes, cleaning house and toilet purpose, a large proportion of unsafe water from pond/*Qup* or rivers is still being used by rural women. Other studies in Bangladesh found that 97% of the rural population use safe drinking water from tube wells/shallow wells (TANGO, 2006), which is almost similar to the present study.

Table 6.23: Use of water sources for different domestic purposes (n = 64)

Water sources	Different purposes (%)				
	Drinking	Cooking	Utensils	Bathing	Washing clothes/House cleaning/Toileting
Tube well	90	61	39	14	8
Shallow/Deep tube well	9	7	3	2	1
Pond/ <i>Qup</i>	1	26	53	80	68
River	0	6	5	4	23

Availability of drinking water

Groundwater was the main source of drinking water in the study area. The spatial distribution of monthly drinking water over the year presented in figure 6.11 shows that water availability

was inadequate ($tm = 2.42$, item 4) during the time period from December to April while high water scarcity was found in the month of February ($m = 1.02$) due to low rainfall and depletion of underground water. In rest of the year, drinking water availability was adequate ($tm = 3$, item 7) to the rural women. During FGDs rural women mentioned that they spend upto two hours per day to collect drinking water from a long distance and it is a great hardship for them. They also mentioned that the male members of the family do not take part in collecting water in such crisis situations.

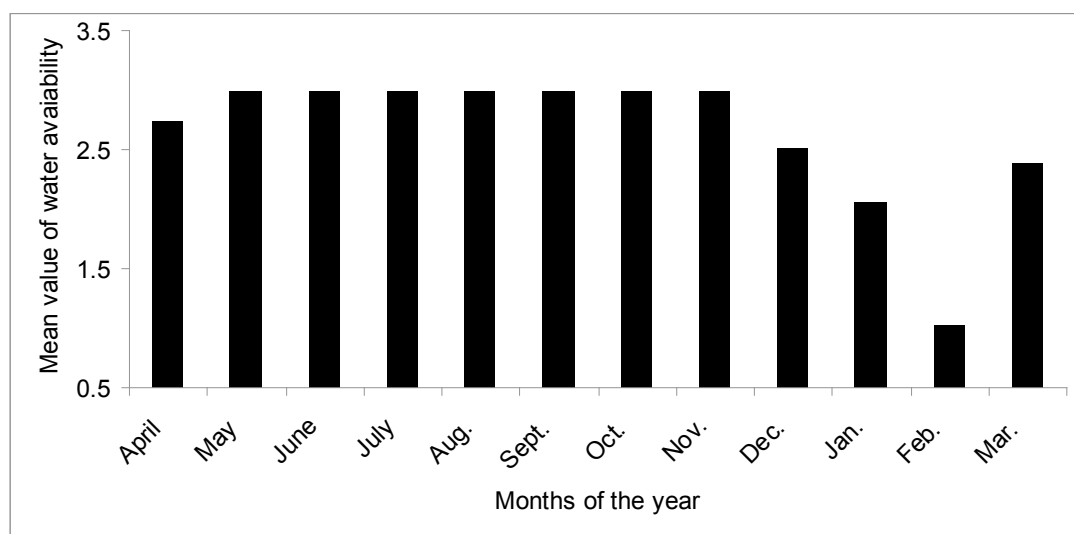


Figure 6.11: Monthly distribution of drinking water availability (n = 100)

Drinking water quality

Rural women of the study area suffered from lack of quality drinking water and only 53% women used good quality water (figure 6.12). Approximately half of the total population drank unsafe water that contained Fe (Iron), As (Arsenic) and bad smells. Four percent of rural women collected drinking water from arsenic contaminated tube wells. Though rural women were informed regarding arsenic contamination in the tube wells, they tended to collect water from the same well because they either had no alternatives or the source of quality water was located at a distant place. Purification of surface water, harvest and conservation of rain water during monsoon might be the way of fulfilling the need for safe water. Different GOs and NGOs can take programs to create awareness among the rural women to avoid Arsenic-contaminated water. Heavy groundwater extraction for crop production can be replaced by using abundant surface water conserved during monsoons that can contribute to water table restoration and to reduce natural arsenic contamination, both of which increases the availability of quality drinking water in the dry season (November to

May). Therefore, an initiative should be taken to preserve the natural depression and management of surface water bodies in the rural study areas.

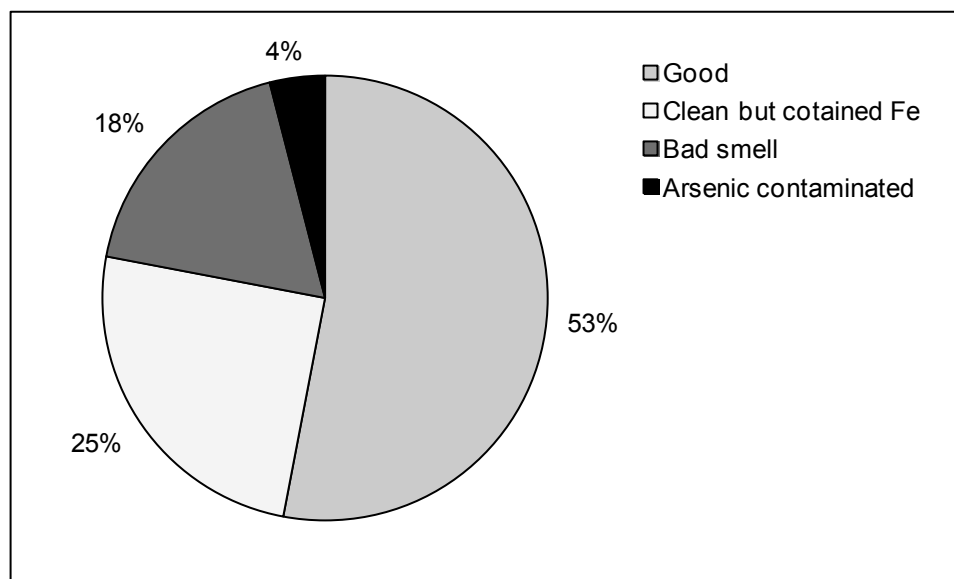


Figure 6.12: Situation of drinking water quality of rural women in the study area (n = 100)

The results of four case studies illustrated in box 6.4 give a deeper understanding of the water facilities of rural women.

Box 6.4: Case illustrates of rural women with water facilities, 2009

Morzina Akther described that she has a tube well and uses tube well water for drinking and cooking purposes throughout the year except summer season when underground water level decreases. During the summer season, she collects necessary water from a shallow tube well located nearer to her residence. Underground water problems have arisen in the last 5 - 7 years.

Nargis Begum stated that she has not been happy with her water facility ever since the beginning of her marriage until now, because she has no personal tube well. She needs to collect water from others' tube wells. She expressed that she might not suffer in such magnitude for collecting drinking and cooking water if she had her own tube well.

Afroza Khatun was asked regarding her water facility, and she replied that she has no tube well and collects water for drinking purpose from a neighbor's tube well. For all other purposes she uses water from her earthen well (*Qup*). During the summer season, she along with some other neighbors uses earthen well water for all purposes including drinking. She hopes to install a tube well in the coming month with the loans from a local NGO.

Khaleda Begum mentioned that she lost her daughter due to diarrhea from drinking pond water. Since then she uses tube well water collected from distant neighbors for drinking, but she is using pond water for cooking and all other purposes.

6.1.2.4 Health Situation

The majority of the rural women (81%) had low access to medical facilities and received poor treatment, while 17% had medium health facilities and a few rural women (2%) enjoyed high treatment facilities (table 6.24).

Table 6.24: Distribution of the rural women based on health treatment facilities (n = 100)

Categories (based on score)	Number of rural women	Range	Mean	CV (%)
Low health treatment (< 5)	81	1 - 11	3.51	39.36
Medium health treatment (5 - 9)	17			
High health treatment (> 9)	2			

During the FGDs, some rural women reported that sometimes men are taking more care of their livestock's health than that of their wives. If a wife dies he can marry again and will gain by taking dowry, but if the cattle dies then his loss is total. In the study area, rural women were less aware of their health treatment providers and did not go alone to take treatments. They were completely dependent on their husband or other male members of the family for meeting the doctor. They also felt shy to take treatment from male doctors, and sometimes their husband did not allow visiting a male doctor.

Table 6.25: Use of health treatment providers by rural women (n = 100)

Health treatment providers	Percentage of rural women
Village pharmacy	57
Self treatment (traditional)	18
<i>Kabiraz</i> (herbal medicines and sacred text)	20
Homeopath	27
Village doctor	36
General health practitioner	25
Visit government health station	12
Visit doctor in GO hospital (MBBS)	8

The pharmacy was the most popular health treatment provider to the rural women (57%) followed by village doctor (36%), homeopath (27%) and general health practitioner (25%). Rural women sought services from the village pharmacy because the pharmacy was often located nearby to the house and required less money to buy medicine and for the service

charge. Another important reason was that the women received service from village pharmacy without personally going there. The male family member described the symptom of disease to the responsible person of the village pharmacy upon which they sold medicine based on their experience without any medical prescription. Very few rural women went to the government hospital in case of severe sickness or when complications arose during delivery of a child. In the FGDs, a few women stated that they went to the government hospital just to see a MBBS doctor as the doctor was very rare in the villages and some were curious to see the facilities available in the hospital. Furthermore, they reported that health treatment services provided in the government hospital depend largely on the socio-economic status of the patients, such that rich patient get better treatment than the poor. This was one of the causes of a lack of confidence in the quality of health services offered by government hospital. In addition, they said that modern treatment was often not affordable to them due to high cost. The village doctor, homeopath, general health practitioner and *Kabiraz* were less expensive alternatives (in reality, however, they can be relatively expensive and less effective). The results obtained from the present study indicate that most of the rural women receive inadequate health treatment, possibly associated to ignorance, social constraints, cost of treatment and lack of facilities. This is further illustrated by the four case studies presented in box 6.5.

Box 6.5: Case studies of rural women on health situation, 2009

Morzina Akther told that for coldness, fever, headache and other usual cases, she herself and other family members buy medicine from the village pharmacy. But whenever they feel sick they usually visit the *Kabiraz* (traditional healer) for health treatment (cost: Tk. 20). She had abdominal pain last year during the time of paddy harvesting. Her husband went to the *Kabiraz*, where the *Kabiraz* provided one glass of water consecrated by a sacred text and gave some advice. But the pain was not alleviated, and after two days she went to the general health practitioner (cost: Tk. 80) of their village along with her husband. The health practitioner gave some medicine and referred her to the hospital. She was admitted to district hospital and gastric ulcer was diagnosed. That time her husband spent around Tk. 5,000 for treatment purposes. Her husband was quite annoyed with her due to treatment cost and interrupted paddy harvesting.

Nargis Begum described that she has been suffering from abdominal pain for the last two years. At first she assumed that it was gastric pain and took medicine accordingly from the village pharmacy. She also visited the *Kabiraz* and took treatments for three months. When the pain was not cured, she went to the government health station for improved treatment. The doctor identified that her pain was due to a stone in her gallbladder. The costs incurred were Tk. 2,000. During her illness, she borrowed Tk. 5,000 from NGO (SUS). Doctor advised her for surgery, but due to a lack of money it was not possible. That time she was anxious about IGAs, loans and surgery costs. In addition, she was highly worried about her children if the surgery were not successful. As she was a widowed woman, who would take care of her family?

Afroza Khatun stated that she usually goes to SUS medical center for treatment. She told that the government hospital does not provide good services and is expensive. Furthermore, the hospital is far away from her village and requires a long time and much money to go there. She also mentioned that some common medicine such as paracetamol tablets, entacyd tablets, metronidazole tablets, oral saline, etc., are usually stored in-house, and she uses these medicines when needed.

Khaleda Begum told that she had three children, among them one daughter who died due to lack of proper treatment. In 2008, during the post-flood period, there was an outbreak of diarrhea in her area. One day she went to work as a maid to the neighbor. At around noon she heard that her daughter was unconscious due to diarrhea. She came home sooner and took her daughter to the traditional healer (*Kabiraz*), who did not give any treatment and said that her daughter was suffering from pneumonia and need improved treatment. On that day she went to Mymensingh medical college hospital and admitted her daughter. At that time she had only Tk. 100 in hand. In hospital, her daughter was treated with intravenous saline and injections but her condition was decreasing. At midnight her condition deteriorated rapidly and early in the morning she passed away when she was only three years old. During the time of the case study, Mrs. Begum also suffered from night blindness, scabies and anemia. Sometimes she used *Neem* leaf paste (*Azadirachta indica*) to get rid of scabies.

6.1.2.5 Sanitation

Toilet possession

In the study area, 73% of women had own their toilet and the remaining 27% possessed no toilet. Among the second group, 6% of the women never went to toilet and discarded feces in open places under bushes. The remaining 21% of rural women currently rely on a neighbor's toilet and when necessary they occasionally disposed of feces in open places (figure 6.13).

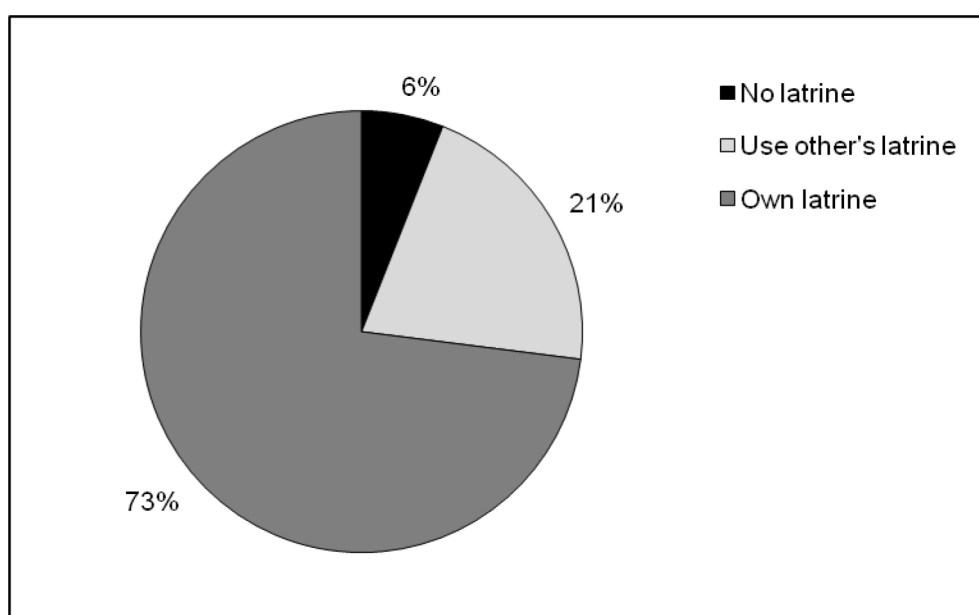


Figure 6.13: Toilet possessed by rural women in the study area (n = 100)

Access to toilet facilities

Access to a hygienic toilet is important to maintain sanitation and prevention of infectious diseases. The result obtained from FGDs on the access of rural women to different types of toilet condition is presented in table 6.26.

There was variation found in the use of toilets between the income groups. The high-income group used more hygienic toilets compared to the low-income groups. Fifty percent of women from the high-income group and 30% of women from the medium-income group used sanitary toilets, while none of the women from the low-income group used sanitary toilets. Most of the low-income group used open spaces or hanging toilets for the disposal of excrement (table 6.26), which is completely unsafe and unhygienic. Similar findings with 39% of poor households use open spaces for toilet purposes, as reported by TANGO (2006).

The absence of good sanitation systems in rural areas is a primary cause of diarrhea and other infectious diseases and every year a large number of children are afflicted with diarrhea in Bangladesh and about 20 thousand children die (GoB, UNICEF, and ICDDRDB 2008).

Table 6.26: Distribution of rural women based on type of toilet used and income group (n = 64)

Type of toilet	Rural women by income group (%)		
	Low income	Medium income	High income
Sanitary toilet	0	30	50
Pit toilet	19	44	30
Hanging toilet	35	25	7
Open space	46	1	13

Toilet construction

Four types of materials are used to construct toilets in the study area and a summary of toilet conditions is presented in table 6.27.

Table 6.27: Toilet construction materials and position of toilet in the study area (n=100)

Items	Mean± Sd	Type of construction materials			
Roof	1.69±0.81	Brick (9)	Tin (18)	Straw (38)	Open (35)
Walls	2.06±0.63	Brick (15)	Tin (26)	Jute stick/ <i>Chatai</i> (31)	Leaves (28)
Floor	1.30±0.46	<i>Pukka</i> (45)		Clay (55)	
Position	1.39±0.49	Inside (38)		Outside (62)	

(Figures in the parentheses are percentage of respondents)

A considerable number of women possessed toilet with a straw roof (38%), exterior walls made of jute sick/*Chatai* (made by bamboo slices) (31%) and earthen floors (55%). Twenty eight percent of rural women had toilets with leaves wall and 35% had no roof. Well-structured toilets such as those with a concrete roof and brick walls are very rare in the study area. The majority of the toilets (62%) were situated outside of the houses, while 38% of the toilets were attached (table 6.27).

A more detailed overview of rural women's sanitation based on case study results is presented in box 6.6.

Box 6.6: Case illustrates of rural women regarding sanitation, 2009

Morzina Akther reported that she installed a sanitary latrine last year at the cost of Tk 360. She did not know anything about sanitary latrines before, but came to know when her elder brother-in-law installed a sanitary latrine with a very low cost. At that time she instantly decided to install a sanitary latrine for her family.

Nargis Begum mentioned that she has a normal latrine without roof and its fence is broken.

Afroza Khatun described her worst condition during interview, namely that she has no latrine and has to use others' latrines for excretion and uses open spaces in bushes for urination.

Khaleda Begum told that she has no latrine and usually goes to the nearby jungle for toilet purposes every morning. She never feels comfortable going to the toilet in a restricted place such as a sanitary latrine.

6.1.2.6 Participation in social activities

The participation of rural women in social activities lay mainly between low to medium, while a majority had low participation (57%). One third (38%) had medium participation and very few (only 5%) had high participation (table 6.28). AKTARUZZAMMAN (2006) and SHARMIN (2005) found that 71% of rural women in Bangladesh have low participation in social activities, while RAHMAN (2006) and NAZNEEN (2004) reported that 69% of rural women have medium participation. All studies including the present research found a lack of participation in social activities that might deprive rural women to get better livelihood opportunities.

Table 6.28: Extent of participation in social activities of rural women (n = 100)

Categories (Based on score)	Number of rural women	Observed range	Mean	CV (%)
Low participation (up to 3)	57	1 - 8	3.43	52.48
Medium participation (4 - 5)	38			
High participation (above 6)	5			

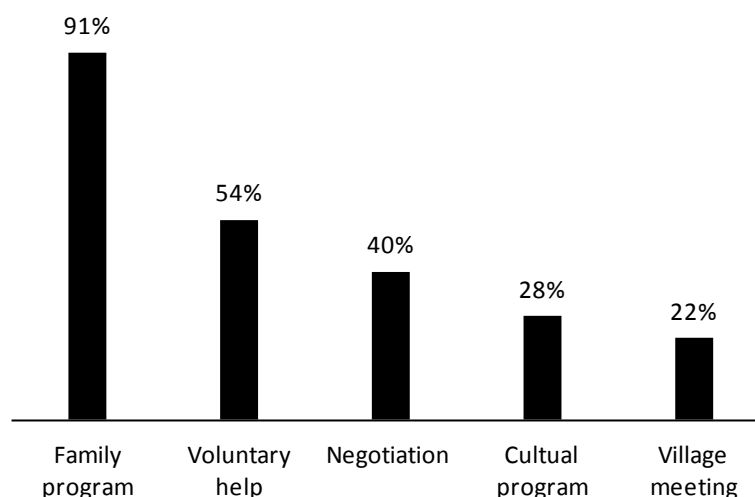


Figure 6.14: Participation of rural women in different social activities (n = 100)

Most of the rural women (91%) participated in family programs like marriage ceremony, *Chehlum*, *Akika*, and *Milad* (Figure 6.14). They also occasionally participated in voluntary help (54%) or negotiation activities (40%). Twenty-eight percent of women participated in cultural programs. A comparatively small portion (22%) was engaged in meetings arranged by village community like demonstrations or village *Salishs*. It is not usual for rural women to attend any program arranged outside of the house in Bangladesh due to the restrictions imposed by cultural and religious norms. Women's limited participation in social activities is also mentioned in the study of NAVED (2000). The results revealed that rural women's participations are predominately associated with family programs such as marriage ceremonies, invitations and *Chehlum* offered by other families. To better understand the rural women's participation patterns, the results of four case studies are described in box 6.7.

Box 6.7: Case illustrations of rural women participation to the social activities, 2009

Morzina Akther described that her husband does not like to maintain interaction with neighbors regularly. Sometime, she participates in family programs of relatives or neighbors with her husband. She has less opportunity of recreation, and she saw only one drama in her life at Upazila headquarters two years ago. She felt that they need more interaction for recreation, self-learning and gaining experience.

Nargis Begum told that she has little opportunity to expose herself to different activities like cultural programs and village meetings due to restrictions imposed by her father-in-law. She has only contact with NGOs and rarely participates in negotiation activities.

Afroza Khatun stated that she always participates in family programs, voluntary help activities, and sometimes participates in cultural programs and village meetings.

Khaleda Begum told that when she has free time, she tries to participate in different social activities. Sometimes her participation is restricted by neighbors as she is 34 years old and a separated woman.

6.1.2.7 Freedom in cash expenditure

The calculated score for freedom in cash expenditure of the rural women varied from 14 to 28 with a mean and coefficient of variation at 21.41 and 14.12, respectively. The rural women have been classified into three categories based on freedom in cash expenditure scores. Data presented in table 6.29 shows that most of the women (65%) had medium freedom, while 21% had high and the rest of 14% had low freedom in cash expenditure. A study by AL-AMIN (2008) showed that majority of the *char (Island)* women (77%) have medium freedom in cash expenditure which is similar to the present findings.

Table 6.29: Categorization of rural women based on their freedom in cash expenditure

(n = 100)

Categories (based on scores)	Number of rural women	Observed range	Mean	CV (%)
Low freedom (up to 18)	14	14 - 28	21.41	14.12
Medium freedom (19 - 23)	65			
High freedom (above 23)	21			

The distribution of decision making ability scores regarding freedom in cash expenditure on eight aspects is shown in figure 6.15.

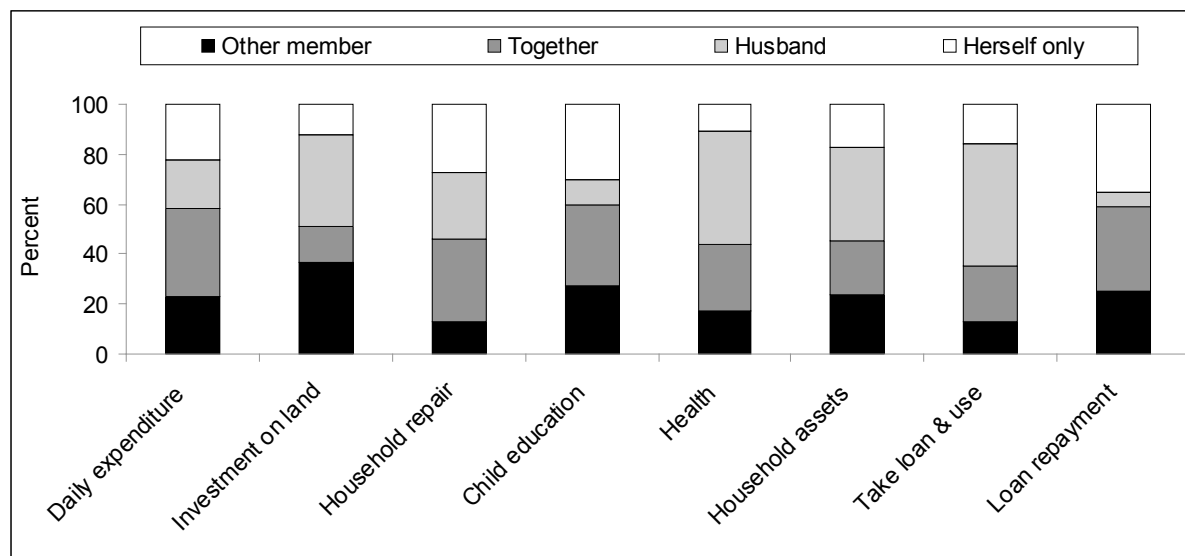


Figure 6.15: Decision making ability regarding freedom in cash expenditure (n = 100)

Rural women of the study area had considerable freedom in loan repayment, child education and household repairs such as making a hedge as household boundary or repairing the kitchen or toilet. PARVEEN and LEONHÄUSER (2004) also found that rural women have significant freedom over minor household repairs and child education. In contrast, MURSHID and YASMEEN (2004) reported that women's decision-making is limited to children's schooling. The variation might be due to different study areas, different respondents and the socio-economic situations of the research area. Studied women also take part in decision-making with their husband in different degrees, regarding daily expenditures (e.g. buying of food item, daily labor payment etc.), household assets (household furniture, ceramic materials, kitchen materials, clock and radio) and loans. Participation of rural women in decision-making on health care (own maternal care, childbearing and children's health care) and investment in land (purchasing land, mortgage, lease out and lease in, agricultural input purchases and technology adoption in land) was remarkably low. Here, the husband played a key and more or less absolute role. From the findings of the study it is evident that husbands mainly take decisions regarding income-related items, while women's views regarding decisions are suppressed. Alternatively, rural women's freedom was high (35%) on loan repayment because in most cases loans were taken by rural women themselves and they had liabilities to repay it. Here, husbands were reluctant to interfere.

In the group discussion, women also mentioned that after taking credit they cannot invest according to their own interest, and decisions regarding investment are taken by men. They

also said that men can spend money in whatever way they like. The opinion of one woman is as follows: “I tell you one unfortunate incidence regarding my husband’s behavior. I took a Tk. 5,000 loan from a microfinance NGO and invested to buy a year-old ox for beef fattening. After one and half years, we sold the ox for Tk. 10,000. My husband kept the money and told me that he will go to repay the remaining loans from the NGO by himself. After one month, I came to know that he had lost the money in gambling instead of paying out the loans in the NGO. I have yet to pay some amount of loans to the NGO”. The fact stated above is illustrated further by four case studied presented in box 6.8.

Box 6.8: Case illustrations of rural women decision-making ability on cash expenditure, 2009

Morzina Akther described that she gave some money (Tk. 2,000) as a loan to her neighbor two years ago. Upon hearing this, her husband got angry and beat her. Her husband also said that he will send her back to her father’s house if she does it again in future. Sometimes her husband consults about family matters such as purchasing of land, buying household assets, etc., but in each case the decisions regarding investment were always made only by him. She needs prior approval from her husband regarding any matter of decision-making, although she has freedom over daily expenditure and child education.

Nargis Begum mentioned that decisions in the past were mostly made by her husband. Her husband never consulted with her or other female members of the family. He frequently consulted with the male members of her joint family, even with his eldest son though he was only 14 years old. Her husband believed that women were not even allowed to make their own decisions. After death of her husband, Nargis Begum takes decisions on cash expenditure alone, but in most cases she consults with other family members (male and female).

Afroza Khatun said that her eldest son sometimes consults with her but then takes the decisions in all aspect of family cash expenditure alone. Her eldest son and other family members thought that she does not have that much decision-making ability. Therefore, she always discusses with others before taking decisions in all cases.

Khaleda Begum described that before marriage she was involved with NGO namely SUS and attended group meetings. After marriage, her husband insisted that she should take a loan from NGO, and she did it. When she asked about borrowing, he told her that it is my decision, when and what to borrow. Later her husband used this money in other purposes and she was marked as a defaulter by the NGO and throw out of the NGO. One month later, her husband went away and after that he did not communicate with her for the last three years. Now she can take decisions alone about family matters, and she also sometimes shares with other family members.

6.2 Observations and opinions of key informants, the researcher and rural women regarding livelihood and IGAs issues

6.2.1 Opinion of key informants

In this section, the views and opinion of key informants of the study area with regards to rural women's livelihood and IGAs issues are analyzed and presented. Eight community key informants participated in this interview. Content analysis method was used to analyze and interpret the data gathered from the interviews. The text was thereby reduced step by step to items showing the same concepts and ideas and the common ideas were summarized. Information was gathered to explain the ideas of key informants for three different topics as follows:

- i. Changes in socio-economic issues over the last five years
- ii. Obstacles faced by rural women regarding their livelihood and IGA issues
- iii. Strategies to overcome obstacles.

i. Changes in socio-economic issues over the last five years

The opinion of key informants on 17 important aspects of socio-economic issues regarding rural women livelihood and IGAs over the last five years are summarized and presented in table 6.30. Most of the aspects changed positively, while two aspects deteriorated and one remained unchanged. In rural communities, women had experience with some improvement in education, family planning, infrastructure facilities, food availability, participation in different income activities and social activities. However, adult rural women's literacy was low because of less access to school in their childhood. In recent years, the 'TLM' program has been started by the government which is intended to improve the literacy rate of adult rural women day by day. NGO activities have increased over the last five years and facilitated micro-credit, rendered education accessible and imparted training in income generating activities (e.g. cattle and goat rearing, handicraft, vegetable cultivation, etc.).

Table 6.30: Opinion of key informants about the change in some socio-economic issues of rural women over the last five years (n = 8)

Key aspects	Existing situation compare to last 5 years	Reasons for changing
Education	↑	<ul style="list-style-type: none"> • Increased awareness of parents • Increased number of school and <i>Madrasa</i> • Tuition-free education for girls • Food for education program
Housing condition	~	<ul style="list-style-type: none"> • Traditional attitude • Scarcity of money • Reluctant • Expensive
Food availability	↑	<ul style="list-style-type: none"> • Intensive land cultivation • Cultivation of high-yield varieties • Increase in irrigation facilities
Health status	↑	<ul style="list-style-type: none"> • Increase in awareness • Change attitude • Comprehensive GO-NGO activities • Motivation through media (radio & television)
Water facilities	↑	<ul style="list-style-type: none"> • Increased number of tube wells • Comprehensive GO-NGO activities • Increased awareness
Sanitation	↑	<ul style="list-style-type: none"> • Availability of toilet construction materials • Comprehensive GO-NGO activities • Increased awareness
Participation in social activities	↑	<ul style="list-style-type: none"> • Change awareness and attitude • Change norms and values • Influence of media • NGO activities
Credit availability	↑	<ul style="list-style-type: none"> • Micro-credit program of NGO
Training facilities	↑	<ul style="list-style-type: none"> • Mostly NGO provided and rarely GO impart
Family planning	↑	<ul style="list-style-type: none"> • Comprehensive GO-NGO activities • Change awareness and attitude • Influence of media

Table 6.30: Continued

Intensive home gardening	↓	<ul style="list-style-type: none"> • Scarcity of homestead land • High price of input • Less availability of input
Cattle and goat rearing	↑	<ul style="list-style-type: none"> • Profitable • Availability of resistant breeds • Increase in livestock treatment facilities
Participation in non-farm activities	↑	<ul style="list-style-type: none"> • Low investment • Quick return • Increased demand of handicrafts • Increased land less farmer • Decrease cultivable land
Poultry rearing	↓	<ul style="list-style-type: none"> • High price of input (feed, chicks, ducklings) • Incidence of diseases, especially bird flu • Lack of vaccine
Wage labor	↑	<ul style="list-style-type: none"> • Survive family • Earn instant money
Infrastructure facilities	↑	<ul style="list-style-type: none"> • Comprehensive GO-NGO activities
Electricity facilities	↑	<ul style="list-style-type: none"> • Comprehensive GO activities

Note: ↑ indicate increase, ~ indicate no change, ↓ indicate decrease

ii. Obstacles faced by rural women regarding their livelihood and IGA issues

The barriers to the improvement of livelihood and IGA issues of rural women mentioned by Key informants are summarized in box 6.9.

Box 6.9: Key informants' ideas about the obstacles faced by rural women regarding their livelihood and IGA issues (n = 8)

- Every year poor rural women face scarcity of food for a short period and struggle to overcome this.
- The income gap between the poorest and relatively wealthy households increases.
- Recreation facilities are very inadequate for rural women (except radio, television).
- Criticisms of rural women who work as wage laborers, street vendors, and conduct business or dare to go out of barriers, like joining in NGO and participating in the village meeting.
- Negative attitudes towards rural women.
- Fewer opportunities and difficulties in conducting IGAs, for example less capital, low skillfulness, insufficient infrastructure facilities, lack of improved technologies, and poor marketing channel.
- Religious (*Purdah system*) and social barrier which constantly hinder participation in IGAs.
- Project failures where rural women often lose capital and become poorer.
- High interest of microfinance NGO loans. In addition, the unacceptability of interest (*haram*) considering religious value.
- Few opportunities for training programs for IGA promotion.
- Lack of input supply to conduct IGAs.
- Fewer extension workers, where 1,100 - 1,500 farm families are supervised by one extension worker.
- Less support from GO for implementing IGAs.

iii. Strategies to overcome obstacles

Some important opinions of key informants about the strategy to overcome the obstacles regarding the livelihood and IGA issues of rural women are presented in box 6.10.

Box 6.10: Key informants' ideas on how to overcome difficulties of livelihood and IGA issues of rural women (n = 8)

- Increase rural women's income by involving them with suitable IGAs and providing them need-based training, imparting skills, supplying input for both agriculture and non-agriculture at a low cost along with appropriate time for making IGAs successful.
- Formulate co-operatives and marketing channels to sale products which ensure better prices and reasonable profit.
- Establish an IGA center in the village with information resources and training facilities.
- Improve the infrastructure (roads, electricity, markets, educational institutes like schools, colleges)
- Strengthen GO programs for rural women.
- Extend micro-credit programs of NGO with low interest rates.
- Fix the conflicts between GO and NGO.
- Improve awareness and change attitudes by providing education, cultural programs and media broadcasting to overcome social and religious barriers.

6.2.2 Observation of the researcher

A number of observations were made by the researcher herself on livelihood strategies of women in the four villages studied during data collection. The list presented below contains some of the key points which should be taken into consideration when formulating any strategy focusing on rural women's livelihood situation.

General observations

- i. Rural women were always trying to improve their livelihood status by performing different income activities available in their existing situation, playing a crucial role in supplementing family income. They had extensive workloads with dual responsibility for household maintenance and income. Social systems and traditions, forces rural women, especially wives, to undertake the responsibilities in the kitchen, child rearing, entertaining guests and other homestead activities like cleaning, washing, etc.
- ii. Rural women's role in maintaining sustainable livelihood remains limited and undermined because of their restricted access to livelihood capital such as financial, physical, and social capital, etc. Lack of opportunities, cash money and illiteracy were major obstructions to participate in IGAs. The educational background of rural women was unequal due to the diminished availability of educational structures, traditions and attitudes toward education. Poverty was a main barrier of education and children went to work instead of school. The

food for education was one of the most significant programs operating throughout the study area to prevent the dropout of children from schools. The adult learning program often was not successful due to drudgery in the household activities.

iii. In the study area, rural women never had adequate food throughout the year and during crises, they used loans to purchase food. The preservation and cultivation of a wide diversity of wild vegetables such as aroids, water spinach, etc., helped them to survive during food crisis periods. The poor rural women changed their eating habits - in terms of quality and quantity as well as frequency of meals to cope with food shortages.

iv. All rural women studied had at least one outstanding loan. Generally, the husband or other male persons of the family did not want to take loans, whereas they insisted rural women to take loans from available sources.

v. Throughout the year they faced problems of poverty, social conflict, land ownership, the loan and credit system, infrastructure facilities, poor transportation and communication facilities, and lack of improved technologies. Extreme poverty was most evident among landless rural women. The majority of rural women were deprived of minimum medical services.

vi. Savings potential of rural women was very low and it was highly correlated with their membership of microfinance NGOs.

vii. The mobility and decision-making ability of rural women were restricted by husbands or other family members. To get more freedom, they are highly interested in living in a nuclear family.

viii. Due to the lack of sufficient and independent income, rural women could not acquire assets by themselves and more depended on the husband. Rural women who were living with their husband had partial control over income and in some cases had no control. However, widowed, divorced and separated women held relatively more control over their income.

Observation related to IGAs

i. Most of the rural women depended on agriculture and agriculture-related. Due to extreme poverty and food crisis, rural women appeared in the field work as well as worked as wage labor to receive rapid cash for survival. But this work was poorly paid, insecure and often seasonal.

- ii. Rural women were more interested to perform various income activities which had a direct and immediate benefit to their livelihoods. They had less interest to perform activities outside of the homestead on reasonable grounds.
- iii. In the study area, women spent more time in household activities than IGAs.
- iv. Most of the rural women had less training experience and skilled knowledge about IGAs.
- v. The GOs gave less emphasis for the improvement as well as development of rural women's livelihoods and also the opportunities to support women were limited.
- vi. Microfinance NGOs distributed loans and simultaneously provided support such as training and input to conduct IGAs. In addition, during weekly meetings, "NGO women" informed latest message from NGOs staff on present situation of their IGAs, management of natural disaster, daily life, etc.

From the observations, it is appeared that heavy household work of rural women, illiteracy, lack of finance, awareness and facilities, social norms, values and tradition are probably the main cause associated with decreased participation in IGAs and low level of livelihood situation.

6.2.3 Opinions of rural women recorded from FGDs

During FGDs rural women mentioned the following points regarding their overall situation:

- i. They expressed greater interest to participate in IGAs than in household activities.
- ii. Lacking cash and freedom, rural women could not conduct IGAs properly.
- iii. They were mainly busy with household activities from morning to late evening.
- iv. Rural women suffered from health risks, because of early marriage, malnourishment and the inhalation of smoke while cooking.
- v. Male family members were usually allocated higher proportion of food than female members. Similarly, girls received less food, medical care and education than boys.
- vi. Weekly loan repayment was a burden to rural women involved with microcredit organizations. Sometimes, interrupted income flows pose problems for loan repayment. The interest rate of microfinance NGOs was also considered too high.
- vii. The poor farm household was usually deprived of services from GO. The tendency of extension workers (SAAO) was to visit rich farm households to transfer technology and select demonstration plots on their fields.

6.3 Income strategies of rural women

An attempt was made to assess the income of rural women in the community through interviewing. This section deals with the extent of participation of rural women in different IGAs, the contribution of various IGAs to their personal annual income, potentiality of the selected IGAs, and the effects of rural women's personal annual income on household income. Also, focus group discussions (FGDs), key informant interviews and observation methods were used to collect additional valuable information regarding IGAs. The opinion of rural women concerning impact of IGAs on their own income and livelihood is summarized at the end of this section.

6.3.1 Extent of participation of rural women in different IGAs

Ten IGAs commonly practiced by rural women in the study area were identified during the pretest. During data collection, rural women were asked to indicate to what extent they were participating in the selected IGAs. The findings in this regard are shown in table 6.31.

Table 6.31: Extent of participation of rural women in different IGAs (n = 100)

IGAs	Extent of participation (in frequency)								t-statistics
	NGO women (n = 50)				Non-NGO women (n = 50)				
	N	S	O	F	N	S	O	F	
Cattle and goat	23	4	8	15	35	6	6	3	- 4.33**
Poultry	13	12	20	5	27	15	7	1	-3.91**
Aquaculture	40	8	2	0	45	4	1	0	-1.32
Vegetable cultivation	17	12	18	3	20	15	12	3	-0. 94
Bee keeping	39	6	4	1	43	3	3	1	-0. 73
Small business	33	5	8	4	42	4	4	0	-2.52*
Wage labor	40	5	2	3	43	3	2	2	-0. 64
Handicraft	40	2	6	2	43	1	4	2	-0. 61
Street vendor	38	8	4	0	46	1	2	1	-1.33
Tailoring	37	1	2	10	39	11	0	0	-2.61*

(* indicate significant at $p < 0.05$ level, ** indicate significant at $p < 0.01$ level, N = never, S = sometimes, O = occasionally, and F = frequently)

The findings of the study showed the degree of their participation in IGAs greatly varied based on their involvement with microfinance NGOs. In general, their participation was relatively high in vegetable cultivation, poultry, cattle and goat rearing. Among the agricultural activities, “NGO women” were ahead in cattle and goat rearing and poultry compared to their counterpart “non-NGO women”. The reason that both groups of women equally participated in vegetable cultivation might be due to the fact that traditionally all houses in the study area have a small piece of land where different vegetables are grown, usually for home consumption. Only the surplus vegetables are sold, which is a common source of income during money crises.

The participation of both NGO and non-NGO groups of women was low in aquaculture. Several studies in Bangladesh reported that the common level of women’s participation in aquaculture remained far below the expectation, which supports the findings of the present study (RAHMAN and NAOROZE, 2007; HOQUE and ITOHARA, 2008). In addition, bee keeping was not so frequent in the study area.

Both groups of women participated to some extent in non-agriculture activities such as small business, wage labour, handicraft, street vendor and tailoring. Among the five non-agriculture activities, a significantly high participation of “NGO women” was found in small business and tailoring compared to “non-NGO women”. Though the difference between “NGO women” and “non-NGO women” for working as wage labor was not statistically significant, “NGO women” were more frequently involved as wage labor. Women of the study area reported that they feel shy and less interested in being involved as wage laborers because this profession is treated as the lowest social position and furthermore, working as wage laborers outside the house is less acceptable in society. The “NGO women” might overcome the social norms and values and participate more as wage laborers. Only few women were involved with handicraft and tailoring. Rural women mentioned that the restricted availability of raw materials such as bamboo, *Bet*, thread, etc., and difficulty of marketing act as a barrier to conducting handicraft activities. The handicraft production was also less attractive as most of the rural women followed the traditional design from generation to generation.

The surveyed women mentioned that these two non-agricultural activities are, however, increasing day by day which matches the findings of HOQUE and ITOHARA (2008). Another study by CPD (2004) also reported that Bangladeshi women’s adoption of various non-

agricultural activities is increasing in recent times. Earning money as a ‘street vendor’ was not so common in the study area and only few women were engaged in this activity (table 6.31).

6.3.2 Estimation of rural women’s personal income from different sources

The annual income of rural women came from both agriculture and non-agriculture sources and is presented in figure 6.16. Agriculture activities, namely cattle and goat rearing, poultry, aquaculture, vegetable cultivation and bee keeping, were generally the principal source of income and contributed 66% to the personal annual income of rural women. However, non-agriculture sources such as small business, wage labor, handicraft, street vendor and tailoring contributed 34% to annual income. The result of the present study is supported by the findings of PARVEEN and LEONHÄUSER (2004), who found that 64% of total income came from agricultural sources and 36% of income from non-agricultural sources in the case of rural women in the Mymensingh district of Bangladesh.

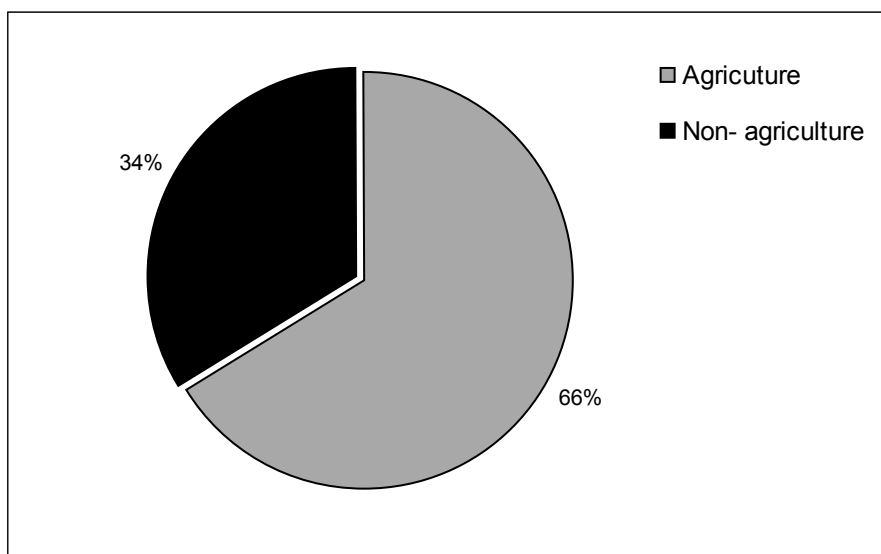


Figure 6.16: Contribution of agriculture and non-agriculture sources to the annual income of rural women

The contribution of selected ten IGAs to the annual income of both “NGO women” and “non-NGO women” is summarized in table 6.32.

Table 6.32: Personal income of rural women from various IGAs (n = 100)

Types of women	Annual income (in ‘000’ Taka ^a)										
	Cattle and goat	Poultry	Aquaculture	Vegetable cultivation	Bee keeping	Small business	Wage labor	Handicraft	Street vendor	Tailoring	Total income
NGO women (n=50)	335 (34)	169 (17)	30 (3)	85 (9)	26 (3)	149 (15)	31 (3)	46 (5)	43 (5)	69 (7)	983
Non-NGO women (n = 50)	130 (30)	71 (17)	14 (3)	52 (12)	13 (3)	55 (13)	15 (4)	25 (6)	14 (3)	40 (9)	429
All average (n=100)	465 (33)	240 (17)	44 (3)	137 (10)	39 (3)	204 (14)	46 (3)	71 (5)	57 (4)	109 (8)	1412

^a 1 Euro = Tk.100 (April, 2011). Values in the parentheses indicate percentage.

Rural women of the study area earn personally from various IGAs. Major income (33%) came from cattle and goat rearing. The next highest income came from poultry (17%). Accordingly, small business (14%), vegetable cultivation (10%), tailoring (8%), handicraft (5%) and street vending (4%) contributed to the personal income of rural women. The surveyed rural women earned a small amount (3%) from three different IGAs such as aquaculture, bee keeping and wage labor. The earning of “NGO women” were higher from all these sources than those of “non-NGO women” in the study area. “NGO women” reported that they received various skill development trainings on different IGAs such as vegetable cultivation, poultry, cattle and goat rearing, sewing, handicrafts, tailoring, running small business, bee keeping which improved their capabilities. “NGO women” received loans from microfinance NGO to start an IGA; NGO staff supplied input material such as hybrid seed, improved breeds of ducks, chickens, and goats to their members. In some cases, NGO workers bought products from their associated group members and as a result “NGO women” got an appropriate price, depended less on others to sell products and ultimately faces fewer problems of marketing. Therefore, “NGO women” get maximum organizational support from the beginning of an IGA to marketing that might ensure higher income compare to “non-NGO women”.

6.3.3 Selection of the best IGA

An attempt was made to assess the best IGA in the study area through comparing income of each selected IGA and data have been presented in table 6.33.

Table 6.33: Summary of rural women's income from various IGAs (n = 100)

Rural women		Income (in '000' Taka) from different IGAs									
		Cattle and goat	Poultry	Aquaculture	Vegetable cultivation	Bee keeping	Small business	Wage labor	Handicraft	Street vendor	Tailoring
NGO women (n = 50)	Total	335	169	30	85	26	149	31	46	43	69
	Average	12	05	03	03	02	09	03	05	04	05
	Frequency	27	37	10	33	11	17	10	10	12	13
Non-NGO women (n = 50)	Total	130	71	14	52	13	55	15	25	14	40
	Average	09	03	03	02	02	07	02	04	04	04
	Frequency	15	23	05	30	07	08	07	07	04	11
All average (n = 100)	Total	465	240	44	137	39	204	46	71	57	109
	Average	11	04	03	02	02	08	03	04	04	05
	Frequency	42	60	15	63	18	25	17	17	16	24

Vegetable cultivation was the predominant IGA in the study area, as the largest number of rural women (63) was involved in it. But average returns from vegetable cultivation were very low (Tk. 2,000), and rural women mentioned that they were not convinced about its the economic benefits. Secondly, rural women were quite heavily involved in poultry rearing (60), which also had low per capita return (Tk. 4,000). High income was obtained from cattle and goat rearing (Tk.11,000), followed by small business (Tk. 8,000). The number of women involved in these two IGAs was 42 and 25, respectively. Other IGAs such as aquaculture (15), street vendor (16), handicraft (17), bee keeping (18), wage labor (17) and tailoring (24) was done by only a limited number of rural women and the returns of these IGAs were also low (table 6.33). Hence, cattle and goat farming was the best among the existing IGAs in the study area because considerable numbers of rural women were involved and the benefit from this IGA was higher compared to other IGAs. Rural women informed that they could rear cattle and goats in their homestead and did not require extra land. Most of the rural women (90%) kept their goats in their living room or kitchen at night. In addition, rural women referred to

their cattle and goat breeds as being well adapted to the climatic circumstances with high resistance. In the study area 85% of the cattle and 100% of the goats (Black Bengal goat) were indigenous/local breeds, which are comparatively small in size and healthy. However, the income provided from cattle and goat farming is not satisfactory enough, because local breeds are mainly less productive and rural women followed conventional rearing methods. Most of the rural women mentioned that their cattle are fed exclusively on grass from the pastures (summer), straw, discarded water from cooked rice, and rice husk. In monsoon and winter, sometimes rice/wheat bran and very rarely bran, maize cob and oil-cakes, etc., are provided. Often rural women feed their cattle the residues from the kitchen. Concentrated feedstuff or silage was not given at all, the use of any additional fodder depending on the availability of money. The milk production performance was generally very low. Milk production was 1.5 - 2 liters per day for an indigenous breed and 4 liters per day for a crossbred cow. The average lactation period was 6.6 months. Generally, insemination took place spontaneously by bulls of neighbours in the villages. Only 8% of rural women used artificial insemination for improving the breed. As a consequence, we can say that the supply of modern technology and improved breeds will increase the overall return from cattle and goat farming, which ultimately would increase the personal income of rural women as well as their household income.

6.3.4 Potential of the selected IGAs

The potential of the different IGA was determined after discussions with the participants in focus groups. The participants were asked to give a value for each IGA for the selected indicator. The indicators were evaluated according to their own experiences and the outcome is presented in table 6.34. The rural women revealed that cattle and goat rearing, poultry and tailoring were the IGAs had the highest potential in the study area.

Table 6.34: Preference on potential IGAs (n = 64)

Indicators	Score of IGA									
	Cattle and goat	Poultry	Aquaculture	Vegetable cultivation	Bee keeping	Small business	Wage labor	Handicraft	Street vendor	Tailoring
Resource for IGA	3	3	2	1	2	3	1	2	2	2
Market facilities	3	3	2	2	2	1	2	2	2	2
Profitability	2	2	2	1	3	2	3	2	2	3
Contribution to income	2	1	2	2	2	2	3	2	2	2
Easy to implement	3	3	3	3	2	2	2	2	2	2
Risk factor	3	2	2	1	1	1	2	2	1	3
Site suitability	3	3	2	3	3	2	1	3	2	2
Total score	19	17	15	13	15	13	14	15	13	16

6.3.5 Effects of rural women's income on household income

A regression analysis was performed to determine the effects of rural women's income (RWI) from different IGAs on their household income. The result of regression analysis indicated that 68.4% (adjusted $R^2 = 0.684$) of the variance in the rural women's household income could be explained by rural women's personal income through participation in different IGAs. The remaining 31.6% remain unexplained. The estimated regression function was $Y = 25253.2 + 3.83 \text{ RWI}$ and that also showed a linear relationship (figure 6.17). The associated t-statistic was significant at 1% level ($t = 14.58$).

CPD (2004) reported that rural women in Bangladesh contribute considerably to household income through farm and homestead production and wage labor. In another study, HOQUE and ITOHARA (2008) reported that the personal income of rural women through participation in various earning activities significantly contributes to an increase in their household income which is consistent with the present study.

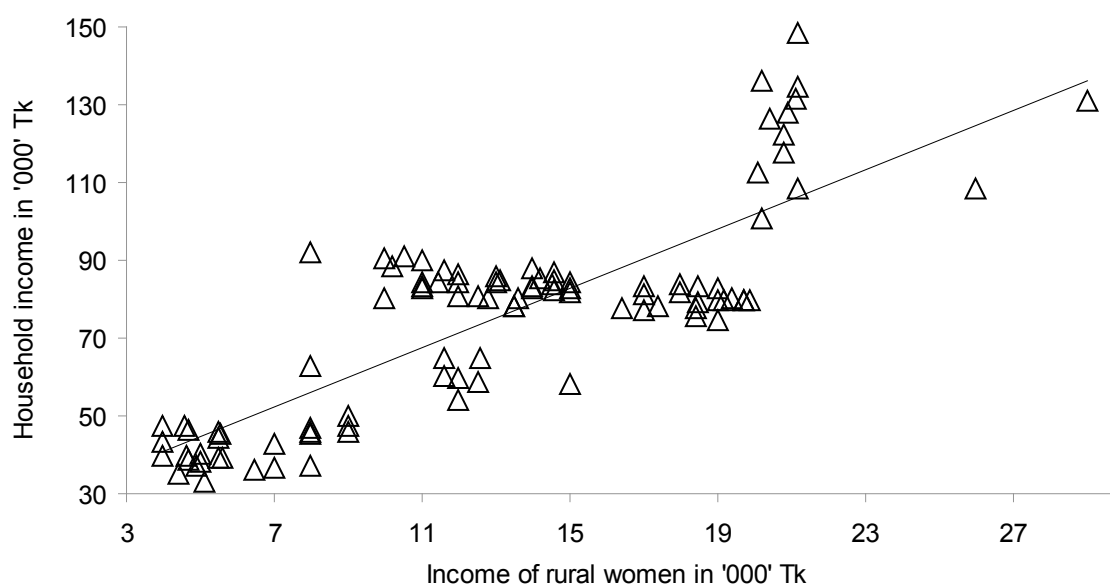


Figure 6.17: Contribution of rural women's personal income in household income (n = 100)

6.3.6 Impact of IGAs on the income of rural women and their livelihood

Opinion of rural women regarding impact of IGAs on their own income

Opinions of rural women were gathered regarding the benefits or contributions of IGAs on their own income during the last three years and presented in table 6.35.

Table 6.35: Perceived change in income of rural women through IGAs (n = 100)

	Non-NGO women (n = 50)	NGO women (n = 50)	Total (n = 100)
Increased significantly	0 (0)	3 (6)	3 (3)
Increased slightly	12 (24)	21 (42)	33 (33)
Stayed about the same	34 (68)	20 (40)	54 (54)
Decreased slightly	4 (8)	4 (8)	8 (8)
Decreased significantly	0 (0)	2 (4)	2 (2)

(Values in the parentheses indicate percentage)

In the aggregate, only 3% of rural women observed a significant increase in their income due to participation in IGAs, while 33% women found that their income increased slightly. That income remained unchanged was reported by 54%, among them 68% were “non-NGO women” and 40% were “NGO women” (table 6.35). Only 10% of the women had slight or significant declines in their income in the last three years. However, it appeared that improved income had been experienced more often by “NGO women” and rarely by “non-NGO

women”. The reasons might be the improved access of “NGO women” to loans, technology and market facilities provided by NGO. It is also notable that 4% of “NGO women” found that their income decreased significantly. We may assume that these are particularly those women who fell into the debt repayment trap after their husbands misused the credit taken by rural women. On the other hand, no women from non-NGO category found a significant decrease in their income over the last three years.

Table 6.36: Reasons for declining income of rural women during the last three years
(n = 100)

Reasons	NGO women % (n = 50)	Non-NGO women % (n = 50)	All categories % (n = 100)
Project failure	76	28	52
Market failure	40	34	37
Interest rate of loans	47	25	36
Exposure to natural disaster	26	26	26
Prolonged illness	27	15	21
Loss of asset	28	12	20
Loss of employment	24	14	19
Loss of crops/animals	20	16	18

There were finally merged to eight items as the main reasons behind the decline in income of rural women during the last three years. According to the results, overall 52% of respondents identified project failure as the most important reason behind declined income, ranging from 76% in “NGO women” to 28% in “non-NGO women” (table 6.36). In most cases, high input prices increasing the cost of production caused the project failure reported by rural women. Thirty-seven percent of rural women identified market failure as the second important reasons. Rural women reported that market prices are not stable throughout the year, and sometimes they are bound to sell products with prices lower than production cost. The other reasons that directed income negatively were high interest rate of loans, exposure to natural disaster, prolonged illness, loss of asset, loss of employment and loss of crops/animals.

Table 6.37: Reasons for increased income of rural women during the last three years
(n = 100)

Reasons	NGO women % (n = 50)	Non-NGO women % (n = 50)	All categories % (n = 100)
Increased production in agriculture and non-agriculture	70	30	50
Increased cropping intensity	42	30	36
Increased credit facilities	42	26	34
Used better varieties in agriculture farming	50	16	33
Opportunity of new IGAs	24	28	26
Enhanced ability in disaster management	26	20	23
Less pest attack	20	18	19
Increased the area of cultivation	0	6	3
Getting a new/better job	2	0	1

Rural women reported nine items which contributed to the increase of their income in the last three years (table 6.37). The majority (70% of NGO and 30% of non-NGO) believed that ‘increased production in agriculture and non-agriculture’ played a major role to increase income. Rural women reported that production of different IGAs have increased significantly in recent years as a result of the availability of input such as fertilizer, insecticide, seed, vaccine, etc. The supply of improved breeds of goats and better treatment facilities from NGOs also contributed to increase the production of cattle and goat remarkably. The other reasons behind increased income reported by rural women included an increase in cropping intensity, credit facilities from different loan sources, better use of varieties in agriculture farming, opportunity to start new IGAs, enhanced ability to disaster management, less pest attack, increased cultivation area and getting a new/better job.

Opinion of rural women regarding impact of IGAs on their livelihood

Overall, rural women were asked whether there had been any changed aspect of their lives since performing IGAs over the last three years. Twelve items of livelihood were selected as the major areas that changed by the increase in income and opinion of rural women are summarized in table 6.38.

Table 6.38: Overall impact of IGAs on livelihood of rural women (n = 100)

Statement	Opinion of rural women (%)		
	Improved	Same as before	Decreased
Household income	48	35	17
Position in the family	75	20	5
Dependency on husband	37	16	47
Housing condition	38	58	4
Health situation	35	56	9
Water facilities	78	22	0
Sanitation	69	31	0
Food availability	34	49	17
Participation in social activities	60	20	20
Freedom in cash expenditure	54	7	39
Family misery	49	37	14
Overall livelihoods	60	30	10

The majority of the rural women (60%) indicated that their livelihoods improved through participation in IGAs. The position in the family, participation in social activities, water facilities and sanitation also increased remarkably. Many women (30%) reported that involvement with IGAs does not change their livelihood status and 10% mentioned that their livelihood status in fact decreased. Loss of property due to discontinuation of income projects, unstable market prices, defaulting and the burden of loans were major reasons for the negative effects reported by women.

6.4 Analyzing rural women's livelihood: Determinants and constraints

This section describes the analysis of following subjects regarding rural women livelihood:

- Livelihood status of rural women;
- Comparison of socio-economic characteristics and cumulative livelihood status between “NGO women” and “non-NGO women”;
- Factors influencing household income of rural women;
- Constraints faced by rural women to participate in IGAs.

6.4.1 Livelihood status of rural women

This section presents the livelihood status possessed by rural women in the study area. Two techniques such as calculation of cumulative percentage score, and the assessment of the perception of rural women on seven livelihood indicators, were used to determine the existing livelihood status. In addition, the suggestions of rural women to improve their livelihood status are being presented at the end of this section.

Livelihood status of rural women measured by cumulative percentage score

The livelihood status of rural women obtained by calculation of percentage scores of seven livelihood indicators is summarized in figure 6.17. Here, rural women are classified into five categories. Figure 6.18 shows a positive skew (0.12), as the mean (57.05) was higher than the median (56.68), indicating that a large proportion of the rural women (74%) was concentrated in the low to middle classes in livelihood distribution.

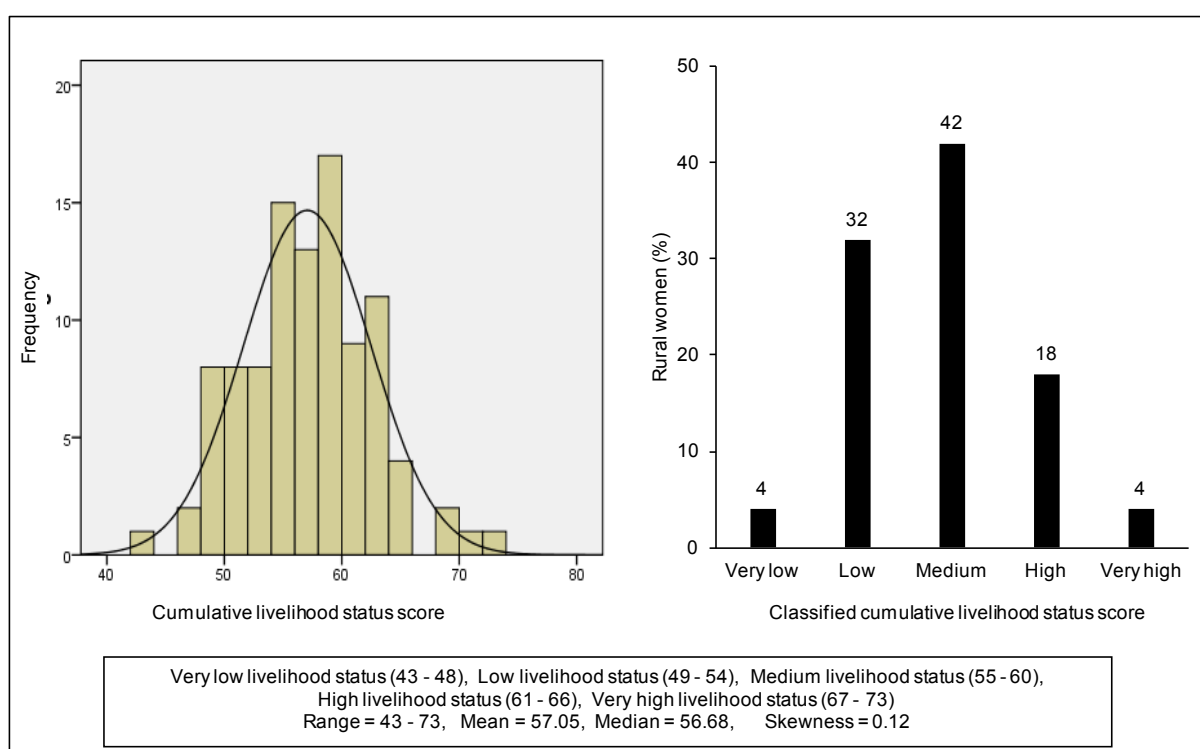


Figure 6.18: Distribution of rural women based on their cumulative livelihood status score (n = 100)

Livelihood status of rural women according to their perception

According to the perception of rural women, the livelihood status score (LSS) varied from 0 to 21. Based on the obtained score rural women are classified into three categories such as 'low livelihood status' (0 - 7), 'medium livelihood status' (8 - 14) and 'high livelihood status' (15 - 21). The distribution based on livelihood status score is presented in figure 6.19, which shows a positive skew (0.24), as the mean (12.14) was higher than the median (11). The majority of the rural women were distributed under low to medium livelihood status classes (77%), while 23% belonged to high livelihood status. This finding is almost similar to the result obtained from the calculation of cumulative percentage score of the present study where 74% of rural women had low to medium livelihood status.

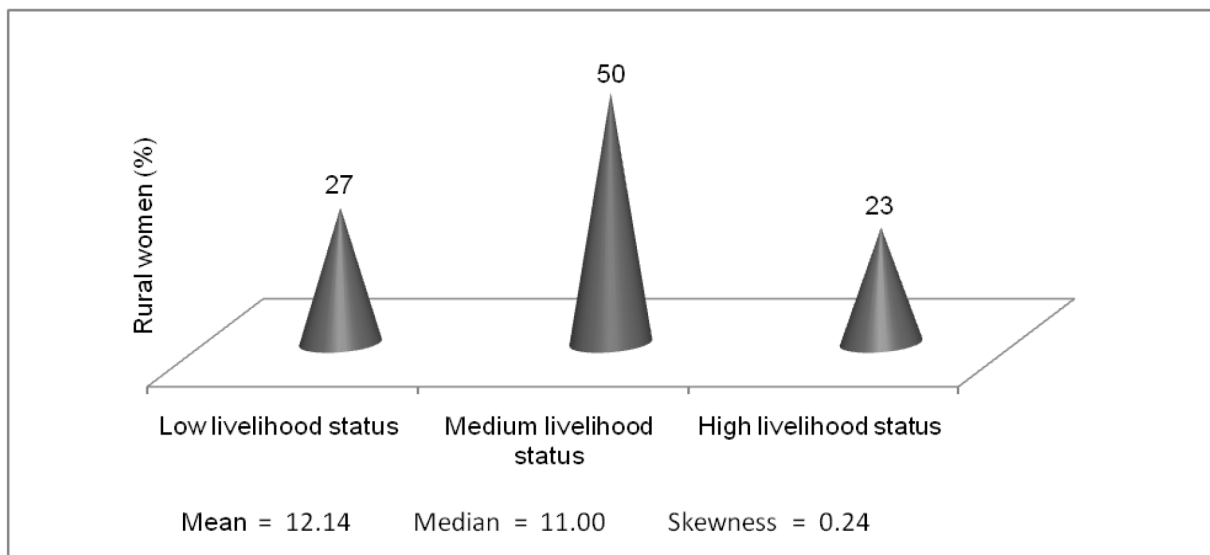


Figure 6.19: Distribution of rural women based on their cumulative livelihood status score according to the perception (n = 100)

Summary of seven livelihood indicators

Existing situation of seven livelihood indicators based on cumulative percentage score

The situation in the study area regarding seven livelihood indicators has been shown in figure 6.20. The highest cumulative percentage score was obtained for water facilities (87) followed by food availability (84), freedom in cash expenditure (67), housing conditions (52), sanitation (51), health situation (34) and participation in social activities (24). The results indicate that housing conditions, sanitation and the health situation were not satisfactory in the study area, and the participation of women in social activities was very low. Water facilities,

food availability and freedom in cash expenditure did not attain their highest level (100 percent), but their status was relatively better than other livelihood indicators. Therefore, priority should be given to assist facilities for the improvement of housing conditions, the sanitation and health situation which would play key role to increase the livelihood status of the study area. Furthermore, an initiative needs to be taken by GOs and NGOs for bringing attitudinal changes, which ensure higher participation of rural women in different social activities.

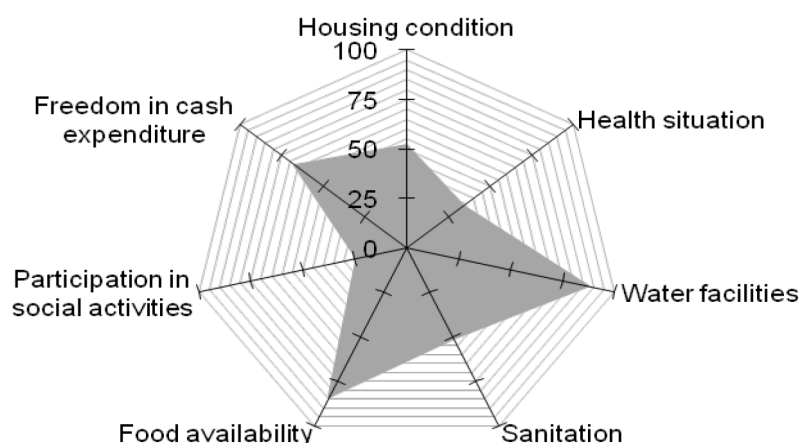


Figure 6.20: Existing situation of seven livelihood indicators (n = 100)

Existing situation of seven livelihood indicators based on rural women's perception

Analysis of the responses of rural women to the questions concerning the situation of seven selected livelihood indicators is shown in table 6.39. The situation of the livelihood indicators is reflected by mean scores, which ranged from the highest 2.81 to the lowest 1.69. This indicated a difference of 1.12, suggesting a relatively high discrepancy between the mean scores of the seven livelihood indicators.

Table 6.39: Perceptions of rural women considering seven livelihood indicators compared by mean values (n = 100)

Livelihood indicators	Existing situation of livelihood indicators (%)				Mean *
	Do not know	Low	Medium	High	
Housing condition	1	13	74	12	1.98
Health situation	1	10	82	7	1.96
Water facilities	1	4	8	87	2.81
Sanitation	2	35	52	11	1.72
Food availability	1	17	53	29	2.11
Participation in social activities	0	14	67	18	2.03
Freedom in cash expenditure	0	46	43	10	1.69

*Mean value of each indicator ranging from 0 to 3 and scales: 0 = do not know; 1 = low situation; 2 = medium situation; 3 = high situation

The livelihood indicator “water facilities” received the highest mean score of 2.81 and was considered as “high” by 87% of the surveyed women. The lowest mean score (1.69) was recorded for the indicator “freedom in cash expenditure” and this was identified as “low” by 47% of the rural women and “medium” by 43%. The overall mean of seven livelihood indicators was 2.04, slightly higher than medium. Mean values of the five following livelihood indicators were found to be less than medium: freedom in cash expenditure (1.69), sanitation (1.72), health situation (1.96), and housing condition (1.98). Two indicators such as water facilities and food availability had higher mean value than medium (2.81 and 2.11, respectively) and none of the indicator possessed its highest value 3.

This result indicates that all of the seven livelihood indicators are need to be developed in order to obtain sustainable livelihood situations for the surveyed rural women. Therefore, the selected seven livelihood indicators of the present study should be emphasized in the planning program of GOs and NGOs.

The importance of development needed for the seven livelihood indicators is reflected by the rank order obtained from FGDs and presented in table 6.40, where a higher rank indicates the need for first priority and a lower rank indicates least priority.

Table 6.40: Ranking of seven livelihood indicators based on importance perceived by rural women (n = 64)

Livelihood indicators	Number of rural women						
	Rank 7	Rank 6	Rank 5	Rank 4	Rank 3	Rank 2	Rank 1
Housing condition	30	18	8	4	2	2	
Health situation	16	26	12	5	3	2	
Water facilities		1	3	4	5	20	31
Sanitation	1	3	5	9	16	10	20
Food availability	9	1	13	19	10	9	3
Participation in social activities	5	11	12	13	15	8	
Freedom in cash expenditure	3	4	11	10	13	13	10

Among the seven livelihood indicators, housing condition received the highest rank (7) by 30 rural women, followed by health situation (16), food availability (9), participation in social activities (5), freedom in cash expenditure (3) and sanitation (1). Water facilities were not ranked 7 by anyone, but rated as rank 1 by the highest number of rural women (31). Findings from the perception of rural women indicate that they were least satisfied with their housing condition, and its situation was worst among other indicators. The situation of water facilities was relatively better compared to other indicators in the study area.

Table 6.41: A comparative view of existing situation of seven livelihood indicators

Livelihood indicators	Rank ¹ (n = 100)	Rank ² (n = 100)	Rank ³ (n = 64)
Housing condition	4	4	7
Health situation	6	5	6
Water facilities	1	1	1
Sanitation	5	6	2
Food availability	2	2	5
Participation in social activities	7	3	4
Freedom in cash expenditure	3	7	3

¹ Rank order was made based on scores achieved by calculating percentage score

² Rank order was made based on mean value obtained from the perception of rural women

³ Rank order was made based on total score from focus group discussions according their perceived importance

The purpose of this section is to compare the existing situation of seven livelihood indicators obtained from different data collection methods which increase the credibility of the research. The rank order for housing condition, health situation and water facilities was almost similar according to cumulative percentage score, rural women's perception and FGDs. The situation of sanitation and food availability was found to be similar in cumulative percentage score and women's perception, which differed from FGDs. The situation of participation in social activities was very low in cumulative percentage score calculation, while comparatively higher participation was found in perception of women and FGDs. The rural women of the study area might feel shy to disclose the family related matters as well as religious and social barriers that hinder participation in social activities and therefore, they reported in general a medium participation in social activities either individually or in a group. But in the cumulative percentage score method, all social activities were presented sequentially by the researcher to the rural women and they could not escape the actual fact. The situation of freedom in cash expenditure was found to be medium (position 3) based on the percentage score and focus group discussions. But according to the opinion of individual women the situation of this indicator was the worst. Most of the women reported that decisions on money investment were mainly taken by husband/male member of the family and their opinion got less priority (mentioned in section 6.1.2.7, figure 6.14). That should be a vital cause of low freedom in cash expenditure reported by most of the individual women. However, in the survey it was found that women had some extent of freedom in daily household expenditure (described in section 6.1.2.7, figure 6.14) which supports the rank order of cash expenditure obtained from cumulative percentage score and FGDs.

Suggestions of rural women to improve their livelihood situation

The opinion of rural women on improving their livelihood situation was collected through interviews and focus group discussions. Similar priorities were given by rural women for the improvement of livelihood status during interview and FGDs. They identified five major sectors needing a positive change to improve livelihood. A summary of their responses obtained from interview is presented in figure 6.21.

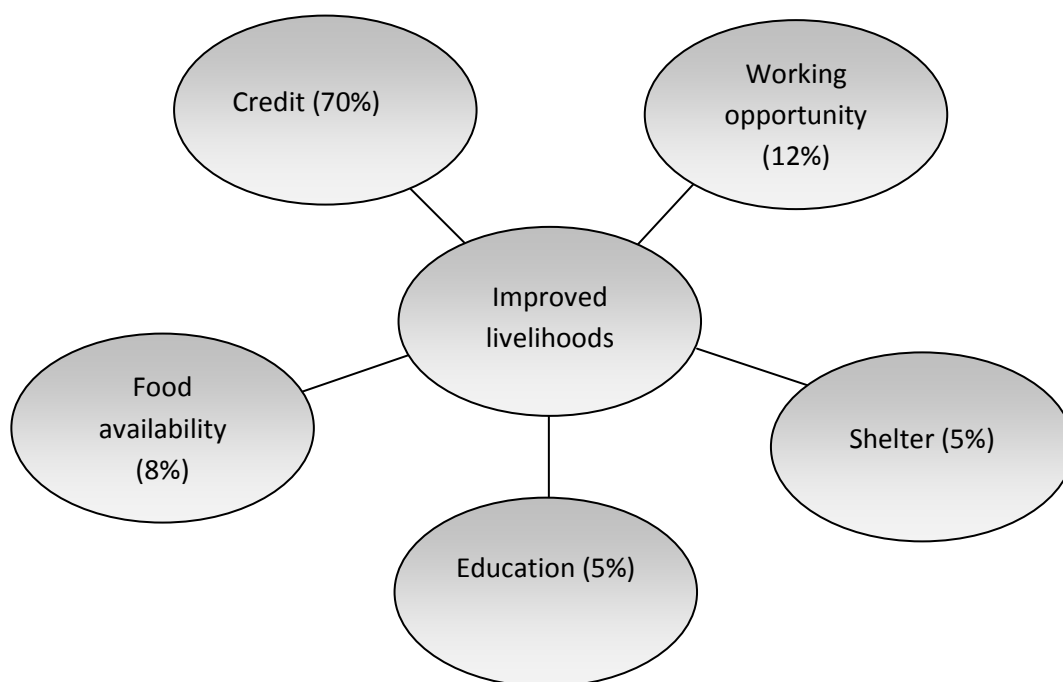


Figure 6.21: Ideas of rural women for the improvement of livelihoods (n = 100)

It is noteworthy that credit availability was most important to the rural women for improving their livelihood. In addition, they gave priority to working opportunity, food availability, education and good housing to improve their existing livelihood status. The opinions expressed by rural women were based on their experiences in performing household activities in their family, knowledge that they learned from their surroundings.

6.4.2 Comparison of socio-economic characteristics and cumulative livelihood status between “NGO women” and “non-NGO women”

We then compared the differences of several socio-demographic variables and the cumulative livelihood status between the two groups, “NGO women” and “non-NGO women”, to examine if they differed significantly on any of the socio-demographic variables and the cumulative livelihood status. The result of t-test is shown in table 6.42.

Table 6.42: Comparison of socio-economic characteristics and cumulative livelihood status for “NGO women” and “non-NGO women” (n = 100)

Means	t-statistics
Age	0.356
Education	-3.026**
Marital status	-0.242 *
Family size	-0.595
Family type	-0.338
Farm size	-0.812
Occupation of male	3.320**
Household income	-5.565**
Personal income of rural women	-7.307**
Food consumption behavior	-2.079*
Daily time utilization	-0.398**
Household expenditure	-5.445**
Savings	-2.480**
Loans repayment	0.777
Length of association with loan sources	-20.205**
Cumulative livelihood status	-3.349**

* Correlation is significant at the 0.05 level, ** Correlation is significant at the 0.01 level

The result of t-test showed that “NGO women” were significantly ahead in education, marital status, occupation of male, household income, personal income, food consumption behavior, daily time utilization, household expenditure, savings, length of association with loan sources and cumulative livelihood status compared to the “non-NGO women”. On the contrary, there were no significant differences between the “NGO women” and “non-NGO women” in terms of age, family size, family type, farm size and loans repayment.

6.4.3 Factors influencing household income of rural women

This section focuses on exploring the socio-economic factors (explanatory variables) that contribute to livelihood of rural women. In the present study, the livelihood of rural women was measured by their annual household income (dependent variable). There are multiple socio-economic factors influencing the livelihood of rural women in developing countries like Bangladesh. Some of the most commonly used factors such as age, education, marital status, family size, family type, farm size, occupation of male, personal income of rural women, food

consumption behavior, association with a NGO, daily time utilization, household expenditure, savings, loans repayment, length of association with loan sources and cumulative livelihood status were included to assess the household income of rural women. The relationship between the dependent and explanatory variables was determined firstly by the Pearson correlation test. The correlation analysis only indicates a relationship between the variables and cannot explain quantitatively the influence of independent variables on the dependent variable. Therefore, a multiple regression analysis was computed to explore the actual contribution of each selected independent variable to the household income.

Pearson correlation analysis

The Pearson correlation analysis showed that ten independent variables such as education, family size, farm size, personal income of rural women, food consumption behavior, association with a NGO, daily time utilization, household expenditure, savings and cumulative livelihood status were positively correlated to household income, while three other variables such as the age, occupation of male and length of association with loan sources were negatively correlated (table 6.43). The remaining three variables, namely marital status, family type and loans repayment, had no correlation with household income.

Table 6.43: Co-efficient of correlation between explanatory variables and household income (n = 100)

Selected explanatory variables of rural women	Correlation coefficient (r)
Age	-0.010 [*]
Education	0.379 ^{**}
Marital status	-0.071 ^{NS}
Family size	0.396 ^{**}
Family type	0.084 ^{NS}
Farm size	0.330 ^{**}
Occupation of male	-0.207 [*]
Personal income of rural women	0.827 ^{**}
Food consumption behavior	0.399 ^{**}
Association with a NGO	0.490 ^{**}
Daily time utilization	0.451 ^{**}
Household expenditure	0.999 ^{**}
Savings	0.201 [*]
Loans repayment	0.156 ^{NS}
Length of association with loan sources	-0.230 [*]
Cumulative livelihood status	0.467 ^{**}

* indicates correlation was significant at the 5% level and ** indicates correlation was significant at 1% level and NS indicate correlation was not significant (2-tailed test, df = 98)

Multiple linear regression analysis

Initially, all explanatory variables were used in the regression analysis model and later only eight explanatory variables were selected through backward elimination and forward selection and their quantitative effects on household income were determined. The eight variables such as age, education, family size, farm size, association with a NGO, loans repayment, length of association with loan sources and cumulative livelihood status had a significant contribution to the household income and the other eight variables namely marital status, family type, occupation of male, personal income of rural women, food consumption behavior, daily time utilization, household expenditure and savings had no significant contribution. The value of R-square was 0.648 which indicates that 64.8 percent of the variation in household income could be accounted for by the combined effect of these eight independent variables and the other 35.2% remained unexplained. The adjusted R^2 for the model was 0.615, which indicates only a slight overestimation with the model. The above regression model was well fitted to

the data since $F \text{ ratio} = 20.8$, $P = 0.000$ was found to be highly statistically significant. Now the effect of each variable on the household income is explained below. All these variables are discussed here with relation to the data and information collected in the present study.

Table 6.44: Regression coefficients of household income with the selected variables of rural women ($n = 100$)

Variables	Estimated coefficient	t-Statistic	Significance level
INTERCEPT	-86158.3	-3.73	0.0001
Age	725.76	3.36	0.0011
Family size	5260.48	4.56	0.0000
Education	6207.25	2.81	0.0059
Farm size	1055.40	2.67	0.0088
Association with a NGO	15165.40	4.18	0.0001
Loans repayment	1.13139	3.55	0.0006
Length of association with loan sources	-2317.69	-4.09	0.0059
Cumulative livelihood status	1464.02	4.27	0.0000
$R^2 = 0.648$ Adj - $R^2 = 0.615$ F - ratio = 20.8 F - probability = 0.000			

Note: Statistically significant at the 1% level.

Age

Regression analysis revealed that the age of rural women had positive relation to their household income with coefficient value of 725.76. The result indicate that household income increase with the increase of age, where rural women contributed Tk. 725.76 more to their household income with every one year of age increase. This result is similar to previous studies in Bangladesh by RAHMAN (2006), SARKER (2005), ISLAM (2003), where they found that age has significant positive effects on annual income. Low income at the early age (below 30 years) of rural women might be related to early marriage, birth of a child, rearing children, taking care of husbands and other family members, which deprives rural women from engaging in income generating activities. According to BBS (2008b), early marriage (18.48 years) is a common phenomenon in the study area, and after marriage women are more accountable for their inner and outer family related activities than income generating activities. Also they face some problems of adjustment with their husband or family members, but with the passage of time most of them become able to cope with these problems (AL-AMIN 2008). In the Bangladesh context, FAKIR (2008) found that middle-aged rural women are more interested in conducting IGAs because they have a higher risk-taking ability. We also

found higher participation of middle-aged women in IGAs compared to young and old women (above 50 years). In the study area, most of the older women like to engage themselves with family care, their next generation and afterlife or religious matters. Furthermore, women older than 50 years get less often involved in NGOs for income generation as they usually have grown-up children who take care of their welfare needs.

Education

A significant positive relationship was found between rural women's educational level and their household income. The regression coefficient ($B_2 = 6207.25$) indicates that the shift from a lower educational category to an upper category caused 6,207.25 units increase (Tk.) in household income. Several previous studies in Bangladesh regarding education and income support our findings (BISWAS, 2002; MORTUZA et al., 2004; SARKER, 2005). A survey has been conducted by MAHMUDUL et al. (2003) among farmers in Bangladesh and they found that literate farmers achieve higher income than the illiterate farmers. Education enhances women's position through decision-making autonomy, exposure to the modern world and knowledge (JEJEEBHOY, 1992; KISHOR and GUPTA, 2004). The ability to understand and be aware of the situation in which women live increases significantly with education (RAHMAN and NAOROZE, 2007). Concomitantly, higher education has an effect on weakening traditional conservative norms and taboos that impair rural women's lives (PARVEEN and LEONHÄUSER, 2004). These outcomes of education might empower women to demand and protect their rights in order to change and improve their existing situations. Therefore, literacy skills of rural women have a beneficial impact on their household income.

Family size

The regression results showed that family size had a substantial effect ($B_3 = 5260.48$) on household income, i.e., an increase of family size led to a higher income. The annual household income increased by Tk. 5,260.48 with the increase of one family member. In the study area, rural women basically depended on agriculture and wage labor to earn money. Family members usually work as unpaid labor in agriculture which decreases the cost of crop production and increases the benefit from agriculture. In addition, the agriculture of Bangladesh is labor-intensive and a large family has the opportunity to earn wages as agriculture laborers. Children are usually involved in cattle rearing, which adds to more income. Therefore, family members are treated as an asset, since every member after a certain

age can contribute to the household income. In Bangladesh, boys usually take part in fishing and caretaking of cattle around the age of 8 or 9, and girls enter the household labor force by the age of 6 or 7 (ANWAR, 2004). Therefore, family size is an important socio-economic indicator as it affects the household income of the rural women.

Farm size

In line with expectations, farm size showed a positive and significant effect on household income ($B_4 = 1055.40$), where the increase of one unit (1 ha) in farm size increased the household income by Tk.1,055.40. The economy of the study area is mainly based on agriculture and the income of the farm family largely depends on their farm size.

In rural Bangladesh, families who have a large farm are richer and they have more opportunities to earn money than families with comparatively small farms (ISLAM et al., 2010). Expansion of farm size and investment in land was found to increase family income significantly in Bangladesh (ISLAM et al., 2010). DILLON and HARDARKER (1993) stated that small farmers have two characteristics, their small size of land in terms of resources and their low level of income. Therefore, the above reports of different researchers and results of the present study regarding farm size support the fact that increase in farm size ultimately increases production, which ensures high income as well as better livelihood status.

Association with a NGO

Like other variables ‘association with a NGO’ also influenced the household income. The significant and positive relationship ($B_5 = 15165.4$) between association with a NGO and household income implies that the household income level of rural women could increase with their association with NGOs. Rural women associated with NGOs for maintaining their livelihood and receiving loans, training and technology thus enabling them properly to perform IGAs. In some cases, NGOs provided marketing facilities which ensured higher profits from IGAs. Several studies reported that a participation of rural women with NGOs positively contributes to household income and derives more income from rural non-farm sources as they participate in micro-credit programs (HASHEMI et al., 1996; KHANDKER, 1998). According to HOQUE and ITOHARA (2009), when a rural woman uses the money (taken as loans from microfinance NGO) for any productive purpose, she can earn money and contribute to some extent to household income. Thanks to this contribution she can increase

her control over the family decision-making process and other family affairs and thus ultimately improve her position in the family. Another study by RAHMAN and NAOROZE (2007) found that rural women's participation in the development of sustainable aquaculture projects (DSAP) for income generation allows them to gain more control of the economic and social returns, making them self-reliant and enhancing their socio-economic status within the family as well as in society in general. Previous work mentioned above and the present study make it evident that the participation of women in NGOs provides more opportunities to increase their household income as well as livelihood situation compared to those who do not have any association with a NGO.

Loans repayment

Like other variables, loans repayment also influenced the household income of rural women. A significant and positive relationship ($B_6 = 1.13139$) between loans repayment and household income implies that when the household income level of rural women increased, they regularly repaid their loans and the tendency of loans repayment was high. Regular loans repayment generally creates goodwill and increases credibility, which helps rural women to obtain further credit from loan sources for IGAs.

Length of association with loan sources

The regression results are somewhat contrary to the expectation where the length of association with loan sources was found to have a significant ($p < 0.01$) negative impact on the household income. The negative beta coefficient ($B_7 = -2,317.69$) for this variable means that long-time involvement with loan sources by one unit (1 year) decreased household income by 2,317.69 units (Tk). It could be argued that more successful members discontinue to use loan sources after a certain period as they no longer need micro-credit and were satisfied with their household income. The remaining long-time standing members represent the inefficient and unsuccessful poor members. There were a number of reasons to argue for this interpretation. Rural women who were exclusively landless and/or marginal were mostly involved with microfinance NGOs in order to receive micro-credit and improve their situation. This is supported by FAKIR (2008); HOQUE and ITOHARA (2008). They also reported that credit is the overwhelming reason why rural women tend to remain within microfinance NGOs, and there is a chance to use loans in meeting their emergency needs like buying food, dowry payments, household repair, health treatment, or else not investing in production or income generation.

We also found in the present study that marginal “NGO women” invested loans in other purposes which in turn caused the failure of IGAs. Under these circumstances, many women took loans from another microfinance NGOs to refund the previous loans or started new IGAs. In this way they enter into a loan cycle. Sometimes the same NGOs provided new loans to the defaulting rural women to recover previous loans. After deduction the dues of previous loans, they paid the remaining amount of credit and fixed a new loan installment period which ultimately lengthened the involvement time with NGOs for the unsuccessful women. The association period with loan sources of “NGO women” was higher than “non-NGO women” (section 6.1.16, table 6.19). Therefore, “NGO women” stayed longer with loan sources and could not come out from the micro-credit loan, which might be a cause of the negative relationship between association period with loan sources and household income.

Cumulative livelihood status

The cumulative livelihood status (constructed by considering seven livelihood indicators such as housing condition, health situation, water facilities, sanitation, food availability, participation in social activities, and freedom in cash expenditure) had a significant positive impact on ($B_8 = 1456.83$) the household income of rural women. Findings of the present study indicate that the cumulative livelihood status is a strong predictor which influences household income. Therefore, the improvement of selected indicators of the present study increases cumulative livelihood status, which ultimately enhances the household income as well as the livelihood of rural women.

To measure the contribution of each selected variable in household income, R^2 change value was considered from the stepwise regression model. This measure is a useful way to access the unique contribution of new predictors to explain variance in the outcome. The unique contribution of the eight attributes is presented in table 6.45.

Among the eight selected variables, association with a NGO contributed the most (24.0%), followed by family size (13.5%), cumulative livelihood status score (10.7%), loans repayment (5.1%), length of association with loan sources (3.9%), education (3.1%), farm size (2.3%) and age (2.1%) to explain a variance of 64.8% in household income as well as rural women’s livelihood. There were several other unexplained factors (35.2%) that contributed to household income, most of them being qualitative (religious beliefs, superstition, husband’s attitude, etc.) with limited scope for quantification. The quantitative analysis suggests that

development agencies, in both the public and private sectors, who are working in gender sensitive issues in the study area, should give proper emphasis to the selected variable of the present study before launching any new program related to improvement of rural women livelihood status through income activities. In addition, qualitative issues of the study area should also be considered.

Table 6.45: Stepwise multiple regression analysis showing contribution of the eight attributes to household income

Model	Dimension entered	Multiple R	Change in R ²	Variation expressed (%)	Significance level
1	Association with a NGO	0.240	0.240	24.0	0.000
2	Family size	0.375	0.135	13.5	0.000
3	Cumulative livelihood status	0.482	0.107	10.7	0.000
4	Length of association with loan sources	0.520	0.039	3.9	0.007
5	Loans repayment	0.571	0.051	5.1	0.001
6	Farm size	0.594	0.023	2.3	0.024
7	Age	0.616	0.021	2.1	0.026
8	Education	0.646	0.031	3.1	0.006

6.4.4 Constraints faced by rural women in participating IGAs

Before making suggestions on future development and formulating efficient programs for the study area the major constraints faced by rural women need to be determined. The interviewed rural women faced a variety of multi-dimensional difficulties and constraints (economic, social, and cultural/religious) that affected the participation in income activities as well as their livelihood. The view of rural women has here been ranked according to their index values. The constraint index (CI) of the 19 pre-selected constraints ranged from 80 to 236, which is presented in table 6.46.

Table 6.46: Rank order of the constraints confronted by rural women in participating IGAs
(n = 100)

Constraints	Constraint level (%)				Constraint index (CI)
	High	Medium	Low	Not at all	
Inadequate finance to run IGAs	60	23	10	7	236
Lack of appropriate IGAs	50	37	2	11	224
Less homestead land	34	56	8	2	222
Lack of technical knowledge	24	58	12	6	204
The inability to understand training material	28	52	11	9	199
High price of agricultural and non-agricultural inputs	18	64	12	6	194
Poor infrastructure facilities- roads, bridge, markets	37	30	20	13	191
Less availability of agricultural input: fertilizer, seeds, pesticide, goats, cattle, chicks, ducklings, etc.	23	48	22	7	187
Poor health status	22	43	29	6	181
The lack of marketing channels	19	48	23	10	176
Inadequate extension agents	6	50	32	12	170
Less cooperation from husband and family	14	54	9	23	159
Social insecurity	14	45	21	20	153
Inadequate training program to run IGAs	5	43	47	5	150
Natural calamities - heavy rain, flood, drought	8	46	26	20	142
Harassment during work outside	4	42	41	13	137
Religious values	8	34	41	17	133
Lack of information on IGAs	34	8	7	51	125
Lack of initiative mind	5	19	27	49	80

The most common constraint confronted by rural women is ‘inadequate finance to run IGAs’ (as indicated by its CI of 236). In the study area, women were usually very poor and spent most of their income on food and household expenses. Consequently, they could not save enough money required to start an IGA. Credit for rural women provided by different loan sources was very small when compared to the high production costs of running an IGA. “NGO women” pointed out that the microfinance NGOs (e.g. SUS) provide loans ranging from Tk. 5,000 to Tk. 50,000 and each client had to deposit 10% of the claimed loans in their savings account prior to application, which was often difficult for them. In addition, the government offers fewer credit schemes for the rural women in the study area to run IGAs.

Therefore, scarcity of money was a common fact, and rural women could not conduct IGAs properly and were frequently reluctant to participate in income activities.

The second most important constraint was ‘lack of appropriate IGAs’. Rural women were involved with different IGAs, but the income from these IGAs was not substantial (discussed in section 6.3). Rural women explained that they are more interested in getting involved with IGAs which require little capital, less labor and are possible to conduct in the homestead, such as handicraft and tailoring.

‘Less homestead land’ was the 3rd most commonly encountered problem for the rural women. According to the report of rural women, the increasing population in the study area decreased homestead land over time, ultimately reducing the scope of vegetable cultivation around the houses, which was the most common IGA for rural women.

The problem of lacking ‘technical knowledge’ was another major constraint to conduct IGAs. Rural women indicated that they have less formal training in technical matters regarding IGAs, which keeps them from using technology and up-to-date information.

‘The inability to understand training material due to illiteracy’ was marked as the 5th constraint. Rural women in the study area had poor educational backgrounds, and they had difficulties for understanding the concepts behind new technologies and methods of training programs.

The high price of agricultural and non-agricultural input such as seeds, fertilizer, pesticide, chicks, ducklings, bamboo, *Bet*, thread, etc. was also a barrier to conducting IGAs. Furthermore, less availability of agricultural input during crop growing season was acute. Poor infrastructure facilities such as earthen roads and lack of bridges created a marketing problem, and there was a lack of marketing channels. Rural women went to market on foot, and street vendors sold their products door-to-door. Most of the roads in the study area were earthen, and during monsoon they faced difficulties to travel on the muddy roads. Often, they could not reach market sites easily and in a timely manner. The public transport system was very poor, and it was impossible to use personal vehicles because of their poor economic condition. Rural women also reported that poor health status was a barrier to conducting IGAs. They often suffered from diarrhea, cholera, dysentery, skin diseases, malnutrition, night

blindness, and mosquito-borne diseases such as dengue fever and malaria. An inadequate number of extension agents were another stumbling block faced by rural women to conducting mainly agriculture-related IGAs. The number of extension agents (SAAO) working in the study area as a staff of Department of Agriculture Extension (DAE) was not enough when compared to the large number of rural farm families that they were obliged to supervise. Usually an extension agent (SAAO) was responsible for 1,100-1,500 farm families for advice and supervision. Rural women mentioned that cooperation from husband and family members for performing IGAs is also low. In addition, they described that social insecurity, insufficient training programs, and natural calamities hindered their participation in IGAs. Every year they faced disaster like drought, heavy rainfall or flood, disease infection and insect infestation, etc. As a consequence, production and sale both decreased, and sometimes rural women lost their investment on IGAs. Rural women did not have enough leaflets, booklets and other information materials on IGAs. Therefore, supply of adequate finance, extension of potential IGAs and different facilities in the study area is needed in addition with attitudinal change for increasing women's participation in IGAs.

Overall constraints of rural women in participating in IGAs

The observed constraint score ranged from 14 to 46 against a possible range score of 0 to 57, with an average of 37.07 and a standard deviation of 6.29. From these constraint scores, rural women have been classified into three categories as shown in table 6.47.

Table 6.47: Classification of the rural women according to their overall constraints (n = 100)

Categories (based on score)	Number of rural women	Mean	Standard Deviation
Low constraints (≤ 19)	5	37.07	6.29
Medium constraints (20 - 39)	74		
High constraints (> 39)	21		

Table 6.47 reveals that 74% of the rural women faced medium constraints to conduct IGAs, while 21% faced high and 5% faced low constraints.

Links between the main aspects of constraints in participating in IGAs

Constraints faced by the rural women in participating IGAs were measured with scored causal diagrams (SCDs). Constraints in participating IGAs were discussed with the rural women, assuming the 'end constraint' being 'low participation in IGAs'. Firstly, the constraints

mentioned by the rural women were listed, secondly diagrams were drawn by them on a large paper on the ground and arrows were used to represent the cause and effect relationships between these different constraints, and finally selected constraints were scored by them. The scoring procedure helps to analyze the relative importance of the problems and prioritize them. The SCDs are presented in figure 6.22.

After considering ‘low participation in IGAs’ as the end problem, seventeen root causes were identified by rural women (table 6.48), of which insufficient money was the most crucial, followed by lack of appropriate IGAs, homestead land and inadequate training facilities. Insufficient money along with smaller number of credit sources, lack of homestead land, high prices and less availability of input decreased investment in IGAs. The immediate issues arising from reduced investment in IGAs were ‘less output’ and ‘increased cost of production’ which simultaneously led to ‘less profit’ and contributed 40 scores to the end problem ‘low participation in IGAs’. Non-availability of inputs at the same time was the reason of unwillingness to conducting IGAs. Lack of marketing channels, poor transport facilities, and environmental hazards caused marketing problems and increased unwillingness. The unwillingness also resulted from the dependency on men to sell products, the lack of appropriate IGAs, less cooperation from the husband and family members, social insecurity and harassment. Environmental hazards such as excess rain, flood and pest attack, as well as social insecurity like theft and destruction of crops increased the risk for agricultural products, which made women reluctant to conduct IGAs. The intermediary cause of unwillingness ultimately added 34 scores to the end problem ‘low participation in IGAs’.

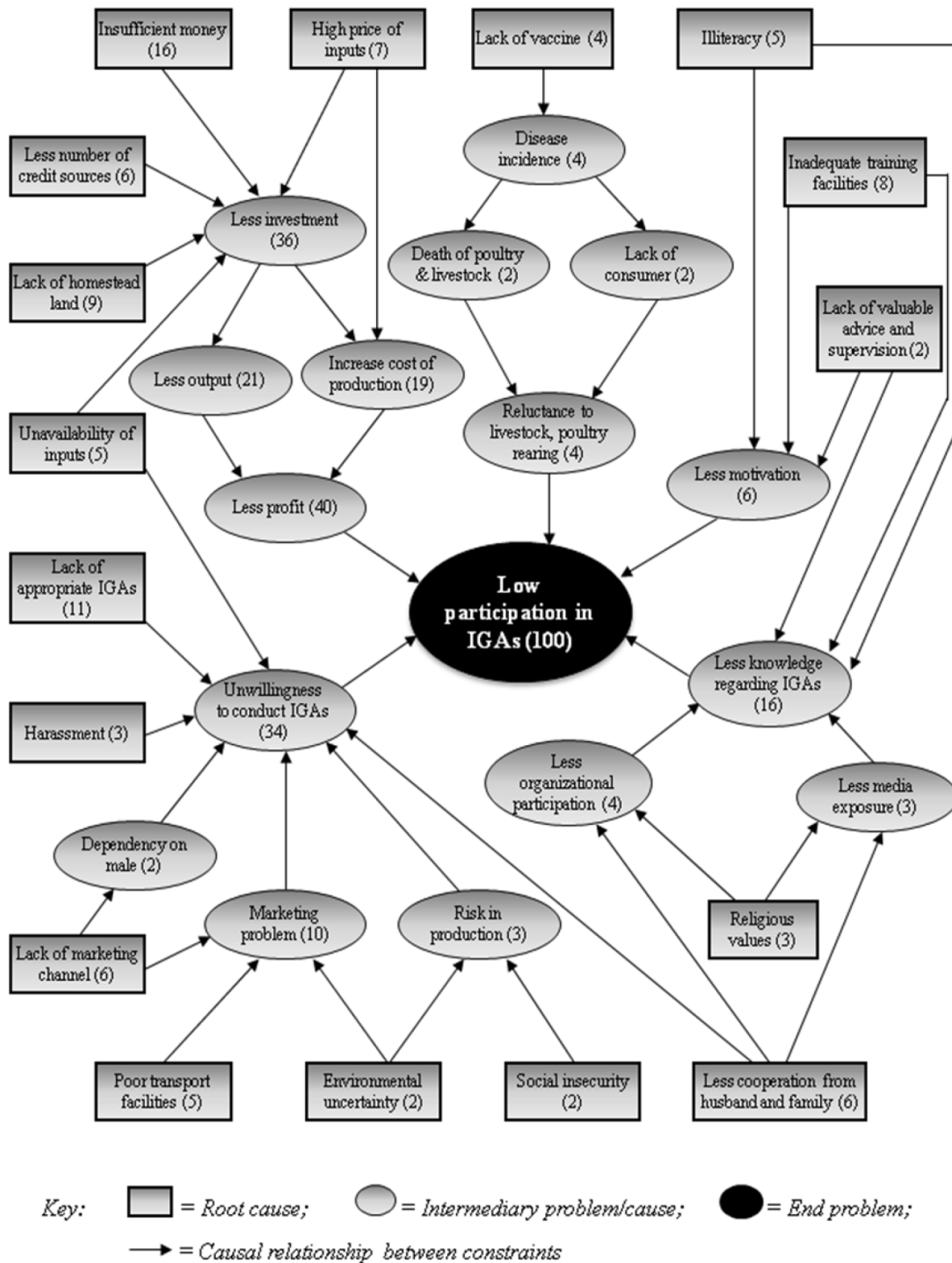


Figure 6.22: Scored causal diagram showing the links between the constraints and low participation in IGAs (value in the parenthesis indicates score of the constraint, n = 10)

Lack of cooperation from husbands and family members and religious concerns both decreased exposure to media and organizational participation, which in the long run was a reason behind the lack of knowledge regarding IGAs. The need for knowledge also generated from illiteracy, lack of valuable advice and supervision of extension agents and NGO staff and inadequate training facilities. Finally, the intermediary cause behind ‘lack of knowledge regarding IGAs’ kept the rural women from participating in income activities and contributed 16 scores to the end problem. Less motivation arose from illiteracy, lack of valuable advice and supervision and inadequate training facilities, directly influencing reduced participation in IGAs. Lack of vaccines increased the incidence of diseases, which simultaneously led to the death of livestock and poultry and decreased the acceptance of customers; both resulted in rural women’s reluctance to rear livestock and poultry and low participation in IGAs.

Table 6.48: Ranking of root causes according to total score

Rank order	Root causes	Score
1	Insufficient money	16
2	Lack of appropriate IGAs	11
3	Lack of homestead land	9
4	Inadequate training facilities	8
5	High price of inputs	7
6	Lack of marketing channel	6
7	Poor transport facilities	6
8	Less number of credit sources	6
9	Non availability of inputs	5
10	Less cooperation from husband and family	5
11	Illiteracy	5
12	Lack of vaccine	4
13	Harassment	3
14	Religious values	3
15	Environmental uncertainty	2
16	Lack of valuable advice and supervision of extension agent and NGOs staff	2
17	Social insecurity	2

Probable measures to solve the constraints perceived by rural women

Participants engaged in the SCDs were asked to give their opinion on possible solutions to the root causes of 'low participation in IGAs'. In response to financial, educational, gender-based, religious and socio-cultural barriers, they suggested a number of initiatives that might be taken by development organizations (such as GO, NGOs, WOs and private organizations) to remove barriers and to improve participation in IGAs. After a lively discussion with each other, they put forward the following suggestions which have been arranged in table 6.49. Here, lower rank indicates the need first priority and higher rank indicate least priority to overcome the constraints.

Table 6.49: Possible solutions to overcome the constraints in participating IGAs as perceived by rural women (n = 10)

Solutions	Percent of citations	Rank order
Providing sufficient credit at low interest rate in time	75	1
Adequate supply of agricultural inputs (seeds, fertilizer, pesticides, vaccine) and non-agriculture inputs in time	68	2
Developing a cooperative society to resolve the marketing problems	60	3
Providing sufficient need-based training facilities on IGAs from GOs and NGOs	56	4
Providing sufficient extension services from DAE, DLS, DOF, etc.	48	5
Adequate supply of technologies and information by skilled personnel	38	6
Providing sufficient government support	29	7

7 Conclusion, recommendation and implication

This chapter seeks to interpret and discuss the empirical findings in a deliberate and logical manner, give recommendations and explain consequences of the study results. The conclusions drawn from the research are shown in section 7.1, where the major findings are again outlined and conclusions regarding research questions (formulated in chapter 1) are drawn. The recommendations and implications of the study for policy action to improve livelihood of rural women are discussed in section 7.2. They are expected to enable policy makers to play a more effective role in the development of the country. Issues that still need advanced research are discussed at the end of this chapter.

7.1 Conclusions of the research project

7.1.1 Outline of the major findings

Characteristic profile of the surveyed women

The average age of rural women in this study was 38 years, with 74% within the age bracket of 30-50 years, which represents the economically active population. Low level of literacy prevailed in the study area (average education of the rural women was 2.68 years of schooling) while a large portion of rural women (41%) had no formal education at all. The majority of rural women (69%) were married and lived in the family with their husbands. Still, 16% were widowed, 4% were separated, and 11% had been divorced. The number of divorced, widowed and separated women was particularly high in the “NGO women” category. The average number of members in the family was 5.45 with the highest proportion of the 63% having medium family sizes (4 to 6 members). About half of the women (54%) had a nuclear family. Considering land ownership, three categories of women were formed. Over one half of the respondents (59%) were in the category ‘marginal farm household’ with an average farm size of 0.38 ha. Most of the male members (54%) had farming as their principal occupation, second most important was wage labor (22%) and very few were found to be engaged in trade or in salaried jobs. High variability existed among rural women regarding annual household income, the majority (87%) belonged to the low and medium income categories and very few were found to have a high income (13%). The average annual household income was Tk. 75,300 (€ 1 = Tk. 100). In the study area, the personal annual income of rural women ranged from Tk. 4,000 to Tk. 29,000 with a mean of Tk. 13,062. Food

intake of rural women covered 13 different food items, and 96% women depended on rice as their staple food. Among animal products, eggs were mainly consumed followed by milk, fish and meat. Respondents consumed only few seasonal fruits which were usually grown in the homestead. The diet of rural women was predominately starchy staples and imbalanced diet habits are common. Eighty percent of rural women took reduced amounts of food during periods of food shortage.

For the present study, half of the 100 women were selected on the basis of their association with a NGO. Among them, 82% were members of only one NGO, the others being involved in more than one NGO. The “non-NGO women” pointed out five reasons for not joining in NGO, out of these, family barriers came first. On the other hand, “NGO women” mentioned three positive elements that influenced them to be associated with a NGO: credit facilities, input facilities and technical support.

Daily life of rural women is characterized by a very busy schedule, where they usually work from early in the morning to late at night. The time spent by rural women for different activities ranged from 8 - 14 hours daily. The daily work schedule of a “NGO-woman” was in many aspects similar to a “non-NGO woman” but not identical. In addition to daily work, “NGO women” usually spent one extra hour per week to attend the group meeting of their microfinance NGO. Considering daily time use patterns, rural women spent 26.86% time for household activities, whilst 8.13%, 10.42%, 6.25% and 48.34% of time was spent for helping in agriculture, income generating activities, social activities and personal care, respectively. The hours spent for income-generating activities were quite low in both groups of women (the mean being 2.6 hours for “NGO women” and 2.4 hours for “non-NGO women”).

The estimated total household expenditure of surveyed women on food, housing and related expenses, and education were the highest and the combined contributions from these three items of expenditure made up 65% of the total household expenditures. About one-third of total household expenditure was on food. Rural households spent the least on personal care, social events, cinema, theater and entertainments, and these items comprised only one percent of the total household expenditure. The overall household savings in the study area (mean: Tk. 1,494.33, median: Tk. 1,144) can be considered as very poor. As a savings account was mandatory for “NGO women” with a regular weekly deposit, each member had to put at least Tk. 10 per week in her savings account. In the study area, the common sources of loan for

women were microfinance NGOs, money lenders, relatives and friends, and the Bangladesh Krishi Bank. Overall, microfinance NGOs from where 38% “NGO women” had a loan were the principal sources of loans. “Non-NGO women” depended more on money lenders for their credit needs, and 60% of their loans were drawn from this source. Rural women drew the least from the government credit institute, i.e. Bangladesh Krishi Bank. On average, 82% of rural women had at least one outstanding loan (i.e., 46% of “non-NGO women” and 36% of “NGO women”), 10% had 2 loans, 7% had 3 loans and 1% had 4 loans. The tendency to take an increased number of loans appeared to be higher for “NGO women” compared to “non-NGO women”. “NGO women” had more access to institutional credit and they took substantially bigger amounts of loans (mean: Tk 14,200) than “non-NGO women” (mean: Tk. 11,294). It is, however, remarkable to note that the repayment ratio was higher for “non-NGO women” (49.63%) than “NGO women” (39.13%). There were three main reasons identified by rural women which caused problems to repay loans. These were low income, project failure, and usage of the loans to fulfill basic needs. Rural women invested loans mainly in seven different sectors. On average, 59% of women used loans for income earning projects. Loans were also used for credit repayments, purchase of food, household expenses (education, clothes, toiletries, house repairing etc.), dowry payments, medical expenses and other purposes like land purchase or lease investment on land, mobile bill, etc. Therefore, 41% of women used credit as safeguard in different family purposes, with little chance of yielding a return. The average length of association of rural women with loan sources was 4.3 years. The association period with loan sources of “NGO women” (mean: 5.2 years) was higher than “non-NGO women” (mean: 3.4 years).

Observation and opinions of key informants, the researcher and rural women regarding livelihood and IGAs issues

The GO and NGO interventions have made some visible positive impacts on the socio-economic situation of rural women especially in the areas of education, health, water facilities, sanitation, participation in social activities, credit availability, training facilities and income generation over the last five years. But many obstacles such as food insecurity, income gaps, less opportunity of capital, negative attitude towards rural women, religious and social barriers and less support from GO still existed in the study area. It was clearly apparent that the rural women were always trying to improve their livelihood status and played a crucial role in supplementing the family income, but patriarchal domination coupled with restricted finances marginalizes their livelihood status in the society. From this experience it

would follow that formation of short and long-term strategies by GOs, NGOs and other women development organizations with emphasis on the above mentioned barriers may help rural women to attain education, training, income generation so that they may actively support themselves in the struggle against poverty and social barriers or injustices.

Comparison of selected characteristics of rural women

The results from the independent sample t-test based on field survey results indicated that “NGO women” were significantly ahead in education, marital status, occupation of male, household income, personal income, food consumption behavior, daily time utilization, household expenditure, savings, length of association with loan sources and cumulative livelihood status as compared to the “non-NGO women”.

7.1.2 Conclusion regarding research questions

The present study has covered five research topics with different operational criteria being used for each research topic (see chapter 1, section 1.2). In the following section, results regarding livelihood issues are concluded and then income strategies of rural women are discussed. Existing economic, social, cultural/religious constraints regarding participation of rural women in IGAs and suggestions for a policy guideline to improve the livelihood status of rural women are dealt with in the next steps.

7.1.2.1 Research topic 1: Livelihood Issues

In order to treat this topic, two research questions were asked and answered:

RQ 1: How do rural women express their existing livelihood status?

RQ 2: What are the factors influencing household income as well as rural women’s livelihood?

RQ 1: How do rural women express their existing livelihood status?

In the following section, the main findings about livelihood issues are organized into two parts separately. At first, results regarding the existing situation of seven livelihood indicators (such as food availability, housing condition, water facilities, health situation, sanitation, participation in social activities and freedom in cash expenditure) are presented and then the overall livelihood status of rural women is concluded.

Brief description of the seven livelihood indicators

Analysis of data regarding the selected livelihood indicators revealed that a majority of the rural women (70%) had high food availability. There were two lean periods each year in the study area when the availability of food was extremely low, i.e. 73% during the two lean periods. The food availability was highest (90%) following the major rice harvesting season *Boro* (May to August), because rice was the staple food. Houses owned by rural women were constructed with different qualities of materials such as brick, tin, straw and soil depending on their economic capabilities. A large proportion of rural women possessed a dwelling with a corrugated tin roof (76%), exterior walls made of soil (36%) and earthen floors (87%). A majority of the kitchens (85%) was located outside and separated from the house and about half of the total houses (46%) had only simple furniture. The research findings from FGDs indicate that the variation in house construction materials and housing conditions was linked to income groups and household farm sizes. Sixty-seven percent of rural households were using underground water as principal water source. A considerable proportion (33% of women) was using contaminated and unsafe water collected from rivers and ponds/*Qup*. Daily water use pattern indicated that approximately 99% women used underground water for drinking and 68% of women used underground water for cooking purposes. The spatial distribution of monthly drinking water over the year showed that water availability was inadequate from December to April while high water scarcity was found in the month of February due to low rainfall and depletion of underground water sources. During that time, rural women rely on deep tube wells, *Qup* and pond water as a source of drinking water. During the rest of the year, drinking water availability was adequate. Considering water quality, only 53% women had access to good quality water and approximately half of total population drank unsafe water that contained Fe (Iron), As (Arsenic) and had a bad smell. Majority of the rural women (81%) had very limited access to medical facilities and were getting poor treatment. Rural women were less aware about their health treatment facilities and the pharmacy was the most popular health treatment provider for them. The health treatment service from the government hospital depends considerably on the socio-economic status of the patients, rich patient generally receiving better treatment than the poor. The situation of sanitation was not satisfactory and only 73% women had toilet facilities. Well-structured toilets such as those with concrete roofs and brick walls were very rare in the study area. The majority of the toilets were situated outside of the house (62%). The toilet conditions varied along economic conditions of the household, where high income groups used more hygienic toilets compared to the low income groups. The participation of rural

women in social activities varied between low to medium levels, with the majority having a low participation (57%). Rural women predominantly participated in different family programs such as marriage ceremony, *Akika*, *Milad*, invitation and *Chehlum*. Most of the rural women (65%) had medium freedom regarding cash expenditure. Husbands mainly take decision regarding income-related items. However, decision-making on liability to repay loans fell on the women.

Overall livelihood status of rural women

A large proportion of the studied women (73%) belonged to the low to middle classes regarding the livelihood status. Only 20% belonged to high livelihood status. A small minority of 4% and 3% had very low and very high livelihood status, respectively. Finally, the empirical findings revealed that according to all selected livelihood indicators the overall livelihood situation of rural women was not satisfactory: Therefore, the programs of both GO and NGOs must give priority and assist facilities for the improvement of selected seven livelihood indicators of the present study, which can bring fundamental changes in rural women's livelihood in terms of quantity (income, production) and quality (e.g. housing, health, nutrition and awareness).

RQ 2: What are the factors influencing household income as well as livelihood of rural women?

The results from the Pearson correlation analysis confirmed that out of sixteen independent variables, thirteen showed a significant correlation with the dependent variable, household income of rural women. Among them, ten independent variables such as education, family size, farm size, personal income of rural women, food consumption behavior, association with a NGO, daily time utilization, household expenditure, savings and cumulative livelihood status were positively correlated to household income, while three other variables such as the age, occupation of male and length of association with loan sources were negatively correlated. The remaining three variables marital status, family type and loans repayment did not have any relation with household income.

The multiple regression analysis shows that 64.8% of the variation in household income was explained by the eight important variables namely age, education, family size, farm size, association with a NGO, loans repayment, length of association with loan sources and

cumulative livelihood status. Seven variables had a significantly positive influence on household income, while only length of association with loan sources restrained it negatively.

7.1.2.2 Research topic 2: Income strategies of rural women

The following five research questions were used to treat research topic two.

RQ 1: What are the existing IGAs in the study area?

RQ 2: What extent of women participation in different IGAs?

RQ 3: Which group of women is earning more from IGAs?

RQ 4: Which IGAs are currently playing an important role in income generation?

RQ 5: How are personal income of rural women and household income correlated?

Field surveys indicated that rural women were actively participating in ten different IGAs. In general, their participation was relatively high in vegetable cultivation, poultry, goat and cattle rearing, small business and tailoring. Activity of women was not as frequent in aquaculture and street vending. The degree of participation in various IGAs significantly varied as a consequence of the involvement of rural women with NGOs. There was a significant difference of participation for four IGAs, namely cattle and goat rearing, poultry, small business and tailoring between the two groups of women (“NGO women” and “non-NGO women”), where “NGO women” were remarkably ahead. In addition, the participation of “NGO women” was better than “non-NGO women” both in agriculture and non-agriculture activities. “NGO women” were supported by NGOs with loans, input, technology, information and market facilities, which encourage high participation in income activities and resulted in an unequal position with “non-NGO women”. Thus, it is important to create different opportunities for the “non-NGO women” to increase their participation in IGAs.

Rural women earned income from both agriculture and non-agriculture sources, where agriculture activities contributed 66% and non-agriculture sources contributed 34% to the personal income of rural women. Among the existing IGAs, cattle and goat farming were the most promising IGA in the study area and, consequently, a considerable number of rural women were involved and the benefit was higher compared to other IGAs. Cattle and goat rearing contributed 33% to their personal income and average income from this sector was Tk. 11,000. However, returns from this sector were not yet satisfactory enough, because their cattle breeds were mainly local and less productive. The next highest income came from poultry (17%). Limited availability of raw materials, technology, training, feed and difficulty

of marketing, etc., often prevents higher incomes from IGAs. “NGO women” made a significantly higher profit from all sources (ten IGAs) than “non-NGO women”. The role of microfinance NGO has been found to have some impact in motivating them to participate more in IGAs. Furthermore, “NGO women” got maximum support from their relevant organization from the beginning of an IGA program until marketing. This may have helped to ensure the success of IGAs and provide higher income compared to “non-NGO women”. This highlights the intervention of NGO to improve the participation of rural women in income generating activities. Considering organizational support, “non-NGO women” had no access or inadequate access to credit, input material, training and marketing facilities, etc. Therefore, special attention should be paid to this group of women. An examination of the potential of the different IGAs revealed that cattle and goat rearing, poultry and tailoring were the IGAs with the highest potential in the study area.

The single line regression analysis between personal income of rural women and household income showed that 68.4% of the variance in the household income of rural women could be explained by the personal income of rural women. Contribution of “NGO women” to household income was significantly higher than their counterpart “non-NGO women”.

7.1.2.3 Research topic 3: Impact of IGAs

The third research topic deals with the impact of IGAs on the income of rural women and their livelihood. One research question has been formulated to clarify this research topic.

RQ 1: What is the impact of IGAs on the income of rural women and their livelihood?

With respect to the impact of IGAs on personal income of rural women during the last three years, 54% of women found that their income has remained unchanged, among them 68% are “non-NGO women” and 40% are “NGO women”. Overall 33% of women found their income has increased slightly, of which 42% are “NGO women” and 24% are “non-NGO women”. The improvement of income has been experienced mainly by “NGO women” and rarely by “non-NGO women”. As one result of increased income, purchase of input such as fertilizer, insecticides, seeds, vaccine, supply of improve breeds of goat and increased treatment facilities of livestock was possible, thus leading to an increase in agricultural and non-agricultural production. Only 10% of women experienced a decrease in income. Most of these women identified project failure as the most important reason followed by high input prices

and an unstable market. Therefore, regular monitoring of markets by relevant government agencies may help to keep the input prices (agricultural and non-agricultural) stable, helping to prevent high production cost and make the IGAs successful. Development of infrastructure like market places, roads and communication channels may provide better opportunities for marketing. The income activities in the study area are mostly small-scale, and it is often difficult to sell small amounts of products to distant market places. Middlemen are more interested in buying larger amounts of products from the local market to transport them to the wholesalers in the urban areas. During the peak harvesting period of crops, the middleman often does not want to pay a reasonable price for the product. Constituting co-operatives can help rural women and prevent discrimination of market price. Members of the cooperative can collectively market their products directly to the wholeseller with a high price. They also can control local market prices with combine decisions, helping to breakdown the syndicate of the middleman and can prevent fluctuation of market price.

On the other hand, nine items contributed to increase income of rural women in the last three years. Among them, ‘increased production in agriculture and non-agriculture’ played a major role as a result of availability of input such as fertilizer, insecticide, seed, vaccine, bamboo, *bat*, thread, dye, etc. and availability of improved handicraft design. In addition, supply of improve breeds of goats and more treatment facilities and opportunity of training from NGOs also contributed to increase the production of cattle and goat remarkably. Sixty percent of rural women explained that their livelihood improved due to involvement with IGAs. It is very important to formulate an appropriate strategy by development agencies of the country for increasing their participation in IGAs to trigger their economic empowerment.

7.1.2.4 Research topic 4: Constraints issues

This research topic was investigated with the help of the following research question.

RQ 1: What are the existing economic, social, cultural/religious constraints that hinder participation of rural women in IGAs?

Rural women faced a number of problems working against more participation in IGAs. Seventeen root causes were identified by using scored causal diagrams (SCDs) to the end problem ‘low participation in IGAs’. Among the root causes, insufficient money was the most crucial barrier followed by lack of appropriate IGAs, small homestead land and inadequate

training facilities as the main aspects. Furthermore, the inability to conduct IGAs also resulted from lack of cooperation from husband and family members, from religious values, social insecurity and harassment.

Sufficient credit at low interest rates from either GOs or NGOs may allow them to conduct IGAs in a proper way. Selection of IGAs considering local resources, ability and demand in the society may also improve rural women's participation in IGAs. In addition, IGA basic training and education, improvement of marketing facilities, price assurance, and better transport facilities may be beneficial to the rural women.

7.1.2.5 Research topic 5: Suggestions of rural women

Suggestions of rural women regarding their livelihood status and existing barriers in the society which hindered their participation in IGAs are presented in this part as a basis for formulating policy guidelines. Two separate research questions were developed to understand research topic five.

RQ 1: What are the suggestions by rural women to improve their livelihood status?

Rural women suggested five major areas of improvement in order to increase livelihood situations. Credit availability was ranked as the most important issue followed by working opportunity, food availability, education and good housing. Therefore, in the implementation of holistic strategies (short-term, mid-term and long-term) for the development of rural women livelihood, the responsible agencies such as GOs, NGOs and women's development organization must include the above mention suggestions during program planning.

RQ 2: What are the suggestions of rural women to overcome barriers which hindered the participation in IGAs?

Rural women of the study area suggested that an increase in the credit supply, input supply, training facilities, supports and services from GOs and NGOs will help to overcome barriers to engage in IGAs. All participants contended that the family could play a significant role in promoting their participation in IGAs. To overcome social barriers, motivation programs for household heads, social elites and religious leaders will be helpful to change their attitudes towards women, possibly favoring participation in IGAs.

7.2 Policy implication

7.2.1 Proposed model for improving rural women livelihood

One of the objectives of this study is to propose a model for poorly developed areas to improve livelihood through sustainable participation in IGAs. The outcome of the survey, existing problems, suggestions of rural women and key informants, and the researcher's view have been integrated together to construct this model. The model proposes more participation of rural women as an effective way to stimulate income activities. The influential factors, both those which positively enhance rural women's income or negatively affect women's ability to participate in IGAs as well as income, have been included in the model. The role of development agencies, legislative steps, possible future planning and programs, have been described elaborately in this model for ensuring better household income of rural women through IGAs. The major intervening agencies, namely government organizations (GOs), non-government organizations (NGOs) and women's organizations (WOs), other stakeholders (private initiatives, civil society, etc.) as well as the entire rural society may utilize different aspects of this model to improve the livelihood of rural women from their existing level. Figure 7.1 shows the proposed model for improving the livelihood of rural women in areas similar to the study area.

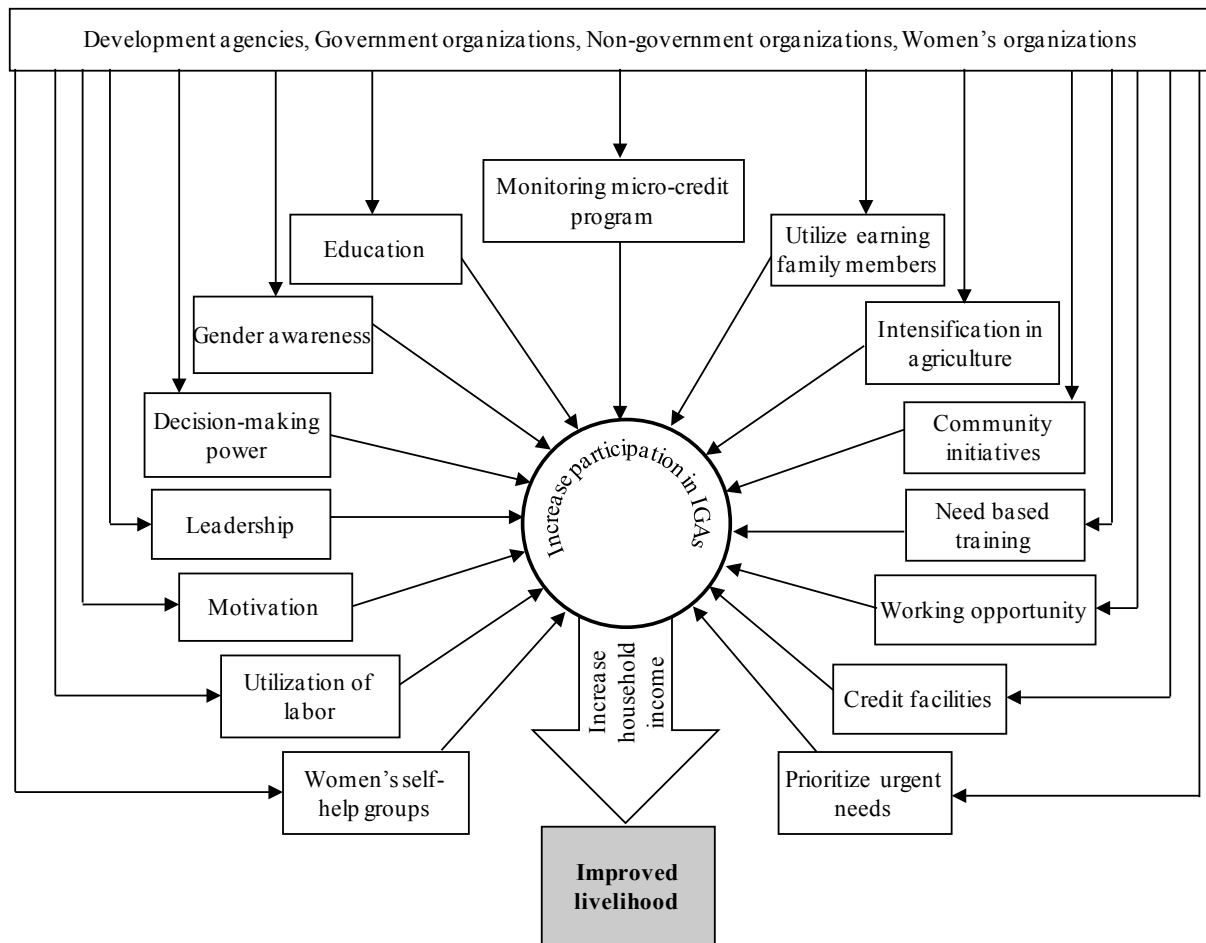


Figure 7.1: Proposed strategic framework for improving rural women livelihood

1. Monitoring micro-credit program

It is evident from the results of step-wise regression analyses and independent sample t-statistics that the association of rural women with NGOs contributed to increase personal as well as household income. Key informant interviews and discussions of the study also revealed that the access of rural women to NGOs provided an opportunity to increase income in a variety of ways. In the study area, “NGO women” had better positions on different aspects such as education, food consumption behavior, daily time utilization, savings and cumulative livelihood status, which reflect positive roles of non-government organizations towards livelihood improvement.

However, the association of rural women with loan sources for a long time negatively influenced household income. Microfinance NGOs were the principal sources for loans among the four loan sources from where 38% of rural women took out loans. In addition, it

was found that “NGO women” were associated for longer periods of time with micro-credit program. The main reasons for long-time association with micro-credit programs were project failure, high interest rate, unsuitable loan repayment system, improper use of loans (not investing in IGAs) and prevailing poverty (as identified through the quantitative survey and FGDs). A lion’s share of the income from IGAs further returned to microfinance NGOs as a payment of interest. In Bangladesh, there is no fixed rule to operating micro-credit programs by NGOs and thus, they take interest according to their own desire, which is quite high compared to private and public banks. Concrete guideline for the micro-credit program of NGOs need to be formulated by the government establishing rules against high interest on borrowed money. This will help to make the IGAs profitable. In addition, the loan repayment system of microfinance NGOs in the study area was not favorable to the borrower. After one week of loan distribution, microfinance NGOs usually start to collect installment money from the borrower. To repay initial loan installments “NGO women” either use a portion of loans money instead of investing it in IGAs or they take credit from other sources and enter into cross-borrowing. There must be a grace period for repayment, at least until returns come from the IGAs. This grace period may vary for the types of IGAs. Adequate monitoring and follow up support from NGO personnel can help to prevent misuse of loans money and project failure. An insurance system can be introduced to support “NGO women” in case of project failure. In this way, a negative impact of micro-credit program of NGOs can be overcome or at least reduced.

2. Increasing credit facilities

The present personal income of rural women in the study area was not satisfactory. Scarcity of cash to invest in IGAs was an acute problem among the surveyed women. Providing necessary financing at low interest rates from financial institutions along with logistic support such as supply of raw materials, providing marketing facilities of products will be helpful to conduct IGAs and thereby increase household income of rural women. Rural women will be served better if at least a part of the micro-credit is given in kind and not in cash. A sufficient increase in rural women’s income will help to build up their productive assets.

3. Facilitating need-based training

In Bangladesh, training facilities are mainly available in the urban areas, while rural people are often neglected. In the study area, most of the women used traditional manual skills in

their IGAs, and lack of technical skills adversely affected the opening of new IGAs. One of the “NGO women” mentioned that enjoying a certain volume of credit is not enough unless rural entrepreneurs could also be offered adequate training facilities so as to utilize the available resource at the optimum level. Thus, training exposure can be considered to be one of the prime factors for injecting new ideas to conducting IGAs. At the same time, intensive need-based training opportunities enhance understanding and improve personal qualities such as skill, knowledge, creativity, independence, and self-esteem regarding new technologies in order to achieve economic self-reliance. The surveyed women have virtually no facilities to receive training on agricultural or non-agricultural activities. However, some NGOs are working in the study area whose activities are mostly concentrated in micro-credit distribution, and after fulfilling micro-credit obligations they could intensify training activities. In the study area, it has been found that “non-NGO women” have no training experience in IGAs from any organization. The majority of the “NGO women” had at least short trainings by the microfinance NGOs imparting training to members only is insufficient considering the large population. Before providing credit, professional skills training should be given to borrowers who are unskilled or semi-skilled. Appropriate training will help them to participate in IGAs efficiently. The Department of Agricultural Extension (DAE) with the collaboration of NGOs which are working in the study villages can provide training directly to rural women. GO, NGOs and developing agencies should incorporate need-based training opportunities for rural women in any gender development program.

4. Formation of women’s self-help groups

Cooperatives or self-help groups play a significant role in upgrading rural women’s status on a sustainable basis through the formation of savings and capacity building. Self-help groups can develop communication skills and promote business activities, such as direct sale of farm and other products and considerably reduce their dependency on men. The self-help group approach has proved successful not only in improving the economic conditions through income generation but also in creating awareness about health and hygiene, sanitation and cleanliness, environmental protection, and importance of education. Self-help groups can perform a vital role in initiating leadership skills of rural women through involving them in regular meetings and action oriented discussions (e.g. on women’s rights). These groups are self-governed, with decisions about production and marketing taken collectively, while a group leader is responsible for identifying potential marketing centers and consumers. They represent a new culture in rural development, breaking with traditional bureaucratic and top-

down management. India, for example, has achieved tremendous progress in women's empowerment through such groups (REDDY, 2008). The support of donors, NGOs and women organizations initiatives' would be helpful when constituting self-help groups in the study area. This group will provide rural women a platform to come together to act as a pressure group, at the same time providing credit and extension support for various production-oriented income generating activities and social support (e.g., legal support and counseling) among the members.

5. Motivation

The prevailing negative attitude of the rural society that prevents rural women to work outside the household needs to be changed. Motivation programs by GOs and NGOs can change social attitudes regarding women in the long run. Adult education programs, consultation with society and religious leaders, organizing training programs, broadcasting through mass media may bring changes in the society, which help to develop a positive image of women is participation in IGAs. Government and non-government social workers, school teachers, elites in the society, members of the local club and educated youth groups can take part in these motivation activities. Furthermore, arranging social meetings among the women helps them to express their ideas, share their own personal experiences, and strengthen existing networks, which will again motivate and encourage them to participate in IGAs. In Bangladesh, an excellent example of a successful motivation program on agriculture called '*Hridoye Mati O Manush*' broadcasted through television has entailed considerable social change (http://www.shykhseraj.com/programme/hridoye_mom_overview.php?ov=1). This program successfully informed rural farmers, both men and women, about new agro-inputs and technologies, how they should adopt and adapt to the new agricultural methods, harvest techniques and enlightened them with the information of new crops. Millions of unemployed youth and women started earning money, working at the homestead, gardens, poultry and fish farms due to the inspirational documentaries of this program. As an agricultural country, Bangladesh deserves such types of programs for motivating people at root levels which bring success in income generation and poverty alleviation.

6. Utilization of family income earners

Results from the step-wise regression analysis indicated that family size has a positive influence on household income. However, Bangladesh as a poor and densely populated

country does not appreciate large families for future development at the national level because population increase will intensify the competition for limited resources and may enhance social conflicts rather than social development. Skill development of the economically active family members through intensive training and utilization of this skilled manpower in different IGAs will contribute to increased household income more sustainably than an extension of family size. Extension of family will put pressure on resources which will be in turn a barrier to conduct future IGAs. GOs, NGOs and other human development organizations need to take the responsibilities to impart training exclusively for improving skills of income earners.

7. Prioritization of urgent needs

Thrust areas, which need immediate attention to increase existing livelihood status of rural women, are improving food availability, housing conditions, water facilities, health situation, participation in social activities and freedom in cash expenditure. Development agencies have ample scope to improve the situation in these areas. Economic empowerment of rural women can help them to spend more money in improving housing and water facilities and reduce the existing scarcity of food. Furthermore, poor economic conditions as well as lack of knowledge and poor toilet conditions prevent the provision of adequate sanitation facilities. Rural women suffer from various contagious diseases. The provision of free and effective primary health care facilities at the village level should be given priority as well as providing opportunities for training to increase knowledge and awareness on health, nutrition and sanitation. Women's organizations, alongside GOs/NGOs services, can facilitate practical knowledge on nutrition, health treatment provider, health, safe water and sanitation through group discussions.

8. Developing leadership

Encouragement of rural women to participate in various social programs like village meetings, neighborhood arbitrations, voluntary help and action-oriented discussions in the community will develop and improve their leadership skills. A sufficient increase of women's leadership skills may be very helpful to strengthen rural women's cognitive domain, thereby increasing their bargaining power at household level. To develop women's leadership skills, promoting and encouraging women's participation in the local institutions, and organizing training program focus on information dissemination, personal empowerment, building skills

for civic participation may be useful. Different NGOs are working to develop leadership among the rural women through different programs like education, microcredit, social and legal awareness, etc. However, their programs should be strengthened.

9. Increasing decision-making power

Decision-making power of rural women in the family is a key determinant for improving livelihood. Without the active participation of women and the incorporation of women's perspective at all levels of decision-making at the household level, development and peace cannot be achieved. In the study area, the decision-making power of women is very low, with 79% of rural women having low to medium freedom to take decisions at household matter. Their area of decision-making is concentrated mainly on minor household repairs, child education and loan repayments. In contrast, decision-making capability on investment and health care is very low. Studied women still need to negotiate or seek prior permission from their husband or other male members of the family in order to visit neighbor house or other place and attain in village meeting. Promoting rural women's potential through education, skill development, income activities, participation in rural development programs, and raising gender awareness may encourage equal participation of rural women in different aspects of decision-making processes at household level. A conscious effort and motivational campaign by GOs (e.g. Ministry of Health and Family Welfare, Department of Agricultural Extension) in collaboration with local NGOs (SUS, ASA, Gramen Bank), community leaders and religious elites may change the current situation of women particularly regarding their decision-making power. In addition, mass media campaigns (TV and radio) may encourage them to stand up for their own rights. Promotion of enterprise selectively for women may improve their economic situation and help to hold a better position in the society as well as to improve decision making power.

10. Community initiatives

There is a need to consider the involvement of community and religious groups for uplifting rural women. Issues related to livelihood development of women should be given priority in the interventions of village councils and of religious groups at the local level. Their initiatives would build the base for promoting positive family practices, social norms favorable to women, income generation and education, encouraging gender equality in the community.

Thus, the affluent and influential section of the community can play a dominant role in improving livelihood status of rural women in the study area.

11. Increasing gender awareness

To create gender awareness among family members, local community leaders, religious instructors, extension agents, school teachers and members of the local elite can play important role. They can organize joint meetings, group discussions, speeches and counseling, etc. Furthermore, intensive training for local community leaders and religious instructors is needed to create an understanding of the importance of education, disadvantages of early marriage, need of women's participation in IGAs for economic freedom, women leadership and participation in the local institutions and so on. This training may encourage the local leaders to organize an action-oriented dialogue with the rest of the community to develop their own action plans and execute them through coordinated efforts. Campaigns, organization of rallies, public meetings, and projection of documentary film can be effective tools to raise massive awareness about gender, which can change the mind-set of rural people. It can be carried out on the eve of special significant days (e.g. International Women's Day, Human Rights Day and Mother's Day). The electronic media (mainly, radio and television) can play a more proactive role to raise awareness among the rural people by broadcasting dramas, folk songs, puppet shows and advertisements focusing exclusively on a positive image of women. Some other media such as posters, newsletters and booklets could also be effective for literate people. These initiatives can build the platform for expressive welfare of rural women and can prompt change in social perceptions. In Bangladesh, many programs are broadcast through the government television channel (BTV) on women regarding education, early marriage, dowry, property right, acid violence, etc., which are creating awareness among the people. However, low electricity coverage and inadequate supply of electricity mostly deprive rural people from enjoying these programs. The economic condition of rural people makes television sets unaffordable. In addition to the supply of sufficient electricity, the formation of developmental clubs and the distribution of television sets among them with affordable installment facilities may play important role to help create awareness on women's rights amongst the rural community.

12. Intensification in agriculture

It has been evident from the research findings that a larger farm size will significantly contribute to household income. In a poor society like the study area, an individual has limitation to ownership with large farm size and this situation cannot be improved due limited area and population pressure. In order to continue contribution in household income from the existing farming, adoption of modern technology, increasing cropping intensity, vertical space utilization and bringing fallow land under cultivation may play a proactive role.

13. Utilization of labor

From the findings of step-wise regression analysis it has been found that age of rural women is positively related to household income. Young rural women contributed less to household income as compared to middle-aged and older women. The main reasons for the low contribution to household income of young women were early marriage, bearing and rearing of children and the multiple burdens of household work. In order to utilize the energetic and dynamic labor forces of young women, efforts should come first from the family, where cooperation and labor division may improve the situation. Relatively older women who are unable to do hard work can share household work like child rearing. Other family members also can cooperate with household activities. In this way, it will be possible to increase the availability of young women in IGAs. In addition, laws insisting on minimum age for marriage should be strictly enforced in rural areas by preventing the early marriage of women. The GOs and NGOs can establish facilities for free counseling of rural women and girls on different issues including marriage and family planning to create awareness. In addition, the electronic media can play an active role in raising awareness on these issues. The above steps may help young women to contribute more to the economic well-being of the family.

14. Education

Both quantitative and qualitative analyses indicated that education influenced the livelihood of rural women. The main reasons for the low educational level, evident from the key informant interviews and focus group discussions, were early marriage, poverty, lack of educational institutions, and attitude of parents. The Ministry of Education, the Ministry of Women and Children's Affairs has initiated many programs for uplifting women's educational status, such as free education for girls, food for education and commencement of satellite primary schools. In order to uplift rural women who are beyond school age, efforts

should come from the rural society itself to provide adult education. Such efforts can be supported by GOs and NGOs. Community initiatives by the local community leaders (including school teachers, religious leaders and local elites) for spreading education across the society through educated rural youth can be an effective strategy, aimed at uprooting illiteracy and related social deficiencies from the society.

15. Creating working opportunities

In the study area there was a scarcity of working opportunities. Introduction of new income activities based on local resources, demand and ability of rural women will be helpful to utilize labor forces and to increase household income. Non-farming activities may get first priority to be selected as new IGAs because of land scarcity, lower risk, potential of short term returns and higher benefit. However, non-farming activities, like setting up cottage industries, can create many job opportunities for women. In addition, marketing of agricultural product was a great problem in the study area and setup of industry based on agricultural products may help to eliminate marketing problem as well. Bangladesh's small and cottage industry corporation (BSCIC) can take initiatives in this regards to setup small scale industry for rural women in the study area.

7.2.2 Suggestions and directions for further studies

On the basis of scopes and limitations of the present study, the researcher would like to suggest some areas which need to be studied further. There are ample opportunities and, in fact, necessities to pursue further research related to the questions raised in the present research project. Some of them are listed below.

1. Further in-depth research can be undertaken to study specific women's groups such as ultra-hardcore poor and destitute women or abandoned women (separated, widowed, divorced) or young women so as to get a clear understanding of the problem dynamics using specific criteria.
2. The present research deals with women only, however, in future research the view of men regarding to improvement of livelihood must definitely be integrated.
3. The study was conducted in four villages from two unions under one district, Netrokona of Bangladesh. It can be replicated by similar research design in other places of the country where comparable socio-economic and physical condition exists in order to confirm present research findings.

4. Only sixteen variables of rural women were included in present study. There might be other variables (e.g. religion, innovativeness, husband's attitude, perception of rural women on gender awareness) which have an influence on the livelihood of rural women. Further research projects may be conducted with variables other than these sixteen variables.
5. An important aspect of livelihood - coping strategies during disaster periods - was not examined in this study. There is a need to understand and resolution of the specific and effective strategies for the means of managing and coping with risks. Some further studies can attempt to find comprehensive and exhaustive answers on this issue.
6. There are many IGAs conducted by rural women, and various technologies were used to implement these. Hardly any of these technologies accommodate rural women's particular needs. Further study is needed to find out the lacking of existing technologies, possible solutions, and to introduce new technologies really need for rural women under the existing facilities.
7. Both GOs and NGOs have their own programs for the development of rural women. However, impact evaluations on the relative performance of those programs are much in need. On this basis, policies for greater participation of women in development activities can be implemented more effectively.

8 Summaries

8.1 English summary

Research problem and objective

Bangladesh is a developing country where 72% of the total population lives in the rural areas. Women constitute nearly half of the country's population and their activities especially in the rural areas are confined within the homesteads, where household activities, bearing and rearing the children and looking after the elderly are major tasks. Rural women belong to the most disadvantaged part of the society and face a difficult situation in terms of social oppression and economic inequality. They still have not been able to be integrated into mainstream of production. However, women are involved in many income activities in the agricultural sectors as unpaid helpers, and their labor goes unrecognized. This group needs to bring in economic activities for livelihood development by exploring suitable IGAs and strategic measures to overcome these barriers.

In developing countries like Bangladesh, personal income of rural women is an essential precondition to enhancing household income, which improves the entitlement on basic necessities. The main purpose of this research project is to improve livelihood of rural women through involving them in different IGAs. An attempt has been made to know the present livelihood situation of rural women, to assess their income strategies, to examine the impact of NGO activity on women characteristics, to investigate household income of rural women and factors influencing it and to find out the existing constraints on participation in IGAs. Finally, suitable strategic measures are suggested for improving livelihood of surveyed women.

Methodological approach

The field survey was conducted in four randomly selected villages of the Netrokona district, namely Rajendrapur, Bamonmoha, Guatala and Panchgoj from January to April 2009. These four villages are more or less similar in terms of the agricultural farming system, nature and condition of living, language, infrastructural facilities, organizational environment, and economic activities. A total of 402 households were identified considering the criteria 'involvement of women in IGAs' and they are divided into two groups such as (i) associated

with a NGO (NGO women) and (ii) not associated with a NGO (non-NGO women). From each group, 50 women were randomly selected for face-to-face interviewing and data collection. In this study, structured and semi-structured interview schedules as well as several tools of the participatory rural appraisal were used to obtain necessary information. The collected data from rural women were analyzed using the Statistical Package for Social Science (SPSS, version 17.0) program and Microsoft Stat graphics. Both descriptive and analytical methods were employed in order to analyze the data. Sixteen characteristics were considered as independent variables to test the dependent variable - household income. Household expenditure and savings were added to obtain household income. The selected independent variables were measured through computing scores based on either scale or appropriate methodology which are followed by previous researchers. Regression analysis was employed to find out the significant contribution of independent variables to the household income.

Results and conclusion

The majority of the studied rural women have a low to middle level of livelihood status. Five major areas are identified essential to improve existing livelihood situation, which are credit facilities, working opportunity, food availability, education and shelter. Among the selected independent variables, seven variables such as age, education, family size, farm size, association with a NGO, loans repayment, and cumulative livelihood status have a significant positive influence on household income. However, the length of association with loan sources has a strong negative effect on household income.

The findings from income strategies of studied women indicated that they are involved in various income activities for earning but their personal annual income from various IGAs is not handsome (mean Tk. 13,062, where Tk. 100 = € 1). The extent of participation of “NGO women” in various IGAs is higher than “non-NGO women”, and they made a significant profit from all IGAs compared to “non-NGO women”. In addition, the contribution of “NGO women” to household income is significantly higher than their counterparts. Credit, input, training, technology, information and market facilities received by “NGO women” are the most influential factors for increasing their extent of participation in IGAs, as well as increasing their personal income and household income. The impact analysis of IGAs on personal income of women shows that overall 36% women have increased income from IGAs during the last three years (2006-2008). Access to micro-credit, input such as fertilizer,

insecticides, seeds, vaccines, etc., market facilities, supply of improve breeds of goat, and improved treatment facilities of livestock all lead to increased income. It is important to mention that the above opportunities are usually less accessible to the “non-NGO women”. Both group of women felt that they require sufficient support for credits, input supply, and market facilities to increase income from IGAs and need training facilities for performing IGAs efficiently.

The constraints index (CI) analysis shows that overall 74% of the rural women faced medium constraints to participate in IGAs. Rural women identified a total of seventeen root causes hindering their participate in IGAs, and major causes are insufficient money, lack of appropriate IGAs, small homestead land, inadequate training facilities, high price of inputs, lack of marketing channels, poor transport facilities, and less cooperation from the family.

Recommendations

In order to improve prevailing livelihood situation of the studied women, comprehensive initiatives are needed to be taken by the government organizations (GOs), non-government organizations (NGOs), women’s organizations (WOs), development agencies, as well as rural society. The following proposed strategies will increase household income as well as minimize the hardness of rural women for sustainable participation in IGAs:

- i. Ensuring credit facilities by GOs and NGOs,
- ii. Improving access to microfinance NGOs with modification of micro-credit program,
- iii. Facilitating need-based training,
- iv. Establishing women’s self-help groups and developing leadership among rural women,
- v. Prioritizing improvement of urgent needs such as food availability, housing conditions, water facilities, health situation, participation in social activities and freedom in cash expenditure,
- vi. Increasing decision-making power, gender awareness as well as encouraging motivation program and community initiatives,
- vii. Utilizing labor, family income earners and cultivable land,
- viii. Ensuring education and
- ix. Creating working opportunities.

However, the successful implementation of these strategies depends upon the effective cooperation of major intervening agencies like GOs, NGOs and women’s organizations.

Similarly, assistance of the entire rural society can be integrated in the implementation of the proposed strategies, especially in relation to gender awareness. National and international donors can come forward to improve the livelihood of the study area by providing funding in different projects prioritizing the above strategies. The suggestions shown here may help to develop future programs for better identifying and recognizing the actual need for rural development. It can assist policy makers and planners in finding solutions for engaging rural women in income generating activities for improving livelihood and reducing poverty.

8.2 Deutsche Zusammenfassung

Problemstellung und Ziele

Bangladesch ist ein Entwicklungsland, in dem 72% der Bevölkerung in ländlichen Gebieten lebt. Fast die Hälfte der Bevölkerung sind Frauen. Gerade in den ländlichen Gebieten sind die Frauen in den Siedlungen nahezu eingesperrt und gleichzeitig verantwortlich für die Führung des Haushaltes, die Kindererziehung und die Versorgung der Alten. Frauen in ländlichen Gebieten gehören zu den am meisten benachteiligten Gruppe. Sie sind konfrontiert mit sozialer Unterdrückung und wirtschaftlicher Ungleichheit. Bis heute haben sie es nicht geschafft, sich in den Haupterwerbszweigen zu etablieren. Ungeachtet dessen sind die Frauen in vielen Bereichen des Agrarsektors als nicht bezahlte Helfer tätig und ihre erbrachte Arbeit wird auch anerkannt. Sie müssen aber dringend auch wirtschaftliche Aktivitäten entwickeln, um ihre Existenz (livelihood) zu verbessern. Dazu müssen geeignete Erwerbsmöglichkeiten geschaffen werden ebenso wie strategische Maßnahmen zur Überwindung von Barrieren.

In Entwicklungsländern wie Bangladesch ist das Privateinkommen für Landfrauen essentieller Bestandteil eines verbesserten Haushaltseinkommens, das insbesondere die Verfügbarkeit lebensnotwendiger Güter steigert. Hauptzweck der vorliegenden Arbeit ist die Verbesserung der Existenzgrundlage von Frauen in ländlichen Gebieten durch diverse einkommensgenerierende Aktivitäten (IGAs – income generating activities). Es wurde der Versuch unternommen, ihre derzeitige Situation kennen zu lernen, ihre derzeitigen Einkommensstrategien zu beurteilen, insbesondere die Wirkung von Aktivitäten der Nichtregierungsorganisationen abzuschätzen, das Haushaltseinkommen der Frauen und Einflussfaktoren darauf zu untersuchen ebenso wie Faktoren, die eine Beteiligung der Frauen an den IGA's einschränken. Zum Schluss werden brauchbare strategische Maßnahmen für die Verbesserung der Existenzgrundlagen von Frauen vorgeschlagen.

Methodischer Ansatz

Die Feldforschung wurde in vier zufällig ausgesuchten Dörfern des Netrokona Distrikts (Rajendrapur, Bamonmoha, Guatala und Panchgoj) von Januar bis April 2009 durchgeführt. Die vier Dörfer ähneln sich in den Bereichen der Farming Systems, der Natur und Lebensbedingungen, der Sprache, der Infrastruktur, der Umwelt und der Wirtschaftsaktivitäten. Insgesamt 402 Haushalte wurden hinsichtlich des Kriteriums „Beteiligung von Frauen in IGA's“ ausgewählt. Es wurden zwei Gruppen gebildet: (i) Mitglied / Partner von/ mit Nichtregierungsorganisationen (NGO woman) und (ii) kein Mitglied / Partner von / mit Nichtregierungsorganisationen (non-NGO woman). Von jeder Gruppe wurden 50 Frauen zufällig ausgesucht. In der vorliegenden Studie wurden strukturierte und semi-strukturierte persönliche Interviews sowie ausgewählte Methoden des Participatory Pural Appraisal für die Datensammlung verwendet. Die Daten wurden mit Hilfe der Statistiksoftware SPSS und Microsoft Stat Graphics ausgewertet, sowohl mittels deskriptiver als auch analytischer Methoden. 16 Merkmale wurden als unabhängige Variablen berücksichtigt, um die abhängige Variable – Haushaltseinkommen – zu testen. Haushaltsaufwendungen und Ersparnisse wurden dem Haushaltseinkommen zugerechnet. Die Werteberechnung der ausgewählten unabhängigen Variablen basiert auf den gemessenen Größen oder auf einschlägigen Vorgehensweisen vorangegangener Forschung. Eine Regressionsanalyse wurde angewandt zur Bestimmung signifikanter Einflüsse der unabhängigen Variablen zum Haushaltseinkommen.

Resultate und Ergebnisse

Die Mehrheit der befragten Landfrauen gehört in die Klasse eines geringen bis mittleren Livelihood Status. Fünf Merkmalsgruppen wurden identifiziert, die wesentlich zur Verbesserung der derzeitigen Lebenssituation beitragen können. Dazu gehören Kredite, Arbeitsmöglichkeiten, Zugang zu Lebensmitteln, Bildung und Wohnraum. Neben den ausgewählten unabhängigen Variablen, wurden weitere sieben Variablen mit signifikantem positiven Einfluss auf das Haushaltseinkommen identifiziert, nämlich Alter, Bildung, Familiengröße, Betriebsgröße, Verbindung mit Nichtregierungsorganisationen, Rückzahlung von Krediten sowie der Livelihood Status als kumulatives Merkmal. Hingegen hat die Dauer der Assoziation zu Kreditgebern einen starken negativen Effekt auf das Haushaltseinkommen.

Die Ergebnisse bezüglich der Einkommensstrategien der befragten Frauen zeigt, dass diese zwar in verschiedenen Einkommensaktivitäten involviert sind, jedoch ihr persönliches jährliches Einkommen der verschiedenen IGAs unerheblich ist (durchschnittlich Tk 13,062 mit 100 Tk = 1€). „Nichtregierungsorganisationen Frauen“ weisen deutlich mehr IGAs auf als „Nicht-NRO Frauen“ und sie machen deutlich mehr Profit von den IGAs. Hinzu kommt, dass der Beitrag von „Nichtregierungsorganisationen Frauen“ zum Haushaltseinkommen signifikant höher ist als bei den anderen. Kredite, Betriebsmittelversorgung, Training, Technologien, Informationen und Unterstützung von „NRO-Frauen“ bei der Vermarktung sind wesentliche Faktoren, die zu einer deutlichen Ausweitung einkommen generierender Aktivitäten führen und ebenso das persönliche Einkommen und das Haushaltseinkommen steigern. Die Wirkungsanalyse von IGAs auf das Einkommen der Frauen zeigt, dass 36% der Frauen ein höheres Einkommen von IGAs während der letzten drei Jahre zu verzeichnen haben (2006-2008). Der Zugang zu Mikrokrediten, Betriebsmittelversorgung wie Dünger, Insektenbekämpfungsmittel, Saatgut, Impfmittel etc., Markteinrichtungen, bessere Ziegenrassen und verbesserte Behandlung von Tieren führen zu einer Verbesserung des Einkommens. Wichtig ist zu erwähnen, dass die oben genannten Möglichkeiten weniger für Frauen in „Nicht-NRO-Frauen“ zutreffen. Beide Frauengruppen haben allerdings ein starkes Bedürfnis nach Unterstützung mittels Krediten, Betriebsmittelversorgung und Markteinrichtungen zur Einkommenserhöhung über IGAs und sie benötigen Trainingsmöglichkeiten um die IGAs effizient durchzuführen.

Die Constraint Analyse zeigt, dass insgesamt 74% der Landfrauen mittlere Behinderungen zur Teilnahme an IGAs angeben. Die Frauen haben dabei 17 Hinderungsgründe identifiziert. Hauptgründe sind unzureichende finanzielle Mittel, Mangel geeigneter IGAs, zu kleine Betriebe, inadäquate Trainigseinrichtungen, zu hohe Preise für Betriebsmittel, keine Marketingkanäle, schlechte Transporteinrichtungen und zu wenig Kooperation von der Familie.

Empfehlungen

Zur Verbesserung der aktuellen Lebenssituation der befragten Frauen sind umfassende Initiativen von Regierungsorganisationen, Nichtregierungsorganisationen, Frauenorganisationen, Entwicklungsagenturen wie auch der ländlichen Gesellschaft erforderlich. Die nachstehend vorgeschlagenen Strategien erhöhen das Haushaltseinkommen und mildern die Härten für Landfrauen zur nachhaltigen Teilnahme an IGAs:

- i. Sicherstellung von Kreditmöglichkeiten durch GOs und NGOs;
- ii. Verbesserung des Zugangs zu Mikrofinanzierungs-NGOs mit Modifikationen von Mikrokredit-Programen;
- iii. Förderung bedarfsgerechter Trainings;
- iv. Etablierung von Selbsthilfegruppen für Frauen und Entwicklung von Führungskompetenzen der Landfrauen;
- v. Vorrang für die Verbesserung von Grundbedürfnissen wie Nahrungsmittelverfügbarkeit, Wohnungsbedingungen, Wassereinrichtungen, Gesundheitssituation, Partizipieren in sozialen Aktivitäten und Verfügung über Barmittel;
- vi. Verbesserung der Entscheidungsbefugnisse, Geschlechter-Bewusstsein wie auch das Unterstützen von Motivationsprogrammen und Gemeinschaftsinitiativen;
- vii. Recht auf Arbeit, Verdienen des Familieneinkommens und kultivierbares Land;
- viii. Sicherstellung von Bildung;
- ix. Schaffen von Arbeitsmöglichkeiten

Dennoch hängt die erfolgreiche Implementierung der genannten Strategien von der effektiven Kooperationen von den wesentlichen intervenierenden Agenturen wie GOs, NGOs und Frauenorganisationen ab. Ebenso sollte auch die gesamte ländliche Gesellschaft in die Implementierung der genannten Strategien einbezogen werden gerade auch in Bezug auf das Gender Bewusstsein. Nationale und internationale Geldgeber sollten zur Verbesserung des Lebensunterhaltes in den untersuchten Gegenden weiter beitragen durch Prioritäten bei der Finanzierung verschiedener Projekte, die nach den oben genannten Strategien ausgesucht werden. Die Empfehlungen können die Entwicklung von zukünftigen Programmen befördern, damit die aktuellen Bedürfnisse im Rahmen einer ländlichen Entwicklung identifiziert und erkannt werden können. Sie können politische Entscheidungsträger und Planer unterstützen auf der Suche nach Lösungen zur Generierung von Einkommensaktivitäten von Landfrauen, zur Verbesserung deren Lebensunterhaltes und zur Reduzierung von Armut.

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Appendix 1

Student's t test

In order to test the significance of partial regression coefficients, t test can be applied. The null hypothesis is set as $H_0: \beta_i = 0$ against $H_A: \text{Not } H_0$.

$$t = \frac{\hat{\beta}_i - \beta_i}{\text{se}(\hat{\beta}_i)}$$

Where, $\hat{\beta}_i$ = Estimated β_i

se = Standard error

Based on this, the null hypothesis is rejected if calculated t-value exceeds the critical t-value at selected level of significance, α , i.e. null hypothesis is rejected when $t_{\text{calculated}} > t_{\alpha/2}$.

Chi-Square Normality Test

Normality in the distribution of the disturbance term is one of the assumptions in the model based on OLS estimation. The disturbance term represents variables that are not included in the model, incorrect data and improper functional form of the model. Whether these disturbances are normally distributed or not can be tested with Chi-Square normality test. To carry out this test, the frequency distribution of the observed residuals (O_i) and that of the expected residuals (E_i) based on the hypothesized probability distribution needed to be calculated. It indicates how well the normal probability distribution fits in the actual data. The hypothesis and the test statistics are, H_0 : Residuals are normally distributed against H_A : Not H_0 .

$$\text{And } \chi^2 = \frac{\sum (O-E)^2}{E}$$

Under this, if $\chi^2_{\text{calculated}} > \chi^2_{\text{critical}}$, null hypothesis that the data are normally distributed is not accepted.

Result of Chi-Square Normality Test

Ho: $F(\chi) = Fo(\chi)$ {Normal distribution}

$H_A: F(\chi) \neq Fo(\chi)$

Estimated value $(\chi^2) = 21.51$

Degrees of freedom $V = K - 1 - a$

Where, $(a = 2, K = \text{Number of class})$

$$= 24 - 1 - 2$$

$$= 21$$

Tabulated value $\chi^2_{v, (1-\alpha)}$

$$\chi^2_{21, 0.95} = 31.41$$

$$X^2 < \chi^2_{21, 0.95}$$

So, Accept Ho: that Residuals is normally distributed.

Durbin–Watson Statistic

The Durbin-Watson test is used to detect the presence of autocorrelation in the residuals from a regression analysis. The value of d always lies between 0 and 4. If the Durbin–Watson statistic is substantially less than 2, there is evidence of positive serial correlation. As a rough rule of thumb, if Durbin–Watson is less than 1.0, there may be cause for alarm. Small values of d indicate successive error terms are, on average, close in value to one another, or positively correlated. If $d > 2$ successive error terms are, on average, much different in value to one another, i.e., negatively correlated. In regressions, this can imply an underestimation of the level of statistical significance.

To test for **positive autocorrelation** at significance α , the test statistic d is compared to lower and upper critical values ($d_{L,\alpha}$ and $d_{U,\alpha}$):

- If $d < d_{L,\alpha}$, there is statistical evidence that the error terms are positively autocorrelated.
- If $d > d_{U,\alpha}$, there is statistical evidence that the error terms are **not** positively autocorrelated.
- If $d_{L,\alpha} < d < d_{U,\alpha}$, the test is inconclusive.

To test for **negative autocorrelation** at significance α , the test statistic $(4 - d)$ is compared to lower and upper critical values ($d_{L,\alpha}$ and $d_{U,\alpha}$):

- If $(4 - d) < d_{L,\alpha}$, there is statistical evidence that the error terms are negatively autocorrelated.
- If $(4 - d) > d_{U,\alpha}$, there is statistical evidence that the error terms are **not** negatively autocorrelated.
- If $d_{L,\alpha} < (4 - d) < d_{U,\alpha}$, the test is inconclusive.

The critical values, $d_{L,\alpha}$ and $d_{U,\alpha}$, vary by level of significance (α), the number of observations, and the number of predictors in the regression equation. Their derivation is complex—statisticians typically obtain them from the appendices of statistical texts.

The Result of Durbin–Watson Statistic

H_0 : No Autocorrelation

H_A : Autocorrelation

Estimated value $(d^{\wedge}) = 1.51$

$$d^{\wedge} < 2$$

Critical value d_l and d_u Intercept 5% $n = 100$, $k = 8$ Where, (n = Number of observation
 k = No of predictors in the regression equation)

$$d_l \leq d^{\wedge} \leq d_u$$

$$1.506 \leq 1.51 \leq 1.857$$

So, we can conclude that the estimated value d^{\wedge} is inconclusive region

Declaration

I hereby solemnly declare that I have prepared the dissertation on the theme ‘Improving Livelihood of Rural Women through Income Generating Activities in Bangladesh’ myself. I also declare that this thesis do not contain any copy of other research work. Where necessary sources of information have been used, they are acknowledged.

Shonia Sheheli, Berlin, 25 October 2011