The Role of Rural Home-Based Enterprises on the Housing Transformation in Sirajganj

by

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It is hereby declared that this thesis or any part of it has not been submitted elsewhere for the award of any degree or diploma.

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My Father

Giving a planet of love and an ocean of tears

he left me permanently on the 8th July 2010.

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All admirations goes to almighty Allah the most merciful and most benevolent for His kindness and blessings.

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ABSTRACT

Home-based Enterprises (HBEs) includes to all these income generation initiatives carried out by the household members within the premise of the dwelling. Although HBEs are studied in urban areas in developing countries, studies rarely investigate their impacts on rural housing transformation. As a result of home-based enterprises, the physical transformation of the traditional dwellings in the rural areas has been evident reflecting the occupant's cultural values as well as economic strength and status. HBEs affect rural housing in two ways. Firstly, the financial status affects the household and secondly initiating required housing transformation to accommodate the economic activities near or within the dwellings. The question for this research is what economic activities take place, and how do people negotiate them to contribute to their housing production and consumption. Three specific objectives have set for this research. First, understanding the changing patterns of rural house form as a result of economic activities within the homestead of Sirajganj district in Bangladesh; second, investigating the socio-economic benefits of HBEs within the homestead in the rural area and third, identifying the nature and extent of housing transformation due to HBEs in the rural context.

The research has been designed in two parts. A theoretical part based on the literature review of the existing studies and analysis related to the research, and an analytical part based on qualitative field survey in the local context. The cases for investigation have been selected in the district of Sirajganj in Bangladesh. The selected cases are situated in two different contexts of ‘permanent’ and ‘floating’ households, and are considered for investigating the impacts of HBEs on housing transformation. These cases are analyzed in relation to several analytical scale factors to explain their contribution to housing transformation in Sirajganj.

HBEs are found contributing more positively to housing transformation in permanent households than floating households. Through the levels of transformation, the housing pattern and their features are changed along with some local factors like the cultural and climatic issues. The housing features and the construction materials are varied with the permanent and floating homesteads. Households’ livelihood resources are engaged and affected widely by the HBEs and reciprocally the HBEs are also affected by them. Some households practices HBE only for their subsistence and some are involved for their household development. A major number of family members are engaged with the HBE. When HBE is induced within a household, it affects the homestead and gradually establishes its importance over other traditional housing factors like religious and cultural issues. In such situation the concept of privacy, gender and religious belief also play their role in influencing housing transformation.

HBEs are used as way to create the livelihood of the rural people free from the chain of poverty. This research will serve its purpose if it can be used as a professional tool and a guiding document for future research. By contributing to research in this area, this study attempts to add to the body of knowledge regarding house forms and living patterns in the rural context. It also provides an insight into socio-economic issues in rural areas, as these are directly linked to the living environment.

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ACRONYMS

BBS	Bangladesh Bureau of Statistics
BIDS	Bangladesh Institute of Development Studies
CI	Corrugated Iron
CPD	Centre for Policy Dialogue
DFID	Department for International Development
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HBE	Home-based Enterprise
HIES	Household Income and Expenditure Survey
HIG	Homebased Income Generation
IFAD	International Fund for Agricultural Development
ILO	International Labor Organization
IRRI	International Rice Research Institute
NAFRI	National Agriculture and Forestry Research Institute
SARD	Sustainable Agriculture and Rural Development
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme

Chapter- 1

INTRODUCTION

Bangladesh is a densely populated country and has one of the lowest land-person ratios in the world which is 964 persons per sq.km (BBS, 2011). The situation is being further aggravated every year through an irrevocable reduction of land for housing. In Bangladesh, 40% of the total population is living below the poverty line, and around 81 percent of them live in the rural areas (BBS, 2005). In this pervasive poverty, a dwelling or a house has not always been seen just as a place for living. Dwelling has other uses beyond being a place for living; for example, dwelling is often a place for income generating activities. Home-based Enterprises (HBEs) includes all the income generation initiatives carried out by the household members within the dwelling.

Although HBEs are studied in urban areas in developing countries (Strassmann, 1987, Tipple, 1993, Ghafur, 1997), studies rarely investigate their impacts on rural housing transformation (discussed in Section 1.1). Traditional rural homestead in the rural areas of Bangladesh consists of functionally separated huts clustered around a central courtyard '*uthan'* (Haq, 1992; Hasan, 1985). The economic condition of the household impacts the homestead as well as the construction and the maintenance of the rural housing (Ahmed, 1999). As a result of home-based enterprises, the physical transformation of the traditional dwellings, especially, in the rural areas has been evident reflecting the occupant's cultural values as well as economic strength and status. HBEs affect rural housing in two possible ways. Firstly, the financial gains from affect the well-being of the households, and secondly, by initiating required housing transformation to accommodate the economic activities near or within the dwellings (Khanam, 2004). Taking into account of their potential contribution of rural HBEs the questions that arise when HBEs taking place within the homestead are: what economic activities take place, and how do people negotiate them to contribute to their housing production and consumption? Homesteads' use for economic activities creates a case for transforming the physical and functional layouts of housing.

People have general views of the spatial arrangement within the rural homestead. The two basic types of domestic space are the "shelter" and the "yard" (*uthan*) (Muktadir, 1985). Their spatial layout reflects, among others, the nature and extent of the performed daily household functions, gender division of labour, religious instructions and presence of local culture. The geographical

and regional factors (e.g. availability of materials, orientation, topography etc.) play important roles in the construction of the house. But when the broader question of rural housing comes there arises an additional economic factor. The economic conditions of the rural people directly put vast impact over the production and consumption of house forms as well as the housing at the settlement level. Beside economic role, a house also connotes status of a family, making them sensitive of their homestead in representing their social status.

By focusing on the economic role of housing, the questions that arise from household members' economic activities taking place within the premises of traditional homesteads in villages are: How do people accommodate their economic activities within their dwellings, and how do they negotiate these activities to influence the production and consumption process of housing? When the total living place is considered as a place of income generating activities the spatial arrangements of rural homesteads do not match with the general views of the rural homestead as a static and idyllic setting.

In this research, a number of HBE cases have been selected for investigation in the district of Sirajganj in Bangladesh. The selected cases are situated in two villages in Sadar and Kazipur Upozilas. Two different contexts of 'permanent' (people of old traditional village) and 'floating' (river erosion effected people) households are considered to investigate the impacts of HBEs on housing transformation. The features of the permanent and floating households in this research are as follows:

- *Permanent households:* These types of households contain the permanent dwellers (people who live in a fixed location for more than three generations). For this study two adjacent villages named *Bagbati* and *Pipulbaria* within the Sadar Upozila of Sirajganj district are taken as the context of permanent households. They are in approximately ten kilometer distance from the Sirajganj town. Both are old traditional village and have a good number of established inhabitants.
- *Floating households:* These types of households contain the floating dwellers (people who are displaced due to river erosion and live in social and economic hardship). They are mainly established their house in riverside villages by taking land on a rental basis. Three adjacent villages named *Shimanto-bazar, Ghati Shuvogachha* and *Baikhola* are considered for the context of floating households for this study. They have a distance of twenty kilometer from the Sirajganj town.

The defining characteristics of the selected two villages are contrasting: while the former is old traditional village the latter a new formation situated beside the bank of the river Jamuna whose most inhabitants are living there temporarily as a result of river erosion. In these two different contexts, a preliminary observation suggests differences in the nature and extent of home-based

enterprises carried out by permanent and floating households. It also suggests that the devastating impacts of river erosion on shelter affects dwellers' adaptive response to living and livelihood manifested in the economic diversification of home based enterprises.

HBEs are the small enterprises that practiced within the premise the households in the rural contexts mainly operated by the household members to achieve the economic solvency are considered as the HBEs for this research (further discussed in Section 2.5.1). Except one case they are not directly involved with agriculture and all of them are non-crops enterprise.

1.1. Housing and its Transformation

Housing is defined as the total residential environment or micro district including the physical structure, all necessary services, facilities and apparatus for the total health and social well-being of the individual and family (Abrams, 1964). It is seen as the physical environment in which the family and society's basic units develop and sustain. Housing structures are enclosures in which people are housed for lodging, living accommodation or even work places. According to Abrams (1964, p. 13), "housing is not only a shelter but also part of the fabric of the neighbourhood life and of the whole social milieu". It touches upon many facets of economic activity and development. Thus housing provides social contacts, good image, a sense of belonging and an indicator of social status. Economically, housing represents a major portion of the family budget or that of an establishment, yet in the realm of private and public investment, the built environment represents a man's most tangible material asset (Kinyungu, 2004).

Housing is not only a basic human need; it constitutes a vital component of man's welfare, life sustenance and survival. In the hierarchy of man's needs, housing has been ranked second to food. It has a profound influence on the health, efficiency, social behavior satisfaction and general welfare of the community. Housing is universally acknowledged as one of the most basic human needs, with a profound impact on the life-style, health, happiness as well as productivity of the individual (Dunn, 2000). In the context of socio-cultural functionality, housing is viewed as "an area for recreation and identification" (Gallent et al, 2004) and can be regarded as psychological identity, a foundation for security and self-respect (Aroni, 1982) societal support and the setting for the formation of social relationships (Johnson, 2006).

A house is more than just a place for living to the occupants; it is a source of identification and status booster and a place of assembly. It may also be a location for business, which provides the basic necessities of life or for augmenting the income of the household. Tipple (2000) asserted that every house is a work in progress. It begins in the imagination of the people who build it, and it is gradually transformed by the people who occupy it in response to their emerging needs.

Housing transformation is a major livelihood strategy among low-income households in formal and informal settlements which is carried out of desperation (Tipple, 2005). Transformation in housing can be related to the urge by one to create a personalized environment and also to share that of others or to follow a fashion. “The need to give one’s personal stamp is as important as the inclination to be obstructive” (Avi, 2002, p. 13). It all has to do with the need for a personal environment where one can do as one likes, indeed it concerns one of the strongest urges of mankind: “the desire for possession, to possess something one has to take possession. We have to make it a part of ourselves, put our stamp on it. Something becomes our possession because we make a sign on it…because it shows traces of our existence” (Habraken, 1975, p. 12). Habraken argued that one cannot really identify with an area unless one has made some contribution in the way of construction or alteration and that a sense of belonging can only really be achieved through leaving physical traces. Tipple and Ameen (1999) consider any user-initiated extension and alteration made to the original form of a building or neighbourhood for whatever reason a transformation.

Housing, as a physical manifestation of society’s culture, is dynamic. Housing transformation is an inevitable response to changing needs occasioned by socio-economics of survival. As observed, families require satisfactory dwelling environment throughout their respective life cycles. Housing transformation, whether by moving, improving or a combination of both, seeks to obtain satisfactory dwelling. The transformation of houses can be from positive to negative and vice versa. Friedman (1992) considers a situation where households of a poorly developed neighbourhood seek to improve their dwelling quality to enhance better living (a positive intervention of transformation).

Human settlements have historically been shaped by develops need to be compatible with social norms and lifestyles. As Nasr noted, “the external environment which man creates for himself is no more than a reflection of his inner state” (Nasr, 1978, cited by Mirmoghtadaee, 2009, p. 70). This reveals the connections between social needs and the built environment. The prevailing lifestyle, rooted in social and cultural characteristics of the society, is embodied in the composite elements of residential units. Early in the 20th century, a drastic change in architecture took place in many developing countries, as the traditional architectural style was replaced by the modern style. This change occurred so rapidly that it represented replacement rather than adaptation. Thus, local architectural forms, which had responded to the physical and cultural requirements of the people for thousands of years were neglected completely (Behsh, 1993).

However, changing the physical characteristics of the environment is much easier than intervening in social and cultural norms. Developing countries have faced important changes in household composition, and extended families have been replaced by core families composed of 4 to 5 members. As a result, important changes took place in the physical form of houses and

households, while they tried to preserve their cultural values. An ideal house form, in this regard, should respect the needs of a new generation, while at the same time it should be adapted to cultural values and traditional lifestyles.

In the last few decades, there has been a growing research interest on housing transformations (Sueca, 2003). The acute housing shortage in most developing countries has forced an informal housing supply and it could continue in the more urbanized world of this century. Obviously, housing transformation has made indispensable and positive contributions in improving housing conditions in many ways. Housing transformation makes a substantial contribution to improved housing conditions. Through transformation owner-occupiers can increase house size and gain considerably more space, including more habitable space. They achieve higher social status, as well as improving their living conditions. To some extent, the activity leads to increase the variety of dwelling characteristics, transformers contribute to the improvement of their neighbourhood (Sueca, 2003). Through physical transformation, the extended and altered spaces are used in carrying out, home-based enterprises or let out for renting purpose for many low-income households. The dwelling is one of the few resources used for generating income. A wide range of home-based enterprises can be found in government estates including sewing, hair dressing, livestock keeping, daycare and general trading (Strassmann, 1986).

In the light of international literature in this area of housing transformation, it is likely that we could benefit from a favorable attitude towards housing transformation in developing countries. Empirical investigation in the rural areas of Bangladesh is needed in order to acquire better understanding of the relationships between dwellers and their dwellings in the process of housing transformations.

1.2. Rural Housing Transformation in Bangladesh

Bangladesh has one of the lowest per capita incomes in the world. It is only Tk. 51,945 (around US$ 633) per year (BBS, 2011). One could easily imagine what would be the per capita income of the bottom half of the population who do not own any land or other assets to generate income. They struggle very hard for more physical survival and basic human dignity. The income levels of the rural population are considerably lower (further discussion in Section 2.3). Many of the people in this category are effectively destitute or near destitute. The rural landless poor in Bangladesh are also amongst those who suffer most when floods and cyclones occur, in part due to the marginal conditions in which they live. This raises their exposure to risk, and in part due to frailty of their homes, directly related to their poverty and the common lack of land security.

Although the landless rural poor provide the bulk of the agricultural labour, they are not primarily engaged in farming activities. Taking both the women and the men together, a substantial part of

their time is spent on a wide variety of non-agricultural activities such as weaving, mat making, small scale trading, rice husking, rearing a few goats or ducks, keeping pigeons, sewing, potting and so on. Not all the time is used productively, but in many cases it is the lack of finance – and by extension the lack of material or the tools with to be productive – which prevent the man or woman concerned from rising out of poverty.

The poor in Bangladesh find it beyond their means a roof to protect themselves and their families especially from monsoon and winter. Most often, only housing material a poor person can afford is jutestick. Jutesticks are placed side by side to form "wall" and "roof" of a "house". Except for providing some visual image of a hut it virtually serves no purpose in protecting the inmates from monsoon rain and winter breeze. These huts cannot withstand even the moderate onslaught of nature through storm or incessant rain. Next best thing to jutestick for a poor person is bamboo for side wall and hay or thatch for roofing. Hay and thatch are better roofing materials. They are much more expensive than jutesticks but not much durable either.

A shelter is one of the basic requirements for a person to organize his thoughts, discipline his action, stabilize his mind undertake plans and program for doing something meaningful. A person having no roof over his/her head tends to be uncertain, worried and unstable which affects his every action. For the poor house is not just a consumption item. In fact it is a vital investment in health leading to increasing in productive capacity and overall well-being of a person and her/his family. Living under leaky roofs (if one has one) in a house made of jute sticks in winter and heavy monsoon does not equip a person to meaningfully engage in any income generating activities. Housing for the poor and housing for the rich belong to two distinct categories. While one is an absolute necessity, the other is comfort and luxury. Importantly much attention and most resource have gone for luxury and comfort for the upper section of the society while the basic necessity of the bottom half of the population was totally ignored. A house for a poor person means protection from weather and disease. For most of them a house in also their work place i.e. factory.

In Bangladesh, different non-government organizations (NGOs) ventured into giving loans to the shelter-less to build house for them. Loans are given without any collateral. The housing loan scheme of Grameen Bank started in a very small way in 1984 but expanded rapidly since the devastating flood of 1987. Initially, a sum up to Tk. 15,000 (US$ 312.5) was introduced as the housing loan. The amount subsequently raised was up to Tk. 25,000 (US$ 520.83) (Grameen Bank, 1999). The loans became very popular especially in all areas where Grameen Bank is in operation. In addition, Grameen Bank provides loans for purchasing homestead land to those borrowers whom do not have any land of their own for erecting the house. The interest rate of housing loan is 8% per annum.

Grameen Bank developed a design of a house for the borrowers during the devastating flood of 1987 under the basic housing program. The houses vary in appearance throughout the country but have the same basic structural components. There are four reinforced concrete pillars on brick

foundations at the corners of the house and six intermediary bamboo posts, with bamboo tie beams, wooden rafters and purlins supporting corrugated iron roofing sheets. This provides stability in the flood and strong monsoon wind and protection form the heavy rain during the monsoon season. Pillars and sanitary latrine are being supplied by the Grameen Bank's house building materials project located at different areas under Grameen Bank operation.

The aim of the building design and the housing loan of Grameen Bank which relates to it, is to provide a starter structure which ensures that there will be a waterproof and durable roof, supported by a durable structure capable of withstanding the effects of flooding. At the same time, as much as possible freedom has had to be left to the borrower in deciding how to fill in the walls, how to arrange the openings, and how high the platform on which the building stands (if any) should be. Thus the borrower can adapt the house to the local context and the available resources. The beneficiaries need to be able to build the house themselves, with little or no technical assistance nor are special skills, as this important not only in giving them the choice of what to do, but also in lowering the cost. The materials need to be easily transportable by boat, bullock cart or rickshaw cart.

BRAC is another organization that works with the housing of rural poor in Bangladesh. Oxfam America and Oxfam Novib supported BRAC in constructing 400 core houses in Patuakhali and Barguna districts in South Western Bangladesh as a response to the severe damage caused by Cyclone Sidr in November 2007. Villages were selected for shelter reconstruction work based on the scale of the cyclone damage and the relative lack of other agencies rebuilding houses. One of the key strategies of the project was to provide a strong core house which could be extended or modified by owners according to their particular household needs. The program was completed in December of 2008 (Rae, 2009).

Interventions by different NGOs either provided finance for house building or extended supports forward post-disaster housing rehabilitation. What has been noted in this intervention is their absence of focus in the income – house linkage: how income generated by the household contributes to housing transformation. This research hopes to address this income – house linkage by investigating rural HBEs.

1.3. Sirajganj: the Specific Context of Study

Sirajganj is a district in Northern Bangladesh. It is a part of the Rajshahi Division with an area of about 2497.92 km², is bounded by Bogra District on the north, Pabna district on the south, Tangail and Jamalpur districts on the east, Pabna, Natore and Bogra districts on the west. The main rivers are Jamuna, Baral, Ichamati, Karatoya and Phuljuri. About 10 percent area of the Chalan Beel is located in the Tarash upazila of this district. It is a lush district, which has a long history and a very strong cultural trend. The Jamuna river, which is the longest river in Bangladesh. The people of Sirajganj are used to cope with floods, soil erosion and other natural disasters.

Sirajganj subdivision was established in 1845 and was included in Pabna district. It was turned into a district in 1984. The district consists of 4 municipalities, 42 wards, 9 upazilas, 117 mahallas, 79 union parishads, 1467 mouzas and 2006 villages. The upazilas are Belkuchi, Chauhali, Kamarkhanda, Kazipur, Raiganj, Shahjadpur, Sirajganj sadar, Tarash and ullahpara. Sirajganj is a one of the low lying districts surrounded by the river. Flooding in this area often cause massive loss to crops, livestock and properties. The annual average temperature reaches a maximum of 34.6 °C, and a minimum of 11.9 °C. The annual rainfall is 1610 mm (63.4 in) (Banglapedia, 2012). According to the Population & Housing Census 2011 by Bangladesh Bureau of Statistics the population of Sirajganj district has been measured at 3,072,000 made up of 92% Muslim, 6.5% Hindu and 1.5% other. Males make up 50.03% of the population and females 49.97%. Number of total household is 713,800 and the average size of the household is 4.3 (BBS, 2012). As per the Agriculture Sample Survey-2005 by Bangladesh Bureau of Statistics there are 48.88% non-farm households in this district.

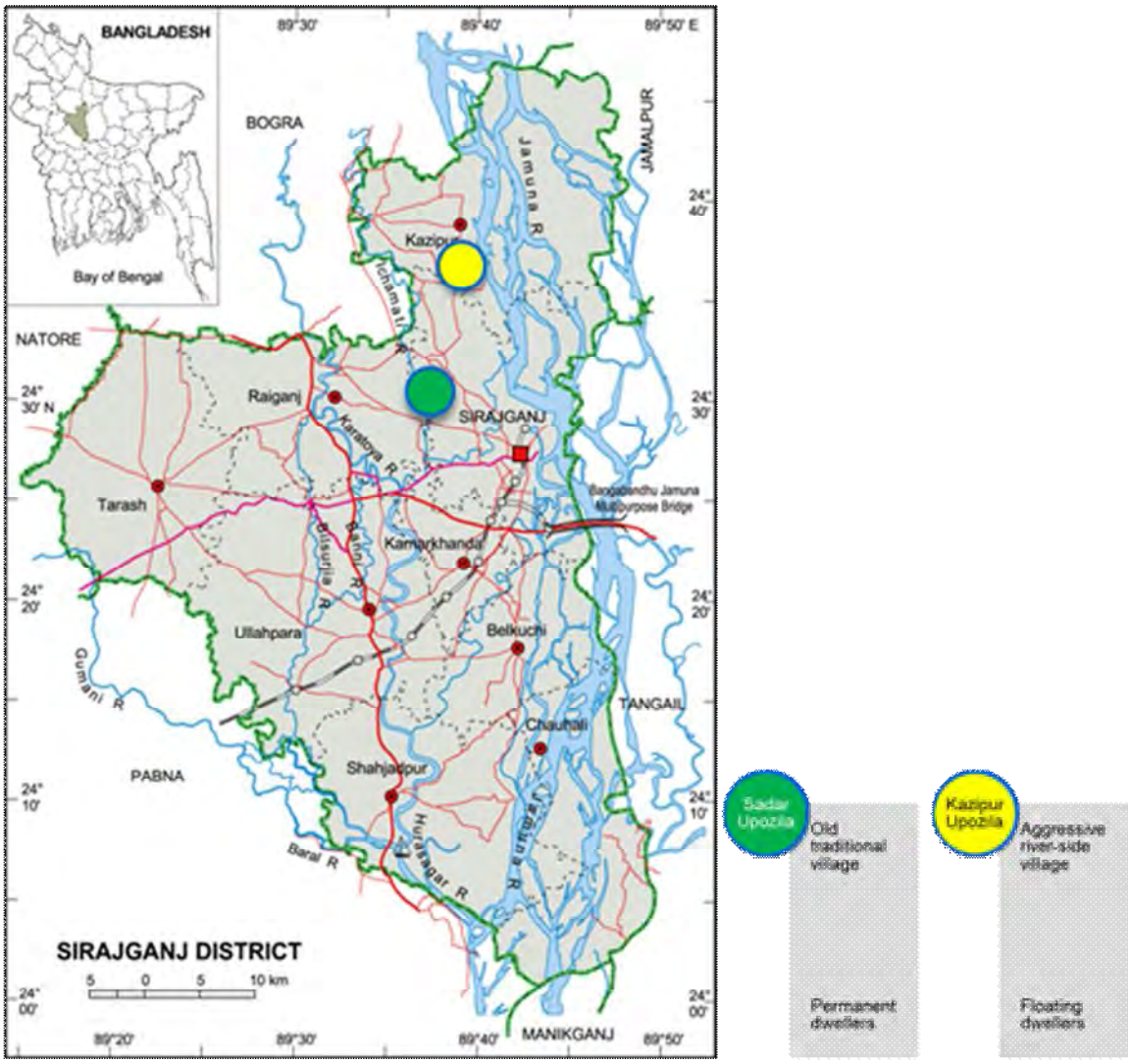


Figure 1.1: Map of the Sirajganj district indicating the areas of survey. (Banglapedia, 2012)

The average literacy is 63%, or more specifically 73.4% for males, and 50.2% for females. There are one university college and five government colleges.1 polytechnic institute. Supplemented by 75 non-government colleges, 1 teachers' training college, 1 law college, 1 homeopath college, 1 medical assistant training school, 1 youth training centre, 1 vocational training institute, 1 nursing institute, 1 primary teachers' training centre, 3 government high schools, 245 non-government high schools, 43 junior high schools, 249 madrasas, 880 government primary schools, 503 non-government primary schools, a government maternity centre, 2 community schools, 4 technical training centres, a singer school, and 3 kindergartens (Banglapedia, 2012).

Among the main occupations of this district agriculture is 35.49%, agricultural labourer is 21.45%, wage labourer is 5.77%, commerce is 11.98%, service is 5.49%, handicraft is 5.59%, industrial labourer is 2.78% and others are 11.45%. Total cultivable land of Sirajganj is 179964.02 hectares, fallow land 15701.64 hectares, forestry 50.48 hectares; single crop 19.54%, double crop 59.18% and treble crop land 21.28%; cultivable land under irrigation 74.34%. Main crops are paddy, Jute, Wheat, Mustard Seed, Sugarcane, Onion, Garlic, Potato, sweet potato, Chilly and Ground Nut. Extinct or nearly extinct crops: indigo, tobacco, local varieties of aus paddy, china, kaun and varieties of *dal* (pulse).

Item	Bangladesh	Sirajganj	% of Bangladesh
Number of holdings	28165700	638266	2.27
Number of non-farm households (% of total holdings)	13076613 46.43%	311999 48.88%	2.39
Number of total farm holdings (% of total holdings)	15089087 53.57%	326267 51.12%	2.16
Number of male headed holdings % of total holdings	27368322 97.17	629074 98.56	2.30
Number of female headed holdings % of total holdings	797378 2.83	9192 1.44	1.15
Homestead area (in acres)	1848852	35182	1.90
Homestead area per holding (in acres)	0.07	0.06	
Homestead area per non-farm household (in acres)	0.05	0.03	
Homestead area per farm holding (in acres)	0.08	0.08	
1 Number of agricultural labour holding % of total holdings	7132646 25.32	171792 26.92	2.41
Number of holdings taken loan	7599686	66748	0.88
% of total holdings	26.98	10.46	

Table 1.1: Data regarding the households of the Sirajganj district. (Source: BBS, 2006)

Regarding land control among the peasants, 21.85% are landless, 22.41% marginal landowners, 32.37% small landowners, 17.58% intermediate landowners and 5.79% rich landowners; cultivable land per head is 0.07 hectare.

Located 75 miles northwest of Dhaka, the 138 square mile area encompassed by Kazipur Upazilla in Sirajganj District is one of the most erosion-prone in the country (Haque 1988:189). It is a region that is considered poor by Bangladesh standards. The local economy is based on intensive, small-scale rice agriculture. Aid, chiefly as grain and cash paid for road and embankment work, also plays an important economic role. Upazilla officials estimate that over three-quarters of the local population is functionally landless; many of these people at some point lost land to the river.

The economic growth of Sirajganj radically changed and increased after the building of Bangabandhu Bridge (Jamuna Bridge) over Jamuna River in the year 1998. After the building of the bridge the road networks of this region with the capital Dhaka and the nearby districts developed which has an important role over the economy of this region.

1.4. Research Question

How have rural home-based enterprises affect the physical transformation of traditional dwellings?

1.5. Objectives with Specific Aims and Possible Outcome

This research has the following specific objectives:

- To understand the changing patterns of rural house form as a result of economic activities within the homestead of Sirajganj district in Bangladesh.
- To investigate the socio-economic benefits of home-based enterprises within the homestead in the rural area.
- To identify the nature and extent of housing transformation due to home-based enterprises in the rural context.

The possible outcomes of the study are stated below:

- An understanding of the changing patterns and spatial arrangements of the rural house form.
- An understanding of the benefits of economic activities within the homestead on the spatial arrangements of rural houses along with the ‘permanent’ and ‘floating’ conditions of people in the rural area of Sirajganj district in Bangladesh.
- An understanding about the various types of HBEs in the rural area of Sirajganj district in Bangladesh and their effects on the housing conditions physically reflecting the living standards of the households.

1.6. Methodology for Investigation

The research has been designed in two parts: a theoretical part based on the literature review of the existing theories and analysis, and an empirical part based on field survey and interviews in the local context. The research methodologies employed in these two parts are explained below.

Part 01: Literature Review

Relevant literatures will be reviewed to determine the key concepts and develop an understanding to prepare a theoretical background in order to carry out the field survey and analyze the data.

Part 02: Empirical Survey

A) A reconnaissance survey of the home based enterprises in the rural area of the district of Sirajgonj.

B) Field survey on several types of HBE with distinct types of people in the following criteria:

1. Permanent dwellers (people who live in a fixed location for more than three generations)
2. Floating dwellers (people who are displaced due to river erosion and live in social and economic hardship.)

These two types of dwellers are classified among several economic classes for detail empirical survey. These criteria come up with about twelve types of HBE which are to be considered as cases. One representative case from each type will be selected for detail case history analysis for qualitative investigation.

The case histories will be analyzed through direct observations, interviews, photographs and drawings to complete the understanding of the home-based enterprises of different criteria and different economic status and its socio-economic and spatial effects of the rural dwellings.

1.7. Limitations of the Research

This research focused on housing transformation due to the practicing of HBEs within the rural households. Some limitations were faced to conduct the research. They are as follows:

- As home-based enterprise is one of the key factors of this research, more expertise were required on the economic issues and theories as background studies. Architectural background of the author was not good enough to address such issues in depth. This research focuses the issues of housing transformation rather than the economic issues of the households.
- The survey area was a distant place from this researcher's station which demanded more time to conduct the survey works and created limitations for repetitive survey.

1.8. Organization of the Research

In this research, there are three main sections, which constitute the total structure of the thesis. They are:

i. The introductory section where the background and the present state of the problem of the research are discussed.

ii. The literature review sections where the existing studies related to the research from different studies were conducted are explained.

iii. The analytical sections where the study cases are analyzed related to several analytical scale factors and draw a conclusion of the research.

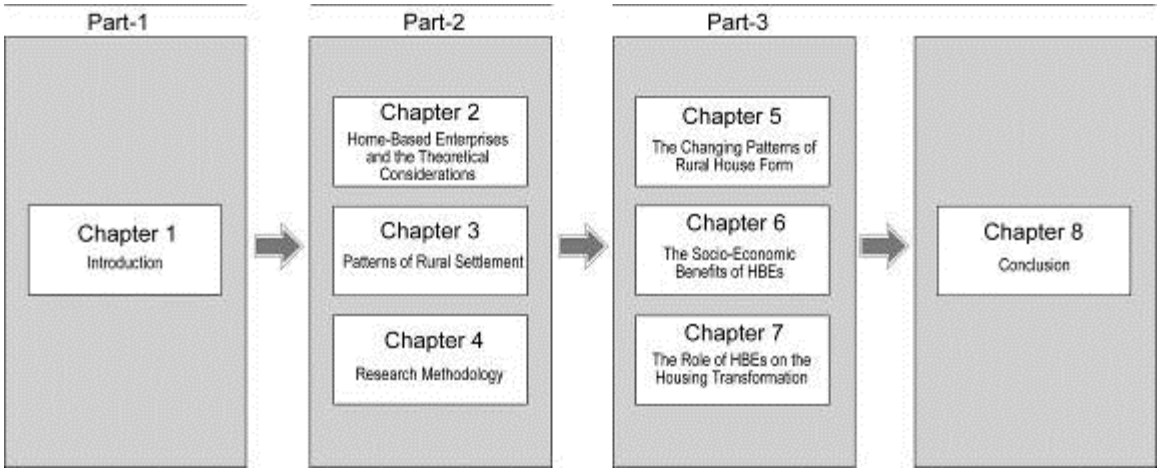


Figure 1.2: Organization of the research.

The **first chapter** of this research is the introductory chapter where the background of the research topic is discussed. The key-words (e.g. housing transformation) of the research topic along with the research objectives are described in this chapter.

The **second chapter** reviews the thoughts and ideas present in the field of home-based enterprises to study their role in the transformation of housing. This mainly focuses on the existing theory and concept of home-based enterprises, economy and livelihood resources. Poverty and rural poverty in the context of Bangladesh also discussed in this chapter as one of the key background study for this research. The **third chapter** is another literature review chapter that focuses on the rural settlement of Bangladesh. The rural settlement patterns, their spatial settings and the factors (e.g. cultural, religious, climatic etc.) affecting the rural housing are discussed with respect to existing studies in this chapter. The **fourth chapter** is the introductory chapter of the analytical section that discussed the methodology of empirical research. The survey and the study case selection method and their process of analytical scaling are explained in this chapter.

The next three chapters (chapter 5, 6 and 7) are the analytical chapters that cover three different research objectives of this thesis. The **fifth chapter** discusses about the social and settlement profile of the floating and permanent dwellers and the housing and house forms in the study contexts. The reasons for HBEs within the homesteads and their effects on the homesteads are also discussed in this chapter. The **sixth chapter** focuses the socio-economic benefits of HBEs respecting the analytical scale factors of livelihood resources in the permanent and floating households of the study area and gives a comparison of cross data analysis. The **seventh chapter** discusses the role of HBEs on the housing transformation in the study cases. The different type of effects that are found by the field survey on the study cases are explained in this chapter with respect to their types. Comparative observation of housing transformation in permanent and floating households also discussed in this chapter. After the analytical chapters a conclusion of the research is drawn i with recommendations in the eighth chapter.

Chapter- 2

HOME-BASED ENTERPRISES AND THE THEORETICAL CONSIDERATIONS

The poor themselves can create a poverty-free world… all we have to do is to free them from the chains that we have put around them.

- Mohammad Yunus (Commonwealth Lecture, London, 2003)

This chapter briefly reviews the informal sector economy along with the theoretical discussion of home-based enterprises in developing countries and their status in the rural contexts. Then it discusses the rural non-farm economy in Bangladesh and the concepts of poverty both in the global and rural contexts. The theories of the 'livelihood resources' are also reviewed to understand the activities and benefits of HBEs through the asset pentagon in the further analytical chapters of this research.

2.1. Informal Sector of Economy in Developing Countries

The concept of the informal sector was introduced into international usage in 1972 by the International Labor Organization (ILO) in its Kenya Mission Report (ILO, 1972). This study defined informality as a "way of doing things characterized by (a) ease of entry; (b) reliance on indigenous resources; (c) family ownership; (d) small scale operations; (e) labor intensive and adaptive technology; (e) skills acquired outside of the formal sector; (g) unregulated and competitive markets". Since that time, many definitions were introduced by different authors and the ILO itself. The ILO international symposium on the informal sector in 1999 proposed that the informal sector workforce can be categorized into three broad groups (ILO, 1999):

(a) owner-employers of micro enterprises, which employ a few paid workers, with or without apprentices;

(b) own-account workers, who own and operate one-person business, who work alone or with the help of unpaid workers, generally family members and apprentices; and

(c) dependent workers, paid or unpaid, including wage workers in micro enterprises, unpaid family workers, apprentices, contract labor, homeworkers and paid domestic workers.

The concept 'informal sector' has become a shorthand term to categorize a range of small-scale, unremunerated, sometimes illegal economic activities, largely in urban context of developing countries. It is now increasingly recognized that the informal economy plays a vital role in sustaining livelihoods for expanding numbers of urban people living in poverty throughout the developing world. Population and demand for jobs, goods and services are typically growing too quickly for the formal sector job creation to cope with. The informal sector provides many of the jobs needed by the growing workforce in the developing world and compensates for much of the formal sector's failure to provide goods and services.

The early writings on the nature of the informal economy in the 1970s inferred dichotomous formal and informal sectors. However, it was difficult to maintain this dichotomy since the characteristics of informality (mentioned in the first paragraph of this section) are not all present in every business that seems otherwise to be "informal" (Kellett & Tipple, 2002). Thomas defines the informal economy as covering those activities that are not fully recorded in national income accounts, and distinguishes four overlapping categories (household, informal, irregular sector and criminal sector) based on two criteria: market transactions and legality (Thomas, 1992, cited in Kellett & Tipple, 2002).

The informal sector exists "between underground and legality" (Tokman, 1992; 2007) and implies a way of operation (usually outside the laws on taxation, safety of workers, and pension qualification) rather than specific activities, as almost the whole range of commercial and industrial activities can have informal characteristics. There are at least four interlinked theories as to why informal sector activities persist in developing countries (Chen et al, 1999, cited in Kellett & Tipple, 2002). Firstly 'lack of growth': the persistence of informal activities owing to the decline in the growth of gross domestic product (GDP). Secondly, 'jobless growth': a theory which assumes that capital-intensive technology and recent economic processes (privatization, deregulation, and globalization) have led to the decline or informalisation of certain formal sector jobs. Thirdly, the 'growth from below' theory which attributes some of the growth in GDP to the growth of small-scale enterprises. Finally, the 'period of adjustment' theory reflects how the informal sector grows when economies undergo structural adjustment leading to marked shifts from formal to informal employment.

Typical informal sector activities would be regarded as being "small scale and characterized by low capital endowments, simple technologies, unremunerated family labour and flexible work-sites". Kellett and Tipple (2002) characterizes small-scale enterprises as having the following:

a. There are few barriers to entry; initial capital and skill requirements are low.

b. Most entrepreneurs learn through informal apprenticeships in the sector.

c. Most entrepreneurs have limited access to formal credit. Capital needs are met informally from family, friends or money lenders.

d. The sector generally operates outside official rules and regulations and thereby avoids taxes, license fees, and requirements to conform to standards. The corollary, however, is that owner and employees lack protection and security.

Small-scale enterprises have a number of development strengths. They tend to use labour-intensive methods and work within local neighborhoods. They develop from a very small scale, often in the home; can give employment to local skilled, unskilled and unemployed labour.

The term 'informal sector' is today widely used in writings on both developing and developed countries. The International Labour Office (henceforth ILO) adopted and popularized the term informal sector during the early 1970s through a series of studies that focused on the problems of employment in the urban areas of developing countries. These studies were in response to the growth of large cities and mass unemployment in developing countries. The large increase in the urban labour force of many countries, a consequence of rapid population growth and urbanization, was often not absorbed by the growth in employment and many workers, in particular migrants, turned to other activities to earn meager incomes. These activities, which were often characterized by self-employment, constituted the core of the informal sector. Self-employed workers were engaged in a range of activities including trade, services, transport, and manufacturing (Swaminathan, 1991).

According to Swaminathan (1991), formal and informal employments have also been distinguished by the specific form that employment takes. The following three forms of employment come into our consideration: self-employment, family labour, and hired labour. Within hired labour, a further sub-division, between casual and stable hired labour is useful in this context. The category termed stable hired labour refers to the employment of workers on regular contracts, entered into in advance, that specify job content, and the conditions of work and payment for a job. These are contracts that are regulated by the state and provide a certain measure of job security. By contrast, casual labour is associated with ad hoc, often short-run employment, on contracts that are not fully specified, that are often verbal and characterized by terms and conditions of employment that are variable. The relation between employer and employee tends to be of a personalized nature. Employment in the informal sector has been defined as comprising self-employed workers, family workers and casual labourers.

The informal sector plays an important and controversial role. It provides jobs and reduces unemployment and underemployment, but in many cases the jobs are low-paid and the job security is poor. It bolsters entrepreneurial activity, but at the detriment of state regulations compliance, particularly regarding tax and labor regulations. It helps alleviate poverty, but in

many cases informal sector jobs are low-paid and the job security is poor. According to the World Bank, the size of the informal labor market varies from the estimated 4-6% in the high-income countries to over 50% in the low-income countries. It's size and role in the economy increases during economic downturns and periods of economic adjustment and transition.

It is well known that a major part of the economy of a developing country consists of small and tiny production organizations run mostly on an informal and self-employment basis. While rural and agricultural activities are almost entirely carried out on this basis, a significant part of the economic structure of the urban and industrial sectors are also found to consist of the non-organized units. The established doctrines of development tend to view these forms of production organizations as transitory, and postulate their gradual disappearance with the emergence and growth of large formalized organizations, as a necessary concomitant of the technological and market compulsions of modern development.

2.2. Poverty in the Global Context

Poverty is a persisting state for the majority of the world's people and nations. Behind the increasing interconnectedness promised by globalization are global decisions, policies, and practices. These are typically influenced, driven, or formulated by the rich and powerful nation states and multi-national corporations. In the face of such enormous external influence, the governments of poor nations and their people are often powerless in getting a just deal in the global economic order.

The poorest in developing countries people will also have less access to health, education and other services. Problems of hunger, malnutrition and disease afflict the poorest in society. The poorest are also typically marginalized from society and have little representation or voice in public and political debates, making it even harder to escape poverty. According to the World Bank Development Indicators, 79.7% of the world populations are living below the poverty line considering an income of USD 10.00 per day. Considering a daily income of USD 1.00 this percentage remains 13.6% (Figure 2.1).

Historically, poverty has been related to income, which remains at the core of the concept today. However, "income" is itself no less problematic a concept than "poverty"; it too has to be carefully and precisely elaborated. Other resources such as assets, income in kind and subsidies to public services and employment should be imputed to arrive at a comprehensive but accurate measure of income. People can be said to be in poverty when they are deprived of income and other resources needed to obtain the conditions of life—the diets, material goods, amenities, standards and services— that enable them to play the roles, meet the obligations and participate in the relationships and customs of their society (UNDP, 2006).

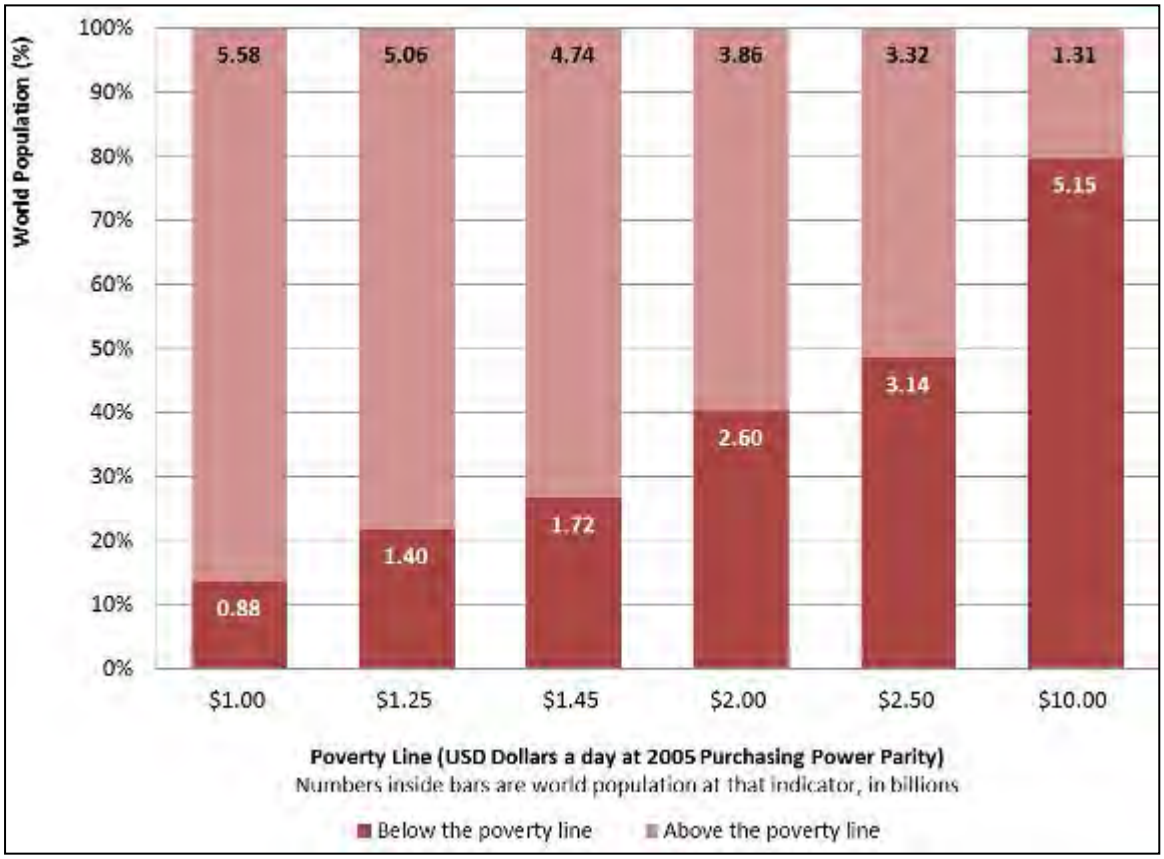


Figure 2.1: Percent of people in the world at different poverty levels, 2005. (Source: World Bank, 2008)

Around the world, in rich or poor nations, poverty has always been present. In most nations today, inequality –the gap between the rich and the poor –is quite high and often widening. The causes are numerous, including a lack of individual responsibility, bad government policy, exploitation by people and businesses with power and influence, or some combination of these and other factors. Many feel that high levels of inequality will affect social cohesion and lead to problems such as increasing crime and violence. Inequality is often a measure of relative poverty. Absolute poverty, however, is also a concern. World Bank figures for world poverty reveals a higher number of people live in poverty than previously thought. For example, the new poverty line is defined as living on the equivalent of $1.25 a day. With that measure based on latest data available (2005), 1.4 billion people live on or below that line. Furthermore, almost half the world over three billion people live on less than $2.50 a day and at least 80% of humanity lives on less than $10 a day (World Bank, 2008).

In the context of developing countries, poverty has been studied extensively only in the last 40 or 50 years; it has been the focus of public policy for no more than 30 years. Poverty is not only a state of existence but also a process with many dimensions and complexities. It is almost always characterized by high levels of (i) deprivation (dispossession) (ii) vulnerability (high risk and low capacity to cope), and (iii) powerlessness. These characteristics form the core of inadequate

wellbeing. Poverty can be persistent (chronic) or transient, but the latter if acute can turn into a trans-generational trap. Consequently, the world of the poor is diverse both in space and time. The poor adopt all kinds of strategies to mitigate and cope with their poverty. In understanding poverty and the poor, it is essential to examine the context of the economy and society, including institutions of the state, markets, communities, and households. Poverty differences cut across gender, ethnicity, age, residence (rural versus urban), and income source. At the household level, often children and women suffer more than adult males. In the community, minority ethnic or religious groups suffer more than the majority groups, the rural poor more than the urban poor; among the rural poor, the landless wage workers suffer more than small landowners or tenants. These differences among the poor reflect highly complex interactions of cultures, markets, and public policies (Khan, 2000).

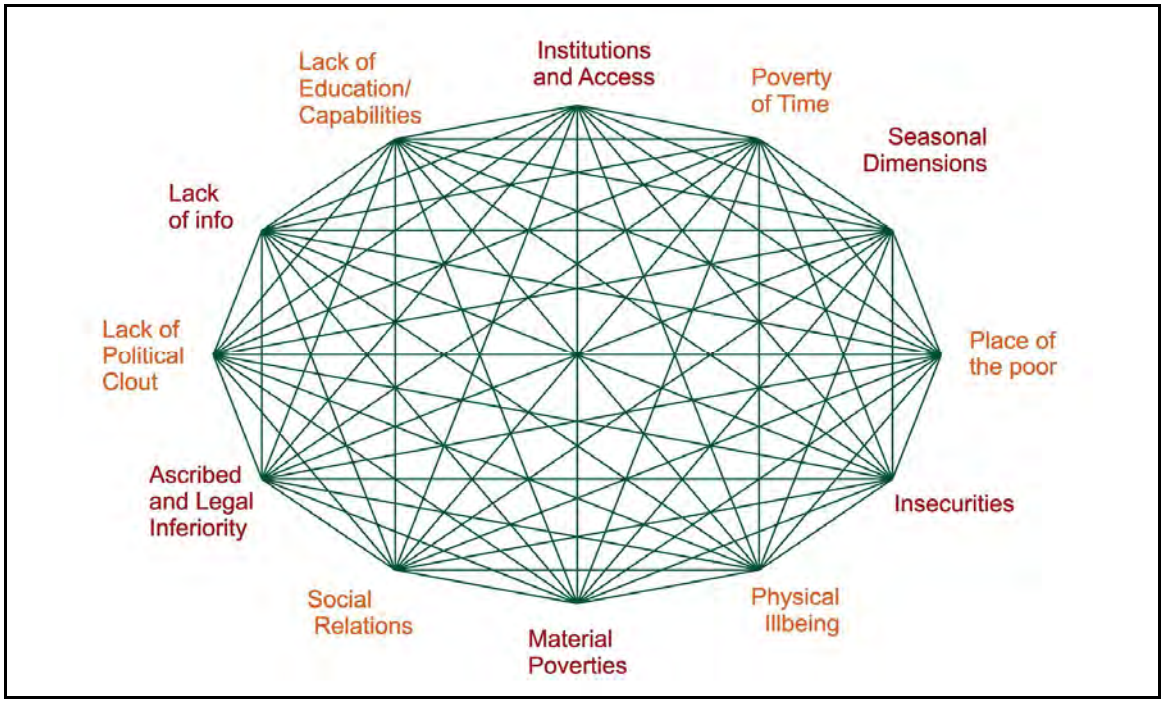


Figure 2.2: The web of poverty's disadvantages. (Source: UNDP, 2006)

Poverty is hard to measure for a number of reasons (Ravallion. 1994). First, it is multidimensional, reflecting deprivation in income and non-income dimensions. Second, it is dynamic, since the poverty dimensions are subject to fluctuations (volatility). Therefore, no single indicator or group of indicators of well-being exists on which there is or can be a consensus. According to Khan (2000), consumption (expenditure) is the preferred variable because of its stability compared to income. Prices and access to public services vary so the same total expenditure may leave one household (individual) poor and the other not.

Poverty as a public policy concern, whether at the global, national or community level, is now widely considered to be a multi-dimensional problem. Over the last few decades, new

perspectives on poverty have challenged the focus on income and consumption as the defining condition of poor people. Studies of the problems of poor people and communities, and of the obstacles and opportunities to improving their situation, have led to an understanding of poverty as a complex set of deprivations.

2.3. Rural Poverty in Bangladesh

It is estimated that 76 percent of the developing world's poor live in rural areas, well above the overall population share living in rural areas, which is only 58 percent (Ravallion, 2007). Disparities between rural and urban areas are on the rise, particularly in many developing and transitional countries (Kanbur, 2005). Globally, rural people and rural places tend to be disadvantaged relative to their urban counterparts (Mosely, 2004) and poverty rates increase as rural areas become more remote (Miller, 2002). Individuals living in rural areas tend to have less access to social services, exacerbating the effects of rural poverty (Jazairy 1992). Rural poverty accounts for nearly 63 percent of poverty worldwide (World Bank, 2008), reaching 90 percent in some countries like Bangladesh and between 65 and 90 percent in sub-Saharan Africa (Khan, 2001). Exceptions to this pattern are several Latin American countries in which poverty is concentrated in urban areas. In almost all developing countries, the general conditions in terms of personal consumption and access to education, health care, potable water and sanitation, housing, transport, and communications faced by the rural poor are far worse than those faced by the urban poor. Persistent high levels of rural poverty, with or without overall economic growth, have contributed to rapid population growth and migration to urban areas. In fact, much urban poverty is created by the rural poor's efforts to get out of poverty by moving to cities. Distorted government policies, such as penalizing the agriculture sector and neglecting rural (social and physical) infrastructure, have been major contributors to both rural and urban poverty.

To understand poverty, it is essential to examine the economic and social context, including institutions of the state, markets, communities, and households. Poverty differences cut across gender, ethnicity, age, location (rural versus urban), and income source. In households, children and women often suffer more than men. In the community, minority ethnic or religious groups suffer more than majority groups and the rural poor more than the urban poor; among the rural poor, landless wage workers suffer more than small landowners or tenants. These differences among the poor reflect highly complex interactions of cultures, markets, and public policies.

The causes of rural poverty are complex and multidimensional. They involve, among other things, culture, climate, gender, markets, and public policy. Likewise, the rural poor are quite diverse both in the problems they face and the possible solutions to these problems (Khan, 2001).

According to International Fund for Agricultural Development (IFAD), Bangladesh is one of the world's poorest countries, ranking third after India and China in the extent of poverty (IFAD, 2007). The population is predominantly rural, with about 72 per cent of its 148 million people living in rural areas (IFAD 2010). For their livelihoods rural people depend mainly on the land, which is both fertile and extremely vulnerable. Most of the country is made up of flood plain, and while the alluvial soil provides good arable land, large areas are at risk because of frequent floods and cyclones, which take lives and destroy crops, livestock and property.

In the Rural Poverty Portal, IFAD announced that at least 45 million people in Bangladesh, almost one third of the population, live below the poverty line, and a significant proportion of them live in extreme poverty. The poverty rate is highest in rural areas, at 36 per cent, compared with 28 per cent in urban centers. Many people have an inadequate diet and suffer from periods of food shortage. Half of all rural children are chronically malnourished and 14 per cent suffer from acute malnutrition. Since the 1990s the country has made good progress towards reducing the incidence of poverty, achieving one per cent drop in the proportion of people living below the poverty line every year. Estimates of rural poverty rates now stand between 53 per cent and 43.6 per cent. In general the depth and severity of poverty has been reduced more successfully in rural zones than in urban areas, although rural zones still lag far behind urban areas in terms of development. 40% of the total population are living beyond the poverty line and most of them (81%) live in the rural areas (BBS 2005).

About 20 per cent of rural households live in extreme poverty. Chronically poor people suffer persistent food insecurity, own no cultivable land or assets, are often illiterate and may also suffer serious illnesses or disabilities. Another 29 per cent of the rural population is considered moderately poor. They may own a small plot of land and some livestock, but while they generally have enough to eat, their diets lack protein and other nutritional elements. This segment of the rural population is at risk of sliding deeper into poverty as a result of health problems or natural disasters. Injury or crop failure caused by unexpected and severe weather conditions frequently ruins the livelihoods and the hopes of many Bangladeshis. Small-scale farmers may subsist at either of these levels of poverty. Their livelihoods are precarious, both because of the seasonal nature of farm income and because natural disasters such as floods and drought may periodically destroy their crops and animals (Rural Poverty Portal, IFAD, 2010).

Women are among the poorest of the rural poor, especially when they are the sole heads of their households, such as widows or wives of men who have migrated in search of employment. They suffer discrimination because of their gender, they have scarce income-earning opportunities and their nutritional intake is often inadequate. Among extremely poor people, there is a disproportionate number of households headed by women.

The following map (Figure 2.3) shows that 33% to 43% population of the survey areas of Sirajganj are living beyond the extreme poverty line.

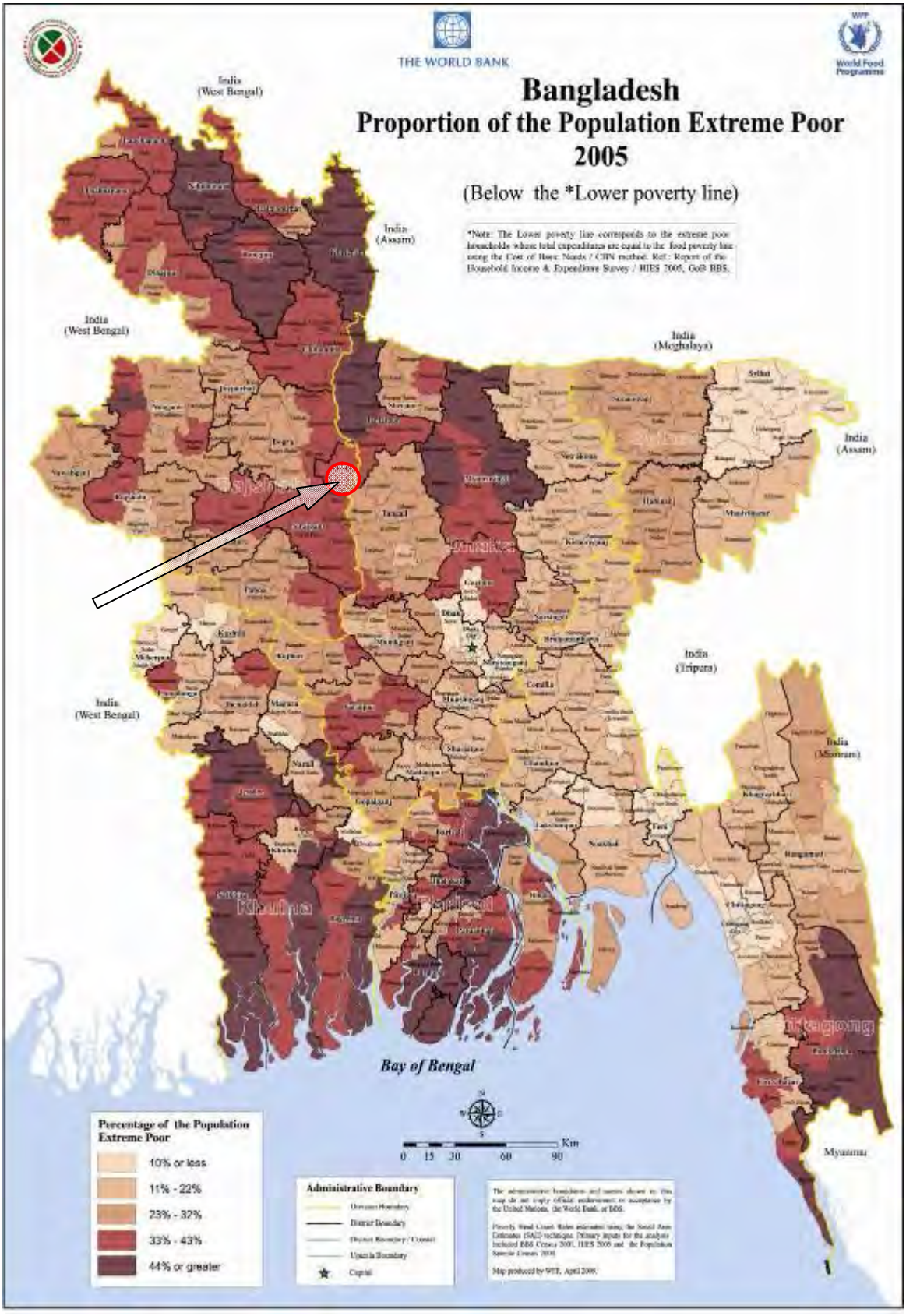


Figure 2.3: Location of the extreme poor in Bangladesh. (Source: BBS, 2005)

One of the main causes of rural poverty in Bangladesh is the erratic and extreme climate and the fact that a large proportion of the country is low-lying and vulnerable to flooding. Many of Bangladesh's rural poor people live in areas subject to extreme annual flooding, which can destroy their crops, homes and livelihoods. They often have to resort to moneylenders in order to rebuild their lives, which pushes them deeper into poverty. For the large numbers of rural poor people whose subsistence depends on agriculture, income and food security are highly precarious. Many farmers eke out a livelihood on small and fragmented plots. For those who are landless or almost landless, the situation is even more severe. Almost half of the population falls into this category. Another root cause of rural poverty has been the enormous population growth and the pressure this has placed on the environment; unleashing problems such as erosion and flooding that in turn aggravate the situation of rural poor people (IFAD, 2011).

Bangladesh is particularly vulnerable to climate change. Two thirds of its territory is less than 5 metres above sea level, making it one of the most flood-prone countries in the world. Severe flooding during monsoons can cause significant damage to crops and property, and an adverse impact on rural livelihoods. Climate change seems likely to add to the destruction by monsoon floods, and the frequency of cyclones may increase. Poor people are hit hardest because they are more densely concentrated in badly constructed housing on land that is prone to hazards. Poverty is especially persistent in three areas: the north-west, which is affected by droughts and river erosion; the central northern region, which is subject to serious seasonal flooding that limits crop production; and the southern coastal zones, which are affected by soil salinity and cyclones.

2.4. Basic Premise of HBEs in Developing Countries

> *"Concentration of work in factories and office buildings had little momentum until the Industrial Revolution, and doctrines about separating residential and working zones followed that. Nevertheless, whether or not some time and space in the dwelling might not be advantageously used for producing extra income is an issue still weighed by millions of households in countries at all income levels."*
>
> (Strassmann, 1986, p. 498)

Space in itself may be primordially given, but the organization and meaning of space is a product of social translation, transformation and experience (Samarasinghe, 1997). Throughout the developing word increasing numbers of householders are using the space of the dwelling and the labour of the household to generate income in a wide variety of ways (Kellet & Tipple, 2002). Dwellings can provide not only shelter and amenities but also an income through rental space or use as a shop. Such income helps to finance the dwelling and its improvement (Strassmann, 1987). There are numerous studies examining the phenomena from an economic perspective, but

a paucity of studies which look at home-based income generation from a housing perspective. Lipton, (1980 in Kellet & Tipple, 2000) describes home-based enterprises as family mode of production enterprises whose characteristics are as follows:

- the family controls most of the land and capital to which its labour is applied;
- most of the family's land, capital and labour are used in the enterprise; and
- most of the labour applied is provided by the family.

It is generally acknowledged that there is a need to consider the interrelatedness of housing and income generation in low-income settlements. For research in the intermediate size cities of Bangladesh Ghafur (1997) summarized some major characteristics of Homebased Income Generation (HIG) is as follows:

- the head of the enterprise is a direct producer;
- the scale of the economic activity is small;
- a small number of persons are employed;
- a very small amount of capital and low output.

HBEs are generally small enough to fall into the category of micro-enterprises. From experience in Africa, Hugon (1990) summarized some of the common features of micro-enterprises as:

- the people in charge are young;
- entry is not onerous in terms of seed capital, which normally derives from private saving;
- technology is simple, and
- relationships have a non-wage basis.

Strassman (1987) (cited by Matsebe, 2009, p. 2) defines a home-based enterprise not just as a small business in a small structure but also a family operation in a home. He further sees it as “a functional and organizational unit of production, generative reproduction, and consumption within the social formation of the house hold". There is a wide recognition of informal sector activities running from home in most parts of the developing countries. Therefore, the house is seen as an essential asset for most entrepreneurs. The existence of HBEs plays a key role in addressing a range of development challenges, including unemployment. That is, HBEs are instrumental in generating the household’s income, which in turn contributes towards improvement of the lives of members/residents.

In low income areas, the complex web of economic linkages present in and between the home-based enterprises (HBEs) allow all but the destitute to eke out a living and have access to some shelter. There is believed to be a symbiotic relationship between housing and HBEs. Owners may be enabled to consolidate their dwellings through the income earned in an HBE. Many households would not have their dwelling without the HBE and many enterprises would not exist without the use of the dwelling. Thus, housing plays an important part in the existence and operation of the informal economy in many countries (Tipple, 1993).

The inter-relationship between housing and income-generating activities continues to be a prominent feature of the informal sector in developing countries. *The global strategy for shelter to the year 2000* (UNCHS, 1990) recognizes that shelter has important effects on the wider economy, which must be taken into account when formulating housing sector strategies (Tipple, 1993). Throughout the world, the emerging markets are moving towards privatization of parastatals, with the intention of creating free and competitive markets (Kellet & Tipple, 2000). This could impact negatively on poor households, especially in the current economic climate. To overcome added financial burdens, the poor sought alternative methods of income generation, and the most common mechanism to sustain their livelihoods is HBEs (Gough et al, 2003).

In many countries, the dwelling or a house is used for a range of activities such as shelter/accommodation, production place, market place, entertainment centre, financial institution and retreat (Kellet & Tipple, 2000). There is a strong relationship between housing and home-based enterprises, as dwellers are able to consolidate their dwellings and make ends meet through the income earned. In addition, many households would not have a dwelling without their home-based enterprise and many enterprises would not exist without the use of a dwelling. Thus, housing is crucial for the operation of HBEs in most countries. Poverty alleviation has been cited as the main objective towards the establishment of home-based enterprise, since many people are unemployed. The findings of the study conducted in New Delhi, India revealed that home-based enterprises were a source of income for 75% of the sampled households (Kellet & Tipple, 2000).

Home-based work is often necessary to sustain specific trade and manufacturing activities to say (Fass, 1980). Fass found in his study of informal settlements in Port-au-Prince and Haiti that the use of dwellings for making, storing and selling goods was so extensive that he decided to treat the dwelling unit primarily as a piece of productive infrastructure (Fass, 1977, cited by Peattie, 1987 and Tipple 1993). According to Strassmann (1986), from one-tenth to one-quarter of the dwellings in the cities of developing countries have an enterprise on the premises.

HBEs as part of the informal sector provide many of the jobs needed by the growing workforce, and compensates for much of the formal sector's failure to provide goods and services (Gough et al, 2003). Kellet and Tipple (2000) outlined a number of advantages of HBEs, which include the fact that they can be converted swiftly, conveniently and without loss from one use to another. The time spent on domestic activities can be converted into time spent on home-based enterprises as the flow of domestic work allows, and space can be used for a range of activities which may change throughout the day as well as seasonally. All these changes can be made with minimal cost and inconvenience.

2.5. HBEs in Rural Context

According to the 2001 Rural Poverty Report of the IFAD, 75% of the world's poor live and work in rural areas, and the majority will remain so for several decades (IFAD, 2001). Entrepreneurship is a vital component of productivity and growth (Baumol, 1993). Previous research reported a strong positive correlation between the level of economic activity and overall economic performance (Zacharakis, Reynolds, & Bygrave, 1999). As firm startup rates increased, growth in national GDP and the employment rate increased (Zacharakis et al., 1999). Therefore, entrepreneurs play a number of critical roles in economic development and improve the economic condition.

Rural entrepreneurship occurs in economically and socially depressed areas with inadequate infrastructure, economic stagnation, low levels of education, low skilled workers, low income, and a culture not supportive of entrepreneurship (Kulawczuk, 1998). Fostering entrepreneurship is a factor in impoverished rural regions because entrepreneurship creates wealth and employment and has a profound impact on the quality of livelihood of rural populations (FAO, 1997).

Rural enterprises and diversification into market oriented, income generating activities are being increasingly viewed as a path to improving both livelihoods and food security. The issue is not whether to participate in the market economy but how to do so in a manner which provides for sustainable and equitable income growth and decent work. Taking many forms including cooperatives, enterprise development is an appealing alternative for stakeholders in rural development, particularly as it contributes to equity through local economic growth (SARD, 2007).

Sustainable Agriculture and Rural Development (SARD) in their Policy Brief -6 (2007) indicates some major characteristics of rural enterprises. They may be explained as follows:

- Rural enterprises have limited resources such as labour, skills, and capital, which make it difficult for them to meet the standards required for local, regional, or global markets. This lack of resources also prevents rural enterprises from expanding and excludes them from higher-value markets as suppliers to larger firms or as direct suppliers to markets. Resources for improving malfunctioning markets where the extremely poor operate are also limited.

- The transaction costs of working with rural enterprises are high because of their small size, scattered nature and remoteness. These high costs are often a result of the time required to ensure that standards are met (e.g. negotiating with many individual enterprises, collecting produce from dispersed or remote collection points). Many small rural enterprises have to carry these costs themselves because of their isolation.
- Rural enterprises face business risks like other firms. For rural enterprises, the risks often stem from power imbalances versus larger firms and buyers that can influence terms and conditions and standard requirements. Outsourcing to small rural enterprises may bring about exploitative conditions.
- Rural enterprises have limited access to timely and accurate market information, and weak transport and communications infrastructure. This makes it very difficult for rural enterprises to participate in higher value markets.

Rural enterprises have some role over the rural poverty. Sometimes they are generated to overcome the poverty. Rural HBEs have more business risks from the urban HBEs because of their limited resources, remote and weak market areas, unequal competitive markets and unskilled labour forces.

2.5.1. Characteristics of HBEs for this Study

The underlying view of writers like Strassmann (1986) and Raj and Mitra (1990) is that, being home-based, these enterprises have been the most viable alternative to the formal sector with its instability and factor-price distortions. The HBE core of the informal sector has ease of entry, small scale, labour intensity, and unregulated competitiveness. However, its strength also lies in the ease of shifting labour, funds, equipment, materials and space from making one product or service to another, from the market to the family, and to dwelling expansion itself, what Lipton has called “extended fungibility” (Lipton, 1980).

For this study HBEs are considered with the following four characteristics:

a) an income generating activity

b) operated within the premise of the homestead

c) a non-crops activity

d) directly operated by the household members

The scale and volume of the business are considered as flexible for this study.

2.6. Rural Non-farm Economy in Bangladesh

The rural non-farm economy accounts for roughly 25 percent of full-time rural employment and 35-40 percent of rural incomes across the developing world (Haggblade, 2002). This diverse collection of seasonal trading, household-based and large-scale agro-processing, manufacturing and service activities plays a crucial role in sustaining rural populations, in servicing a growing and modern agriculture, and in supplying local consumer goods and services. In areas where landlessness prevails, rural nonfarm activity offers important economic alternatives for the rural poor.

The emergence and rapid expansion of nonfarm activity in rural areas, and in the towns that serve them, becomes a major source of income and employment growth during the economic transformation of a developing country. From a relatively minor sector, often largely part-time and subsistence-oriented in the early stages of development, the rural nonfarm economy becomes a key contributor to economic growth. Because of its frequently small scale, low capital requirements, seasonality and amenability to home-based activity, growth in the rural nonfarm economy holds important implications for the welfare of women and poor households, sometimes helping to offset inequities that may arise within the agricultural sector (Haggblade, 2002).

Hossain (2004) distinguished three types of rural non-farm activities:

a) Manual labor-based activities, such as self-employment in cottage industries, mechanics, wage employment in rural business enterprises, transport operations, and construction labor;

b) Human capital based occupations, such as salaried service in public and private sector institutions, teachers, religious leaders, lawyers, village doctors, and various types of personal services (barbers, laundry services, mid-wives etc); and

c) Physical and human capital intensive activities, such as agro-processing, shop-keeping, peddling, petty trading, medium and large scale trading, and contractor services.

Information on the primary and secondary occupations of rural workers are given in the table 2.1. In 2000, 52 percent of the earning members of the households reported rural non-farm activities as their primary occupation and another 10 percent as secondary occupations. The corresponding numbers obtained from the 1987 survey was 34 and 15 percent respectively. In 2000, 30 percent of the workers reported a secondary occupation, substantially lower than the level (41 percent) reported in 1987. In 2000, a third of the rural employment was generated in business enterprises and service sector activities. The proportion of workers engaged in these activities increased by nearly 60 percent over the 1987-2000 period.

Category of employment	Primary occupation		Primary or secondary occupation	
	1987	2000	1987	2000
Agriculture:	66.1	47.6	91.8	66.7
Cultivation of own farm	43.2	35.4	60.4	45.6
Agricultural wage labor	21.7	11.3	28.2	18.4
Livestock and fisheries	1.2	0.9	3.2	2.7
Non-agriculture:	33.9	52.4	48.7	62.9
Services	15.5	22.1	17.9	23.7
Business	7.6	11.9	12.7	16.0
Shop keeping	1.5	2.0	2.4	2.3
Mechanic	0.7	3.5	0.9	3.9
Rickshaw/van pulling	2.0	4.8	2.4	5.8
Other transport	1.3	1.2	1.4	1.4
Construction labor	3.4	3.7	7.1	4.8
Other non-agricultural labor	1.9	3.2	3.9	5.0
Total	100.0	100.0	140.5	129.6

Table 2.1: Distribution of rural workers by type of employment, 1987 and 2000.
(Source: BIDS-IRRI, 2001)

The BIDS-IRRI sample household survey in 62 villages showed that the employment in the rural nonfarm sector has increased by 4.5 percent per year while the number of workers employed in agriculture has declined by nearly 1.2 percent per year. In 2000-01, 52% of the earning members of the households in Bangladesh reported rural non-farm activities as their primary occupation and another 14 percent as secondary occupations, which means that nearly two-thirds of the rural workers are involved in rural non-farm activities.

2.7. Activities and Benefits of HBEs through Livelihood Resources

Rural HBEs are rarely an autonomous economic activity. Rural HBEs are perhaps more intricately involved with the concerned households in engaging their social, physical and economic resources than their urban types. Moreso when the HBEs are taken to impact the transformation of houses. Whether HBEs as a livelihood initiative or a means for the transformation of houses, they hold a central place in the survival of the rural poor and households. This research, therefore, seeks to search and develop a framework that examines HBE within the overall household survival initiatives.

The household is the basic economic decision making unit in rural as well as in urban areas. It is essential to understand householders' livelihood strategies in order to make sense of what they are

doing and understand how they perceive opportunities for change. The concept of 'sustainable rural livelihoods' is increasingly central to the debate about rural development, poverty reduction and environmental management (NAFRI, 2005).

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base (Chambers & Conway, 1992). The ability to pursue different livelihood strategies is dependent on the basic material and social, tangible and intangible assets that people have in their possession. Drawing on an economic metaphor, such livelihood resources may be seen as the 'capital' base from which different productive streams are derived from which livelihoods are constructed.

The livelihoods approach is concerned first and foremost with people. So an accurate and realistic understanding of people's strengths (here called "assets" or "capital") is crucial to analyze how they endeavor to convert their assets into positive livelihood outcomes (Bebbington, 1999). Livelihoods approaches are concerned largely with household-based productive activities and (generally to a lesser extent) with risk management, 'voice' and social protection (Conway, 2002). In this research, the concept of livelihood comes to understand the social, physical and economic condition of survival of the cases which has widely effected by the HBEs with respect to the perimeter of 'livelihood resources'.

Capital and asset are mainly business terms. They may be used in other contexts also, depending on the situation, and there are several variations of each term. Not only the physical objects such as buildings and machines considered assets, but intangibles objects are considerable as assets. Words like capital and asset are very frequently encountered. According to the business academicians, capital is the money that is required to produce goods and assets are things that have a value and can be sold in the market for a monetary value and all capitals are asset.

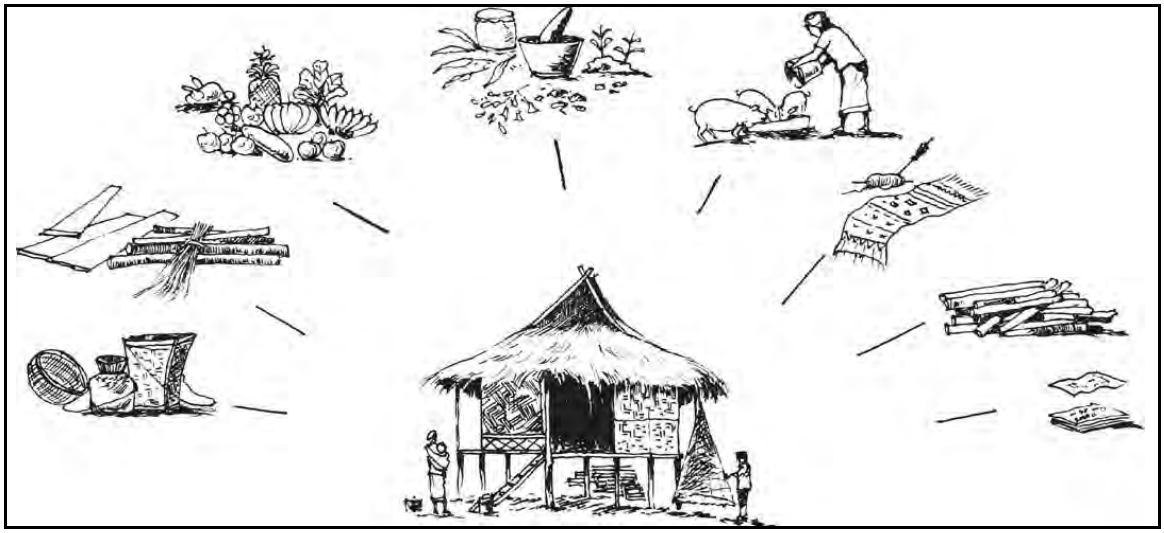


Figure 2.4: Household livelihood system (NAFRI, 2005)

The above figure (Figure 2.4) represents the livelihood system of a household. It shows the elements of the livelihood system such as food, energy, shelter, medicine, cash money, food for the livestock, materials for cottage industry and savings.

The livelihoods framework is a tool to improve our understanding of livelihoods, particularly the livelihoods of the poor. The livelihoods approach is concerned first and foremost with people. It seeks to gain an accurate and realistic understanding of people's strengths (assets or capital endowments) and how they endeavour to convert these into positive livelihood outcomes. The approach is founded on a belief that people require a range of assets to achieve positive livelihood outcomes; no single category of assets on its own is sufficient to yield all the many and varied livelihood outcomes that people seek. This is particularly true for poor people whose access to any given category of assets tends to be very limited. As a result they have to seek ways of nurturing and combining what assets they do have in innovative ways to ensure survival (DFID 1999).

2.7.1. The Asset Pentagon

Studies by the Department for International Development (DFID) report five forms of assets or capital available to households. They are: human capital, natural capital, financial capital, physical capital and social capital. The extent to which these five assets operate in a given livelihood activities is manifested through the asset pentagon. The asset pentagon lies at the core of the livelihoods framework, 'within' the vulnerability context. The pentagon was developed to enable information about people's assets to be presented visually, thereby bringing to life important inter-relationships between the various assets (DFID 1999).

The Asset Pentagon is an important component in the Sustainable Livelihood framework. It is a visual representation of information about people's livelihood assets. It brings to life important inter-relationships between the various assets.

DFID in the years 1999-2000 the asset pentagon is being widely accepted and used by some researchers. Moran M. and others (2007) used the pentagon for their research 'The Transformation of Assets for Sustainable Livelihoods in a Remote Aboriginal Settlement'. Shivakoti G and Shrestha S (2005) did their research 'Analysis of Livelihood Asset Pentagon to Assess the Performance of Irrigation Systems'.

The shape of the pentagon can be used to show schematically the variation in people's access to assets. The idea is that the centre point of the pentagon, where the lines meet, represents zero access to assets while the outer perimeter represents maximum access to assets. On this basis different shaped pentagons can be drawn for different communities or social groups within communities. By this process different pentagons are achieved from the different HBEs of my study.

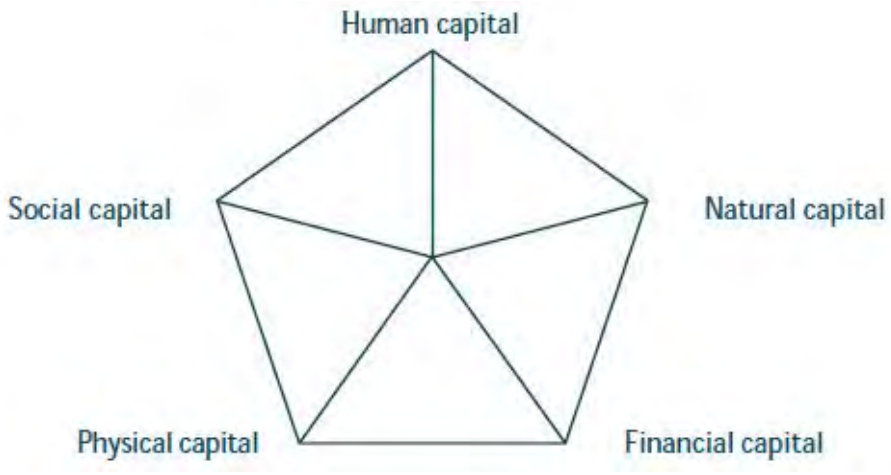


Figure 2.5: The asset pentagon

It is important to note that a single physical asset can generate multiple benefits. If someone has secure access to land (natural capital) they may also be well-endowed with financial capital, as they are able to use the land not only for direct productive activities but also as collateral for loans. Similarly, livestock may generate social capital (prestige and connectedness to the community) for owners while at the same time being used as productive physical capital (think of animal traction) and remaining, in itself, as natural capital. In order to develop an understanding of these complex relationships it is necessary to look beyond the assets themselves, and think about the prevailing cultural practices and the types of structures and processes that 'transform' assets into livelihood outcomes. 'Transforming Structures and Processes' within the livelihoods framework are the institutions, organizations, policies and legislation that shape livelihoods. Their importance cannot be overemphasized. They operate at all levels, from the household to the international arena, and in all spheres, from the most private to the most public. They effectively determine- access (to various types of capital, to livelihood strategies and to decision-making bodies and sources of influence); the terms of exchange between different types of capital; and returns (economic and otherwise) to any given livelihood strategy. In addition, they have a direct impact upon whether people are able to achieve a feeling of inclusion and well-being. Because culture is included in this area they also account for other 'unexplained' differences in the 'way things are done' in different societies.

The five components of the Asset Pentagon that are drawn by the DFID (1999) are explained next.

Human Capital

Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. At a household level human capital is a factor of the amount and quality of labour available; this varies

according to household size, skill levels, leadership potential, health status, etc. Human capital appears in the generic framework as a livelihood asset, that is, as a building block or means of achieving livelihood outcomes. Its accumulation can also be an end in itself. Many people regard ill-health or lack of education as core dimensions of poverty and thus overcoming these conditions may be one of their primary livelihood objectives.

As well as being of intrinsic value, human capital (knowledge and labour or the ability to command labour) is required in order to make use of any of the four other types of assets. It is therefore necessary, though not on its own sufficient, for the achievement of positive livelihood outcomes. In international development settings, the labour and human capital of poor people is probably their greatest asset (Moser, 1998). In the welfare-based economies of remote Aboriginal settlements, with the lack of employment and private enterprise, human capital is arguably the least-developed asset.

Social Capital

There is much debate about what exactly is meant by the term 'social capital'. In the context of the sustainable livelihoods framework it is taken to mean the social resources upon which people draw in pursuit of their livelihood objectives. These are developed through:

- networks and connectedness, either vertical (patron/client) or horizontal (between individuals with shared interests) that increase people's trust and ability to work together and expand their access to wider institutions, such as political or civic bodies;
- membership of more formalized groups which often entails adherence to mutually-agreed or commonly accepted rules, norms and sanctions; and
- relationships of trust, reciprocity and exchanges that facilitate co-operation, reduce transaction costs and may provide the basis for informal safety nets amongst the poor.

The above are all inter-related. For example, membership of groups and associations can extend people's access to and influence over other institutions. Likewise trust is likely to develop between people who are connected through kinship relations or otherwise. As well as having its own intrinsic value, social capital may be particularly important as a 'resource of last resort' for the poor and vulnerable. It can:

- provide a buffer that helps them cope with shocks, such as death in the family;
- act as an informal safety net to ensure survival during periods of intense insecurity; and
- compensate for a lack of other types of capital (e.g. shared labour groups compensating for limited human capital within the household).

Natural Capital

Natural capital is the term used for the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, etc.).

Within the sustainable livelihoods framework, the relationship between natural capital and the Vulnerability Context is particularly close. Many of the shocks that devastate the livelihoods of the poor are themselves natural processes that destroy natural capital (e.g. fires that destroy forests, floods and earthquakes that destroy agricultural land) and seasonality is largely due to changes in the value or productivity of natural capital over the year. The Vulnerability Context frames the external environment in which people exist. People's livelihoods and the wider availability of assets are fundamentally affected by critical trends as well as by shocks and seasonality, over which they have limited or no control. The factors that make up the Vulnerability Context have a direct impact upon people's asset status and the options that are open to them in pursuit of beneficial livelihood outcomes. Shocks can destroy assets directly (in the case of floods, storms, etc.). They can also force people to abandon their home areas and dispose of assets (such as land) prematurely as part of coping strategies.

Use of the term Vulnerability Context draws attention to the fact that this complex of influences is directly or indirectly responsible for many of the hardships faced by the poorest people in the world. The inherent fragility of poor people's livelihoods makes them unable to cope with stresses, whether predictable or not. It also makes them less able to manipulate or influence their environment to reduce those stresses; as a result they become increasingly vulnerable. Even when trends move in the right direction, the poorest are often unable to benefit because they lack assets and strong institutions working in their favour. In this research it is found in the survey that people of permanent households became floating due to the shock of river erosion and after that the Vulnerability Context again make them continuous struggler for their livelihood.

Examples of natural capital and services deriving from it are land, forests, marine/wild resources, water, air quality, erosion protection, waste assimilation, storm protection, biodiversity degree and rate of change. For all these sources of natural capital it is important to consider access and quality and how both are changing.

Physical Capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods. Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive. Infrastructure is commonly a public good that is

used without direct payment. Exceptions include shelter, which is often privately owned, and some other infrastructure that is accessed for a fee related to usage (e.g. toll roads and energy supplies). Producer goods are the tools and equipment that people use to function more productively. Producer goods may be owned on an individual or group basis or accessed through rental or 'fee for service' markets, the latter being common with more sophisticated equipment.

DFID lists five main components of infrastructure that are considered essential to achieve sustainable livelihoods: affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean affordable energy; and access to information (communications) (DFID, 1999). Infrastructure, such as roads, rails and telecommunications are key to the integration of the remote areas where many of the poor live. Not only are people able to move between rural and urban areas more easily if the transport infrastructure is good, but they are also more likely to be better informed about opportunities (or the lack of them) in areas to which they are thinking of migrating, either temporarily or permanently.

Financial Capital

Financial capital denotes the financial resources that people use to achieve their livelihood objectives. The definition used here is not economically robust in that it includes flows as well as stocks and it can contribute to consumption as well as production. However, it has been adopted to try to capture an important livelihood building block, namely the availability of cash or equivalent that enables people to adopt different livelihood strategies.

According to a DIFD study (DFID, 1999), there are two main sources of financial capital.

- Available stocks: Savings are the preferred type of financial capital because they do not have liabilities attached and usually do not entail reliance on others. They can be held in several forms: cash, bank deposits or liquid assets such as livestock and jewellery. Financial resources can also be obtained through credit-providing institutions.
- Regular inflows of money: Excluding earned income, the most common types of inflows are pensions, or other transfers from the state, and remittances. In order to make a positive contribution to financial capital these inflows must be reliable (while complete reliability can never be guaranteed there is a difference between a one-off payment and a regular transfer on the basis of which people can plan investments).

Two important characteristics of savings are varying levels of:

- productivity in the sense how much value do they gain when they are left untouched.
- liquidity implying how readily they can be turned into cash.

Generally speaking, both are desirable characteristics, though liquidity also has a downside: the more liquid one's savings, the more difficult it tends to be to defend them from claims from family members or others. There may also be trade-offs between liquidity and productivity as well as between productivity and risk.

Conclusion

Global poverty is a well acknowledged concern, to all and Bangladesh with its rural areas is not an island in the ocean of this concern. Though the rural dwellers always try to overcome poverty, there are possibilities that the HBEs affect them through some other ways. The 'Asset Pentagon' offers scopes to visualize a graphical view of the livelihood resources that operate the selected households. The livelihood resources are affected by the HBEs just as they are involved with the households in numerous ways.

Chapter- 3

PATTERNS OF RURAL SETTLEMENT

To understand the transformation of housing in the rural areas, in the specific research region of Bangladesh, it is necessary to have a clear knowledge about the settlement patterns. Houses cannot be seen in isolation from the settlement; they required viewing as part of a total social and spatial system relating the houses, way of life and settlement. Before start discussing the individual house form, the formation of rural settlements in Bangladesh and their patterns have reviewed from literature in this chapter. The discussion starts by a brief explanation of the rural settlement pattern followed by a description of the patterns and forms of the individual houses.

3.1. Rural Settlement Patterns of Bangladesh

Distinct cultural and social factors along with differences in geophysical characteristics, materials, climate and technology guided the spreading of human settlements in the South Asia region, especially in Bengal (Islam, 2003). In this 21st century, the numbers of houses have been increasing rapidly with the concomitant population increase. In the past, settlements took places by the riversides, where alluvial soil was ready for the cultivation. According to Sultana (1993), there are two main types of rural settlement: elongated-linear and amorphous, both patterns of establishing settlement on raised or high land above the annual flood level. The elongated linear type is built on high land along natural levees of rivers or water channels. The amorphous type, consisting of clustered or scattered settlements built on raised land, is often dispersed throughout the terrain. In the plains land entire towns and villages have grown over time in the amorphous pattern by raising land and such settlements are still being built. Settlements are elevated to adapt to the annual flooding, but during extreme floods even raised settlements may become flooded.

Where high land is not available, earth obtained from excavating ponds or channels is raised into a mound about 2 to 3 meters high depending on the surrounding water level, on which a homestead or *bari* is established. A *bari* often begins with an individual household and incrementally develops into a settlement of several *ghors* (dwelling units and ancillary structures) of inter-generational households belonging to an extended family. Over time more earth is added

to extend the mound as the settlement gradually expands in an amorphous pattern. In many places settlements thus established on raised mounds are scattered throughout the low-lying terrain and in the rainy season virtually become islands (Ahmed, 2006).

Another reason for following the rivers was the transportation facility. But in course of time this attitude of building the houses following the river courses has changed. People of Bngladesh has started building their houses not only following the river courses but also in different places with scattered forms to meet the need of scarcity of houses for the increased population in different regions. This spreading of settlements ultimately resulted in the developments of different types of settlement patterns like linear, scattered, nucleated etc. Choudhury and Zaman categorized the forms of rural settlement in Bangladesh into six types (Choudhury & Zaman, 1976 cited by Islam, 2003). The observed settlement types are briefly explained below and shown in Figure 3.1.

1. *Nucleated and clustered* settlements can be found along the main thoroughfares in the high flat land of the northern Piedmont and the Barind regions.
2. *Scattered* settlements are seen in the central delta region where the homesteads are built on artificially raised mounds.
3. *Linear* settlements are formed along the levees of the dead and dying river in the moribund delta of the southwest region.
4. *Dispersed and isolated* settlements can be found in the coastal areas and offshore islands.
5. *Very sparsed and also linear* settlements are seen along the spring line in the Chittagong of the Eastern hilly region.
6. *Clustered and highly densed* homesteads are built on very high artificially raised mounds.

These settlement types more or less inform all forms of human settlements in Bangladesh, except hilly region, and are described next.

Nucleated Settlements

Nucleated settlements are built on high flat lands, which are safe from the danger of floods. Irrigation for the cultivation is done here with the surface water or shallow tube-well. For these factors homesteads tend to organize themselves to form clusters. This type of village is comparatively compact, regular and larger in size with 200-400 families. This compactness and regularity gave the characters of the settlements as nucleated pattern.

Scattered Settlement

Most of the deltaic plains of the country and the river valleys are extremely fertile. Each and every year these plains are becoming more and more fertile with the sedimentations by floods. This fertile land acted as the basic attracting factor for living. People hold up their lands, make

raised earthen platforms and build their houses. As a result there is less regularity among these houses and the settlement appeared like the scattered form. The scattered arrangement of houses has the disadvantages for transportations and communication. Boat is the only mean of communication during the flood time. But in present days, new road networks are expanding to connect these houses and settlements (Hasan, 1985).

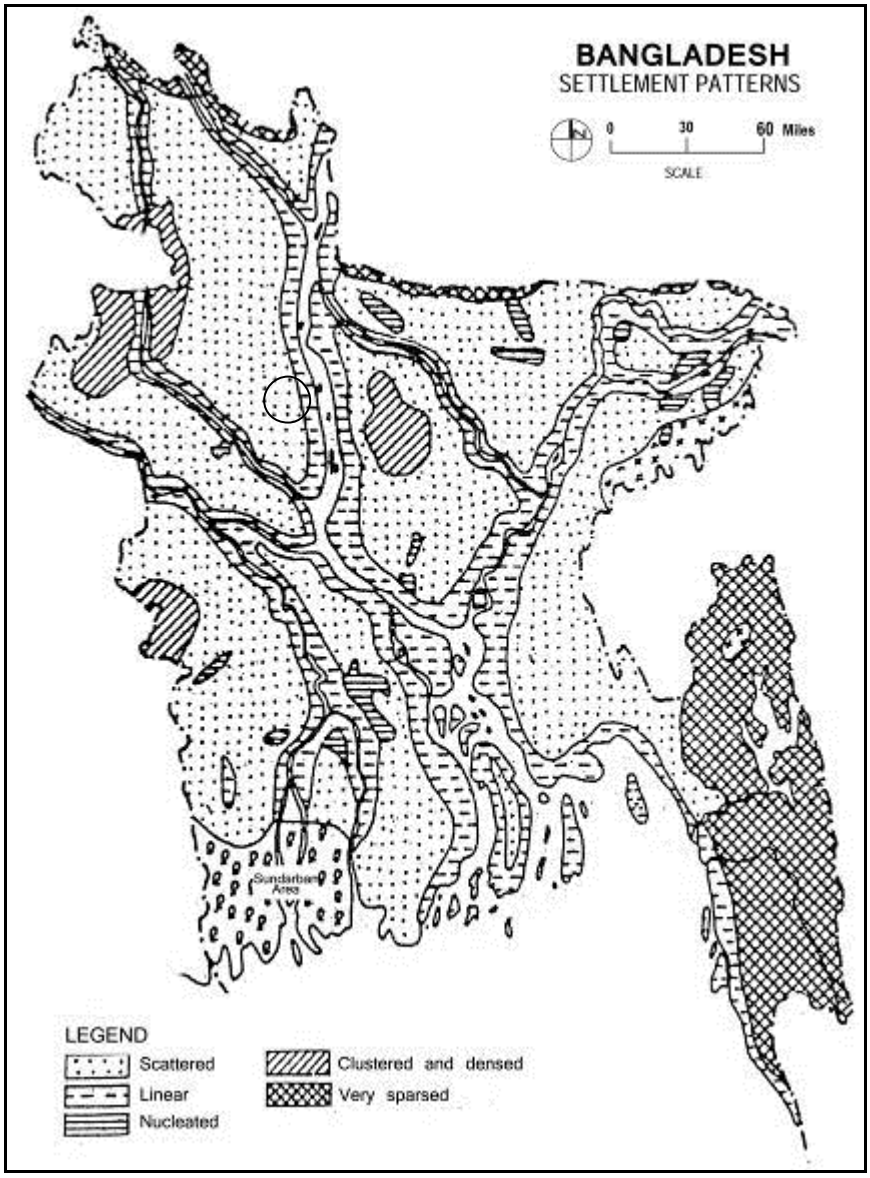


Figure 3.1: Settlement Patterns of Bangladesh. (Source: Baqee, 2011)

Linear Settlement

The linear settlement pattern originated from the shape of the river. Settlements followed the river courses to get the facilities of fertile land along them, good opportunities for communications and water available for cultivation. Though the rivers change their directions, the settlements, which once grew along the river, continue to remain there. The linear forms of settlements can also be traced by the shore of marshy lands.

Dispersed and Isolated Settlements

Isolated settlements can be seen in the islands of the Bay of Bengal that formed at the mouth of the Ganges-Brahmaputra delta. The Islands are extremely fertile as they are formed by the sedimentations of the rivers. These fertile offshore islands are not only potential for agriculture but also for fishing. Those opportunities of cultivation and fishing inspired people to start living in the offshore islands. Homesteads are also built here an isolated, which gradually resulted in a dispersed and isolated settlement pattern.

Very Sparsed and also Linear Settlements

In the eastern hilly regions, homesteads are built sparsely on the sloping areas. Limited cultivation is done after only the preparation of the slopes by making terraces. Sometimes homesteads follow the contour lines of the hills and became linear but all of them are keeping a minimum distance between themselves.

Clustered and Highly Densed Homesteads

In the *Haor* (large marshy area) areas of the North-eastern micro region and the part of the south central zone, houses are found built on artificially mounds that resulted in the formation of highly densed clusters.

3.2. Spatial Settings of the Rural Homestead

A homestead is a socio-spatial manifestation of peoples dwelling in the rural settlement. It connotes an identity of a household as well as a property with tangible boundary. A traditional rural 'Bengali House', according to Hasan (1985) is an inheritance from the past, that exists in the present and has a potential for the future. The traditional house in its basic form is a cluster of small 'shelters' or 'huts' around a central court-yard called the '*Uthan'*. Different huts are constructed for different functions; such as, the outer house (Out-house or *Baithak Ghar*); the inner house (Dwelling unit or *Ghar*); the kitchen; the cattle-shed. For larger houses there appear two more huts- the store house (fuel storage, granary etc.) and the rice husking shed or the '*Dheki Ghar*'.

The huts are usually single roomed, detached and loosely spaced around the central court. An extensive landscaping is done to define the house in the larger landscaping and the surrounding environment. The latrine and bath are never considered as parts of the main structures and are always kept at a distance. The combination of all the huts is called the '*Bari'* or the 'House'. In the traditional system, '*Bari'* represents the nuclear, joint or extended family while the huts represent individual households. The courtyard or '*Uthan'* serves to maintain both unity and individual identity of the families in the house. (Hasan, 1985)

One century ago Dr. F. Buchanan (1810) (cited by Hasan, 1985) described the rural house as

> *"Among the natives the poor man has one hut for himself and cattle, the richer man increased the number without altering the plan of the building and there is no contrivance by which a person can go from one apartment to the other without being exposed to sun and rain."*

A typical morphological feature of the rural homestead or *bari* is the arrangement of a number of closely spaced single-storied (or occasionally double-storied) one to two roomed rectangular buildings (*ghors*) around a square or rectangular open courtyard (*uthan*). There is usually a single row of buildings around a courtyard. In the process of making a homestead, a pond is excavated to obtain soil for raising the land; a backyard pond with bathing steps (*pukur ghat*) can be found in many large homesteads. The pond provides for rearing ducks and fish, and for bathing - a frequent purification ritual in this tropical land (Ahmed, 1999).

After raising land, each homestead begins on the mound with a main dwelling unit (*bosoth ghor*) and ancillary structures such as kitchens (*ranna ghor*), granaries (*gola ghor*) and cowsheds (*goyal ghor*) lay out around a central open space or courtyard. The word *ghor* literally means 'room', indicating that the individual units are perceived actually as rooms with specific functions and not really as buildings; the *bari* or the homestead comprised of several *ghors* around a courtyard is considered the unit of home. The main *ghor* is usually the well-built structure on the homestead and the ancillary structures tend to be semi-permanent and built of perishable materials. As the family grows, these are moved to peripheral locations and more dwelling units are added around the courtyard. The courtyard serves as the main circulation space between the buildings arranged around it.

Dwelling units flanking the courtyard often have shaded open verandahs, which provide cool outdoor spaces. In some cases verandahs are partially or fully enclosed by screen-type walls for shade and privacy. The verandah is a semi-private space and serves as a transition zone from the semi-public courtyard to the private house interior. Generally, the buildings comprising the homestead range in size from 2 meters by 3.5 meters to 4 meters by 7 meters, and face all sides of the courtyard and they can be entered only through the courtyard. The buildings have one to two rooms and are usually single-storied, although in some well-to-do homesteads some two-storied buildings can also be found. Buildings are usually constructed on a raised plinth of compacted earth and the floor is left bare. This additional flood-proofing technique is ubiquitous throughout Bangladesh and is a characteristic feature of rural housing. The plinth varies from a height of about 15 centimeters in higher areas to 120 centimeters in low-lying areas. Walls are commonly porous screens made of organic materials such as bamboo, reeds or grasses; in drier and hilly regions the walls are also made of earth. Pitched roofs are typical, thatched with different types of

grasses or straw according to local availability, but corrugated iron (CI) sheet has now become widely popular and common in rural areas, both for roofs and walls (Ahmed, 1999).

Figure 3.2: A typical courtyard in a Bangladeshi rural homestead (Source: Hasan, D.M., 1985).

Approximately for the last forty years people has been using brick in the rural areas as the building material. The use of bricks in the rural houses can be assumed as the influences from the urban areas as the durable and prestigious building material for shelters. C.I. sheets, bamboo, straw, jute sticks or *golpata* with the combination of mud are basically used for the construction of the enclosures. For the roofing, C.I. sheets and thatch are the most common in the rural areas. In some areas, clay tile roofing can be seen. In most of the areas of rural Bangladesh plinths of the rooms are constructed with rammed soil.

The basic layout of a traditional Bengali house has basically two zones without considering the changes of locations, materials, climates etc and their impact on the house forms. All the activities of a house are arranged by following these zones (Hasan, 1985). The zones are specified as, Formal zone (male, outer part of the house) and family zone (female, inner part of the house). These zones have been organized on the basis of social, cultural, religious and climatic considerations, which are representing a 'Bengali' society. These aspects and their relations with the houses are explained in the following.

Formal Zone

The formal zone is the outer most part of the house. All the activities related to agriculture like crop preparation for cultivation and selling are done here. The built forms like an outer house (baithak ghar), cowsheds, toilets, general storage and food storage for cattle are organized in this zone to support those agricultural activities. Male persons occupy this portion of the house generally. Women also use this space for different household works during the time of absence of the outsiders.

The outer house is used for the socialization of male persons from out sides (generally not relatives) and for the persons (*kamla*) who are employed for the cultivation. Sometimes this room is used for taking rest and sleeping for them also. The outer house is also used as a buffer between formal and informal zones. An additional toilet is arranged in this zone for the use of male persons of the family, workers and visitors (Islam, 2003).

Family Zone

All of the functions like sleeping, cooking, washing, taking care of children and rice/crop preparations are included in this zone. Female members usually occupy this zone. Generally the rice husking function is associated with the kitchen and done by women of the family. The kitchen and toilets (for woman and children) are arranged at the corners of the court and sometimes they are approached indirectly to ensure more privacy.

This zone can be approached from the outside generally by two ways. One indirect entrance at the corners and sometimes the other entrance is arranged through the *baithak ghar*. All of the rooms with the shaded verandas are oriented towards the courtyard, which is the most common in a rural house. A central and introvert courtyard plays a vital role in keeping the family bondage more strong so it also has some special symbolic values rather than functional aspects. The inner court is not used only for the activities of drying the crops or preparing the foods but also for different family activities like family gatherings, children playing, drying clothes etc. (Islam, 2003).

3.3. Factors Effecting Rural Housing

In Bangladesh the rural houses are usually built with the traditional or indigenous knowledge. The houses vary from regions to regions according to the traditional knowledge of the local people. Hossain (2008) mentioned two factors for the diversification of the forms of rural houses. They are as followings:

1. Environmental factors (climate, soil condition, amount of rainfall, vegetation etc.)
2. Socio-economic factors (economic status, social hierarchy, availability of construction materials, religious beliefs, rituals etc.)

In an earlier study, Islam (2003) expanded these factors affecting rural house forms into three categories. They are:

i) The differences of land characteristics, climate and available construction material;

ii) The differences of cultural factors;

iii) The differences of religious factors;

These diversities of house forms are described in the following discussions.

3.3.1. Diversities for the Differences of Land Characteristics, Climate and Available Construction Materials

The geophysical characteristics of Bangladesh can be classified into the following three categories (Sultana, 1993).

a. The plain land, which is characterised by flood plains

b. The terrace land of the Barind, Madhupur and Lalmai

c. The hilly and upland areas of the east and northeast

The differences in the landforms, land levels, and the soil characteristics are guiding the varieties within the house forms. These features are also associated with some cultural and climatic factors.

a. Housing Characteristics in the Plain Land

In the plain land areas of the country there are diversities in the housing characteristics even though the geophysical conditions all around apparently seem similar. In the region, houses are constructed with materials such as bamboo, mud, corrugated iron (CI) sheet, straw, grass and reeds and have diverse sizes and shapes. The characteristics of houses can be recognized by its roofs and walls. These are subjects to change with the variations of locations, climate and availability of materials and technologies.

The study area of this research is this type of context of Bangladesh. The region is mainly flood-prone zone where the housing characteristics of plain land and flood-prone area are found which will be discussed in chapter 5.

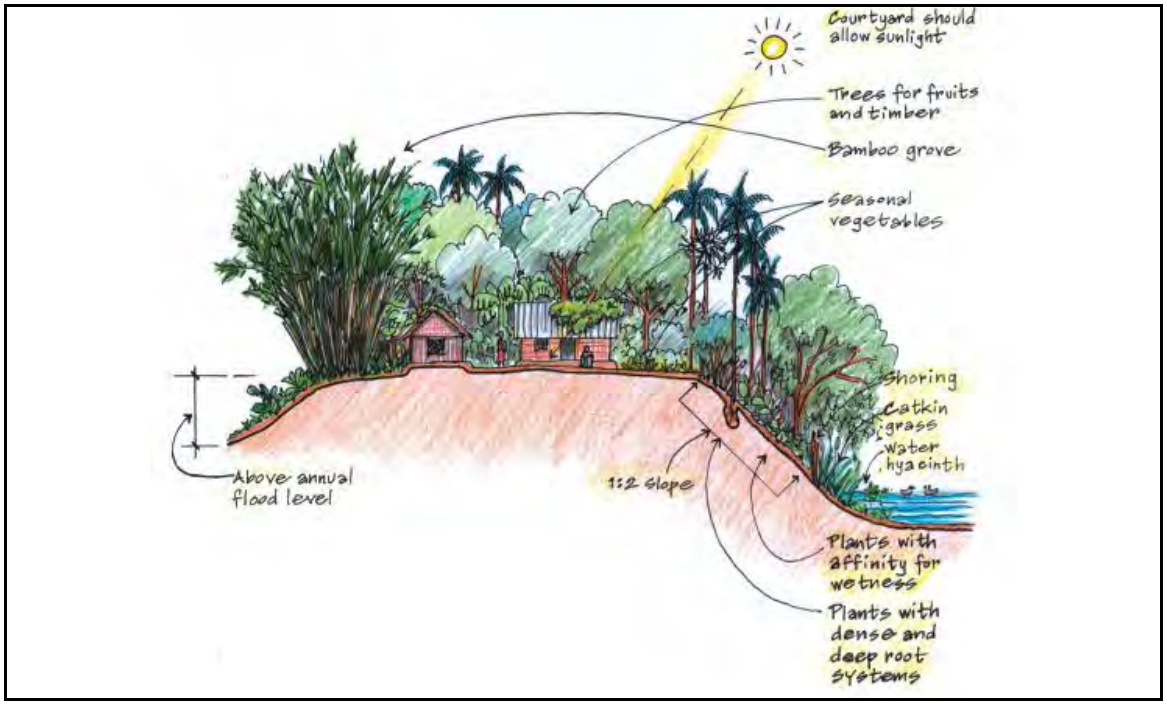


Figure 3.3: Landscaping criteria for homestead in flood-prone area. (Source: Ahmed, 2005)

Here the house forms are assessed on two aspects.

- Roofing materials
- Enclosing materials

Roofing Materials

In general bamboo, thatch and C.I. sheets are the common for roofing materials all over the Bangladesh. Among these roofing materials, bamboo and thatch are the most common. The use of C.I. sheet is increasing rapidly for its availability and durability against the warm-humid weather and the heavy rain. Clay tiles are used in the areas of dry climate where the soil with lateritic quality is available.

Construction materials	1961 (%)	1973 (%)	1981 (%)
Bamboo/ straw	55.01	58.79	62.39
Corrugated iron sheet	34.04	37.74	34.55
Clay tiles	0.78	0.88	2.31
Cement/ brick	0.76	1.69	0.75
Other	9.41	0.98	-

Table 3.1: Roofing materials in the traditional houses of Bangladesh. (Source: Chowdhury, 2003)

Enclosing Materials

The houses of rural Bengal can be categorized into different types (Islam, 2003; Hossain, 2008) on the basis of enclosing materials. Such as,

Bamboo-walled houses: In the piedmont alluvial plains, especially in Rangpur, Moribund delta area in Jessore and Haor Basins, flood plains of the Ganges, the Jamuna – Brhamaputra, the Meghna, the Tista and in some areas in eastern and northern regions. The walls are generally made of bamboo and rooms are configured in rectangular shape. Bamboo is used for making posts (*and frames*) and enclosing elements, which is called 'Bera'. Sometimes timber is used for the post and making an upper horizontal floor in the room. This horizontal floor is used for storage purposes. It also acts as a thermal buffer in hot and cold seasons.

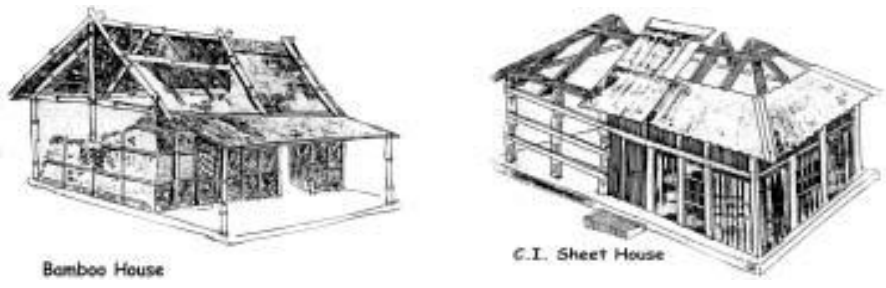


Figure 3.4: Bamboo and CI sheet walled houses (Source: Hasan, D.M., 1985)

Sometimes the bamboo enclosures are plastered with mud to protect it from rain and for aesthetics purposes. The bamboo walls with C.I. sheet roofs are the common practice in the rural areas and around Dhaka, Pabna, Narayangange, and Chandpur districts (Sultana, 1993), but they can also be found scattered in all of the flood plain regions.

Mud-walled houses: A long patch of landform running from Dinajpur, Bogra to Jessore and some parts of Khulna following the western side of the country has a distinctive characteristic of mud-walled houses. Sometimes walls are made of sun dried earthen blocks of one to two feet thickness. These mud walled houses are generally oblong in shape and covered with the roofs made with clay tiles, thatch or C.I. sheets. The application of these construction materials depends on their availability and the ability of the house owners.

In these specific regions the lands are normally above flood level. Besides this, relatively less rainfall, dry climate and lateritic soil (which get very hard when dry) are the main reasons behind the mud constructions. Relatively taller (15´) mud walled houses are found in the southwest of Darshana and Poradaha districts. Mud-walled houses with two or three levels are common in Chittagong region.

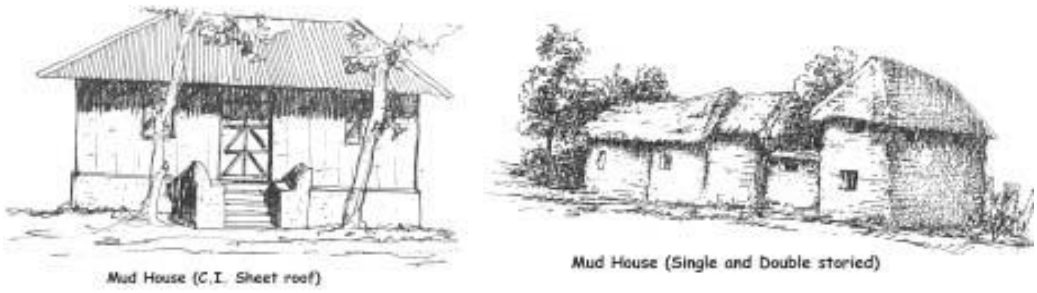


Figure 3.5: Mud-walled houses with CI sheet and thatched roof. (Source: Hasan, D.M., 1985)

Timber houses: Relatively smaller groups of populations in Cox's Bazar, Teknaf, and Moheskhali are using the house forms having walls constructed with timber. Generally, the houses are built on raised wooden platforms to get safety from snakes and other animals. The lower parts of the houses are also used for various purposes like storage, keeping domestic animals, different family activities etc. Another motivation behind this wooden construction is the availability of wood in the forest areas. Some of these buildings are also finished with different wood curving for aesthetics purposes. With these distinctive features, the houses are representing the special identity of those regions. The houses has not only an aesthetic value but also an architectural importance from the view point of maximum use of space and for better air circulation in hot climate condition.

Timber and brick-built houses: The timber and brick built houses are common in the east of Sylhet district. The floors, plinths and the lower parts of the walls are constructed with brick while the rest portions of the walls are constructed with bamboo reeds covered with cement or mud on

the both sides. Posts are made with timber logs and roofing with C.I. sheet or thatch. The use of cement is common among the well-to-do households in the area.

CI sheet-built houses: C.I. sheet was not being used as the indigenous building material in this region. Later on, for the durability it became one of the major building materials in local tradition. In the northern part of Sylhet, it is very common to build houses (walls and roofs) with C.I. sheets. Heavy rainfall in that particular region is one the major reasons behind choosing the C.I. sheets. C.I. sheets are providing protection against rain and dampness of the weather. Another reason of choosing the C.I. sheets is the influences from the buildings of tea gardens constructed in British colonial period. The economic ability of the peoples of that particular area is considered as an additional reason behind the selection of comparatively expensive building materials. Unavailability of others material (e.g. mud) and mobility for hoses (due to river erosion etc.) is an another important reason to choose C.I. sheets as a building material which is found in Sirajganj.

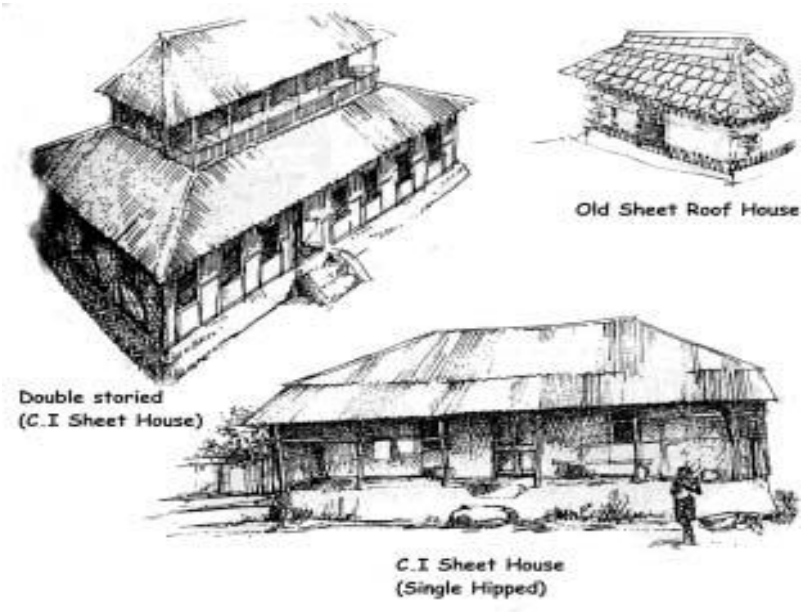


Figure 3.6: CI sheet-built houses. (Source: Hasan, D.M., 1985)

Thatched/ straw-walled houses: In the *Haor* basins and *Chalan bil* areas houses are characterized by thatch walls, where straw, long grass, jute sticks and thatch are available and cheap. Those materials are also used for roofing purposes except jute sticks. This is so because of the fact that reeds and long grasses are widely available in the *char* lands and on river sides and are relatively cheap. Besides, these areas area also flood-prone and vulnerable to various hazards like bank erosion which compel people to build relatively cheaper houses that can be dismantled when threatened by a hazard. In relatively flood free area like Bogra and Tangail *kutcha* roofing by thatch or long grass with mud-wall is also found.

Construction materials	1961 (%)	1973 (%)	1981 (%)
Bamboo/ straw	59.25	67.98	65.10
Mud	16.66	19.15	21.46
Corrugated iron sheet	6.33	8.30	11.47
Cement/ brick	1.27	3.30	1.97
Other	16.49	1.27	-

Table 3.2: Enclosing materials in the traditional houses of Bangladesh. (Source: Chowdhury, 2003)

b. Housing Characteristics in the Terrace Land

It includes the terraced land of Barind, Madhupur and Comilla. These areas are characterised by dry climate with low rainfall. Latertic content of the soil and the land placed above flood levels altogether influenced house forms to build with mud walls. Dry climate also insisted to form the compact house forms and densed settlements to get benefits from shadows by each other.

c. Housing Characteristics in the Hilly Areas

The form and design of houses in the hilly regions are different from the other areas and they are representing some special characteristics. The tribe occupied hilly regions of Chitagong, Sylhet and Maymanshingh possesses these special characteristics. Tribes are the close communities of distinct ethnic group different from main population. They have their own headman and socio-cultural customs even they have their own language or dialect. Their agricultural system and food habits and also the dress are different from mainland people.

The hilly areas of Chittagong are characterized by the houses built on raised platforms built with bamboo or timber. Among the tribal people, the richer ones build wooden platform and bamboo platform by poorer ones. About half a portion of the platform is used for living room and the rest of the portion as veranda for multipurpose family outdoor activities. A ladder made with bamboo approaches this platform or veranda.

The lower part of the platform is used for keeping the domestic animals though its introduction was for the protection from ferocious animals from the hilly forest areas. The hilly areas of Sylhet, Habiganj, Moulovibazar and in the flat areas those tribal usually build their houses like other areas with oblong mud wall and covered with thatch (Sultana, 1993).

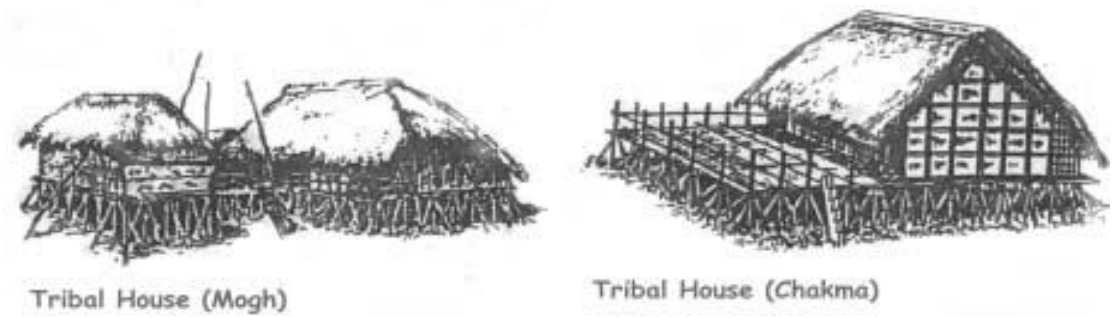


Figure 3.7: Tribal houses. (Source: Khan & Islam, 1985)

3.3.2. Diversities for the Differences of Cultural Factors

Diversity of culture is a major issue in many societies. Ratcliff (1999) mentioned that no society is mono-ethnic, and there is clearly a multiplicity of needs, desires and aspirations to be met. Obviously, there are also diverse expectations and need regarding housing. Lawrence (1987) suggested that the design and use of houses reflects certain cultural and social values and ideas. Aragones, Francescato and Garling (2002) stated that the dwelling is more than a structure full of things; its form and organization are influenced by the culture in which it develops and ay be viewed to reflect the relationship between culture and environment. Because the design and use of houses reflects cultural values and ideas, people may have different housing experiences according to their cultural backgrounds (Lee, 2004).

Culture is one of the most powerful factors, which is guiding the evolutionary pattern of households. Studying at the levels of human settlements, the impacts of culture in the formations of house forms can be understood. The traditional Bengali house shows the efficient use of building materials and evolutions of a house form having relationship with the limit and the possibilities set by various physical and socio-cultural factors (Hossain, 2008). In the case of the traditional Bangladeshi built environment, the user is also the designer, builder, landscape specialist, artist and craftsman. However, he or she is not the concept-giver (Haq, 1994).

An attempt is made by Professor Sirajul Islam Chowdhury (cited by Hosasin, 2008 and Islam, 2003), a cultural geographer, for making a classification of rural houses on the basis of cultural and social aspects. The proposed classification is as follows:

1. *Chouchala Ghar*: It is a house with four units on four sides (vita) of a courtyard. It is not the most ancient form of house in Bangladesh, but it is not new either. It is an old type of houses which can be found in most parts of the country. The yard (uthan) of this type of houses is square or semi-square in shape. It also has an outer-court which is usually east-faced. A drawing room and outer court are the essential parts of the Muslim *Chouhala* house while the Hindus usually do not use them.
2. *Briti Griha*: It is a house completely surrounded by walls made of bamboo or a combination of thatch and bamboo or jute sticks. this type of houses can be seen in the northern part of Dinajpur.
3. *Atchala Griha*: An Atchala Griha is an eight roofed house. sometimes there are several divisions made within the room. it is ostly found in Satkheera district.
4. *Posta Griha*: It is a house usually erected by rich farmers and embankment is generally constructed with permanent building materials.
5. *Dishala Griha*: This is a house with two houses on either side of the courtyard. This type of houses can be seen in the Sylhet region.

6. *Shustitha Griha*: This is a house with large verandas on all sides. This if usually seen in the Sitakunda region.

7. *Tribal houses*: Tribal houses can be mentioned as the houses used by the peoples in the hilly areas like, Chittagong, Sylhet and Maymanshingh region. These houses are made by ethnic communities such as Chakma, Mog, Marma, Monipuri, Garo etc.

8. *Adivasi houses*: By the term 'Adivasi' Choudhury meant the Saontal house of primitive tribes. The *Saontal* are mentioned as the primitive tribe in Bangladesh. Most of the houses are built with ornamented mud walls and thatched roofs. Usually a family has only one room and a number of families are organized around a court.

Among the categories mentioned above, the *Chouchala Ghar* is the most common, where the others are seen very infrequently. *Briti* houses are seen only in the northern Dinajpur, *Atchala* in Satkhira, *Dishala* in Sylhet, *Shustitha* in Sitakundu and *Posta* in Mirsharai (Hossain, 2008).

3.3.3. Diversities for the Differences of Religious Factors

It is found almost everywhere in the world that there are some taboos and beliefs related with rural settlement. There are taboos and beliefs regarding the homesteads in rural areas. 'Taboo' means reflection of activities regarding houses in rural areas which the owner does not believe but observes due to societal grounds (e.g. not to plant palm trees or tamarind trees). On the other hand, 'belief' means reflection of such activities regarding rural homesteads which the owner not only believes but also ensures in reality (e.g. in the Muslim owned homesteads the toilets are not made facing east-west; similarly, in Hindu owned homesteads in rural areas Tulsi and China Roses' trees are available) (Baqee, 2011).

Religion is one of the major factors, which guided the formations of rural houses in Bangladesh. Among the total population, 90% are Muslim, 7-8 % are Hindu and 2-3% are Christians, Buddhists and others. The impact of Muslim and Hindu beliefs and lifestyles is seen most prominently in the layout and the arrangement of the built forms (Islam, 2003; Hossain, 2008). Such as,

a. The houses of the Muslim families are more introverts in nature, because of some religious regulations. Usually the Muslims houses have some kind of special walls or partitions around the entrances for privacy. In a Muslim family, female members are more restricted within their inner areas. The situation is now changing. The Muslims women are taking parts in different types of activities outside their houses.

b. In the Hindu religion, cow has a special status. For this reason a special attention has been given to the cows for the take care in a Hindu house. As the result the cowshed in a Hindu family looks more neat and clean than that of a Muslim house.

c. The Hindu women are allowed to the outer court for taking care of the cows, which is uncommon in a Muslim family.

d. The arrangement of the rooms in the Muslim houses follows strongly the cardinal directions for the easy recognition of the Kaba (the direction towards Macca that the Muslims use for their prayers) direction. The orientations of the sleeping mats, beds and toilets also follow this direction. But in the case of a Hindu family it is not necessary.

e. In a Hindu family it is common that a place is reserved for planting holy tree '*Tulsi'*. There is also a specific place/room for the worship and for placing the images of gods, which is unfamiliar in a Muslim family.

f. An outhouse is an essential part of Muslim house whereas it is not so common in a Hindu family. Generally the purposes of the outhouse are solved at the '*Puja Mondop'* in a Hindu family.

g. Some wealthy Muslim families in the rural society have two ponds. One for maleand the other for female. If it is a single pond then there are two '*ghats'* prepared for male and female separately. The female *ghat* is surrounded by some kind of screenings for privacy.

3.4. Settlement Pattern of the Study Area

The main stream settlement pattern of the selected region of the district Sirajganj (explained in Table 4.2) is *Nucleated settlements* which has to maintain a plinth level that are safe from the danger of floods. Irrigation for the cultivation is done here with the surface water or shallow tube-well. For these factors homesteads tend to organize themselves to form clusters. Villages are comparatively compact, regular and larger in size. The compactness and regularity gave the characters of the settlements as nucleated pattern.

In some cases it is found the settlement pattern of this region is *Linear*. Most of them are migrated from their original villages due to the river erosion and re-settled along with road-side or an embankment (further discussed in Section 5.1). Settlements of this type get good opportunities for communications. As construction material both CI sheet and bamboo are widely used for roofing and enclosing material in this region and mud (which is used in many regions of North-Bengal) is not used as an enclosing material. This is discussed in detail in Section 5.2 of this thesis.

Conclusion

The pattern of the rural settlement and house form has been discussed in earlier studies. The rural houses are usually built with the traditional or indigenous knowledge in Bangladesh. The houses vary according to the traditional knowledge of the local people. Climate, culture and religion are the key factors that affect the rural housing widely. Knowledge or this theoretical chapter will help to analyze the rural houses after affected by an additional factor HBE in the next analytical chapters.

Chapter- 4

RESEARCH METHODOLOGY

This chapter describes the methodological approaches by explaining the collection and inter-relation of the information for the research. It outlines the steps followed to address the research questions through the research objectives, and describes the methodology of the empirical investigation, selection procedure of the HBE cases within the specific contexts and the limitations of the research. The values of different livelihood resources and their scaling factors are also describes within this chapter.

4.1. Qualitative Approach for Research

This research adopts a qualitative approach. Shank (2002, p. 5) defines qualitative research as "a form of systematic empirical inquiry into meaning". Denzin and Lincoln (2000, p.3) claim that qualitative research involves an interpretive and naturalistic approach: "This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them". The advantages of doing qualitative research include (Conger, 1998; Bryman, 1988; Alvesson, 1996):

- flexibility to follow unexpected ideas during research and explore processes effectively;
- sensitivity to contextual factors;
- ability to study symbolic dimensions and social meaning;
- increased opportunities to develop empirically supported new ideas and theories;

In effect, however, most qualitative approaches have a focus on natural settings; an interest in meanings, perspectives and understandings; an emphasis on process; a concern with inductive analysis and grounded theory (Woods, 2006).

Woods (2006) mentioned a number of implications of the qualitative research. They are as follows:

- They do not set up artificial experiments. 'Natural experiments', however, can be very useful. These are events that occur naturally but interrupt the normal course of life, such as a change in national or school policy, a pupil or teacher career transition, the circumstances leading up to a school exclusion.
- Researchers make as few assumptions in advance of the study as possible. Things are there to be found out - one does not know what they are beforehand. Openness of mind is the approach. Researchers do not take things for granted, and try to 'make the familiar strange'. This is not easy to do. Howard Becker (1971, p. 10) writes that when things are so familiar to us, 'it becomes impossible to single out events that occur in the classroom as things that have occurred, even when they happen right in front of you…. it takes a tremendous effort of will and imagination to stop seeing the things that are conventionally "there" to be seen'.
- Situations are deemed to be important because they influence behaviour. People often behave differently in different circumstances. The context cannot, therefore, be taken as a given, but rather as a set of parameters with which individuals interact.
- Researchers usually prefer fairly lengthy and deep involvement in the natural setting. Social life is complex in its range and variability, and operates at different levels. It has 'many layers of meaning' and the researcher has to 'lift veils' to discover the innermost meanings. This is not to say that smaller-scale studies are without their uses, though they will have more limited objectives and be more exploratory.
- In order to gain access to deeper levels, the researcher needs to develop a certain rapport with the subjects of the study, and to win their trust. Needless to say, this must not be abused later when the researcher leaves the field.

Qualitative research seeks to understand a given research problem or topic from the perspectives of the local population it involves. Qualitative research is especially effective in obtaining culturally specific information about the values, opinions, behaviors, and social contexts of particular populations. The strength of qualitative research is its ability to provide complex textual descriptions of how people experience a given research issue. Qualitative methods are also effective in identifying intangible factors, such as social norms, socioeconomic status, gender roles, ethnicity, and religion, whose role in the research issue may not be readily apparent.

4.2. Research Design

The research matrix shown below indicates the required information, their sources and the tools needed to complete the respective three research objectives. This matrix provides a framework for addressing the research objectives.

Research Objectives	**Research Objective -1** To understand the **changing patterns of rural house form** as a result of economic activities within the homestead of Sirajganj district in Bangladesh.	**Research Objective -2** To investigate the **socio-economic benefits of home-based enterprises** within the homestead in the rural area.	**Research Objective -3** To identify the **nature and extent of housing transformation due to home-based enterprises.**
Required information	• Stages of physical and functional layouts of house form and homestead • Physical layout • Functional layout Spatial arrangements of house forms in permanent and floating homesteads. Building materials	• **Socio-economic data** Income Dependency on HBE Land ownership Household information • **Livelihood analysis** Impact of HBEs over the others perimeter • Different living status for the 'permanent' and 'floating' conditions • Cross tabulation(s) with the variables of – context (permanent/floating)	• Type of HBE • **Homestead analysis** Volume of homestead Required space for HBE • Changing nature of homestead
Ways of collection	• Interviews • Physical observation Photographs Drawings Existing studies	• Questionnaire Survey • Interviews Contextual study Household history • Literature	• Physical observation • Questionnaire Survey Photographs Drawings
Possible outcomes	**Normal house forms and HBE induced change** • General Social and settlement profile • Understanding of the formation and organization of rural homesteads and house forms in the permanent and floating households of the survey area. • Trace the HBEs within the physical and functional layouts of homesteads and house form of the permanent and floating households.	**What HBEs performed, how and for what benefits** • Type, nature and extent of HBEs • Activities and benefits of HBEs through livelihood resources • Comparative socio-economic benefits of HBEs in permanent and floating households.	**How the transformation is done** • Spatial settings for different HBEs and their accommodation within the homestead • The nature and extent of (HBEs induced) housing transformation. • Comparative observation of housing transformation in permanent and floating households.
	CHAPTER- 5	**CHAPTER- 6**	**CHAPTER- 7**

Table 4.1: Research design matrix.

4.3. Methods Used in the Empirical Investigation

The literature review provides a background knowledge base for inquiring and interpreting the architecture of rural homestead, home-based enterprise and the livelihood resources of rural livelihood. The other methods like direct observations, interviews, and photographs are used to trace the present status and the physical transformations of the rural housing compared to the knowledge base.

The main methods employed in qualitative research are observation, interviews, and documentary analysis (Woods, 2006). The following methods have been used in this research for the purpose of the empirical investigation:

a) Direct Observation:

In seeking to explore the natural scene, the qualitative researcher aims to be as unobtrusive as possible, so that neither research presence nor methods disturb the situation. This is why participant observation is one of the favoured approaches. Here, the researcher adopts a recognized role within the institution or group. The advantages of participant observation are (Woods, 2006):

- It blends in with natural activity.
- It gives the researcher access to the same places, people and events as the subjects.
- It gives access to documents relevant to the role, including confidential reports and records.
- It facilitates the use of mechanical aids, such as tape recorders and cameras.
- It provides personal first-hand experience of the role and thus heightens understanding of it.
- It makes a worthwhile contribution to the life of the institution.

And the disadvantages are (Woods, 2006):

- It might be more difficult to make the situation 'strange', especially if one is a member of the institution before starting the research. Indeed there is a danger of 'going native' - an over-identification with people's views so that one's perspective as a researcher is submerged beneath them. One must work hard to achieve 'analytic distance' from the role, to set aside taken-for-granted assumptions and to see oneself in the role. The cultivation of reflectivity, and keeping personal diaries, have helped here.

- It adds to the demands on the researcher. Qualitative research in any form is demanding, typically presenting a mass of confusing and intricate data. Participation adds to this, taking up valuable time and adding to one's responsibilities.
- There is a possibility of conflict between one's role as a participant and one's role as a researcher.

The selected HBEs cases of this research are directly observed to get an understanding of functional and formal qualities of the homesteads. The integrity of the HBE within the homestead by physical and functional layout will be exposed by a direct observation. Observing the HBEs and living condition a general idea is generated about the physical and financial condition of the household.

b) Interviews:

A great deal of qualitative material comes from talking with people whether it is through formal interviews or casual conversations. If interviews are going to tap into the depths of reality of the situation and discover subjects' meanings and understandings, it is essential for the researcher:

- to develop empathy with interviewees and win their confidence;
- to be unobtrusive, in order not to impose one's own influence on the interviewee.

The best technique for this is the unstructured interview. Here, the researcher has some general ideas about the topics of the interview, and may have an aide memoire of points that might arise in discussion for use as prompts, if necessary. But the hope is that those points will come up in the natural course of the discussion as the interviewee talks. Care is needed, therefore, to avoid leading questions or suggesting outcomes, and skill is called for in discovering what the interviewee really thinks. The researcher aims to appear natural, not someone with a special role, but one who engages with interviewees on a person-to-person basis. Attention will be paid to where the interview is held, arrangement of seating, how the researcher dresses, manner of approach, all in the interests of equality. There might be a certain amount of pleasant chat before getting into explaining what the research is about. If rapport has been established, there should not be a difficulty in getting people to talk. The problem, rather, might be that they talk too inconsequentially, or off the subject, or vaguely. There is a number of techniques researchers use in the natural course of the conversation to aid clarity, depth and validity.

The researcher engages in 'active' listening, which shows the interviewee that close attention is being paid to what they say; and also tries to keep the interviewee focused on the subject, as unobtrusively as possible. Something of the researcher's self - perhaps involving some similar or contrasting experiences to those of the interviewee - is also put into the interaction in the interests of sustaining rapport and encouraging more discussion. In this sense, the unstructured interview is a process of constructing reality to which both parties contribute.

As with observation, it may be that the researcher begins with a more focused study and wishes to know certain things. In these cases a structured interview might be more appropriate. Here the researcher decides the structure of the interview and sets out with predetermined questions. As with systematic observation, this is less naturalistic. Within the spaces, the same techniques as above might apply, but there is clearly not as much scope for the interviewee to generate the agenda. For this reason, some researchers use semi-structured interviews - interviews which have some pre-set questions, but allow more scope for open-ended answers.

Both kinds of interview might be used in the same research. For example, the initial stage of a project might be exploratory and expansive. But once certain issues have been identified, the researcher might use more focused interviews. They are still grounded in the reality of the situation.

In this research, the head of the household is considered as the important person for each of rhe HBE cases. Interviews of the household-head are held to get information about different developments and changes of that particular house and the settlement along with the HBE. A few interviews of external workers will carried out for understanding the working process and the overall arrangements within the homesteads. General socio-economic data (e.g. income, workforce etc.) are also taken through these interviews.

c) Sketches and Photographs:

After observation, the task then is to capture as much of the detail and interaction as possible, through making notes, tape-recording, photography. The benefits of the last three are that they record elements of which can then be studied in detail later. Sketches sometimes help to capture data obtained by the interviews also. To preserve data for further analysis these are the methods that are used for a qualitative analysis.

In this research, the sketches are used to analyze and for documenting the pattern and the changes, and the functional relationships in a homestead with its HBE. The photographs are used for documenting the use patterns of the spaces, the sequences of functional activities, and different influences those exist in the present condition of the homestead.

4.4. Selection of Case Study HBEs for the Empirical Research

The case study is an intensive description and analysis of a phenomenon or social unit, such as an individual, group, institution, or community. In contrast to surveying a few variables across a large number of units, a case study tends to be concerned with investigating many, if not all, variables in a single unit. By concentrating upon a single phenomenon or entity (the case), this approach seeks to uncover the interplay of significant factors that is characteristic of the

phenomenon. The case study seeks holistic description and interpretation. The content of a case study is determined chiefly by its purpose, which typically is to reveal the properties of the class to which the instance being studied belongs. If conducted over a period of time, the case study may be longitudinal; thus, changes over time become one of the variables of interest. Other case studies are concerned with describing a phenomenon as it exists at a particular time. One of the characteristics of the case study approach is its adaptability to different research problems in many fields of study (Merriam, 2002).

For this research, the case study on several types of HBE with distinct types of people in the following criteria:

1. **Permanent households:** These types of households contain the permanent dwellers (people who live in a fixed location for more than three generations). For this study two adjacent villages named *Bagbati* and *Pipulbaria* within the Sadar Upozila of Sirajganj district are taken as the context of permanent households. They are in approximately ten kilometer distance from the Sirajganj town. Both are old traditional village and have a good number of established inhabitants.
2. **Floating households:** These types of households contain the floating dwellers (people who are displaced due to river erosion and live in social and economic hardship). They are mainly established their house in riverside villages by taking land on a rental basis. Three adjacent villages named *Shimanto-bazar, Ghati Shuvogachha* and *Baikhola* are considered for the context of floating households for this study. They have a distance of twenty kilometer from the Sirajganj town.

The following table will help to understand the location of the survey area in the analytical chapters.

	District	**Upozila**	**Union**	**Villages**
Permanent households	Sirajganj	Sadar	Bagbati	*Bagbati* and *Pipulbaria*
Floating households	Sirajganj	Kazipur	Shuvogachha	*Shimanto-bazar, Ghati Shuvogachh* and *Baikhola*

Table 4.2: Location of selected HBE cases.

These two types of households are classified among several economic classes for detail empirical survey. A reconnaissance survey was conducted for preliminary selection of the HBE cases. After the selection of the cases the survey was conducted through the qualitative approach. These criteria come up with about twelve types of HBE which are to be considered as cases. One

representative case from each type will be selected for detail case history analysis for qualitative investigation.

For detail empirical survey six cases from each context have been selected. The selected cases are:

A. Cases in permanent households:

1. *Gold smith*: Making ornament by gold, silver or other precious materials.
2. *Handloom*: Making '*lungi*' with manual loom.
3. *Power loom:* Making '*lungi*' with power loom.
4. *Pottery:* Making things by mud
5. *Sweet making:* Making of sweetmeat.
6. *Spinning and carpentering:* Spinning with a manual machine to supply spin roll and making wooden furniture to sell in same homestead.

B. Cases in floating households:

1. *Drum repairing:* Collecting used drum from industries and repairing them to sell out.
2. *Egg supply:* Collecting of eggs from villagers and supply them to market.
3. *Sanitary equipment making:* Making of sanitary equipments (ring- slab) by concrete.
4. *Dairy:* Firming of cows for milk.
5. *Tailoring*: Making clothes by sewing machine to meet peoples order
6. *Basket making*: Making of baskets by bamboo slice.

Among these cases three from each context are selected for detail livelihood analysis.

The HBE cases are selected by the following process:

Firstly, HBE cases from the different contexts are selected. Secondly, different types of HBE for sampling are selected. More than one case of similar HBE is avoided in favour of variety. Thirdly, outlook of different homestead and HBE along are considered for the physical and economic condition of the household and fourthly, reference of local people helps to select some cases.

The cases are analyzed through interviews, photographs and drawings to complete the understanding of the home-based enterprises of different criteria and different economic status and its socio-economic and spatial effects of the rural dwellings. The role of the selected HBE cases on the housing transformation is investigated then.

	Cases of Reconnaissance Survey	Selected cases for Main Field Survey	Selected for Livelihood Analysis
Permanent households	1. Gold smith 2. Poltry 3. Handloom-1 4. Power loom 5. Pottery-1 6. Sweet making 7. Poltry-2 8. Handloom-2 9. Spinning and carpentering	1. Gold smith 2. **Handloom** 3. Power loom 4. **Pottery** 5. Sweet making 6. **Spinning and carpentering**	1. Handloom 2. Pottery 3. Spinning and carpentering
Floating households	1. Drum repairing 2. Egg supply 3. Sanitary equipment making 4. Dairy-1 5. Dairy-2 6. Corn distributor 7. Tailoring 8. Spice grinding 9. Basket making	1. Drum repairing 2. **Egg supply** 3. Sanitary equipment making 4. **Dairy** 5. **Tailoring** 6. Basket making	1. Egg supply 2. Dairy 3. Tailoring
Selection process	• Firstly selection of the survey area. • Physical searching done through the survey area. • Reference of local people helps to visit some cases.	• Cases from the permanent and floating contexts are randomly selected and different types of HBE for sampling are selected. • More than one case of similar HBE is avoided. • Outlook of different homestead and HBE along are considered for the physical and economic condition of the household.	• The case histories are analyzed through interviews, photographs and drawings for an in-depth understanding of the home-based enterprises of different criteria and different economic status and its effects on the transformation of the rural houses. • Three cases from three different socio-economic levels (that found form the survey) are selected for livelihood analysis.

Table 4.3: List of selected HBE cases and their selection criteria in different levels.

4.5. Analytical process of the Livelihood Resources

The HBE cases are analyzed through the livelihood resources available to the household members. Livelihood resources are categorized through literature reviews. The role of five capitals of livelihood resources in HBEs is investigated through the following attributes:

Resources	Attributes
Human Capital	1. Skills, knowledge, ability to labour 2. Amount and quality of labour
Natural Capital	1. Safe from occasional natural disaster (e.g. flood, monsoon storm, cyclone etc.) 2. Safe from river erosion risk
Financial Capital	1. Available stocks 2. Regular inflows of money
Physical Capital	1. Secure shelter and buildings 2. Affordable transport 3. Adequate water supply and sanitation 4. Affordable energy 5. Access to information (communications)
Social Capital	1. Networks and connectedness 2. Membership of more formalized groups 3. Relationships of trust, reciprocity and exchanges

Table 4.4: Attributes of livelihood resources.

Some data collection methods, most notably rating scales, can often become ambiguous. In some cases, the responses are considered by the researcher to be only ordinal, while in other cases, the researcher treats them as interval- or ratio-scaled. The flexibility of rating procedures makes them appropriate for either the ordinal or interval/ratio measurement data collection methods. Rating measurement methods represent one of the most popular and easily applied data collection methods in marketing research (Peterson, 2000). The task typically involves having a respondent place that which is being rated (a person, object, or concept) along a continuum or in one of an ordered set of categories. Ratings allow the respondent to register a degree or an amount of a characteristic or attribute directly on a scale.

Each of the above attributes is valued by any of following five measuring units and achieved a resultant value:

Level	Numeric value
o Very low	1
o Low	2
o Medium	3
o High	4
o Very High	5

Table 4.5: Values for the determinants of livelihood resources.

Value of the financial capital is depended on the regular income that is categorized by the following numeric values:

Income per month in BDT	Numeric value
Up to 2,500	1
Above 2,500 and up to 5,000	2
Above 5,000 and up to 10,000	3
Above 10,000 and up to 20,000	4
Above 20,000	5

Table 4.6: Values for the monthly household income for the financial capital.

After getting the resultant values of each capital a resultant pentagon is drawn finally to understand the livelihood resource for a specific case graphically.

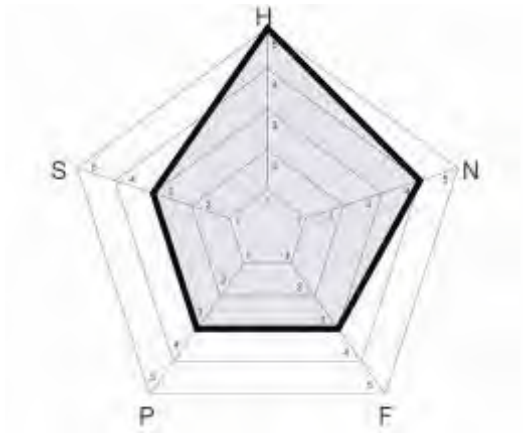


Figure 4.1: Sample of a resultant pentagon where the dark outline denotes the pentagon of a specific case.

Finally in the conclusion, some recommendations are proposed for the future developments of HBE induced homesteads. Whatever the area of developments like rural, the recommendations are proposing why, how and to what extent, the potentialities of HBE induced architecture can be applied to the rural housing developments in the 21st century.

4.6. Scope of the Research

The scope and objectives of the study have been limited due to the following facts:

Firstly, the research is conducted to study a specific section of rural society in Sirajganj district with a special emphasis on physical, functional and social aspects of home-based enterprises. As this research has given more priority to the pattern of house form and its transformations with the changes of lifestyles rather than on technical aspects; therefore, it will not provide the detailed information regarding dimensions or construction techniques of house form.

Secondly, since the study is dealing with the architectural characteristics of the domestic environment, individual homesteads get importance rather than a whole settlement. The research

topic contains the focus “housing transformation” but as the case studies are not statically representative so it cannot be applied as a source of full information about the whole of Bangladesh. In Bangladesh there are many different types of settlements depending on the different geo-physical, societal characteristics. Only twelve cases have been chosen and studied with some considerations so that they can represent some of the typical house forms of Bangladesh. These selected cases have been to get some ideas regarding the salient features that are hidden within them. But they can con place a broad scenario regarding the issues.

Thirdly, there is hardly very little research in this line with a rural context– so printed information is less to make a background study to get into the problem.

Fourthly, the research area is not a prominent place in Bangladesh. Specific information regarding the settlements of this region is not formally received from authentic sources.

Chapter-5

THE CHANGING PATTERNS OF RURAL HOUSE FORM

This chapter describes the demographic and settlement profile of the rural context of this research to understand the housing pattern and the physical condition of house form of the permanent and floating households. It explains the practicing of the HBEs within the rural homesteads and the consequent physical changes that have taken place in these two types of homesteads.

5.1. General Social and Settlement Profile

This section describes the general social and settlement conditions of both the permanent and floating households in the specific context of this research. The general condition of the selected two areas (Table 4.2) outlines a contextual background for later exploring the settlement pattern and the organization of the house forms therein.

5.1.1. Social and Settlement Profile of the Floating Households

Shuvogachha Union (mentioned in Section 4.4) is one of the Kazipur Upazilla's eleven unions, that rank high among the worst river erosion affected locality in the Sirajganj district. In the early 1920s, the most westward branch of the Jamuna River was four miles to the east. Since then, the Jamuna River has had grown and shifted westward. Rapid erosion continued along the west bank of this seasonally mile-wide channel. The floods of 1984, 1988, 1990 and 1991 caused severe devastation. Severe erosion continued during the 1991 and 1992 rainy seasons, destroying more of the Union and significant portions of previously unaffected villages. Many old inhabitation including Mallickpara, Dhulaura, Maijbari, Manik Patal, Kazipur, Meghai, Tarakandi, Tengalahata are gradually getting extinct by river erosions. The 125 mile long Jamuna-Bhramaputra Flood Protection Embankment known as WAPDA embankment, built in the 1960 on the west side of the Jamuna could help much neither to resist river erosion nor flood control. Its purpose is to stop annual flooding, not erosion. It has periodically been breached by the river only to be rebuilt further west, thereby destroying and threatening still more local land.

Bangladesh Water Development Board maps show that at some points the bank line shifted westward a quarter mile during 1989-90, and a full mile during 1979-92. Altogether, more than three quarter of the union's current residents have been forced to move during the past fifteen years (Banglapedia, 2012; Zaman 1988, 1991).

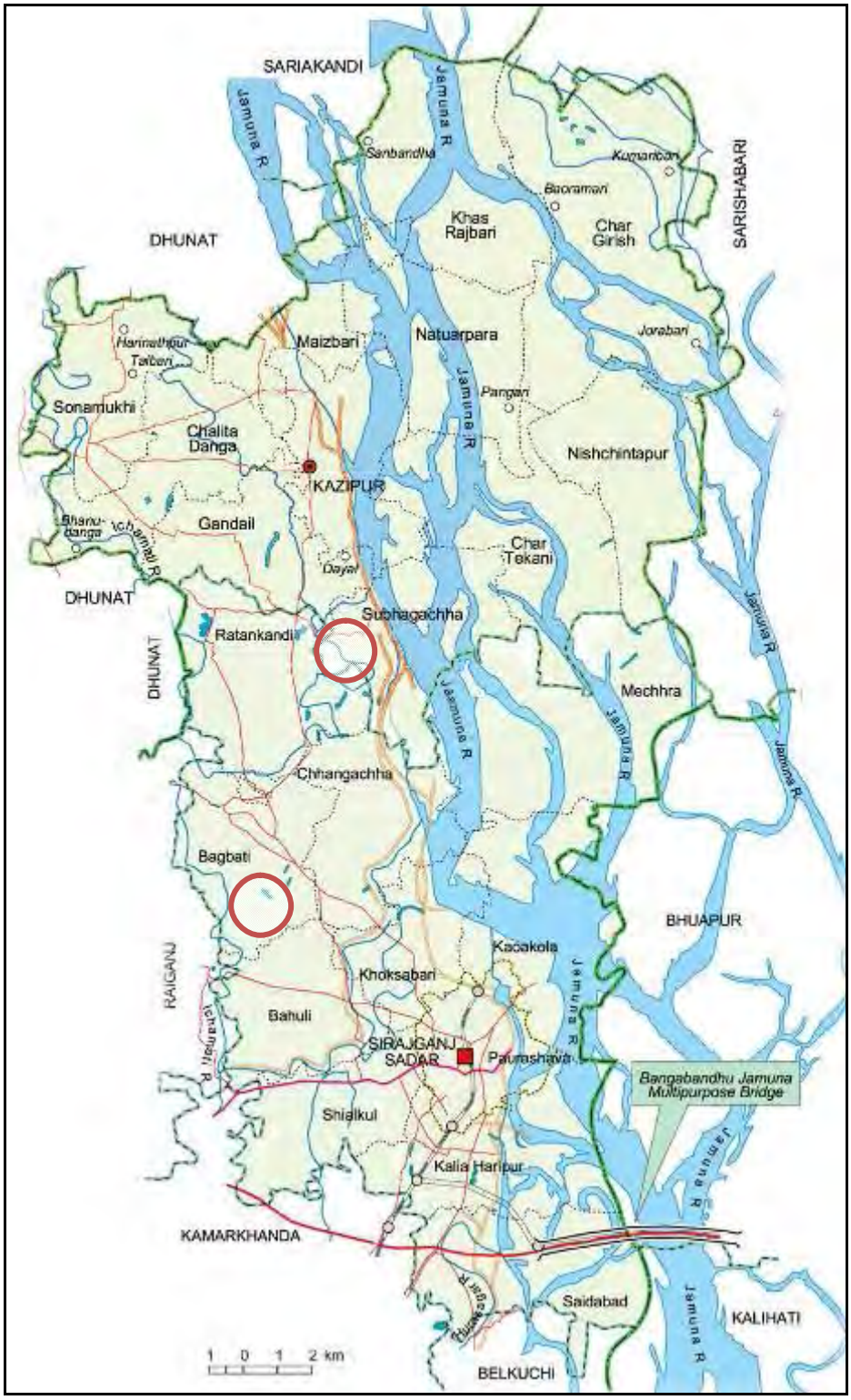


Figure 5.1: Map of Kazipur and Sirajganj Sadar Upozilla indicating the area of survey. (Orange line is the position of the embankment.)

During this last 15 years, more than half of the union's population has been uprooted from their ancestral homesteads; many families shifting homesteads occurred several times. Despite challenge arising from river-erosion, people have found ways to survive, and some to prosper.

5.1.2. Resettlement Strategies of the Floating Households

On first inspection during the reconnaissance survey prior to the main field survey, housing among embankment dwellers appears to be 'very poor'. But when observed more carefully during the field survey, the typical embankment house appeared not be all that inferior in terms of the regional norm. Local houses may look less substantial than elsewhere in Bangladesh in terms of permanence of construction, but this partially reflects their functional adaptability in a region where erosion is endemic. Throughout Kazipur Upozila, houses of poorer people are observed built on a frame of wooden support poles, to which are lashed discrete woven wall and ceiling sections, typically made of '*Schon'* (a tall, coarse grass). Better-off people build larger houses using the same construction method, but with galvanized metal roof panels (corrugated iron sheet) and sometimes with decorated wooden doors symbolic of their past or present prosperity. The still better off households add galvanized wall panels (CI sheet). There are very few permanent houses made of sun dried brick in the locality; when erosion hits the homesteads such structures are entirely at its mercy, as the fate of many perished local brick and concrete public buildings.

Figure 5.2: House wall and roof sections are 'modular' and can be quickly disassembled and moved. (Source: Indra, 2000)

Figure 5.3: Rebuilding of a traditional house with precast RCC post and CI sheet roof. [*]

Each of these one-storey dwellings is made of locally derived modules that can be disassembled quickly and with little waste of materials, when faced with immanent threat of river erosion. Each of the modules can be manually transported rapidly by no more than six to eight men (Figure 5.2). This module is made with 5-8 pieces of CI sheet with a wooden support frame. A typical house can be re-erected in a day or two using only household labor, particularly when extensive preparation of the new site for the homestead is not required. If necessary, the reconstructed house can be made smaller and the surplus materials sold.

[*] Unless otherwise specified, source of all the photographs that are used in this thesis is Field Survey, 2011.

Most other structural elements of the house are easily transportable and can be quickly set up in a new place. Household fixtures that are not transportable, such as the baked clay cooking stoves of the poor, are soon remade at the new site. The efficiency with which people can move their dismantled houses is remarkable. Over the years, a wide range of differentially preferred and executed local strategies have been developed concerning where to move. Needless to say that these strategies for re-settlement depend on individual and familial circumstances. People who remain well off or have non-farming occupations have the better options available for them, and typically resettle to previously owned or purchased land either within a few miles of their previous homes or outside the region. Most people, however, lack substantial resources for resettlement; but they have developed complex strategies to rent very small pieces of land for house plots and agricultural use. The majority of the displaced people who remain in the area eventually make use of some kind of rental or lease option. Others opt to take advantage of the kin-based residence entitlements, either temporarily or permanently. All across Bangladesh powerful patriarchal ideologies confer greater status on families that can maintain patrilocal residence. Re-settlement with the husband's father or brother is, therefore, the usual custom, but often such relatives as well have been displaced and cannot help much despite their intensions (Indra 2000).

When tapping options from kin-based relations become difficult or non-existent, choosing the location of re-settlement with wife's or husband's more distant paternal kin becomes an increasingly common phenomenon. Reportedly, a good percentage of the current re-settled resident households are *uthuli* (Indra & Buchignani 1997), and most of them are resident with such kin. Elsewhere in Bangladesh *uthuli* often have a strong subordinate client relationship to their landlord/patrons. *Uthuli* is a Bangla word that means landless, partially dependent poor people who had been allowed to place their houses on the land of others rent-free. Landlords demand agricultural labor, household service, and political support in exchange for a house plot. In contrast, over the last generation, *uthuli* patron-client relationships in mainland Kazipur have become both more common and more reciprocal. They are now extensively used by the poor to provide mutual aid in times of deep personal crisis. More than three-quarters of *uthuli*-patron relations in Kazipur are between kin (patrons often being little better off than their clients). In contrast to the prevailing patrilineal bias, they are usually dependent on the kinship claims and entitlements of displaced women, rather than those of men. It is found by the field survey that, living on the embankments or as *uthuli* is a mark of loss of independence and honor, and some women and men feel this stigma particularly acutely. Rates of marriage discord and breakup do appear to be markedly higher among displaces (Indra & Buchignani 1997).

Figure 5.4: Settlement on the down-slope of the embankment.

Once re-settled on the flood-protection embankments, people manually generate a rich variety of orderly adaptations to life in restricted circumstances of limited resources and options. The suggestion that these re-settled areas are "rural bastes (slums)" (Elahi 1989) is only accurate in its functional connotation that studies of poor urban communities in Bangladesh have shown them to be highly organized places full of innovations for survival. As in the urban "squatter settlements," many of these adaptation measures are spatial as space on the embankments is at a premium and logically constructed. Rising roughly four to five meters above the surrounding land, embankments are at most 15 meters wide, including usable side slopes. Until 1991, people settled densely in some parts of the local embankment system, leaving other parts unoccupied. They have done so for security reasons, to maintain a sense of community, and to have access to jobs and *hats* (weekly village markets).There were never any scattered settlements or isolated dwellings. Houses and other structures are immediately adjacent to each other, lining both sides of a central roadway. The physical distribution of houses, kitchens, work areas resemble those in the local, linearly arranged *paras* (villages). The use of the open roadway changes seasonally; it is used as a collective space for drying fuel, fodder, and spices. Shallow tube wells have been sunk by some households for drinking water, and are extensively shared. Occupancy conveys strong use rights among the re-settlers. It is clear to all regarding which household "owns" what land, and where one's boundaries are. Such down-slope boundaries are not accepted by adjacent landowners, who also claim these small areas for cultivation, and many vigorous disputes arise out of their use. Household and roadway spaces are intensively used by women for household production (Figure 5.7) which will be described in detail later.

Figure 5.5: Section through the embankment shown the settlement on the down-slope of the embankment.

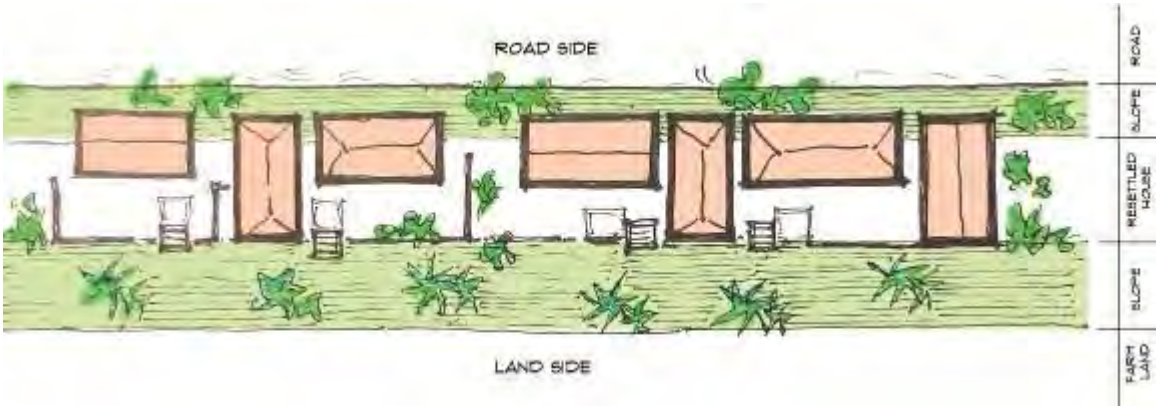


Figure 5.6: Linear settlement on the embankment.

Figure 5.7: Roadway spaces are intensively used by women for household production.

People's post-resettlement circumstances also varied greatly, particularly in a temporal sense. People who have an affordability to purchase land at a distant location, usually move in most cases. They feel safe to make a settlement with a good distance from the river Jamuna. They become socially attached to their adopted village and mingled with the community in the daily affairs. On the other hand, some people may not afford to purchase new land to migrate. In such

cases, they might take lease a piece of land to do the migration. In most cases, the leased land is situated within one kilometer distance from the embankment. By interview, it is found in the field survey that the possible reasons include:

- The rent of the land near by the river is relatively low and it is easy to afford them.
- It is easy to move with an old house within a short distance. Long distance migration needs huge expense and hassle.
- Many people have land to cultivate besides the river or in their old village which is erosion effected or in the *char*. They have to maintain a close relationship with them to monitor them and to collect crops. So they prefer to not migrate at a long distance.

Indra (2000) gives an insight for re-settlement into the straggle of the river eroded people. People threatened by the river disassemble their houses on the eroding parts of the embankments, move houses, household goods, animals, and even banana plants and small trees to the safer parts of the embankments, reassemble them, and reestablish some semblance of household order in two days. Those under inevitable but less important threat of erosion so methodically remove everything of utility and value from their land that the abandoned homesteads look like moonscapes.

Since the late 1970s, other displaced people have decided to settle on the embankments. When the first displacees moved there, virtually all had alternative residence possibilities. Most choose embankment residence because they lacked sufficient resources to re-settle in another place where their status, independence, security and economic benefits would be higher. More recent displacees have had fewer advantageous residence options, leading to a dramatic increase in the embankment population in the late 1980s and early 1990s (Indra, 2000).

5.1.3. Social and Settlement Profile of the Permanent Household

Bagbati Union (mentioned in Section 4.4) of the Sirajganj Sadar Upozila (Figure 5.1) is one of the ten unions with some old traditional villages. It is five kilometer far away from the river Jamuna and fifteen kilometer distant from the Sirajganj town. The total union is consisting of some old and traditional village with good agricultural lands. People of river side villages which are almost five kilometers away consider this union as a safe village from the erosion. In last two decades river eroded people who have certain level of financial solvency, developed a tendency to resettle their house in this union especially in Bagbati village. Though there is no specific data found through the field survey it is seen that a good number of people migrated here from the river eroded people. As there is a high demand of land in this locality the land price is increasing day by day and richer people are resettling here.

From the field survey of this research, three types of permanent dwellers are found in this region.

- *Original traditional inhabitants.* People who lived in these villages for several generations. They are the original inhabitants *(adi bashinda)* of these villages. Main occupation of these people is agriculture but now-a-day, when demand of land is increasing many sold their land to get quick money. This is how a big portion of land already changed hands to the resettled people. They maintain their own society *(somaj)* where the other two types of people do not get access. This research deals with this type of households identified as the permanent households.

  As the formation of this social group is very old it reflects their homesteads too. Observed old houses with *uthan* and *dheki ghar* (Figure 5.8) and other traditional features (Section 3.2) of rural houses are an indication of several generations' living in a specific homestead.

- *Guccha Gram dwellers.* People who came due to the rehabilitation program by the government for the hardcore poor since late 90s. The *Guccha Gram* has its own society. From this investigation it is found that they are not river-effected people. They majority of them have the religion of 'Hindu'. They have their own temple inside the village. They are introvert in their society and the whole *Guccha Gram* is a compact settlement (Figure 5.9). Generally no one leaves this village for resettlement elsewhere. As a result *Guccha Gram* is becoming more congested and highly populated. Most of the inhabitants are daily labour or rickshaw-van puller.

- *The migrant people*. Due to river erosion some people move their settlement to a safer village which is relatively far from the river; and on the other hand the distance is not so far (like other district) to achieve. They bought land in this villages and start living. These types of people maintain a different society for their own. They established their own mosque, *eid-gah*, club and madrasa. They also have their own *matobbor* (head of the community, not the Union Porishod Chairman) and guardian for their community. These migrant people are called *"Puiba"* (people of the east) by the local people as they came from the east.

  The migrant people's settlements are much more opposite to the *Guccho Gram* settlement. All of them are not living in compact area. As they have to purchase land for their settlement it is not possible to make all of their houses side by side (Figure 5.10). The interesting thing is that the *Puiba* people established their houses in between many old houses. They go to their own mosque by passing the old local mosque. Generally the *puiba* peoples are found more financially solvent than the local original people and there is a competitive tendency between these two types of dwellers.

Figure 5.8: House of the original traditional inhabitants.

Figure 5.9: Houses of the *Guchha Gram*, their temple and pond.

Figure 5.10: House of the migrant people.

5.1.4. Different Levels of the Housing Transformation

The primary stage of housing transformation in the survey area had been extensively acting since the 1980s, due to the erosion of river Jamuna effecting people living beside the river banks of Shuvogachha Union (information got by the reconnaissance survey). The severe river erosion led to social and physical transformations of the effected household. Some of the people with permanent households became floating households. The permanent households are shifted from their ancestral land in a place with a new type of land ownership into a new (or sometimes no) society. Houses of the re-located households were once more transformed when they practice HBEs.

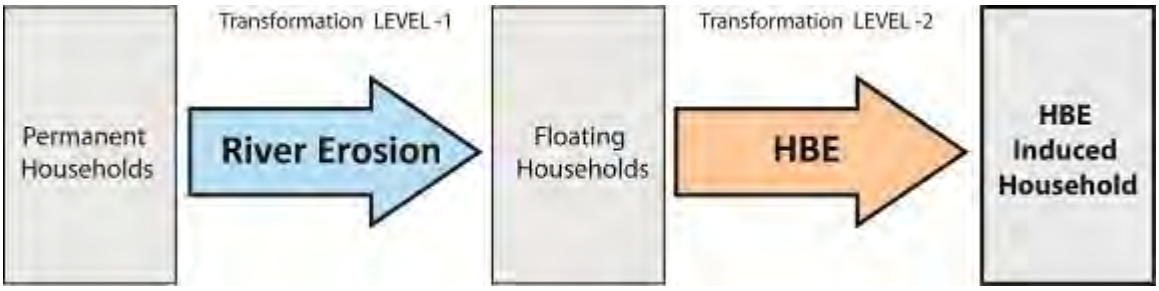


Figure 5.11: Different levels of transformation in the survey area.

The initial transformation level that had occurred due to the river erosion is the changing of the location of the household. By this, re-located households had to adopt in a new society and community. The dwellers shifted to the following new location:

- *Flood protecting embankments:* As embankments are made in government acquired land and relocated homestead will never become a permanent one. Poor households generally take this option.
- *River bank adjacent villages:* In most cases, possessions of these lands are lease-basis. River erosion effected people select this option for not having sufficient time and money to arrange purchasing land in a distant safer place. Selected HBE cases of the Floating household are from this type.
- *Distant village:* In most cases, solvent households purchase a new land in a distant and safe village and move their house. This required sufficient financial solvency and preparation time.

In a new land, re-located dwellers have to re-construct their old house. Land area and its configuration play the main role over the subsequent housing transformation. Besides, the user's habit and attitude towards their household that they carry from their old homestead also influence the transformation process. This initial transformation creates differentiation between the permanent and floating households in terms of the quality and quantity of spaces available for livelihood and living.

When the re-located households practice HBE, another level of transformation is occurred. This second level housing transformation directly affects the HBE practicing households' functional behavior and by this they transformed in a social and physical layout.

5.2. Housing and House Form in Permanent and Floating Homesteads of Sirajganj

We have developed earlier a general understanding about the rural homestead pattern of Bangladesh (Section 3.1, 3.2 and 3.3). From that overview, housing characteristics in the plain land are shown in the houses of the Sirajganj district. Geographical and climatic conditions affect the building materials along with the basic layout of the settlement in the study areas of Sirajganj. Typical features of a rural homestead have been discussed earlier (Section 3.1 and 3.2). Housing pattern of the permanent and floating households and the building materials used in the survey area are described next.

5.2.1. Housing Features of the Permanent Homestead

The homesteads of the 'permanent' dwellers are a kin to the typical rural settlement pattern (as discussed previous chapter in Section 3.1 and 3.2). From observations during the field survey the following characteristics are being found in the permanent homesteads:

The double plinth: in most cases, permanent homesteads are stand on a double plinth where the bottom one is the '*viti*' or mound to raise the maximum (in some cases total) homestead area to protect form the damages caused by flood which is a common feature in this region. And the second one is the plinth beneath the house. The 'viti' achieves a safer height from the monsoon flood which makes a sense of property demarcation. The raised 'viti' distinguished the homestead from surrounding fields or roads (Figure 5.12 and 5.14).

Figure 5.12: House with a '*viti*' and the plinth.

Figure 5.13: House with 'pucca' plinth.

Figure 5.14: Section showing the house with a *'viti'* and the plinth.

The pucca plinth: There is a tendency to give permanency to the houses of the permanent homesteads. To achieve this, permanent dwellers make their plinth by brick and cement rather than mud. It shows the permanent and more durable nature of their houses. This plinth height is generally 2' to 2'-6" and steps are used to reach this level. It is found in some houses that they use ramp to take motor-bike inside the house. A *'pucca'* plinth is sometimes represents the financial solvency of the dwellers. Time span of the establishment of the household in a same location is also a factor for this type of construction (Figure 5.13).

After the *'pucca'* plinth dwellers have a tendency to make it beautiful and attractive. For this, ornamentation with texture (by cement works) and color is used. Bright color and ornamental plinth gives the satisfaction about the house to the inhabitants (Figure 5.15). A slope direct from the road is constructed for the entrance provision of motor-bike. In most of the cases neither the separate entry nor the separate shed is used for motor-bike. The *'baithak ghar'* is used for such parking and the main entrance with a ramp that achieves the plinth height is used for its entrance (Figure 5.16 and 5.17).

Figure 5.15: Ornamented plinth of the houses with permanent homesteads.

Figure 5.16: *'Pucca'* plinth with a provision of motor-bike entrance.

Figure 5.17: Section showing the plinth with a provision of motor-bike entrance.

Construction materials: When peoples are found themselves safe in a permanent village they always try to make their homestead and house more permanent. This permanency is ensured by durable and permanent building materials (Figure 5.18). In Bagbati and Pipulbaria villages, there are some brick-walled buildings are found by the field survey. It is found that they made some necessary supporting structures like kitchen, chicken shed also by some permanent materials like concrete slabs (Figure 5.19).

House constructed with bricks and cement plaster shows the more permanency along with the financial affordability of the dwellers. An RCC (reinforced cement concrete) roof with brick walled house represents more permanency and might be called a real 'permanent one'. But in the survey area such establishment is not so common. Concrete is treated as the symbol of permanency. Chicken sheds of the permanent and established households are made by concrete slabs. These small sized concrete slabs are ready-made sold in local bazaar.

Figure 5.18: House with brick wall shows more permanency.

Figure 5.19: Concrete slabs are used to build the chicken shed.

Sanitation system: When people live in a permanent dwelling it is a common feature that the sanitary system progressively developed for household convenience. In most cases, the sanitation system is more developed in the permanent homesteads compared to the floating or temporary homesteads. The wall and roofing materials for the latrine is the CI sheet like the main house. The floor is made of cement concrete with a RCC sanitary slab which they buy as ready-made from the local market (Figure 5.20). In some cases it is found the brick walled and RCC roofed latrines in the permanent homesteads. One bathroom adjacent to the latrine is made. Comparatively solvent households have a separate tube-well inside the bathroom.

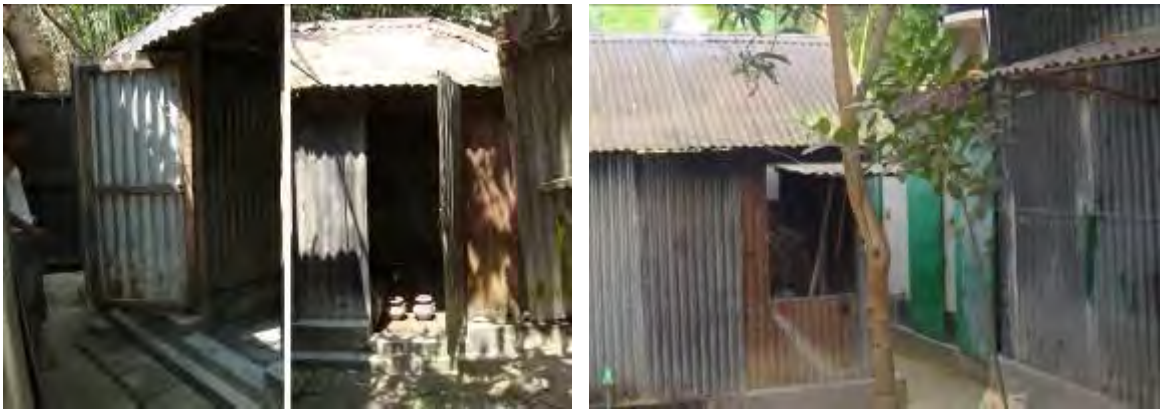


Figure 5.20: Sanitary latrine made by CI sheet and brick wall in the permanent homestead.

Linear house: It is found in the permanent homesteads that the individual clusters some times make a linear organization to share the front verandahs (Figure 5.21). Front veranda is a common feature of the homestead. Series of individual clusters of homesteads can create a linear common verandah. The case (Figure 5.21) is found by the field survey with migrant people's house (Section 5.1.4). Some *puiba* people purchased a long piece of land and divided among them and resettled their house side by side attached their front verandah at once. Thus the composition of six individual homesteads makes the linear house and local people called this house as *'veranda bari'* (the house of verandah). By this approach the dwellers express their unity and strength to the others as they always have such tendency (discussed earlier in Section 5.1.4).

Plan

Figure 5.21: Individual clusters make a linear organization by shearing the front verandahs.

Absence of boundary wall: In most cases, the 'viti' makes the sense of a homestead; no boundary wall is required to demark the property boundary. Homestead detached from a congested village sometimes is established on the open cultivable field. Such homesteads are called '*faita bari'*. In most of the cases there is no boundary wall within them. 'Viti' creates the sense of individual identity of such homestead (Figure 5.22).

Figure 5.22: *'Viti'* as the boundary of the homestead.

Figure 5.23: Houses organized in such a way to enclose the periphery of the homestead.

In some cases the houses itself is organized in such a way to enclose the periphery of the entire homestead. In such cases, boundary wall is absent around the homestead. Houses are organized along with the property-line of a homestead can create the sense of a boundary wall. Generally homestead with a single or two houses cannot make such introvert organization (Figure 5.23).

5.2.2. Housing Features of the Floating Homestead

Due to river erosion occurred by the river Jamuna each year a great number of people lose their lands and houses. Comparatively rich people move with their houses, and re-locate them in another village at a safer distance from the river. In most cases, they buy land for their safe re-settlement. But poor people cannot do so. They shift their house and re-locate them beside or occasionally on the *beri bandh* (flood protection embankment) which is constructed on public land. The outcome is the establishment of the linear settlement. This type of re-settlement by the poor households never becomes a permanent one.

From observation the following characteristics are being found in the floating homesteads:

Organization of houses: When the floating homesteads are being arranged on the embankment (Figure 5.7) their organization is completely guided by the embankment. Others climatic and local influence (described in Section 3.3.1) do not get preference for the organization of the houses. Sometimes the composition of houses achieves a linear pattern along with the embankment. The scarcity of land does not allow the homesteads to receive the traditional rural housing pattern which was discussed earlier in Section 3.1.

Figure 5.24: Settlement along with the *beri bandh*.

Organization of land: The great problem of floating settlement is the scarcity of land. People have to accommodate their homestead within a small piece of land. It is already discussed that the land might be a slope of the embankment or a rented land. That is why the land is not large enough to fit the house. Floating people rarely have choice to organize the houses according to their need (Figure 5.25).

Slope of the flood-protection embankment is used for the resettlement of river erosion affected people. Such resettlement has to be done within a very small piece of land. They can accommodate maximum one or two houses. Household activities are adjusted within this small homestead.

Absence of plinth: In some cases people have to shift their house with in a very short time when river erosion occurred (generally in rainy season and during flood). And they do not make proper plinth for the house (Figure 5.26). In some cases, the plinth of the house is totally absent. After some time, they may create plinth. Shortage of preparation time to resettle houses in a new land creates the absence of proper plinth. In most of the cases, when river erosion occurred the dwellers have to dismantle the house very quick and resettled it on a new place. As the houses are made of is C.I. sheet, it is possible to shift it quick. But preparation of plinth is a time consuming job.

Figure 5.25: Homestead with a small piece of land.

Figure 5.26: House of floating dwellers without proper plinth.

Figure 5.27: Use of boundary fencing to ensure privacy and individual demarcation of homestead.

Boundary fencing: Due to scarcity of land sometimes it is not possible to organize the houses in such a way to create any internal court and to avoid boundary wall which is widely found in permanent households. Dwellers make boundary wall to distinguish individual homestead and ensure privacy. This boundary wall is made of jute sticks, thatch etc. materials (Figure 5.27).

When many homesteads are resettled together and everyone gets a small piece of land it is not possible to create the property demarcation by a '*viti'* or the houses itself which was discussed in figure 5.21 and 5.22. Fencing wall is necessary to achieve them. This fencing wall is made of low cost and temporary materials like thatch, straw or jute stick.

5.2.3. Comparative Housing Features of the Permanent and Floating Homestead

In the two previous sections (5.2.1 and 5.2.2) some key features of the permanent and floating homesteads are analyzed that are found in the filed survey. A comparative analysis among them is presented in the following table.

Features	Permanent Homestead	Floating Homestead
Plinth	In some cases it is found 'double plinth' where bottom one is the '*viti'* and upper one is the traditional plinth. As a symbol of permanency, most of the cases plinth is '*pucca'* and in some cases they are ornamented and colorful.	Simple plinth made of earth is found for floating homesteads. Absence of proper plinth is found in some households of this category.
Boundary wall	Boundary wall is not a common feature for the organization of the houses. Houses are organized in such a way that property demarcation by wall or fencing is not required. 'Viti' is a also act as a property demarcation object for the homestead.	Boundary fencing is widely used to ensure privacy and property demarcation is the scarcity of land and limitation to organize the houses as a traditional layout.
Construction materials	Brick wall with cement plaster is used for wall construction and CI sheet for roof. CI sheet is widely used to make the wall. RCC roof is rarely found in this context. Pre-cast RCC made slabs for kitchen shed and other household necessity is widely used.	CI sheet is used for roof and wall as an easy moveable material. Brick wall is totally absent and use of RCC is very little. Thatch and other temporary materials also widely found as a construction materials.
Sanitation system	Developed sanitary system with pre-cast or cast-in-situ ring slab. CI sheet for wall and roof and in some cases brick wall and RCC roof also found. Separate tube-well inside bathroom is seen in some cases.	Only pre-cast ring slab is used. CI sheet is for both roof and wall is used.
Organization of houses	Traditional layout of rural homesteads is practiced. Cluster organization is the common organization of this type of homesteads.	Linear type of organization is found on the embankment.
Organization of land	Sufficient land to organize the houses in a traditional way with the common features like courtyard, *dheki gor*, granary etc.	Scarcity of land is the premium. Due to the limitations of land area common features and type of organizations of traditional rural homestead are missing in this context.
Climatic consideration	Houses are constructed with the consideration of climate. In most of the cases the traditional building orientation is followed.	Due to scarcity of land, traditional building orientation is not possible to follow most of the time.

Table 5.1: Comparative housing features of the permanent and floating homestead.

5.2.4. Building Materials

The house forms of a traditional rural homestead are assessed with two vital aspects and they are roofing and enclosing materials. A general discussion about the available construction materials of these two aspects has been done in Section 3.3.1. In this section they are analyzed in the context of the field survey.

5.2.4.1. Roofing Materials

Like all over the Bangladesh bamboo, thatch and C.I. sheets are the common for roofing materials in the survey area (Table 4.2) also. Among these roofing materials, bamboo and thatch are used but not so common. For its availability and durability against the warm-humid weather and the heavy rain the use of C.I. sheet is increasing rapidly and in by the field survey they are most commonly found. Clay tiles are not shown in this region as a roofing material.

Use of C.I. sheet as roofing materials is very common. This roof might be '*chowchala*', '*dochala*' or '*ekchala*' depends on the affordability of the dwellers. Use of RCC roof which denotes the maximum permanency of the homesteads is rarely found in the survey area (Figure 5.28).

Figure 5.28: Use of C.I. sheets as a roofing material in permanent and floating homesteads.

In the following table (Table 5.2) the condition of using the different roofing materials used in Bangladesh (mentioned in Table 3.1) are shown.

Construction materials	Permanent Homestead	Floating Homestead
Bamboo/ straw	Rarely used.	Partially used in many cases.
Corrugated iron sheet	Main roofing material in the context.	Main roofing material in the context.
Clay tiles	Not used.	Not used.
Cement/ brick	Rarely used.	Not used.

Table 5.2: Comparative use of roofing materials in the Permanent and Floating Homestead.

5.2.4.2. Enclosing Materials

The following types of houses are found in the survey areas of Sirajganj:

Bamboo-walled houses: Some Bamboo-walled houses in the Sirajganj are often found where the bamboo is used for making posts and enclosing elements, which is called *'Bera'*. Sometimes timber is used for the post and making an upper horizontal floor in the room. This horizontal floor is used for storage purposes. It also acts as a thermal buffer in hot and cold seasons.

Thatched/ straw-walled houses*:* Straw, long grass, jute sticks and thatch are available and cheap in this region. Relatively poor people use them for walls and also for roofing purposes except jute sticks. Due to flood-prone and vulnerable to hazards like bank erosion which compel people to build relatively cheaper houses that can be dismantled when threatened by a hazard.

Thatched or straw walled house sometimes use partially when other parts of the homestead are made of C.I. sheet. When quick extension is necessary, such types of materials are also used. Fencing wall or in interior use these type of materials are also used (Figure 5.29).

Figure 5.29: Thatched walled houses in permanent and floating homesteads.

CI sheet-built houses: In this region the most common building material is the C.I. sheet. For the durability it became one of the major building materials in local tradition. It is very common to use C.I. sheets for both walls and roofs. C.I. sheet is widely used in this region for the following reasons:

- Unavailability of other materials (e.g. mud). The earth is not suitable to use for constructing of wall here.
- Due to river erosion mobility is an important criterion for choosing building materials which C.I. sheet has. Walls made by C.I. sheet can be transferred easily for a long distance.
- Mud or timber is not suitable during flood. As flood is a common phenomena for this region people avoid mud or timber as a building material.

C.I. sheet is commonly used for both wall and roof in this region. In most of the cases the raw sheets are used rather than coloring those for decoration and maintenance purpose (Figure 5.30).

Brick walled houses: In a very small amount this is found some brick walled house with C.I. sheet roof in this region which shows more stability and solvency of the household. House made of brick wall and C.I sheet roof represents a certain level of permanency and the financial affordability of the dwellers (Figure 5.31). Though an RCC roof is more permanent but in the study area such establishment is not so common. These types of houses are not feasible in the floating households.

Figure 5.30: Use of C.I. sheets as an enclosing material.

Figure 5.31: House with brick wall and C.I. sheet roof.

In the following table (Table 5.3) the condition of using the different enclosing materials used in Bangladesh (mentioned in Table 3.2) are shown.

Construction materials	Permanent Homestead	Floating Homestead
Bamboo/ straw	Used in a small amount.	Partially used in many cases.
Mud	Not used.	Not used.
Corrugated iron sheet	Main enclosing material in the context.	Main enclosing material in the context.
Cement/ brick	Used in some cases	Not used.

Table 5.3: Comparative use of enclosing materials in the Permanent and Floating Homestead.

5.3. Tracing HBEs Practicing in the Rural Homesteads

River erosion changed the pre-existing settlement and house form in the survey area (discussed in Section 5.1.4) through people's resettlement in either their 'permanent' or 'floating' homesteads. Besides these broader changes manifested in the settlement and homestead levels, the practice of HBEs caused further changes at the homestead level. This section traces the HBEs in the rural homesteads.

HBE is not just a small business in a small structure, but a family operation in a dwelling. Sometimes it is the primary source of income for the household and some time it is consider as

the secondary source. When the HBE is introduced within rural households it has some effects over the homesteads. By the reconnaissance survey and main field survey the transformation of housing in the survey area are found. In this section the transformation that are directly observed by the reconnaissance survey are discussed. In the next chapters (chapter 6 and 7) their detail analysis after the field survey will be analyzed. The main reasons behind the initiation and operation of HBEs that are found from the survey over the selected cases, in permanent and floating homesteads, are as follows.

- First, in some cases the households have not enough land area to depend their economy on agriculture only. They have involvement with agriculture but that is not sufficient to satisfy their household. In such situation the HBE is treated as the primary function of income generating of these households. These types of cases are largely found in the floating homesteads.
- Second, beside agriculture the HBEs are often treated as a secondary means of income generating where the agriculture is the primary source. The HBE of goldsmith in the permanent homestead is an example of this sort of cases.
- Third, the HBEs are continuing from the ancestry where it is the only income generating function to the concerned households. These households are not engaged with direct agriculture. Such as, the HBE of pottery where the family members are carrying their profession from their earlier generations.
- Fourth, people have a tendency to introduce themselves with an industry. They are converting themselves into entrepreneurs from farmer due to increasing income level and social status. The handloom and power loom are the example of that type.
- Fifth, people who have no other alternatives to maintain their livelihood are sometime engaged with the HBE. Spinning and carpentering is an example of this sort of reason. Poverty is the main driving force behind this HBE.

A homestead with an HBE is not a place for living or household activities; it is also a place for the income generation. This additional function affects the physical layout of the homestead. This study found that the reasons behind these changes are classified by the followings:

a) The change is required to accommodate the additional functions of the HBE.

b) The HBE changes the financial condition of the household and the improved financial condition plays role over the physical change of the homestead.

The second reason focuses on the economic variables and very difficult to explain the direct relationship between the changing physical layout of the homestead and the HBE. The first reason can be easily explained. However, Physical characters that are readily observed while identify a given homestead as HBE-induced homesteads are.

In the HBE of goldsmith the *uthan* (external courtyard) is used for harvest processing which is a character of a normal homestead of rural Bangladesh. But after the courtyard the room that is used for the HBE purpose is exposed with big openings towards the external veranda (Figure 5.32). There are some arrangements of sittings in the veranda facing to the openings of the rooms and backed to the *uthan* for the clients. This image of the homestead is a special for the induction of HBE within the homestead.


(a)


(b)

Figure 5.32 (a) and (b): After the *Uthan* the view of the veranda with sittings and the big openings of the room indicate the presence of the HBE within the homestead.

Both in the handloom and power loom the factory buildings are established in the front house (Figure 5.33). So it is easy to understand the homesteads as the HBE-induced homesteads.


(a)


(b)

Figure 5.33 (a) and (b): In front factory buildings represent the HBEs of the homesteads.

It is easy to visualize the HBE of pottery by its activities that are seen from the outside. Activities that are shown from the outside are listed here:

- The external courtyard (*uhtan*) and the entry pathway are used to dry the raw pots under the sun. This gives an image of the HBE.
- The external veranda is the place where the potters work is shown directly from the courtyard (Figure 5.34).
- The position of the burner is beside the courtyard that is exposed from the first look.

(a)

(b)

Figure 5.34 (a) and (b): The burner and the external verandah with working people indicate the HBE-induced homestead.

Outlook of the HBE of sweet making is different from the traditional rural homestead but it is not clear to recognize the type of HBE within it (Figure 5.35). The similar situation is found in the HBE of egg supply. Direct entry from the road to the house form and shutter type single opening give the sense of a HBE but it is difficult to understand its type.

(a)

(b)

Figure 5.35 (a) and (b): The barren façade with shutter type opening of the HBE of sweet making and egg supply give a sense of the homestead with HBE includes it.

The long external courtyard (*uthan*) in front of the dwelling unit of the HBE of sanitary equipment making is the first visual indication of the HBE-induced homestead (Figure 5.36). The courtyard is simultaneously used for the making of sanitary equipments and storage as well. Products that are stored here are shown from the roadside directly makes the clear image of the HBE within the homestead. A situation like this homestead is found in the HBE of basket making. The working person in the outside of the main dwelling unit helps to make sense of the HBE. But storage of the product is not done here in the open air.

The tailor house of the HBE of tailoring (discussed in detail in chapter-7) has a direct exposure to the embankment which is widely used as a road. The outside tailor house with opening towards the customer and semi shaded sitting in front of the tailor house is the clear identification of the HBE within the homestead (Figure 5.37).


(a) (b)

Figure 5.36 (a) and (b): The storage of the products and the working people make the image of the HBE within the homestead.


Figure 5.37: The tailor house is the identification of the HBE within the homestead.

All the HBEs are not exposed from the outside or carry the external image of the HBE within the homestead. Some HBEs are integrated with the homesteads in such a way that there is no external image of its. These sorts of homesteads are look like the traditional rural dwellings of this region. For example in this study I found the homestead containing the HBE of dairy and drum repairing in the floating homestead category and the HBE of spinning and carpentering in the permanent homestead category has no significance shown from their outlook that make a note of their HBE induction.

Conclusion

The first transformation of the housing pattern of the survey area is caused by river erosion. Through this households are transferred into 'floating' from their 'permanent' status. Land area and its configuration play the main role over the resettlement. The second change within these permanent and floating households is caused by the practice of HBEs. Through these levels of transformation, the housing pattern and their features are changed along with some local factors. The housing features and the construction materials are varied with the permanent and floating homesteads. This changing pattern is a continuous process that is rolling on the age of the settlement and the HBE. In some cases, for the requirement of their functional and physical layout, the HBEs are act as the depiction of the homesteads which is visualized by the very first observation.

Chapter- 6

THE SOCIO-ECONOMIC BENEFITS OF HBEs

This chapter investigates the socio-economic benefits of HBEs within the permanent and floating homesteads. At first it classifies HBEs by their nature and type through the field survey. The selected case study HBEs of both permanent and floating households are then analyzed with reference to the analytical scale factors of livelihood resources. A comparison of the socio-economic benefits of the cases of permanent and floating homesteads contexts is drawn in this chapter through the data analysis that were collected by the field survey.

6.1. Type, Nature and Extent of HBEs

The selected HBE cases of this study are different in type and nature. Based on the observed nature of the operating levels of the HBE cases they are categorized into two broad types. They are:

i) industry level and

ii) household level.

Some HBEs operate at a level of industry by the volume of their activities. HBEs produce their products through a lengthy time span and a high amount of investment. The HBE cases identified from the field survey are listed down here according to their types.

Broader Level	Specific Types	Involved Homestead	Year of Establishment
Industry level	Handloom	**Permanent homestead**	2001
	Power loom	**Permanent homestead**	2006
	Pottery	**Permanent homestead**	Ancestry
	Sweet making	**Permanent homestead**	Ancestry
	Sanitary equipment making	Floating homestead	1998
Household level	Spinning and carpentering	Permanent homestead	2007
	Gold smith	Permanent homestead	Ancestry
	Tailoring	**Floating homestead**	1992
	Dairy	**Floating homestead**	2001
	Drum repairing	**Floating homestead**	1985
	Egg supply	**Floating homestead**	1990
	Basket making	**Floating homestead**	2004

Table 6.1: The industry level and household level HBEs.

It is found that the industry level HBE cases are mostly involved in the permanent homesteads. On the other hand, the HBE cases of floating homesteads are mostly found at the household level. The main reason behind this distinction is the nature of financial stability of the homesteads. In floating households, the nature of this stability is difficult to ensure due to lack of income. The type of used equipment or machineries might help to understand the reason behind the level of stability of the HBE cases of this study. It is found that all the HBE cases are depended not only on the spaces or house-forms. They are also depended on the availability of light or heavy equipments for producing or processing the product. It is possible to sort out the required equipments or machineries as follows:

HBE type	Homestead type	Nature of required equipments and tools
Handloom	Permanent homestead	Totally depended on looms *(tant)* and other supporting machines that need separate house-forms and permanent establishment of the household. A good amount of initial investment is required to start this type of HBE.
Power loom	Permanent homestead	Motorized machineries are the main equipment for this HBE case. Well established and spacious house-form and a high initial investment are required for this HBE.
Pottery	Permanent homestead	Though initial investment is high in this HBE case equipment remain essential. Motorized wheel for making the pots from clay and a giant burner *(chulli)* which is not easily transferrable are the required equipments for this HBE.
Spinning and carpentering	Permanent homestead	Very small and handy equipments are required for this HBE case. A manual spinning machine *(Cka)* is the main equipment for spinning and carpentry tools are the equipments for carpentering.
Tailoring	Floating homestead	Sewing and embroidery machines which are easily transferrable are the equipments that are required for this HBE.

Table 6.2: Required equipment for the HBE cases.

Most heavy and easily non-transferrable equipments and machineries are used in the HBE cases of permanent households (Table 6.2). The HBEs of floating households normally do not use heavy machineries. In the case of dairy, cows are live stocks which can easily be shifted from one place to another. Besides, there are cases (e.g. drum repairing and basket making) that are not machine-depended. They are mainly space oriented. Space is the main resource to operate these HBE cases. This space might be open, semi-open or often indoor built-form. Different types of HBEs have different considerations with the livelihood resources. A list of this sort of HBEs is as follows:

Type of HBEs	Homestead type	Nature of required space
Sweet making	Permanent homestead	Required semi-shaded and shaded space.
Gold smith	Permanent homestead	A shaded and secured space is used for this HBE.
Drum repairing	Floating homestead	Central courtyard of the homestead is used as the space for the drum-repairing works.
Basket making	Floating homestead	*Khaas* land beside the homestead is used as the main working space.
Sanitary equipment making	Floating homestead	External courtyard is used for work space and storage of the sanitary equipments.
Egg supply	Floating homestead	Only a shaded space is used as the storage and supply centre for this HBE.

Table 6.3: List of space oriented HBE cases.

Selected HBE cases are considered for detail analysis within the framework of the livelihood resources in the next two subsequent sections.

6.2. Activities and Benefits of HBEs in Permanent Households through the Framework of Livelihood Resources

This section describes the role of different assets (described in Section 2.7) within the livelihood resources of the selected cases. Considering the potential depth of case histories three HBE cases from the permanent and floating homesteads are selected to analyze them with respect to the livelihood resources.

	Selected cases for field survey	Selected for livelihood analysis
Permanent households	1. Gold smith 2. **Handloom** 3. Power loom 4. **Pottery** 5. Sweet making 6. **Spinning and carpentering**	1. Handloom 2. Pottery 3. Spinning and carpentering
Floating households	1. Drum repairing 2. **Egg supply** 3. Sanitary equipment making 4. **Dairy** 5. **Tailoring** 6. Basket making	1. Egg supply 2. Dairy 3. Tailoring

Table 6.4: List of selected HBE cases for field survey and livelihood analysis in different levels.

The following HBEs in permanent households are selected for detail analysis:

Handloom: Making '*lungi*' with manual loom. Sultan Mahammud is the owner of this HBE. He is doing this since 2001 in his old household on his own land in the village of Bagbati. There are six members in his family.

Pottery: Making things by mud. Sri Jon Kumar Paal is the owner of this HBE. It is their family profession that he carried on from the ancestry. He has a permanent household. His single family consists of four members.

Spinning and carpentering: Shib Shankor Kawali is the owner of this household and he is engaged with carpentering. His daughter Beauty is engaged for spinning with a manual machine to supply spin roll to a local loom factory. This father and daughter are the only members of the family. Their household is permanent on their own land in the village of Bagbati.

6.2.1. Human Capital

Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives (discussed in Section 2.7.1). At a household level human capital is a factor of the amount and quality of labour available; this varies according to household size, skill levels, leadership potential, health status, etc.

Two types of human capital are employed in the HBE of Handloom.

i) Family members who works without any wages. Their intention is to do betterment of their own household. They are six in number including Sultan Mahammud. They are both male and female members and their age range is 12 to 50. There are six members in this family and all are engaged with the production. Among them two are male and four are female. Male members are involved with the management, marketing, sales and sometimes physical labour as *Tanti* (who operates the machine). On the other hand female members are engaged to process *shuta* (yarn) for the cloth by using machine and manual labour simultaneously. By interview Sultan informed that the family members developed their skills and trained up at the first stage or the HBE with the help of the external workers. As the works of females are not so heavy and critical it was not so tough to accumulate them. Female workers manage their time beside the regular household activities like cooking, washing, housekeeping etc. The family members act as the leader of their own section though they work side by side with the wage-based external manpower.

ii) People other than the family members who works for wages. Male workers work at *tant* (machine used for making cloth) and females work into houses with the family members. It is difficult to distinguish the female family member from the female labour. There are 25 external

workers in total in this HBE which is 81% of the total human capital. Out of them nine are female. Female workers do not work at the *tant*. They mainly engage with the pre-production works like yarn processing and dyeing (Figure 6.1).

As it is a common practice in that village, by employing professional labours and giving standard wages. This professionalism helps to find out skilled labours. This HBE is mainly dependent on the external manpower. The amount of engaging external manpower is also represents the volume and the strength of the HBE.

Human capital engaged in Pottery consists of the family members. It is a profession that they are carrying on from their ancestry. There are two male and two female members in this family. Every family member both male and female is working in the total process of production. They are doing several phases of works, such as collecting mud, preparing pottery, burning and sales. In this single family the age range of the family members are from 15 to 45 but in the total village a different age limit also found depending on the family members. Generally the female members work inside the house and the male members are outside the house (Figure 6.2). Some time very old people also assist for the HBE.

Skill is the key factor to operate HBEs like pottery. Everyone of the family is a worker of the HBE and are skilled enough to handle their job though they have no formal education. According to Sri Jon Kumar Paal (the head of the household), family members are skilled but they sometimes feel limitation of labour when women are being engaged with regular households activities.

Human Capital engaged in Spinning and Carpentering also consists of only family members. The father Shib Shankar is engaged for carpentering without any helping hand and the daughter Beauty is doing the spinning along (Figure 6.3). There is no other family member or external work force for them. The daughter doing the spinning for the looms situated nearby the village. She delivers them her product by herself. The father Shib Shankar makes small furniture and sells them into weekly '*haat*'. Though it is very hard job to work such carpentering without any helping hand but Shib Shankar does so to save the wages for paying.

If we look at the percentage of total labour it is found that 100% member of the household of spinning and carpentering is engaged with the HBE but in reality they are only two in number. In fact, two types of enterprises are involved here. Each is operated by a single person. Though they are skilled with their own premise of work, in absence of any one of them the whole enterprise will be collapse. By interviewing Shib Shanker and his daughter Beauty it is informed that when one of them is ill the respective productions of the HBE stopped. Beauty is the only female person of the little family and she has to spare time to do the daily housekeeping job.


(a)


(b)

Figure 6.1 (a): In Handloom, male workers are working in the factory house and (b): the female workers are working in the inner courtyard.


(a)


(b)

Figure 6.2 (a): In Pottery, male family member is working at the external work space and (b): the female member is working inside the house.


(a)


(b)

Figure 6.3 (a) and (b): In Spinning and Carpentering, Shib Shankar and his daughter works for different HBEs within a single homestead.

The human capitals are not same in these three selected case. They are widely varied in number. But when we analyze their quality it is not depending on the number anymore. Their skill, knowledge, quality, ability to labour and good health are the main determinants rather than their number. These determinants are varied in these cases. For example, in Pottery, the total manpower is only four in number but they are well skilled and expert for this HBE. On the other hand Handloom has to hire wage-based labours which sometimes affect the consistency of production. So why then the strength of human capital of Pottery is higher than the Handloom. Again, in the case of Spinning and carpentering the human capital is very small in number and as they are operated by single person their ability to work is in a vulnerable situation. This is why their value in the rating scale (discussed in Section 4.5) is lower than the other two cases.

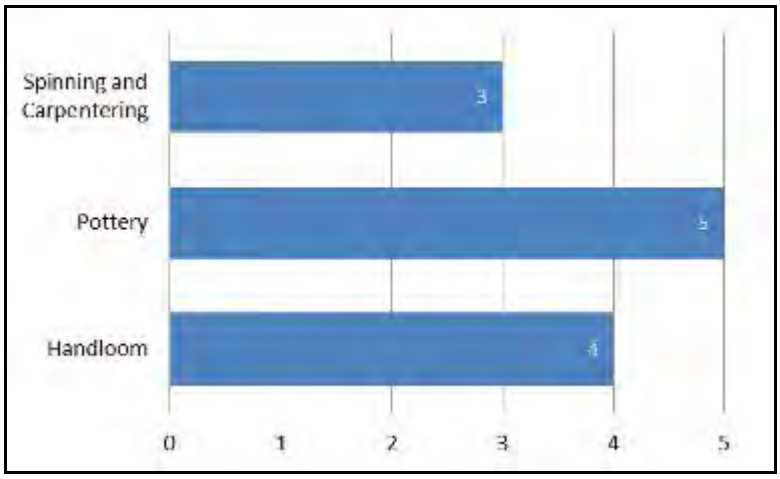


Figure 6.4: The values of Human capital in the selected HBE cases in the permanent households.

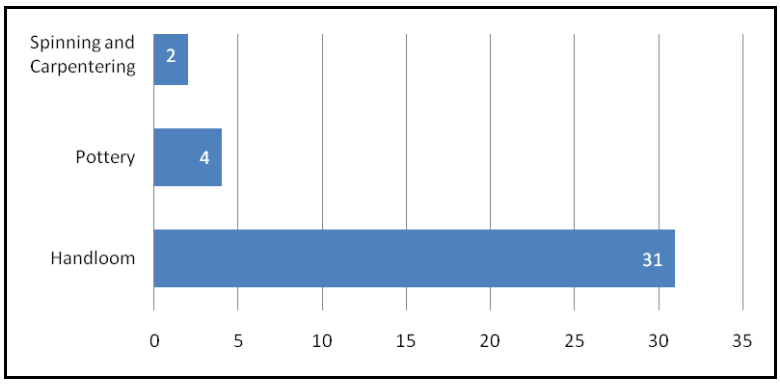


Figure 6.5: The total manpower engaged in the selected HBE cases in the permanent households.

6.2.2. Natural Capital

Natural capital is the term used for the natural resource stocks from which resource flows and services (such as land, water, forests, air quality, erosion protection, biodiversity degree and rate of change, etc.) useful for livelihoods are derived. It is of special importance for those who derive all or part of their livelihoods from natural resource-based activities, as it is often the case for the poor stakeholders, but also in more general terms, since a good air and water quality represents a basis for good health and other aspects of a livelihood (discussed in Section 2.7.1).

In all HBE cases, the households are not in any vulnerable situation or in threat of any natural disaster other that the annual monsoon. There is no threat of river erosion possibilities in this village. That is why the natural setting of these two villages (Table 4.2) remains stable for long years. All the households are well prepared for the annual flood hazarded. Respecting the vulnerability context homesteads of the selected three cases of this context are relatively safe.

Dependence on nature comes in many forms as raw material for production. The HBE of Handloom is operated manually without electricity. The sun is acting as the natural capital as the source of light and heat. For this natural capital Sultan (the owner of the HBE) do not have to pay.

In the HBE of Pottery the earth clay is used as the raw materials for production and they are dried under the direct solar heat. For the earth clay Sri Jon Kumar Paal (the head of the household) has to pay money. They collect suitable earth from the short distant village and most of the case they bring them to their house by themselves with manual labour. They collect earth during the winter season and preserve them for continues production. On the other hand, during rainy season the total production of Pottery remain stopped. Thus the earth and the sun both are used as the natural capital which play vital role over these HBE cases.

Figure 6.6: Earth clay is stored for production in Pottery.

Figure 6.7: Sunlight is used to dry the raw materials in Handloom.

6.2.3. Financial Capital

Among the five categories of assets financial capital is probably the most versatile as it can be converted into other types of capital or it can be used for direct achievement of livelihood outcomes. However, it tends to be the asset that is least available for the poor but that makes other capitals important.

Financial capitals are involved in the HBE of Handloom in two ways. They are:

i) Stock of raw materials. Due to the fluctuating rate of raw material Sultan always reserve a stock for at least three months' production. An amount of money is always engaged for this purpose. According to Sultan, the market value of the raw materials that he has is around Tk. 500,000.

ii) Stock of product. Sultan keeps a stock of his finish product before their sales. Finish product (i.e. *lungi*) made liquid money flow to the HBE. Regular cash flow is made by regular production. Sultan maintains this cycle in his business. Thus he creates a three step Financial Capital such as-

a) Stock of raw materials

b) Stock of finish product and

c) Liquid money flow.

Monthly income of this household is around Tk. 23,000 of which 90% comes from the HBE. Another 10% comes from their agricultural lands which are leased out.

Sri Jon Kumar Paal maintains two types of stock for the Financial Capital of his HBE of Pottery. They are:

i) Stock of raw materials. This is mud and not has a significant monitory value.

ii) Stock of finish product. All through the year it has a very good amount of stock of finish product of the HBE.

The regular inflow of money of this HBE is not so high because of two reasons:

a) All through the year the products (pots made by clay) are not sold out evenly. During some specific season like Bangla New Year's *mela* the demand of these types of products are high. Other than that the selling is not so satisfactory.

b) The unit price of such product is very low. So why the cash flow is also reflects the poverty of the household.

Jon Kumar Paal has a monthly household income of only Tk. 5800 in an average and he does not have any other source of income.

For Spinning and Carpentering the HBEs are the only sources of income of this household and the level of Financial Capital for Shib Shankor and his daughter Beauty is very low. Beauty collects yarn (*shuta*) from the loom factory and spins them into rolls with a manual machine. Yarns and plastic rolls are the properties of loom factory. Beauty gets wages according to the quantity of rolls full of yarn. The wages is Tk. 20 per 100 rolls and she can spin a 100 rolls in a single day.

Shib Shankor has a very small capital to invest. He sells furniture that he has made all through the week in the weekly *haat* on every Wednesday and maximum amount of this money he spent for buying timber for his next week furniture making. Thus both Shib Shankor and his daughter have a very poor stock and liquid money flow available for their HBEs.

There are major differences found in financial capital in these three selected HBEs that shows the financial status of them.

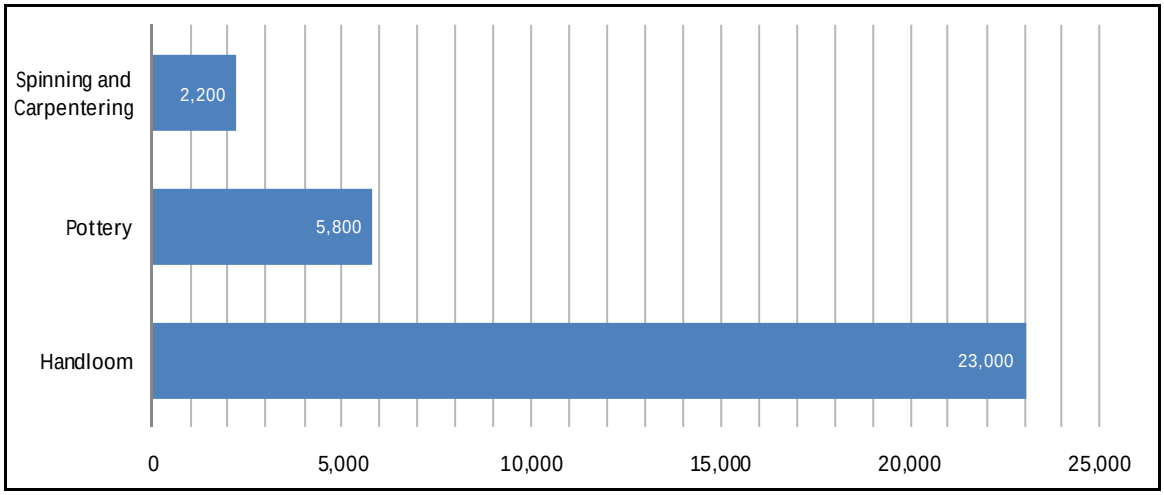


Figure 6.8: Graph shows the monthly income (in BDT) in the selected HBE cases in the permanent homesteads.

The monthly income graph shows the financial solvency of the selected permanent households. Among the three households, Spinning and Carpentering has the lowest value of Financial Capital with the lowest monthly income and below the poverty line considering less than 1$ per day income (Figure 2.1). Pottery is below the poverty line considering US $ 2.5 (considering around Tk. 80 for US$ 1.0) per day income. On the other hand, Handloom has comparatively solvent financial status in the context.

6.2.4. Physical Capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods, such as affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean, affordable energy and access to information.

Sultan has two types of physical capital for his HBE of Handloom including his homestead.

i) Established buildings for the HBE and for the family living. It is an old homestead for their living that he got from his earlier generation. He just developed some house form and made them suitable for his HBE.

ii) For the HBE Sultan has twenty handlooms and some other accessories that can make the total enterprise running smooth. Some of these accessories are must for this type of industry and some of them are for better establishment.

Sultan can afford the transportation costs of his product to deliver them to the local *haat* and inter-district *haat*.

They use tube-well water for drinking and sanitation as the total village is used to. There is only one separate toilet for the labors and on toilet for the family use. The only source of power is the *Palli Biddut* (rural electricity) which is not always available. The factory does not need any electricity to run the machines. All the machines are manual here. The need for electricity is for light during cloudy weather and music player for the labors' refreshment.

Now a day in every village of Bangladesh it is very easy to make communication for personal and business purpose. Cellular phone is a very easily accessible for everyone. Sultan makes his business communication at several stages through cellular phone.

As an elder villager Jon Kumar (of Pottery) has well established homestead with house form for the family living and the HBE. Large open space is required for pottery which they have. During interview when Jon Kumar was asked whether the space is sufficient or not, he replied "potters space will never seems sufficient to them." They have shed for the raw materials and finish products and a giant burner. This burner is being shared by two or three households (Figure 6.9). Sometimes they need transport like rickshaw-van and *vutvuti* (locally made motorized van) to transport their products. Sometimes they carry them by themselves through human labour.

As only the family members are engaged with their HBE, they have only one toilet for their use and one tube-well for water for drinking, sanitation and making clay as the raw material. Raw pots are needed for high temperature burning. This temperature is made by fire created by straw and saw dust in a burner. For the household use they have an electricity connection from the *Palli Biddut*. But the machines do not require any electricity for operation.

Shib Shankor (of Spinning and Carpentering) sold his old house that was made by CI sheet to arrange money for the marriage of his elder daughters. After that he has a poor house made by thatch wall and CI sheet roof for him and his daughter Beauty which was previously used as their kitchen (Figure 6.10). Now this house is used for their living and they use an open space as kitchen. The small open court *(uthan)* is used for Beauty's spinning and his father's carpentry works.

Both Shib Shankor and his daughter do not use any vehicular transport for their HBEs. They deliver their product by their own. Rarely Shib Shankor use rickshaw-van to bring timber to his home which is the row materials of his HBE. Like the other homesteads of the village there is a tube-well used as the source of drinking water and water for sanitation and a sanitary latrine within their homestead. These HBEs do not required any electricity. Even this homestead do not has electricity connection from the *Palli Biddut* that maximum homesteads of this village have. The affordability of energy is low of this homestead.

Figure 6.9: The shared burner of the HBE of Pottery.

Figure 6.10: The only house form of Spinning and Carpentering.

The five main components of Physical capital (discussed in Section 2.7.1) are analyzed with respect to the selected three HBE cases of the permanent homesteads in the following table:

Components of Physical capital	Handloom	Pottery	Spinning and Carpentering
Buildings and settlement	Separate houses for family living and the factory. Factory is well equipped with machineries. Houses are made by CI sheet wall and roof.	Open space for drying the products under sun, shared burner, shed and houses for family living and storage. Houses are made by CI sheet wall and roof.	Only a single house made by thatched wall and CI sheet roof for living. Open space without shed is used as the working place.
Transportation	Motorized vehicle and rickshaw van both are used to transport the raw materials and finish products.	Human labour is used to carry the raw materials and rickshaw van to transport the finish products.	Manual labour is used frequently and rickshaw van is used occasionally.
Water supply and sanitation	Separate tube-well for drinking water and sanitary latrine for the labours and household use.	One tube-well for drinking water and daily uses and one sanitary latrine for the household.	One tube-well for drinking water and daily uses and one sanitary latrine for the household.
Affordable energy	Non-renewable energy from *Palli Biddut* for household use. Electricity is not required to operate the equipments of the factory.	Non-renewable energy from *Palli Biddut* for household use. Electricity is not required to operate the equipments for HBE.	No electricity connection.
Communications	Cellular phone is used to communicate frequently.	Cellular phone is used to communicate frequently.	Very low use of cellular phone.

Table 6.5: Comparison among the components of Physical capital of the HBE cases of Permanent homesteads.

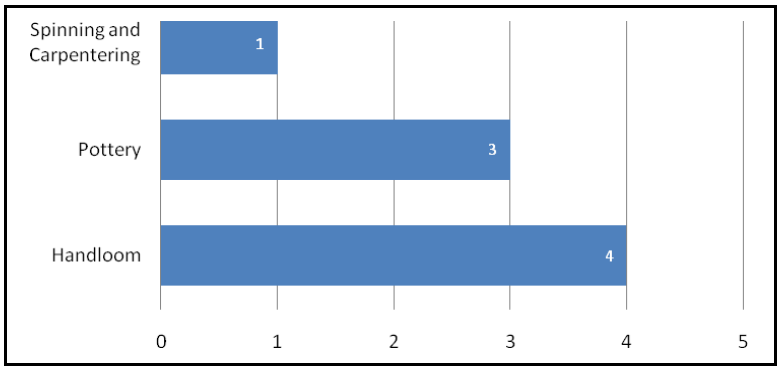


Figure 6.11: The values of Physical capital in the selected HBE cases in the permanent households.

Difference in the physical capital values of the selected three cases of this context shows a remarkable figure. The Spinning and carpentering has a very poor physical condition whereas the Pottery and Handloom has comparatively higher values. That represents the establishment of physical infrastructure for both of their living and enterprise. Handloom has a higher financial

capital that plays an important role over the physical capital. On the other hand, Pottery has a lower financial capital but has a moderate value of physical capital due to its establishment period of the homestead.

6.2.5. Social Capital

Social capital is the social resources such as networks, social claims, social relations, affiliations, associations etc. upon which people draw when pursuing different livelihood strategies requiring co-ordinated actions.

For the HBE of Handloom Sultan has to maintain two types of social networks. These are:

i) Horizontal network – with the local association of similar enterprises. This is to maintain the regular availability of raw materials, rate of raw materials and supply procedure. This network helps him to maintain a uniform rate of workforce which is necessary to control any type of unavoidable situation that may cause disturbance of the regular production.

ii) Vertical network – with the *'paaikar'* (whole-seller/ supplier) of raw materials (e.g. shuta and color pigment) to ensure the regular supply chain which is mendatory for regular production. Vertical network with the buyers is also being maintained to disburse the product in a weekly basis.

To operate this enterprise Sultan has to take credit facilities from the suppliers of raw materials. He has to be connected with them with a relationship of trust.

Jan Kumar's homestead and along with its neighborhood are called the *'Kumar Bari'* (houses of potters). This *kumar bari* consists of a total eight homesteads. From ancestry they are engaged with this profession from several generations. They have to maintain a close collaboration with each other not only for the family relationship but also their professional betterment. They have to share many things such as the burner where the raw pots made by clay are done high temperature burning. To save energy they burn product of two or three potters at a time. Some time they use same transport to carry their product to weekly *haat* to save transportation cost. As vertical network Jan Kumar has to be connected with the mud supplier and some of his regular buyer like sweet-maker for regular purchase of pots for *'doi'* (cart). Sometimes he has to purchase mud as raw material in credit, so why he has to maintain the relationship with deep trust.

Beauty maintains network only with her employer to collect raw material and deliver her product. Shib Shankar has a relation with the timber supplier which is not so strong at all. There is no horizontal network they maintain. Neither Shib Shankar nor his daughter is a member of any professional or service association. Beauty receives wages on a weekly basis at the end of each week.

A comparison among the social networks that the selected HBE cases maintain is shown in Table 6.6.

Type of Social network	Handloom	Pottery	Spinning and Carpentering
Horizontal network	With the local association of similar enterprises.	With the other households of the *kumar bari*.	No network
Vertical network	With the whole-seller/ supplier of raw materials and the buyers.	With the mud supplier and some of regular buyers.	With the employer to collect raw material and deliver the product.

Table 6.6: Comparison among the social networks that the HBE cases of Permanent homesteads maintain.

Due to the different levels of involvement with the social networks the values of Social capital in the rating scale (discussed in Section 4.5) fluctuates for the selected HBE cases in the permanent homesteads. Handloom has the largest value among these three and the Spinning and Carpentering has the smallest.

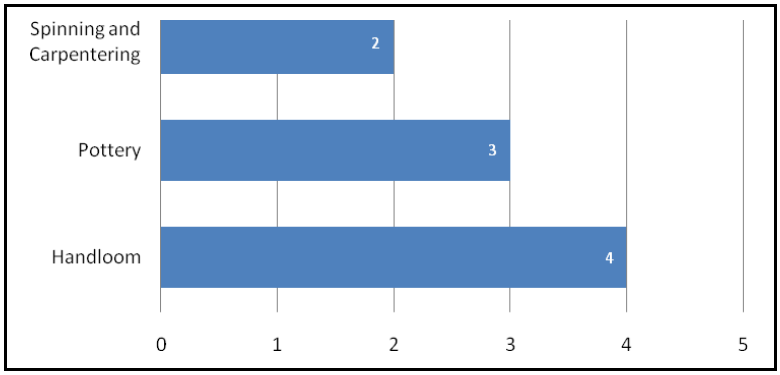


Figure 6.12: The values of Social capital in the selected HBE cases in the permanent homesteads.

From the above discussion the resultant outcomes in the respective three HBEs of permanent households based on the livelihood capitals are drawn as follows:

Note: H= Human Capital; N= Natural Capital; F= Financial Capital; P= Physical Capital; S= Social Capital

Figure 6.13: The resultant pentagons of three selected cases of permanent households.

Area that covered by the shaded pentagon represents the total value of the socio-economic living. Besides, the more irregular shaped pentagon makes the sense of the imbalanced relationship among the resources. Among the above three, the pentagon of Handloom is covered by a maximum shaded area which denotes their higher value of socio-economic living than the others two. The regular shape of the pentagon reflects the balancing condition of all the capitals. By the interview Sultan Mahammun, the owner of Handloom told about the balancing condition of his household. The income-expenditure balance is one of the major things that he expressed. On the other hand Spinning and Carpentering has the lowest shaded area for its irregular shaped pentagon that reflects the poor living condition of this household.

6.3. Activities and Benefits of HBEs in Floating Households through the Framework of Livelihood Resources

The selected HBEs in floating households (Table 6.4) for detail analysis are followings:

Egg supply: Collecting of eggs from villagers and supply them to market. Mokbul Hossain is the owner of this HBE. He collects egg from several farms of locality and supply them to retail shop. He is engaged with this HBE since twenty years ago but in the present homestead his business is being operated since 2004. Because of the river erosion he had to move his homestead at the present location. There are eleven members in his family.

Dairy: Firming of cows for milk. Azahar Ali is the owner of the dairy farm. This HBE is ten years old but in the present location the homestead has been shifted in 2004. Azhar has five members in his family.

Tailoring: Making clothes by sewing machine to meet peoples order. Habibur Rahman is the owner this HBE and he is doing it since 1992. At the current location the homestead has been shifted in 2004. His family consists of four members.

6.3.1. Human Capital

In the Egg supply, there are two types of human capital that Mokbul has to operate the HBE. They are:

i) Family members who works without any wages. Mokbul has five sons and four daughter of which three son work with him. They work for the betterment of the business as well as of the family. They do not receive any direct wages. Among these three sons two are student and they manage time after their regular school.

ii) People other than the family members who works for wages. Two man work for the HBE on the basis of monthly wages. They mainly engaged to collect eggs from the local farms.

Azahar has only a single type of manpower for his HBE which is the internal manpower from his family. He has his wife, two daughters and one son. Including himself everyone is involved with the HBE. The jobs of the family members are: preparation of food for the cows, looking after of the cows, milking the cows, delivers the product (milk) to home to home and collecting grass and straw for the cows.

Every member of the family is being engaged for the above jobs other than collecting money. Mainly Azahar, in some cases his fifteen years old son collects money from their clients. Family members blend their jobs with the regular household activities. They do not consider any job dedicated to the HBE has any separate entity. Even the cows are also considered as family members. There is no external labour they have for their HBE.

Habibur Rahman is an expert tailor with his long time experience. He developed his own reputation in this arena in the locality. He himself is the main worker of this HBE. His wife and one of his two sons help him when he needs. His wife has to manage time after the regular household works like cooking, housekeeping, babysitting etc. His son is a student of local school and he helps his father after his school. Both the mother and son developed their skill and trained up with the help of Habibur Rahman. There is no regular external labour he has. He heirs one external labour during the season of Eid (the holy festival of Muslims) when he has a huge work pressure. Other than the seasons through the year the HBE is operated by the family members by all means.

(a)

(b)

Figure 6.14 (a): Female family member is working for the HBE of Dairy and (b): the owner of the HBE of Tailoring is working.

All the selected three cases in floating homesteads are mainly operated by the family members. Only the case of Egg supply has two external labours for its regular works beside the family members' involvement. This is why the value of Human capital of this case is higher in the rating scale (discussed in Section 4.5) than the Dairy and the Tailoring. Total manpower for Dairy is higher than Tailoring but in the rating scale it does not show a higher value than Tailoring. The reason is that the required specific skill for Dairy is lower than Tailoring.

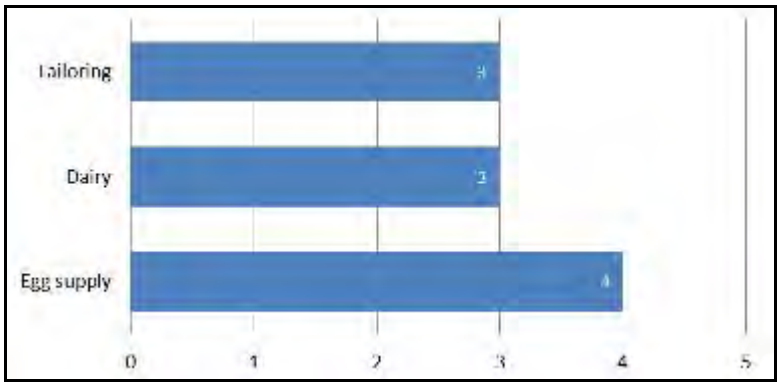


Figure 6.15: The values of Human capital in the selected HBE cases in the permanent households.

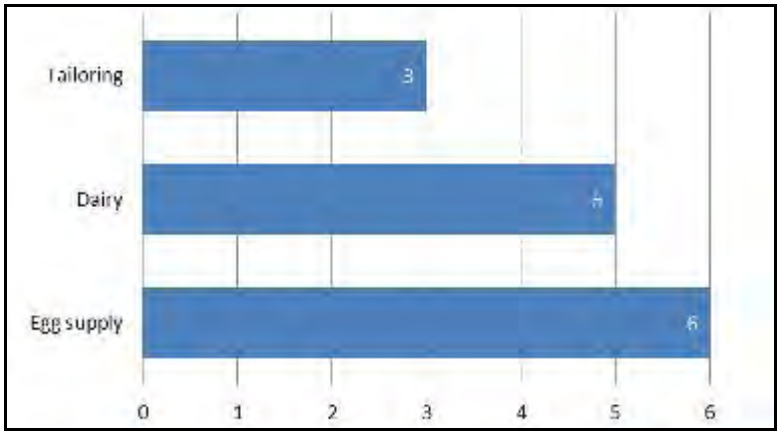


Figure 6.16: Total manpower engaged in the selected HBE cases in the floating homesteads.

6.3.2. Natural Capital

Within the framework a particularly close relationship exists between natural capital and the vulnerability context and many of the devastating shocks for the livelihoods are natural processes that destroy natural capital. The HBEs of Egg supply, Dairy and Tailoring are in a region of same natural profile. All of the three homesteads are relatively new in their settlement. All homesteads are more or less five to seven years old in their present location. They were migrated due to the erosion of river Jamuna and resettled in a location which is not so far from the river. And these are not permanent as well. They are always in a vulnerable condition and in a threatened situation of river erosion. Besides the second natural threat is the monsoon flood. During flood season the whole village is affected and goes under water.

In the case of Dairy a major portion of cattle-food are comes from the natural fields beside the river which is a natural capital and for which Azahar do not have to pay. Others cases are not directly dependent on any specific natural capital other than air and light. This is why the natural capital is low for every case that has been conducted.

6.3.3. Financial Capital

Two types of stocks that is available for the HBE of Egg supply. They are:

a) Egg for near about one week's supply

b) Poultry feed that Mokbul supply to the poultry farm

Mokbul has a moderate cash flow status as he has to pay cash to the poultry farm during the time of purchase but he get money from his buyer on a weekly basis. He has an average monthly income of Tk. 12,000 of which 80% comes from the HBE and other 20% from the agriculture of their land in the *chor* (river surrounded island) which is cultivated by the people who lives in the *chor*. They just get a portion of the cultivation seasonally.

The main stock that the HBE of Dairy has is the two cows and two calves. These two milk giving cows are the main asset for the HBE of Azahar. He delivers milk to door to door as home service and collect money at the end of the month. Some shops also collect milk from him on cash payment basis. Among this money a major portion is to be used for day to day household expenditure and he has to save a portion for the maintenance of the HBE.

When the milk giving period comes to an end the cow has been sold out and a new cow has been bought to replace the old one. Some liquid money is being required to buy the new one. For this he creates a savings by sparing some money each month. The average monthly income of this household is Tk. 6,200 of which around 80% comes from the HBE and other 20% from the agriculture of their land in the *chor* which is cultivated by the people who lives in the *chor*.

Considering financial asset of Tailoring, Habibur Rahman is a poor owner of his HBE. Three sewing machines is the only stock that he has for his HBE. As he has not equal work pressure all over the year, the cash flow is not so smooth all time of the year. Only during *Eid* season Habibur receives a good cash flow. Other than that he is a struggler with his business. The average monthly income of this household is only Tk. 4,500 of which around 40% comes from the land in the *chor* which is cultivated by the people who lives in the *chor*.

There is a common feature found by the above discussion that each of the selected HBE cases have cultivable land in *chor* and the get a portion of their earnings from there. These lands are their land that they or their earlier generation lost due to river erosion. They are not suitable for living due insufficient infrastructure institutional facilities. Some very poor people live there and cultivate the lands and give the portion of the land owner seasonally. Major differences found in financial capital in the three different HBEs that shows the financial condition of them.

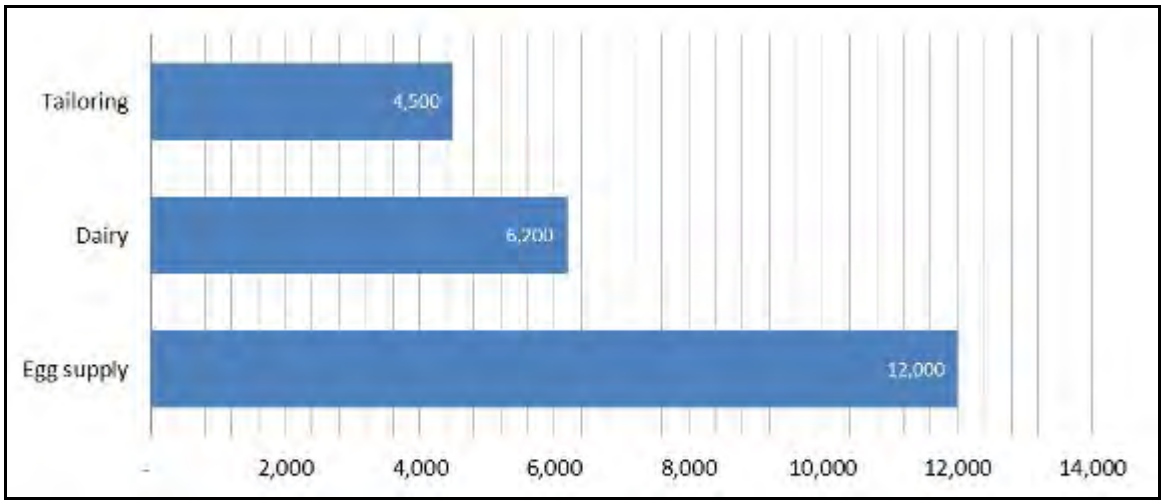


Figure 6.17: The monthly income (in BDT) in the selected HBE cases in the floating homesteads.

The monthly income graph shows the financial condition of the selected households. Among the three households, tailoring has the lowest value of Financial Capital with the lowest monthly income and below the poverty line considering less than 2.00$ per day income (Figure 2.1). On the other hand, Egg supply has comparatively solvent financial status in the context.

6.3.4. Physical Capital

In the HBE of Egg supply, Mokbul has houses made by CI sheet wall and roof for his homestead and separate shed attached to house for his HBE. The elongated space which was a verandah earlier converted into the godwan and delivery space at once.

Mokbul use a bicycle to collect eggs from local farms and rickshaw van is used to deliver them to the shops. These are the transports that he can afford. For water supply a tube-well is there within the homestead for the family use. And like the locality this homestead has a sanitary latrine for their use. This HBE requires a few amount of electricity which is managed from the home use from the *Palli Biddut*.

Physical condition of the homestead of Dairy is very poor. The houses and the cattle-shed are made of temporary materials. They are not established well after their migration due to river erosion. A temporary shed without any wall surface is being used for the cows. There is no vehicular transport is being used for this HBE. Azahar distributes milk travelling on his own foot. There is a tube-well in this homestead as the source of drinking water and household use and a semi-sanitary latrine for their use. There is no electricity connection to this homestead.

Like the HBE of dairy, Habibur Rahman's homestead of Tailoring also does not established properly after the migration due to the river erosion. The houses are built with some temporary materials. Habibur has a separate shed attached with the house for his HBE. All are adjusted within a very small piece of land. Electricity is being required to operate one of the three machines of this HBE. He manages this electricity from *Palli Biddut* and the connection is mainly for his residential use.

(a)

(b)

Figure 6.18 (a) and (b): The cattle sheds are made of temporary materials in the HBE of Dairy.

(a)

(b)

Figure 6.19 (a): The elongated shed attached to the house as a shed for Egg supply and (b): The adjacent shed for the Tailoring.

The five main components of Physical capital (discussed in Section 2.7.1) are analyzed with respect to the selected three HBE cases of the floating homesteads in the following table:

Components of Physical capital	Egg supply	Dairy	Tailoring
Buildings and settlement	Houses for family and separate shed for HBE made by CI sheet wall and roof.	Poor condition of houses. Houses and cattle shed are made by temporary materials within a small piece of land.	House and adjacent shed for HBE made by CI sheet and temporary material within a small piece of land.
Transportation	Own bicycle and rickshaw van is used to collection and delivery.	No vehicular transport for the HBE.	Transportation is not required frequently.
Water supply and sanitation	One tube-well for drinking water and daily uses and one sanitary latrine for the household.	One tube-well for drinking water and daily uses and one semi-sanitary latrine for the household.	One tube-well for drinking water and daily uses and one semi-sanitary latrine for the household.
Affordable energy	Non-renewable energy from *Palli Biddut* for household use.	No electricity connection.	Non-renewable energy from *Palli Biddut* for household use.
Communications	Cellular phone is used to communicate frequently.	Cellular phone is used to communicate.	Cellular phone is used to communicate.

Table 6.7: Comparison among the components of Physical capital of the HBE cases of Floating homesteads.

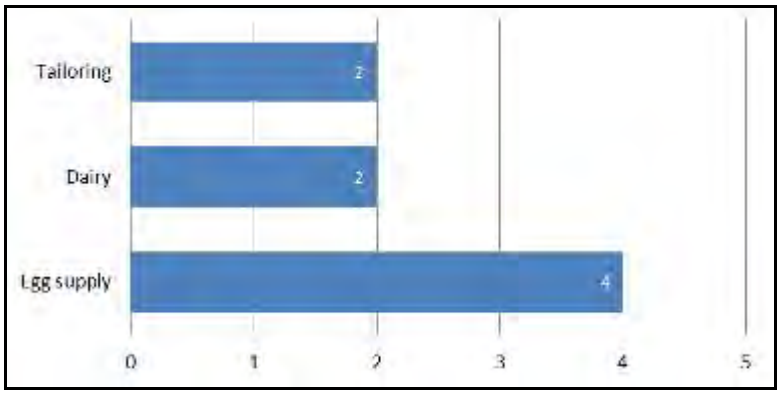


Figure 6.20: The values of physical capital in the selected HBE cases in the floating homesteads.

It is not so easy to establish proper physical facilities for the HBE or the household in the floating context. Physical establishment requires certain time span on a specific location. But in the context of floating households the homesteads are not old enough to obtain such establishment. So why the physical capital is generally low in most of the cases. In the case of Egg supply sufficient (may be surplus) financial capital helps to establish a comparatively large value of physical capital.

6.3.5. Social Capital

For the HBE of Egg supply, Mokbul has to maintain both horizontal and vertical networks. Low wards vertical network to collect eggs from the local farmers and up wards vertical network for selling them. He maintains horizontal networks to maintain the up to date price of the goods and the business policies. Though he does his business with sufficient credit system he has to maintain a relationship with his buyers with trust.

Azahar maintains only upwards vertical relation for the HBE of Diary to sell milk. In maximum case he receives the price at the end of the moth, so why he trust his client. On the other hand he sells such a product which demands customers believe for purity. Azahar has to establish himself to the customers as a trustworthy person which is a must to run his business. He is not a member of any formal association for his HBE.

Habibur has a vertical network with his customer for Tailoring. Only networks and goodwill can help him to collect customers for his business. Because of his goodwill many people from his old neighborhood give him job but in this village he is a new inhabitant. So he has to create network to collect new customers as well as customers of his old settlement.

A comparison among the social networks that the selected HBE cases maintain is shown in the table below.

Type of Social network	Egg supply	Dairy	Tailoring
Horizontal network	With similar entrepreneurs to maintain similar price.	No significant network.	No significant network.
Vertical network	With local farmers to collect egg and to buyer of local markets to sell.	With some regular customer.	With some regular customer.

Table 6.8: Comparison among the social networks that the HBE cases of Floating homesteads maintain.

Due to the different level of involvement with the social networks, the values of Social capital in the rating scale (discussed in Section 4.5) varies for the selected HBE cases in the floating homesteads. Tailoring and Dairy has a lower value than the Egg supply.

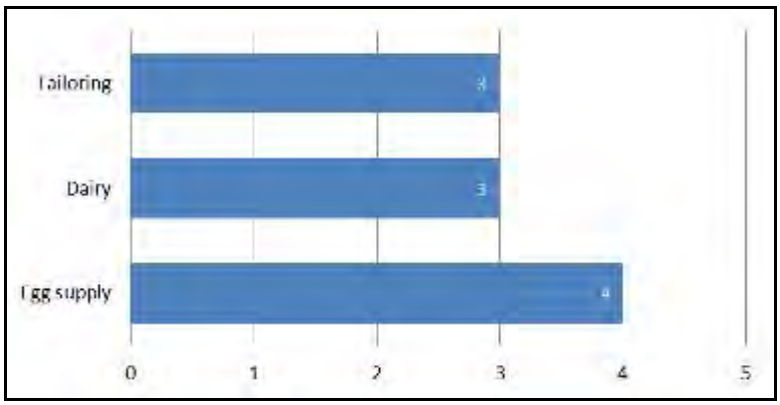


Figure 6.21: The values of Social capital in the selected HBE cases in the Floating homesteads.

From the above discussion the resultant outcomes in the respective three HBEs of floating households based on the livelihood capitals are drawn as follows:

Note: H= Human Capital; N= Natural Capital; F= Financial Capital; P= Physical Capital; S= Social Capital

Figure 6.22: The resultant pentagons of three selected cases of Floating households.

Area that covered by the shaded pentagon represents the total value of the socio-economic living. Besides, the more irregular shaped pentagon makes the sense of the imbalanced relationship among the resources. Among the above three, the pentagon of Egg supply is covered by a maximum shaded area which denotes their higher value of socio-economic living than the others two. The regular shape of the pentagon reflects the balancing condition of all the capitals. The smaller value of natural capital affects the whole pentagon. On the other hand Dairy and Tailoring have very similar pentagon other than the financial capital which reflects the poor living condition of these households.

6.4. Comparative Socio-economic Benefits of HBEs in Permanent and Floating Households

Our preceding analyses reveal some differences between the HBE cases of permanent and floating households. The main difference found is the contrasting values of the livelihood resources in the Natural capital. Due to river erosion and monsoon flood the values of natural capital is very low in the case of floating households compared to the permanent households.

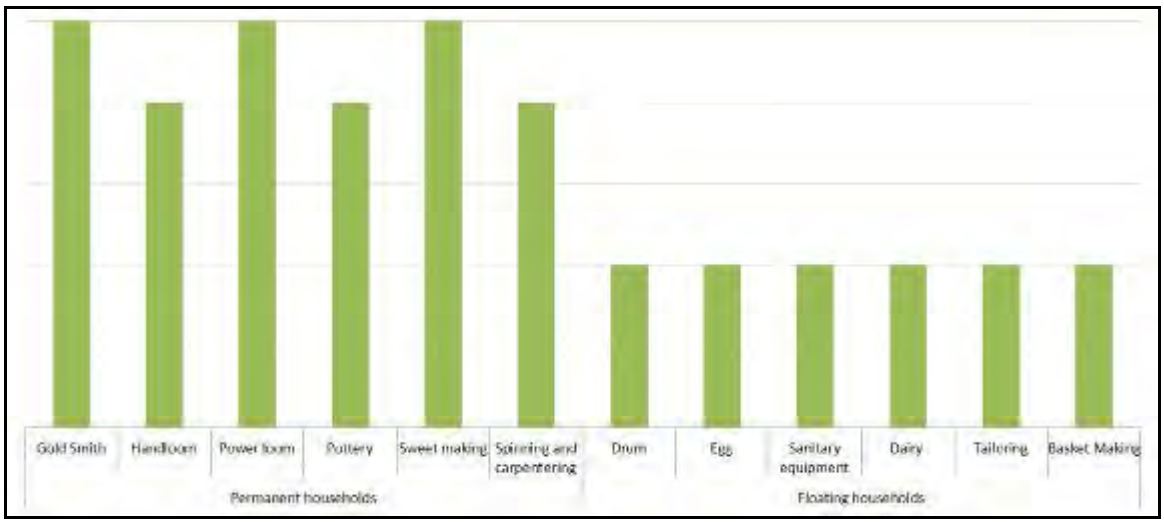


Figure 6.23: Comparison of the values of Natural capital in the HBE cases of permanent and floating households.

Considering the financial capital, it is a variable found through all the cases in both permanent and floating households. Though in both premises high and low values of financial capital is found but if we compare the monthly income of these households a scenario has been come out. The bar of monthly income is a strong consideration for the financial stability of the households.

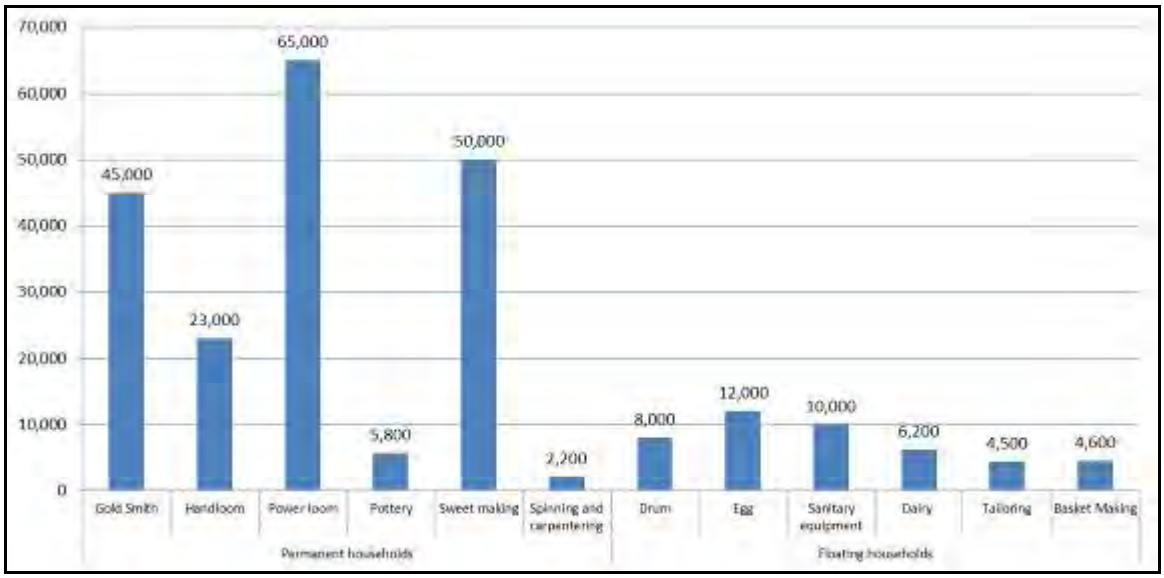


Figure 6.24: Comparison of the monthly income (in BDT) in the HBE cases of permanent and floating households.

It is found that, there are very low level monthly income in some cases of both permanent and floating households such as spinning and carpentering in permanent households and tailoring and basket making in floating households. But there are several households with a high level of monthly income are found in permanent households only. Power loom, gold smith and sweet making are such cases. Such high level of income is rarely found in the cases of floating households. This represents the financial stability of their business along with the households as well.

The dependency of the households on the HBE can be realized by the percentage of income generating through the HBE. From the field survey it is informed that some households with the HBE like Pottery and Spinning and Carpentering are completely dependent on the HBE and some are dependent partially. Most of the cases in the floating households have some earnings from the agriculture. Most of them have some agricultural land in *chor*. In the following chart the dependency of the households on their HBE are shown.

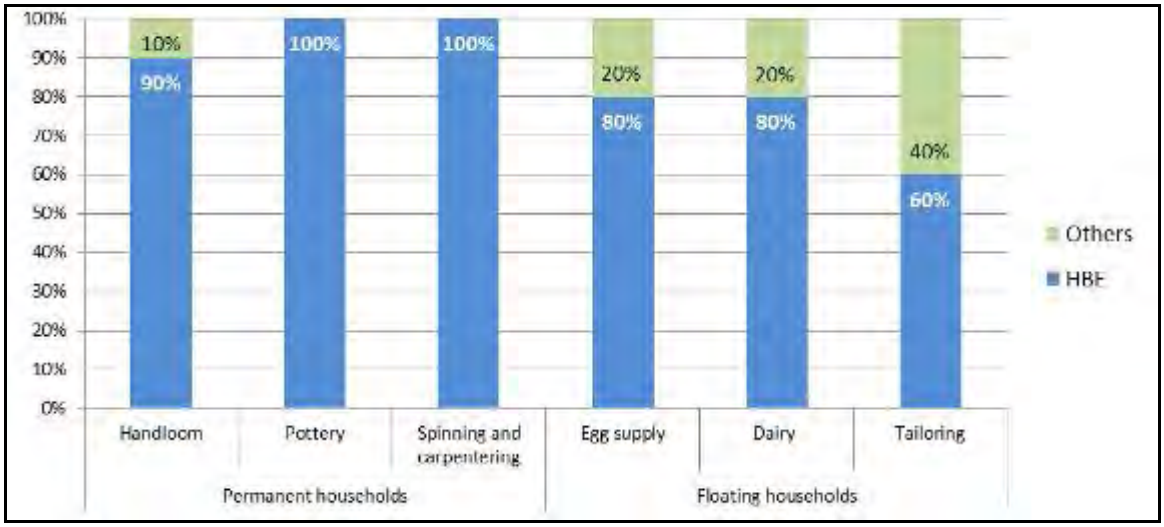


Figure 6.25: Dependency level of the households on the HBE in permanent and floating households.

The socio-economic benefits of the HBE over the selected households are found by the field survey as the following categories:

- *Subsistence:* Some of the selected cases are doing HBE for their survival. Pottery and Spinning and Carpentering are such cases of the permanent households and Dairy, Tailoring and Basket making are the cases of the floating households. They are mainly hardcore poor and need to earn to survive with the basic needs.
- *Education:* Some cases are found who are managing their children's education expenditure by the HBE. Goldsmith, Power loom and Sweet making are such cases from the permanent households and Drum repairing, Egg supply, Sanitary equipment making, Dairy and Tailoring are the cases from the floating households. Though some of the cases are not so solvent financially they have a strong desire to get their child education.
- *Savings:* There are HBE cases found, that have sufficient financial support to save money. Goldsmith, Handloom, Power loom and Sweet making are this sort of households in the permanent households. Egg supply is such case in the floating households. They create savings for future. The case of Dairy also creates savings to buy new cow.
- *Housing development:* The expenditure of settlement and housing is a major consideration for the people of floating households. By the HBE they have to manage this expenditure. On the other hand it is found in some cases of permanent households that, they develop their houses more. Goldsmith, Power loom and Sweet making are this type of cases.
- *Enterprise development:* Some households developed their enterprise by the HBE. And it is an ongoing process. For example the HBE of Handloom expanded his enterprise with more machines to increase the production. The HBE of Dairy has a planning to buy more cows and enlarge his HBE.
- *Socialization:* Most of the cases of permanent households developed their social status with their HBE by developing their physical and financial condition. In some cases like Handloom and Power loom the owners have to maintain wide social network that upraised their social status.

An interpretation among the selected cases for this research can be drawn to understand the socio-economic benefits of them. Asset Pentagon is a graphical representation of the cumulative action of five capitals in a given HBE. The area covered by the shaded pentagon represents the relative performance of the respective HBE. Besides, the more irregular shaped pentagon makes the sense of the imbalanced relationship among the resources.

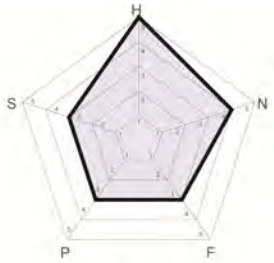
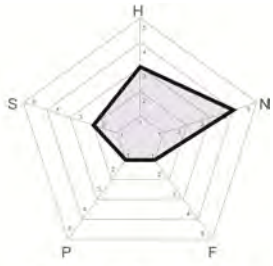
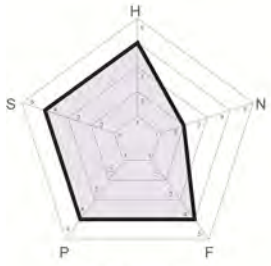
	Higher shade	Middle shade	Lower shade
Permanent households	 Hand loom	 Pottery	 Spinning and carpentering
Floating households	 Egg Supply	 Dairy	 Tailoring

Table 6.9: Comparison among the asset pentagons of the selected HBE cases.

Handloom and Egg Supply have the *higher shaded* area of the pentagon which denotes the having of maximum livelihood capitals. The difference that is shown in Handloom and the Egg supply are in the natural capital. This is because of the threat from the river erosion during the monsoon flood. The Natural capital is the reason of having an irregular shaped pentagon representing the imbalanced situation among all capitals of the Egg supply.

Pottery and Dairy are holding the *middle shaded* position of their own contexts. But the shaded area of the pentagon shows a big difference between these two cases. Pottery consists of a higher human capital by its experienced and skilled manpower where the Dairy has a moderate human capital like its social and financial capital. The natural and physical capital of Dairy is low because of its poor physical facilities and the threat of the river erosion.

Spinning and carpentering are the cases having the *lower shaded* area i.e. livelihood resources, in the context of permanent households and the Tailoring is such case in the context of floating households. The deformed shape of the Spinning and carpentering shows the very poor condition of the physical and financial condition of the households. The social capital also has a poor value where the natural capital represents a good and the human capital represents a moderate value of the livelihood resources. On the other hand, Tailoring has a pentagon that represents a balanced situation comparatively.

Among the selected cases of the permanent households Handloom has the maximum shaded and proper shaped pentagon which means it has a well balanced between all the capitals. Having high human capital Pottery has a low value for the physical, financial and social capitals. Spinning and

carpentering has the lowest shaded area that denotes the poor socio-economic condition of this household. In the context of floating households the Egg supply has the maximum livelihood resource that is represented by the shaded pentagon. The Diary and the Tailoring have the same values in all capitals other than the financial capital. Dairy has a higher financial capital than the Tailoring.

Conclusion

HBEs have been playing a vital role for developing the socio-economic benefits to the households. Households' livelihood resources (e.g. human, natural, physical, financial and social capital) are engaged and affected widely by the HBEs, and on the other hand, the HBEs are also affected by them. The socio-economic benefits of the HBE for all the cases are not same. Some households are practicing HBE only for their subsistence, and some are involved for their household development. Such developments are found frequently in the context of permanent households. In most of the cases of the floating households, HBEs are used to meet the basic needs including their subsistence. In all the cases both in permanent and the floating households a major number (in some cases all) of family members are engaged with the HBE. In most of the cases, family members consider their works for HBE is a part of the household works. Thus HBE is an integral aspect of their life and their household.

Chapter- 7

THE ROLE OF HBEs ON THE HOUSING TRANSFORMATION

Factors that generally affect the rural housing (discussed in Chapter 3) of Bangladesh usually change after the introduction of HBE in a given homestead. When HBE is practiced within the rural house forms, the nature of housing transformation receives some extended dimension. These transformations are discussed in this chapter along with the spatial allocation of HBEs for the selected cases. The different types of effects that are found by the field survey on the study cases are explained here with respect to their types. A comparative analysis of housing transformation of permanent and floating households is also drawn in this chapter.

7.1. Spatial Settings for Different HBEs and their Accommodation within the Homestead

Different types of space allocations are found within the homestead for carrying out the selected HBEs. The spatial settings for accommodating the functions of the HBEs take the form of either open space or indoor spaces within a house, often a separate structure. This section discusses the spatial setting of the selected HBE cases observed during the survey.

Spatial Settings for the HBE Case of Handloom

In the HBE of Handloom of the permanent household, two types of transformations are observed in accommodating the HBE. First one is the addition of a new house-form and the second one is the modified use of the existing open spaces and house-forms.

A new building was constructed for the main factory building in the outer court-yard which was called the ‘formal zone’ (Figure 7.2). This is used by the paid labours. In typical rural housing pattern this outer space is always remain open for the processing of cultivation. As this household has no direct involvement with cultivation process and their main household income is HBE, they convert this open space into the main factory building. One house-form on the south of the central courtyard (*uthan)* was also constructed for the preparation of yarn for the loom. Inside the

central courtyard a shed was introduced for another preparation works for the yarn where the female workers work with the family members (Figure 7.4).

Figure 7.1: Organizations of the homestead with the HBE of Handloom before and after the transformation.

As the modified use of the old house-form the outer house (*Baithak Ghar)* is used as the storage of finish products and the office of the factory as well. Using as the office is a similar use of the original use of a *baithak ghar***.** Keeping storage beside the office is convenient to deliver them to the buyers. This is why the storage is there. The rice husking shed or the *Dheki ghar* situated at the North of the *uthan* is converted into the storage of the raw materials for the HBE. This is probably because of the detachment of this household from the cultivation.

The central courtyard (*uthan)* which is the heart of the family zone is considered as the inner house and generally used by the female members in rural homestead. But a different scenario is observed in this homestead. Almost the whole *uthan* is used for different phases of works for the enterprise (Figure 7.3). Dyeing, spinning and rolling are the major jobs for which the court yard is engaged. These are the preparation stage of the production. The main female workforce work in the inner zone who are lead by the female members of the family. But there is no line of privacy drawn to be maintained. Male workers frequently enter the inner house for collecting the raw materials for the loom or for the toilet facility which is situated in the inner part of the house. Thus the concept of privacy which is also a major part of religious practice in a Muslim family (discussed earlier in Section 3.3.3) is very week in the HBE of Handloom.

In this HBE case, by establishing a new house for the factory the outer courtyard is being occupied into a house form and the inner courtyard is being changed by its use and nature simultaneously. Functional requirements are getting preference over the traditional layout of the rural homestead.

Figure 7.2: The factory building occupied the external courtyard.

Figure 7.3: The inner courtyard is used for the preparation of raw materials.

Figure 7.4: Female workers are working in the inner courtyard.

Spatial Settings for the HBE Case of Pottery

As an enterprise from the earlier generations the permanent homestead of the HBE of **Pottery** is more organized to satisfy its functional requirements. The outer courtyard and the veranda of the '*baithak ghar*' is the main work place for the HBE. As it is an old enterprise, the total homestead is organized to serve the HBE since its age.

The open space of outer courtyard is used for the following purposes:

- storage and preliminary preparation of the clay as a raw materials
- to dry the raw pots after their making and before burn

Figure 7.5: Organizations of the homestead with the HBE of Pottery.

All the activities regarding the HBE are being arranged along with the outer courtyard (Figure 7.6). The *baithak ghar* is the transitional space in between the HBE zone and the family zone. Here the formal zone is used as the area dedicated for HBE. The *baithak ghar* itself is used as storage during the rain or bad weather. Sometimes it also used for some finishing touch over the products which are mainly done by female family members (Figure 7.7). Here one thing is found that females are also directly participating the HBE.

Because of the overhead shed, the veranda of the *baithak ghar* is used as the pottery making place. The veranda is a little bit extended to satisfy its function. Two major jobs that are doing here are final preparation of the clay and making of pots from the clay (Figure 7.9). As a Hindu household there is a puja mondop in the outer house beside the courtyard. In the outer courtyard a high temperature burner called *khola* is established which is not only dedicated for this household but also shared by the neighbor (Figure 7.8).

As family members are the only workforce of this HBE there is no distinct demarcation of privacy here. Pottery is such an HBE that requires more open spaces. Sometimes the spaces beside approach paths are also used as the drying zone for the pots (Figure 7.10). The tendency of spatial extension is towards the outside of the homestead not inside which is found in the previously discussed HBE (i.e. the Handloom).


Figure 7.6: The external courtyard is used for the preparation of clay and drying the pot before burn.


(a)

(b)

Figure 7.7 (a): Females are participating the HBE in the *baithak ghar* (b) which is mainly used as storage for the HBE.


(a)

(b)

Figure 7.8: (a) The *Puja mondop and* (b) *khola* at the outer courtyard.

Figure 7.9: The veranda of the *baithak ghar* is used as the pottery making place.

Figure 7.10: Spaces beside the approach path are also used for the HBE.

Spatial Settings for the HBE Case of Spinning and carpeting

In the HBE of Spinning and carpeting it was discussed in the previous chapter that it is very poor in the financial consideration. This permanent homestead has only one room for the living of its members. When only the carpentering was done the small courtyard was the only working place. After selling out the main house that was made by CI sheets the room used for kitchen and store made by thatch was transferred to the place of main house for living. And the place for store and kitchen remains vacant. This vacant place is now used as the working place for spinning. Thus the small courtyard and the vacant place that was previously the kitchen and store is the working space for the dual HBE (Figure 7.12).

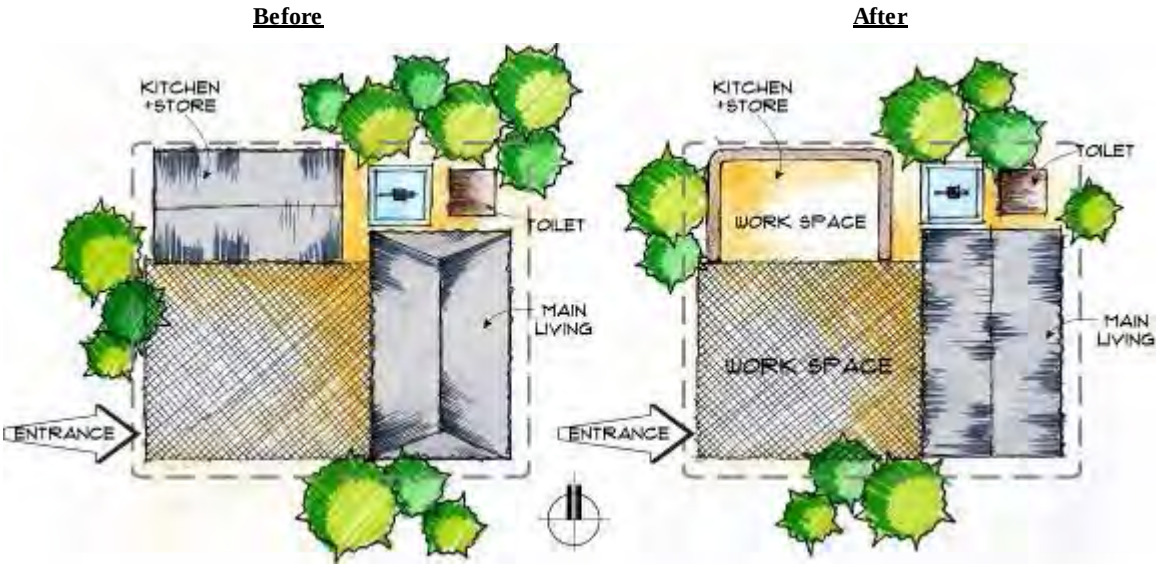


Figure 7.11: Organizations of the homestead with the HBE of Spinning and carpentering before and after the transformation.

When living becomes the sole consideration in this homestead, there are no environmental, social or religious factors that received importance. In this homestead the only consideration is the survival of this little family.

Figure 7.12: Total work spaces for the HBE of Spinning and carpentering with single room for living.

Spatial Settings for the HBE Case of Dairy

Dairy is an HBE of the floating dwellers. This homestead was transferred in the year 2004 from an old traditional village which was severely damaged by river erosion. At present the homestead is at a new settlement among new neighbors which is a new experience for the rural people. The total homestead is arranged within a small piece of land. Scarcity of land plays a vital role over the layout of the homestead.

Figure 7.13: Organizations of the homestead with the HBE of Dairy.

In the HBE of dairy it is found that there is only one room for the living of the family members and another room is used as the kitchen and the store house. A granary is also found inside this room. This household has an involvement with cultivation of crops; a common scenario of a floating household. After the migration of a homestead the lands that they owned goes into the river and after 4 to 5 years some of the lands are raised as *chor*. New *chor* is not suitable for human living but gradually become suitable for grazing and cultivation. Sometimes the original owners cultivate their own land but in maximum cases the cultivation is done in the system of *borga* (share-cropping). Whatever the condition is at the end of the season the landowner receive some crops. This is why granary and a courtyard is a necessary feature of the floating homesteads. Due to the scarcity of land this courtyard is usually very small in size. This is the only courtyard of a homestead. There is no formal or outer courtyard (*uthan*) of these homesteads.

In the HBE of Dairy the central courtyard is not surrounded with huts from all sides. One side is blocked by the neighbour's house. Other three sides are surrounded by huts of this homestead. There are two sheds for the cows which is the main consideration for the HBE. One is a shed made of thatch and another is mainly an open space covered by a vegetable shed (*jangla*) which is used only during day time (Figure 7.15). According to the discussion of Chapter 3 (Section 3.2)

the cattle-shed is a part of the outer house beside the outer courtyard. The integration of the cattle-shed with the total homestead is due to the following two reasons:

- First, scarcity of land makes the spatial organization very compact that leads to an absent of any outer courtyard.
- Second, family members want to keep the cattle inside the house because of their security from thieves.

The central courtyard is simultaneously used for processing the food grains and carrying out the HBE activities. Beside the daily household activities, processing of food for the cattle is one of the major functions for what the courtyard is used for. Thus almost the whole homestead is very compact in nature both in the spatial arrangement and functional distribution.

Figure 7.14: Section through the homestead with the HBE of Dairy.

(a) (b)

Figure 7.15: (a) The small courtyard is using to dry crops and (b) open space for cattle under a vegetable shed.

Spatial Settings for the HBE Case of Tailoring

Like Dairy, the HBE of Tailoring also has the scarcity of land but this household has an involvement with the cultivation. This is why a granary is present beside the small internal courtyard which is separated from the kitchen (Figure 7.18). An additional house form of a size of

12 feet by 15 feet on the outer side (road side) of the homestead was built for the HBE. This structure is called the tailoring house. The tailoring house has operable shutter on its front side (road side). When the shutters are opened it acts as semi-shaded open space suitable for the customers sitting (Figure 7.20).

Figure 7.16: Organizations of the homestead with the HBE of Tailoring.

In this homestead, the tailoring house acts as the formal zone and the rest of the homestead is the family zone. There is a door in between the main room for living and the tailoring house. It maintains a frequent connection with the family zone. The addition of a built form as tailoring house is not a common practice in rural housing (Figure 7.19). This sort of transformation is done due to the compactness of land and functional requirements.

Figure 7.17: Section through the homestead with the HBE of Tailoring.

Figure 7.18: Sufficient space for the storage of crops is needed for the HBE of Tailoring.

Figure 7.19: Additional built form for the HBE.

(a)

(b)

Figure 7.20 (a) and (b): Operable shutter of the tailoring house acts as semi shaded sitting for the customers.

Spatial Settings for the HBE Case of Egg supply

The HBE of Egg supply is in a floating household like the previous cases but different in the larger size of the homestead. The availability of space plays a significant role over the functional and spatial organization. The huts are making cluster by surrounding with the internal courtyard. Though it is a joint household the huts are belongs to individual brothers of the family.

The only transformation that found for this HBE is the linear house form against the roadside houses. A 2 meter wide and 15 meter long house form was built for the center of the HBE. The business is operated from here. This long room is used to store eggs and operate the total business. Location for this form is the location of veranda in a typical rural homestead. But here this space is converted into a compact room for the HBE (Figure 7.25). The linear shaped room creates a barrier from the rood and the main dwellings. The entry passage into the central court is through this linear room and in between the two houses for living. There is no *baithak ghar* or outer houses for this homestead. The room for HBE is being treated for outer people.

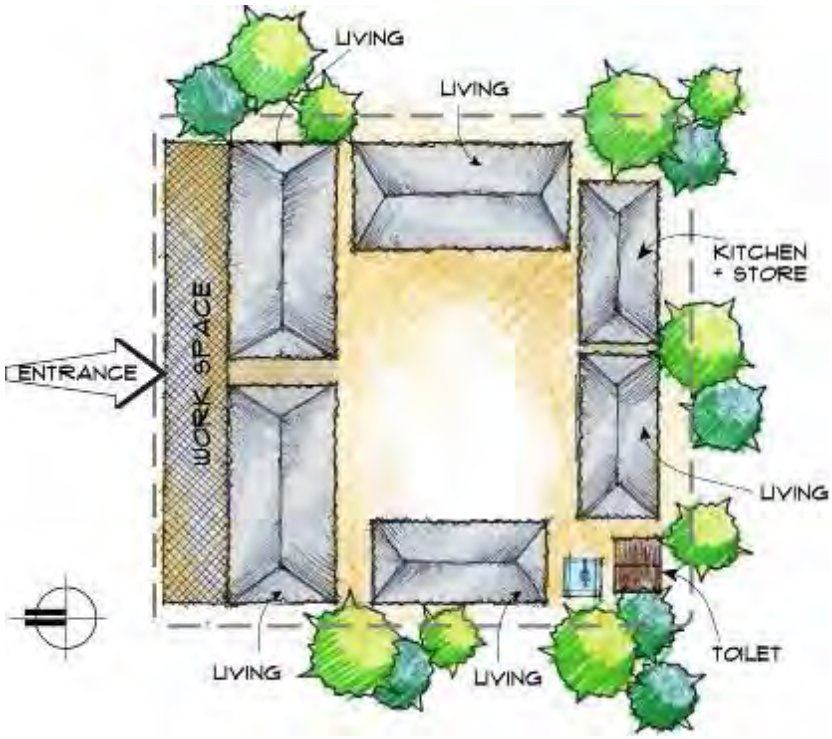


Figure 7.21: Organizations of the homestead with the HBE of Egg supply.

Here the HBE is not so much integrated with the total household. What we have seen in the previous cases is that the activities of the enterprise generally spreads all over the dwelling while and specially the courtyard (*uthan)* gains significance in the diversity of use. But in this HBE the courtyard is used for the household activities only. It is not used for any activities required for the HBE. This HBE has a separate identity from the others household activities and in the spatial distribution which is very compact in nature.

Figure 7.22: Section showing the additional built-form that required for the HBE of Egg supply.

Figure 7.23: Houses are surrounded with the central courtyard.

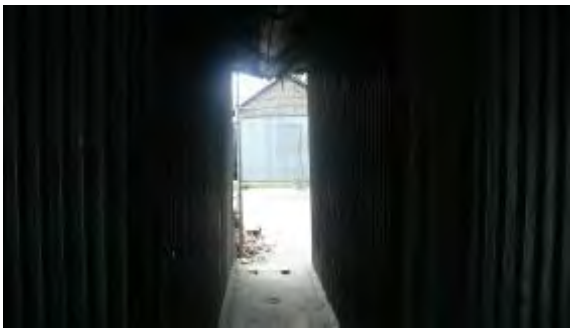


Figure 7.24: The entry passage in between the houses.

(a)

(b)

Figure 7.25 (a): External and (b) internal view of the linear house form for the HBE.

7.2. The Nature and Extent of HBE Induced Housing Transformation

Based on our preceding discussion of the representative HBE cases, this section will now explain the discrete types of housing transformation. A given homestead may include one or more of these types of transformation. By now we have known that the type of transformation of a HBE induced homestead is not always same. Transformation varies in its type, nature and extent. In this section these types of transformation are discussed. The transformations of houses are categorized into the following types:

a) Built separate house form for the HBE
b) Converted existing house form
c) Use of open space of internal courtyard
d) Use of open space of outer courtyard
e) Mixed of the above types

They are discussed in the followings.

7.2.1. Built Separate House Form for the HBE

The practice of HBE requires building a new house form and is found in the following cases of permanent and floating households.

- Handloom
- Power loom
- Sweet making
- Egg supply
- Dairy
- Tailoring

Among them, handloom, power loom and sweet making are the HBEs from permanent homesteads and the egg supply, dairy and tailoring from the floating homesteads. In the cases of permanent homesteads the house forms that are required is constructed with adjacent to the existing dwelling units. Most of the cases the suitable location for the new house form is the outer courtyard which was used for the cultivation earlier. In most of the cases the households were go far from the direct cultivation process. This is why the formal courtyard was converted into house forms required for the HBE. In the HBE of sweet making it is an almost separate identity of the business zone which is well equipped with necessary infrastructural facilities (e.g. toilet, tube-well, electricity etc.). But it is adjacent to the dwelling unit. In the HBE of power loom on the other hand, the outer courtyard is converted into a factory building and an internal courtyard for the business zone. But the overall working zone is spread out and blended with the dwelling like the HBE of handloom (discussed in the Section 7.1.1). New semi-shaded house forms also developed into internal courtyard in this case.

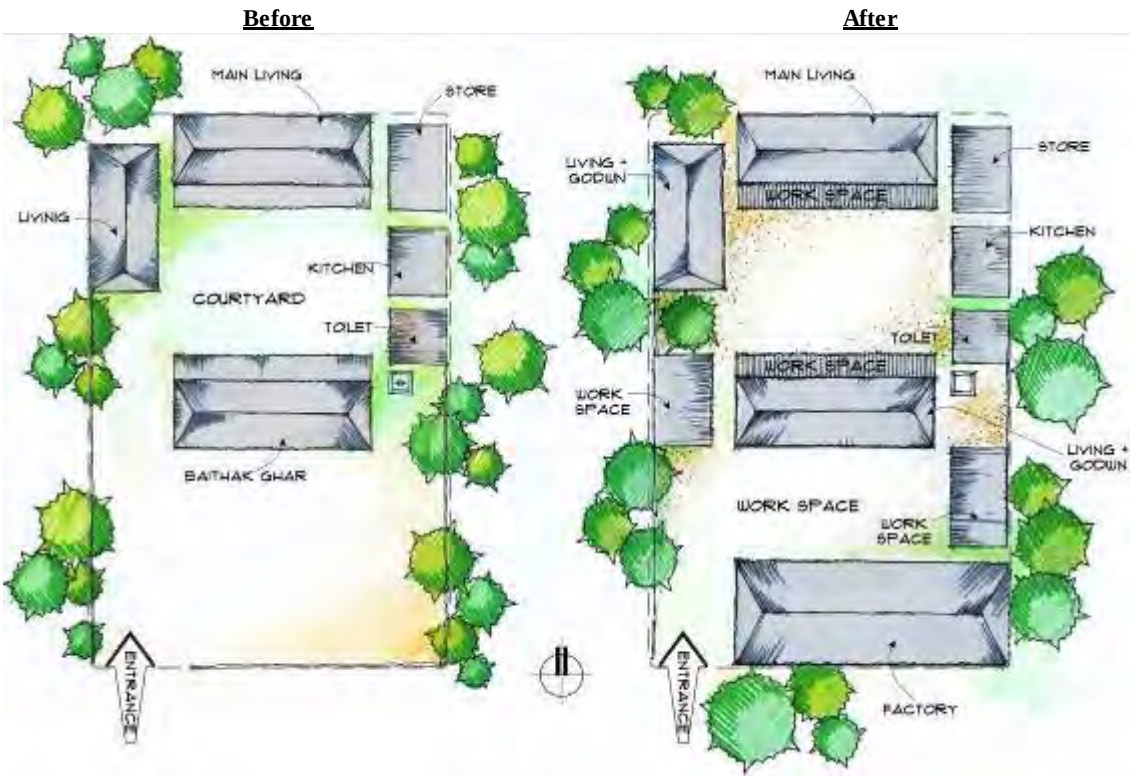


Figure 7.26: Organizations of the homestead with the HBE of Power loom before and after the transformation.

In the cases of floating homesteads limitation of land is one of the major features. In maximum cases of the floating homestead the enterprises also shifted along with the homestead. The required house form is not a new one to the households. But due to scarcity of land they always face a very tight situation to adjust the house form which is required for the business. In the cases of tailoring and egg supply we found such tight situation to adjust the required house form along with the dwelling (discussed in Section 7.1.5 and 7.1.6). But in the HBE of dairy (discussed in Section 7.1.4) the required house forms are not along with the dwelling, they are inside the dwelling organization. This is because it does not need an outer face for the house form for the HBE.

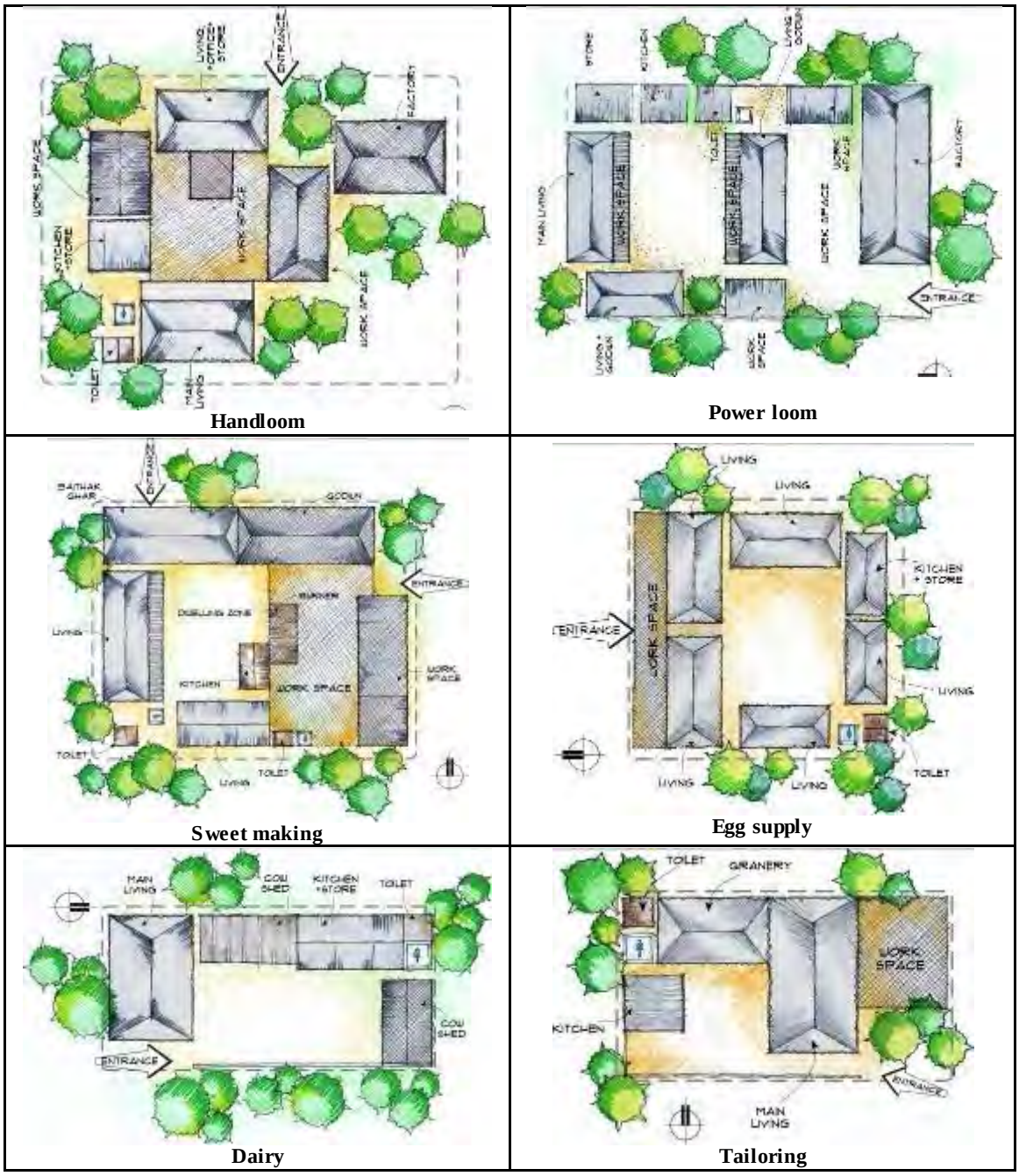


Figure 7.27: Organizations of the homestead with the HBEs that built a separate house form.

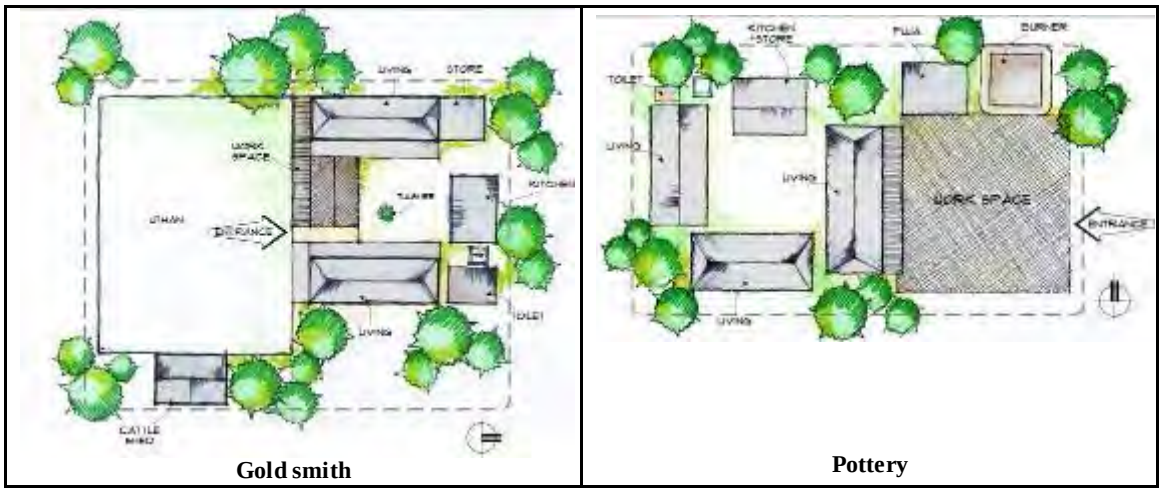
From the above figure it is found that the HBE of handloom and power loom need separate house form as the factory building. Sweet making has a cluster of houses for the HBE which is separated from the original homestead. Egg supply has a linear shaped form attached with the house for the storage, dairy has a cow shed inside the homestead and tailoring has an additional house form adjacent to the original homestead which is used as the tailor house.

7.2.2. Conversion of Existing House Form

In some cases existing house forms of the dwellings are converted into their use for the HBE. This is found in the cases of the followings

- Handloom
- Power loom
- Gold smith
- Pottery

In the HBE of handloom and power loom the existing *baithak ghar* is converted into the storage of final product and office also. The verandahs also converted in terms of their use. In the HBE of goldsmith the *baithak ghar* and the adjacent verandah is being converted into the main working place for the enterprise. Without any transformation in the overall homestead except this *baithak ghar* the business is being operated. In the case of pottery the verandah is converted very earlier into the working place as it is a very ancient HBE. It is also possible that the homestead with the verandah as a working place was built regarding its consideration at once.



Gold smith **Pottery**

Figure 7.28: Organizations of the homestead with the HBEs that converted existing house form.

The conversion of house forms by their uses is found in the cases of permanent homesteads. This is because of the age of the settlements. Settlements of this type of homesteads are generally very old and well established. When HBE was introduced into these homesteads the simple conversions are done. But in the floating homesteads the age of the settlement in the present

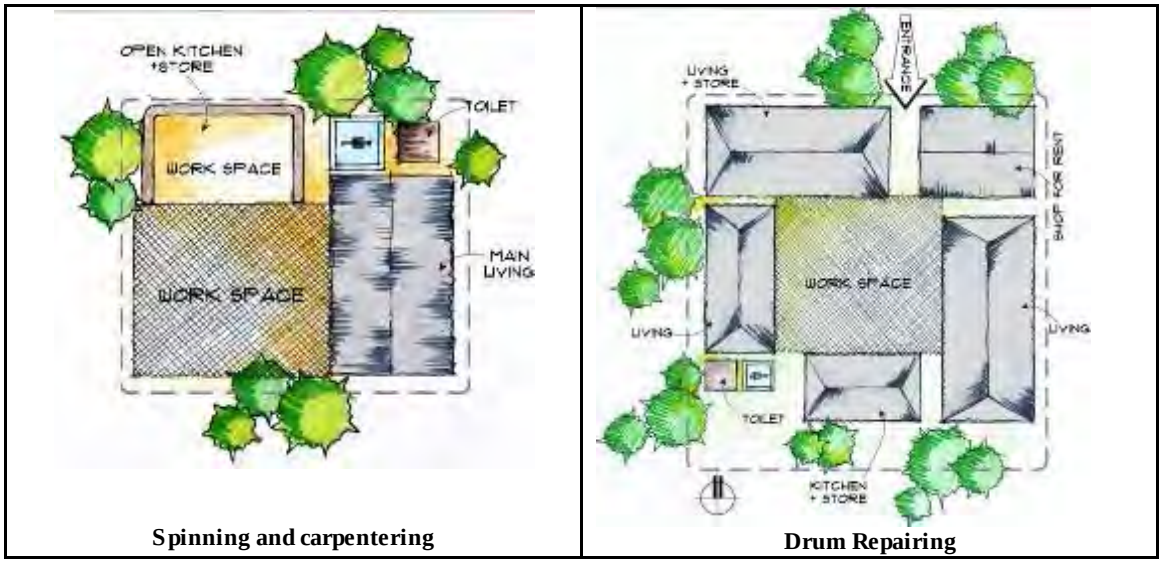
location is comparatively newer (not more than 8 years- found in this study) than the age of their HBE. By the interview it is informed that when the floating homesteads were resettled in the present location they are established along with the HBE in most of the cases. This is why conversion of existing space by their use is rarely found in these cases.

7.2.3. Use of Open Space of Internal Courtyard

Open spaces of the internal courtyard of the dwellings are used for the HBE in some cases. This is found in the following cases

- Handloom
- Power loom
- Spinning and carpentering
- Drum repairing

In the HBEs of power loom and handloom only new house forms are not satisfy the necessity of the functional requirements. The working zone is not being kept separate from the dwelling; it is mixed with the working zone. Even the basic facilities of tube-well and toilets are being shared with the family use. In such situation the reflection of the concept of privacy, gender and religious belief also converted into some new formation. Where workers for the business are easily acceptable to enter into the private zone of the dwelling and the family members have a random access to the business zone.



Spinning and carpentering | **Drum Repairing**

Figure 7.29: Organizations of the homestead that use the internal courtyard for HBEs.

In the HBE of spinning and carpentering of the permanent homestead and the drum repairing of the floating homestead there is no external manpower worked for the HBEs. Only family members are involved with the HBEs. So why without changing the concept of privacy the internal courtyard is used as the working place for the HBE. In these cases the only working place

for HBE is this internal courtyard. No other spaces or house forms are engaged for the HBE what we found in handloom and power loom.

7.2.4. Use of Open Space of External Courtyard

Open spaces of the outer courtyard of the dwellings are used for the HBE in some cases. This is found in the following cases

- Pottery
- Sanitary equipment making
- Basket making

The outer courtyard which is called the formal zone and is generally used as the space for cultivation in the rural homestead sometimes converted into space for the HBE. In the HBE of pottery, sanitary equipment making and basket making the main and the only working place for the enterprise is the outer courtyard (*uthan*). As an ancient HBE pottery is dependent on the outer courtyard to do its activities. From the earlier era the outer courtyard of the potter's house is being used as not for the cultivation purpose. They are used for the several stages of the process of this crafting.

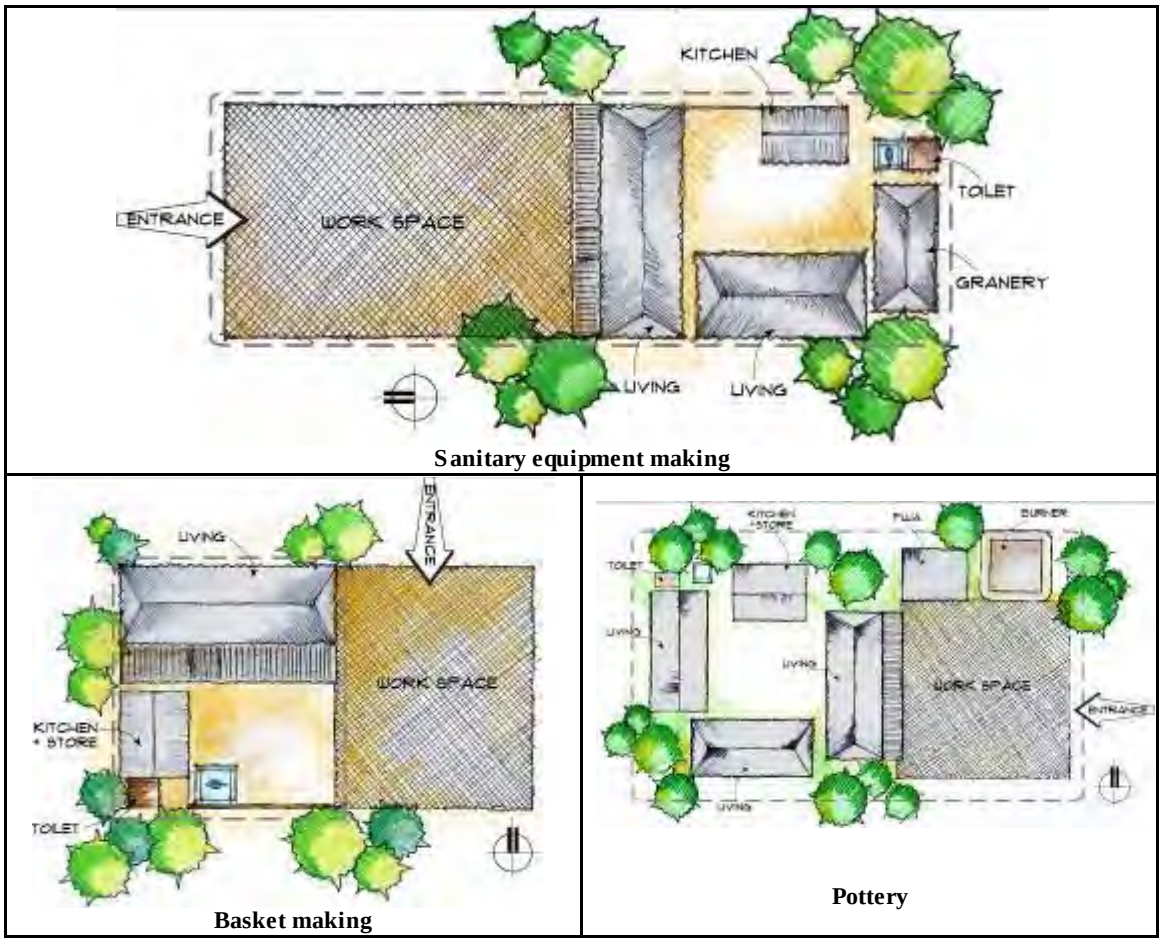


Figure 7.30: Organizations of the homestead that use the external courtyard for HBEs.

A different situation is found in the case of sanitary equipment making. Generally the scarcity of land is a common feature for the floating homestead but in this HBE a large outer courtyard is required to satisfy the business. To prepare the equipments with CC (cement concrete) and sometimes RCC (reinforced cement concrete) it needs a good volume of space. When the homestead was migrated to its present location it was a must to take land with such volume to accommodate the dwelling along with the enterprise. In the floating homestead most of the lands are not bought, they took lease from the original owner. Though it is expensive this homestead occupies a spacious outer courtyard to satisfy the functions of the HBE.

In the HBE of basket making, the adjacent space which is considered as the outer courtyard is not owed by the owner of the homestead. It is a *khaas* (government property) land used for the HBE purpose. For basket making long bamboo is processed as raw materials that need some open space.

It is found that only male members are working in the outer open courtyard. In pottery and basket making only family members work for the HBE and in the sanitary equipment making external workers also involved with the HBE. But it is found that the external workers are also male. In a traditional rural homestead the outer courtyard is called the formal zone where the main users are male people (Chapter 3). In this type of transformations the use of the courtyard is changed but the gender group of the user is remaining same.

7.2.5. Mixed of the Above Types

In some cases the transformations are done through multiple types of above mentioned. The following HBEs are such cases.

- Handloom
- Power loom

Both in handloom and power loom the transformations are done through the development of new house forms and conversion of existing house forms and courtyard by their use. Their conversion is done both is use and new construction. The level of transformation in these two cases are seems huge. The changes of functional use of existing house forms and spaces and the construction of new house forms for the HBE give these homesteads an additional dimension with their traditional look. This type of multi-level transformation creates a wide impact over the total housing transformations and traditional dwelling conception. Such as privacy, dwelling layout, housing pattern etc.

7.2.6. Comparative Housing Features of the HBE induced Homestead

Our earlier discussions about the traditional rural homestead (Chapter 3) and the analysis of the housing features of the permanent and floating households (Section 5.2) find out some features of housing and house form. How these features act with the HBE induced homesteads will be discussed in this section.

Features	Normal homestead of the survey area	HBE induced homestead
Organization of houses	Houses are organized in traditional cluster in the most of the permanent households and linear in some floating households. Courtyard is the central feature to organize the housed.	Individual houses are organized to adjust the HBE within them. In some cases additional courtyard and house forms are created to satisfy the HBE. For example, the HBEs of power loom and sweet making have such additional courtyard and house forms for the functional requirements of HBEs.
Construction materials	CI sheet wall and roof. Partial use of thatch. Brick wall also used in some cases.	CI sheet wall and roof. Partial use of thatch and others temporary materials. For example, the HBE of dairy has the shed for cows made by temporary materials.
Sanitation system	One homestead has one latrine. In some cases of permanent homestead two tube-wells are found among them one is dedicated for female toilet. Otherwise most of the cases have one tube-well and one latrine for each homestead.	In some HBE cases, it is found that two latrines and two tube-wells are established separately. One is for the household use and another is for the paid labours' use. For example, the HBE cases of handloom, power loom and sweet making have separate latrines and tube-wells for the paid labours' use.
Formal zone	*Baithak ghar* and the outer courtyard are considered as the formal zone. Most of the cases of permanent homesteads have this distinguished zone. On the other hand though the outer courtyard is absent in the floating homesteads, there is a tendency to create this zone. The use of outer courtyard is the processing of seasonal crops.	The use of *baithak ghar* is transformed into the functions of the HBE. Outer courtyard also converted by their use. In some cases new house forms are established for HBE on the outer courtyard replacing the crops processing works. For example, the cases of handloom and power loom constructed new house form on the courtyard. Pottery and sanitary equipment making are using the courtyard for HBE purpose. *Baithak ghar* of these cases are used for the HBE also. This is the main working place for the goldsmith.

Family zone	Internal courtyard, kitchen, storage, granary, *dheki ghar* etc. are the main part of the family zone. Females are the main user of this zone. This is the private zone of a rural homestead. In most of the cases of floating homestead merge the use of internal and external courtyard due to having a single internal court.	In some cases, family zone is used for the production and pre-production works of the HBE. This is the most active place to operate the HBEs. Temporary sheds are also constructed for the HBE purpose. For example, the HBE of dairy and handloom built a temporary shed for their HBEs. The cases of handloom, power loom, spinning and drum repairing are used the internal courtyard for the HBE.
Environmental consideration	In most of the cases of the permanent homesteads environmental factors are major consideration to the housing. South remains open for comfortable air circulation. But in the floating homesteads this is not well maintained due to the scarcity of land.	For the demand of the HBE environmental factors are not the prime consideration in some cases. For example, handloom and power loom has house form in the previous outer courtyard which are on south of the homestead.
Religious consideration	Privacy and females separation from the formal zone is found. In the Muslim family females are active for household works in the family zone and not desirable to mix out comer.	In most of the cases family members also actively participated for the HBE. In the case of handloom and power loom there is no line of privacy. Female family members work for their HBE.

Table 7.1: Comparative housing features of the HBE induced homesteads.

7.2.7. Comparative Observation of Housing Transformation in Permanent and Floating Households

The housing transformations due to the HBE are not same in the cases of permanent and floating households. The comparative observations of housing transformation of these two contexts are discussed here.

Space allocation: In the permanent households, most of the HBEs are introduced after the establishments of the homestead. In those cases, the households are carrying from the parentage. So, the allocation of space required for the HBE is done within the existing layout of the homestead. On the other hand, in most of the cases of floating households, the homesteads are migrated along with the HBE. So, people have the preconceived idea about the allocation of the space required for the HBE within the organization of the total homestead.

Land area: In permanent homestead the basic layout of a rural homestead is present though it is transformed due to the HBE. On the other hand, in floating homestead the organization of house forms do not follows the basic housing pattern due to the scarcity of land area. In maximum cases they are congested and have a tendency to fit them within a very small piece of land.

Conversion of existing space: Conversion is a common practice in the permanent homesteads. Both space and house forms are being converted into new function and new house forms required for the HBE in the cases of permanent homesteads. In floating homesteads conversion is not practiced generally. Space or house form that is required for the HBE is accommodated during the settlement of the homestead.

Large house forms: In some cases of the permanent households (e.g. handloom, power loom and sweet making) large house form is required for the HBEs. Though the settlement is permanent it is easy to accommodate them within the homesteads. The house forms that are required for the HBEs of the floating households (e.g. dairy, egg supply and tailoring) are relatively temporary and light construction as there is always a possibilities of shifting along with the homestead.

Age of HBE: In some cases HBEs that are continuing from the earlier generation (e.g. goldsmith, pottery and sweet making) are found in the cases of permanent homestead that represents the establishment of the household. The old cases of HBEs of the floating households are not so aged like the HBEs of permanent homesteads.

Conclusion

The nature and extend of the housing with home-based enterprises are not same as the traditional rural housing. HBEs play significant roles over the nature and extent of the housing transformation. When HBE is induced within a household, it affects the homestead and gradually establishes its importance over the others traditional housing factors. When HBE is practiced the functional requirements are getting preference over the traditional layout of the rural homestead. Even they modify some of the basic features and zonings of the traditional rural homesteads. In such situation the reflection of the concept of privacy, gender and religious belief also converted into some new formation.

Chapter- 8

CONCLUSION

Existing literature informs us the productive linkage income has with housing in developing countries. How dowelling space has been used for income generation through Home-based Enterprises for influencing housing transformation in the rural setting of Bangladesh has been the topic of this research.

The question this research asked is what economic activities take place, and how do people negotiate them to contribute to their housing production and consumption. Three specific research objectives have been set to address this research question. They are: to understand the changing patterns of rural house form as a result of economic activities within the homestead of Sirajganj district in Bangladesh; second, to investigate the socio-economic benefits of HBEs within the homestead in the rural area and third, to identify the nature and extent of housing transformation due to HBEs in the rural context. A qualitative approach involving interview and observation has employed in addressing the research objectives. The major findings are summarized below to draw conclusion to this research.

The first transformation of the housing pattern of the survey area is caused by river erosion. Through this households are transferred into 'floating' from their 'permanent' status. Land area and its configuration play the main role over the resettlement. The second change within these permanent and floating households is caused by the practice of HBEs. Through these levels of transformation, the housing pattern and their features are changed along with some local factors (e.g. construction materials, environmental considerations etc.). The housing features and the construction materials are varied with the permanent and floating homesteads. This changing pattern is a continuous process that is rolling on the age of the settlement and the HBE. In some cases, for the requirement of their functional and physical layout, the HBEs are act as the depiction of the homesteads which is visualized by the very first observation.

HBEs have been playing a vital role for developing the socio-economic benefits to the households. Households' livelihood resources (e.g. human, natural, physical, financial and social capital) are engaged and affected widely by the HBEs, and on the other hand, the HBEs are also

affected by them. The socio-economic benefits of the HBE for all the cases are not same. Some households are practicing HBE only for their subsistence, and some are involved for their household development. Such developments are found frequently in the context of permanent households. In most of the cases of the floating households, HBEs are used to meet the basic needs including their subsistence. In all the cases both in permanent and the floating households a major number (in some cases all) of family members are engaged with the HBE. In most of the cases, family members consider their works for HBE is a part of the household works. Thus HBE is an integral aspect of their life and their household.

Housing with home-based enterprises is not same as the traditional rural housing. HBEs play significant roles over the nature and extent of the housing transformation. When HBE is induced within a household, it affects the homestead and gradually establishes its importance over the other traditional housing factors. When HBE is practiced the functional requirements are getting preference over the traditional layout of the rural homestead. Even they modify some of the basic features and zonings of the traditional rural homesteads. In such situation the reflection of the concept of privacy, gender and religious belief also converted into some new formation.

Bangladesh is widely grabbed by poverty like many other developing countries of the world. It is poverty that controls the lifestyle of its people. As a country full of rural settlement, this scenario has largely developed in the villages. Rural people mostly living beyond the poverty line consider the poverty as a part and parcel of their livelihood. Their lives are circulated along the poverty and a tendency to get freedom from this circle is a deep concern to them. As a developing country the government has some limitations to help the rural people to make them free from this hardship. Non-Government Organizations also have some prefixed criteria that all people do not achieve. In this circumstance it might be an active way that people engaged themselves to make their freedom from this chain of poverty. Home-based Enterprises is such a way to create poverty-free livelihood of the rural people.

By this research, it is found that river erosion is another dilemma that influences the livelihood of the rural people. By the river erosion rural settlement obtain a certain degree of transformation. This transformation is not only occurred through the settlement and traditional housing but also a socio-economic transformation also found. Through the river erosion, people lose their agricultural land and faces degradation of their economic status. This affects their dependency on the HBEs. In some extend the resettlement of housing with the HBEs induced household are different from the normal households. River erosion and HBEs both play simultaneous role over the housing transformation process.

As a result of HBEs, the physical transformation of the traditional dwellings has been evident reflecting the occupant's cultural values as well as economic strength and status. When HBE is

practiced within a traditional dwelling the cultural values are widely affected by the financial activities as their economic strength and status has been changed due to such practice. People negotiate their cultural and religious practice with the economic activities. This level of negotiation is varied with the type of HBE that is being practiced within the household.

The chief advantage of HBEs, which tends to overshadow any other, is the contribution they make to the household economy of low-income people, and the opportunity they provide for growth in poor people's incomes. In a time of unprecedented population growth against a background of fiscal austerity and inability to create formal sector jobs, developing countries can benefit from the employment potential of HBEs. As premises are either free, or accounted as such in the business, overheads are kept very low and the householder face a lower marginal capital investment for setting up operation at home than in setting it up elsewhere.

The goal of achieving continuity and sustainability of rural areas call for more involvement in the local area and for an increase of the use of local potential. The integration of entrepreneurs into rural areas has become one of the most important issues of rural development plans. However, the strong and closed social ties which have existed in rural areas for several decades make this integration a difficult task to achieve. Therefore, in the recent literature, the HBE has been discussed with reference to different assumptions and different theories. From this perspective, the aim of this study was to find out what matters most in order to become embedded in the housing transformation of rural settlements.

Initiating rural HBE is a multidimensional strategy that involves education, training, business networks and building strong infrastructures to assist rural entrepreneurs in identifying rural business opportunities and develop new businesses. Strengthening the rural entrepreneurial system will speed up the establishment of self-sustained rural communities, increase sources of income, support development of infrastructure, build capacity, revitalize the rural community, and make a significant impact in alleviating poverty. Therefore, what is needed is further entrepreneurship research in developing countries that help to create policies conducive for rural entrepreneurship development.

The promotion of rural enterprises encourages rural households to rural enterprises diversify their farming system, by introducing new on-farm or off-farm enterprises and increasing their value addition. This approach is used to spread risk, increase resilience and off-set the seasonality of agriculture. This could increase the costs of production, lead to environmental degradation and/ or have a detrimental impact on the gender relations within the rural household. Women's time invested in household activities often detracts from their time invested in enterprise development. Rural HBEs have the potential to generate more income than waged labour but require higher capital investment, higher risk and more intensive labour.

Practicing of the home-based enterprises in rural contexts has a great influence to diversify the housing pattern and the layout of the homesteads. Sometimes HBE derives its own function, forms and use of existing spaces that do not satisfy our general views regarding the rural homestead. In these cases we found leap of the traditional rural homestead architecture to a new function oriented mode of organization. Privacy, gender etc. are the issues that are influenced by this new organization.

Introducing of HBE within a rural household sometimes only make some changes over the existing homestead layout (found in the maximum cases of the permanent households) and sometimes the whole homestead is established along with the HBE (found in the maximum cases of floating households). By any means it is becoming a part of the vernacular type of architecture where it is necessary.

In most developing countries, governments and foreign agencies are involved in development programs in rural areas. By contributing to research in this area, this study attempts to add to the body of knowledge regarding house forms and living patterns in the rural context. This may help in the provision of housing or upgrading of settlements that is more appropriate for those areas. It also provides an insight into socio-economic issues in rural areas, as these are directly linked to the living environment.

The study will serve its purpose if it can be used as a professional tool and a guiding document for future research and/or development programmes, taking into consideration the home-based enterprises.

This field survey was concentrated in a specific location. More regional studies are needed to account for regional differences. Further studies of the same nature will add to the vocabulary of traditional house forms available to professionals engaged in planned interventions in the built environment.

During conducting this research I found some relevant issues that might be the prospective windows for further research. Such as-

- embankment settlement,
- socio-cultural value of the river eroded people,
- housing and resettlement strategies for the migrated people in the traditional villages.

From my point of view more study is required to find out the typology and the construction techniques of such rural homesteads that are integrated with home-based enterprises.

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APPENDIX

Appendix-1

Questionnaire for the Qualitative Survey

Questionnaire for the Qualitative Survey on
The role of Rural Home-Based Enterprises on the housing Transformation in Sirajganj

A. GENERAL INFORMATION

1. Name of the Respondent	Age	Sex (M/ F)	Religion

2. Location

	□ Permanent □ Floating

3. Name of the Household Head:

B. HBE

4. Name of the HBE:

5. Type of HBE
   - □ Producer
   - □ Distributer

6. Age of HBE
   - □ 0 – 5 years
   - □ 6 – 10 years
   - □ 11 – 15 years
   - □ 21 – 25 years
   - □ More than 25 years
   - □ Inherited

7. Ownership Pattern
   - □ Individual
   - □ Partnership
   - □ Association/ Cooperative Based

8. Purpose
   - □ Maintaining Livelihood
   - □ Supplementary Income
   - □ Leisure

9. Work force information

Type	**Total**	**Male**	**Female**	**Importance**	
External manpower				Primary Occupation	
				Supportive Occupation	
Family members				Primary Occupation	
				Supportive Occupation	

10. Space engaged for HBE

	Area (sqm)	**Space sharing**	
Covered		Share with Home	
		Separate space	

Semi covered		Share with Home	
		Separate space	
Open		Share with Home	
		Separate space	
Total			

11. Building materials for covered space for HBE

Floor	□ Earth □ Cement finish □ Wood □ Others_____
Wall	□ C.I. sheet □ Thatch/ leaves □ Bamboo □ Brick □ Others_____
Roof	□ C.I. sheet □ Thatch/ leaves □ R.C.C. □ Others_____

12. Level of satisfaction with the HBE

Job satisfaction	□ Highly satisfied □ Moderately satisfied □ Not satisfied
Income satisfaction	□ Highly satisfied □ Moderately satisfied □ Not satisfied

13. Why do you do the enterprise within the homestead?

…..……..

14. Any future planning about the HBE

…..……..

C. HOUSEHOLD

15. Household size:

16. Type of Household
    - □ Single
    - □ Combined
    - □ Nucleus
    - □ Others

17. Members' information

SL	Name	Age	Sex	Education	Occupation
1				I/ PS/ SSC/ HSC/ BD	
2				I/ PS/ SSC/ HSC/ BD	
3				I/ PS/ SSC/ HSC/ BD	
4				I/ PS/ SSC/ HSC/ BD	
5				I/ PS/ SSC/ HSC/ BD	

6				I/ PS/ SSC/ HSC/ BD	
7				I/ PS/ SSC/ HSC/ BD	
8				I/ PS/ SSC/ HSC/ BD	
9				I/ PS/ SSC/ HSC/ BD	
10				I/ PS/ SSC/ HSC/ BD	

* **I**- illiterate; **PS**- Primary School; **SSC**- Secondary School Certificate; **HSC**- Higher Secondary Certificate; **BD**- Bachelor Degree

18. Income related information

Total Household income	
Income by HBE	

19. External income related information

Member	**Income Source**	**Nature of income** 1. Permanent 2. Seasonal	**Monthly Income (BDT)**
Household Head			
Spouse			
Children			
Children			
Children			
Others			

D. HOMESTEAD

20. Occupancy type

Owner	□ 0 – 5 years □ 6 – 10 years □ 11 – 15 years □ 21 – 25 years □ More than 25 years □ By born resident
Leased	□ 0 – 5 years □ 6 – 10 years □ 11 – 15 years □ 21 – 25 years □ More than 25 years
Rental	□ 0 – 5 years □ 6 – 10 years □ 11 – 15 years □ 21 – 25 years □ More than 25 years

21. Homestead size
    - □ 0 – 5 decimal
    - □ More than 5 to 10 decimal
    - □ More than 10 to 15 decimal
    - □ More than 16 to 20 decimal
    - □ More than 20 to 25 decimal
    - □ More than 25 to 30 decimal
    - □ More than 30 to 40 decimal
    - □ More than 40 decimal

22. Building materials

Floor	Outer house *(Baithak ghar)*	□ Earth □ Cement finish □ Wood □ Others_____
	Main room (s)	□ Earth □ Cement finish □ Wood □ Others_____
	Kitchen	□ Earth □ Cement finish □ Wood □ Others_____
Wall	Outer house *(Baithak ghar)*	□ C.I. sheet □ Thatch/ leaves □ Bamboo □ Brick □ Others_____
	Main room (s)	□ C.I. sheet □ Thatch/ leaves □ Bamboo □ Brick □ Others_____
	Kitchen	□ C.I. sheet □ Thatch/ leaves □ Bamboo □ Brick □ Others_____
Roof	Outer house *(Baithak ghar)*	□ C.I. sheet □ Thatch/ leaves □ R.C.C. □ Others_____
	Main room (s)	□ C.I. sheet □ Thatch/ leaves □ R.C.C. □ Others_____
	Kitchen	□ C.I. sheet □ Thatch/ leaves □ R.C.C. □ Others_____

23. Source of Drinking Water
    - □ Tube well
    - □ Open source

24. Type of Sanitation system
    - □ Half sanitary
    - □ Full sanitary
    - □ Non-sanitary

25. Social and Cultural Aspects

Privacy Level	□ Excellent □ Good □ Moderate □ Bad
Religious practices	□ High □ Moderate □ Low □ Absent

Appendix-2

Sample Scaling Matrix for the Livelihood Analysis

A. Human Capital

Determinants	Very low	low	Medium	High	Very High
1. Skills, knowledge, ability to labour				●	
2. Amount and quality of labour			●		
Average Human Capital				●	

B. Natural Capital

Determinants	Very low	low	Medium	High	Very High
1. Safe from occasional natural disaster (e.g. flood, monsoon storm, cyclone etc.)			●		
2. Safe from river erosion risk					●
Average Natural Capital				●	

C. Financial Capital

Determinants	Very low	low	Medium	High	Very High
1. Available stocks				●	
2. Regular inflows of money				●	
Average Financial Capital				●	

D. Physical Capital

Determinants	Very low	low	Medium	High	Very High
1. Secure shelter and buildings				●	
2. Affordable transport				●	
3. Adequate water supply and sanitation			●		
4. Affordable energy			●		
5. Access to information (communications)			●		
Average Physical Capital			●		

E. Social Capital

Determinants	Very low	low	Medium	High	Very High
1. Networks and connectedness				●	
2. Membership of more formalised groups				●	
3. Relationships of trust, reciprocity and exchanges			●		
Average Social Capital				●	