

SINCE ACHIEVING INDEPENDENCE in 1971, successive governments in Bangladesh have been committed to creating conditions whereby people are able to meet their basic needs. The Constitution of Bangladesh makes it a fundamental principle of state policy to provide housing and other basic necessities of life (ASK 2000: 69). Article 15(a) of the Constitution states that 'It shall be a fundamental responsibility of the State to attain, through planned economic growth, a constant increase of productive forces and a steady improvement in the material and cultural standard of living of the people, with a view to securing to its citizens (a) the provision of the basic necessities of life, including food, clothing, shelter, education, and medical care.' Yet, in spite of the optimistic intent of this statement, Bangladesh unfortunately was without a national policy focusing on rural and urban housing for more than two decades.

Bangladesh adopted its first National Policy for Housing in 1993. This policy emphatically recognized that housing not only provides privacy and promotes health and comfort, it also generates employment and income (MHPW 1993: 6). Moreover, the provision of improved housing was now considered an integral part of the culture and planning for economic development (MHPW 1993: 6). This policy further identifies the role of government in providing housing as primarily that of facilitator, with the responsibility of increasing access to land, infrastructure, services, and credit, ensuring availability of building materials at reasonable prices, especially for the low- and middle-income groups, and creating and promoting housing finance institutions (MHPW 1993: 6). More recently, in 1999, a new housing policy was prepared by the Ministry of Land that proposed various measures to facilitate credit availability for housing, particularly for the poor, and reaffirmed the right to housing for all citizens of Bangladesh (ASK 2001: 257). Despite these commitments, the overall housing situation in Bangladesh remains unsatisfactory, a challenge for one of the world's poorest and most densely populated nations.

In this light, the objective of this chapter is to provide an overview of current and past conditions of dwellings in rural and urban areas of Bangladesh. A historical approach will be used to investigate the nature of improvements, especially since the early 1970s. More specifically, this chapter will examine the types, forms, functions, and structural quality of housing throughout the country. Data and other material in this chapter come from field observations and secondary sources. In order to understand the nature of housing in Bangladesh, it is necessary to have knowledge about physical, cultural, demographic, and economic characteristics of the country, as well as the spatial organization of settlements, particularly rural ones. This is because the type, form, and structure of dwellings throughout Bangladesh are greatly influenced by physical, historical, and socio-demographic forces. The first sections introduce the physical and human geography of Bangladesh and are followed by a discussion of the spatial organization of settlements, as well as an analysis of the distribution, growth, and size of dwelling households in Bangladesh. The last four sections present dwelling characteristics, tenancy and the delivery of dwelling units, temporal changes in dwelling units, and constraints on housing development. Concluding remarks are provided at the end of the chapter.

Physical and Human Geography

Bangladesh has been noted for a remarkable homogeneity with respect to physical characteristics. The country is composed primarily of a vast low-lying plain of thick alluvial and deltaic sediments that have been deposited by three major rivers—the Padma (or Ganges), the Brahmaputra, and the Meghna. These rivers and other tributary and distributary rivers—numbering at least 700—criss-cross the country and, along with other extensive water bodies, serve not only as a source of water but also facilitate communication and transportation. The riverine condition that creates and rejuvenates soil fertility is unfortunately also responsible for periodic destruction and homelessness over a large part of the country, because of summer monsoon floods and riverbank erosion.

Bangladesh may be divided physiographically into seven regions, each of which has a typical settlement pattern (Figure 4.1). The vast alluvial plain described above lies in the middle of the country. As a part of the extensive Indo-Gangetic plain of South Asia, overall elevation is very low and ranges only between sixteen and twenty feet (five and six metres) above sea level. Both linear and scattered settlements are found in this physiographic unit, with homesteads here usually built on artificially raised mounds that add to the haphazard growth of villages (M. IPW 1995: 6). Although most of the plains of Bangladesh may be considered deltaic in origin, the area south-west of the Padma-Meghna confluence exhibits especially pronounced deltaic characteristics, with its intricate network of distributary channels and numerous islands. This area is divided into two physiographic regions: a tidal plain or active delta, and the moribund or old delta. The tidal plain is still unstable, and the process of land erosion and accretion is continual with dispersed and isolated rural settlements. West of this plain is the moribund delta—an area of dead and dying rivers—that is flanked by the Sundarbans, an extensive mangrove forest region along the Bay of Bengal that is susceptible to the intrusion of salinity from the south. Settlements here are generally linear along the levees of the dead and dying rivers (Johnson 1975: 13).

The Pleistocene terraces in north and central Bengal form a geographic region—called the Barind Tract and, in the central part, the Madhupur Tract—with gently undulating terraces rising an average thirty feet (ten metres) above the adjacent floodplains and consisting of red soils. Another physiographic unit of similar elevation, called the North Bengal Alluvial Fan or Piedmont Alluvial Fan can be found in the greater Dinajpur and Rangpur districts. In these natural regions, the influence of rivers is not as important, except during the rainy season.

There are two tertiary hills in Bangladesh: the Chittagong Hills in the south-east and the Low Hills of Sylhet in the north-east. The Chittagong Hills, found along the western fringe of the north-south mountain ranges of Myanmar, constitute the only significant hill system in the country, and they are sparsely populated (Rahim 1989: 47). West and south of the Sylhet Hills is a large wetland basin popularly known as Sylhet Haor. Because of the low elevation, the basin is deeply flooded every year, with the result that settlements are composed of dense concentrations of homesteads clustered on artificially raised earthen mounds.

Bangladesh enjoys a tropical monsoon climate with an average temperature over 68°F (20°C) for about eight months (April to November) of each year, heavy rainfall during the summer months (May to September), and a relatively mild, short, and dry "winter". Because of low topographic conditions, its extensive network of rivers, and a rainy climate, Bangladesh frequently experiences natural disasters—particularly widespread general flooding for various reasons, and particularly the intrusion of destructive

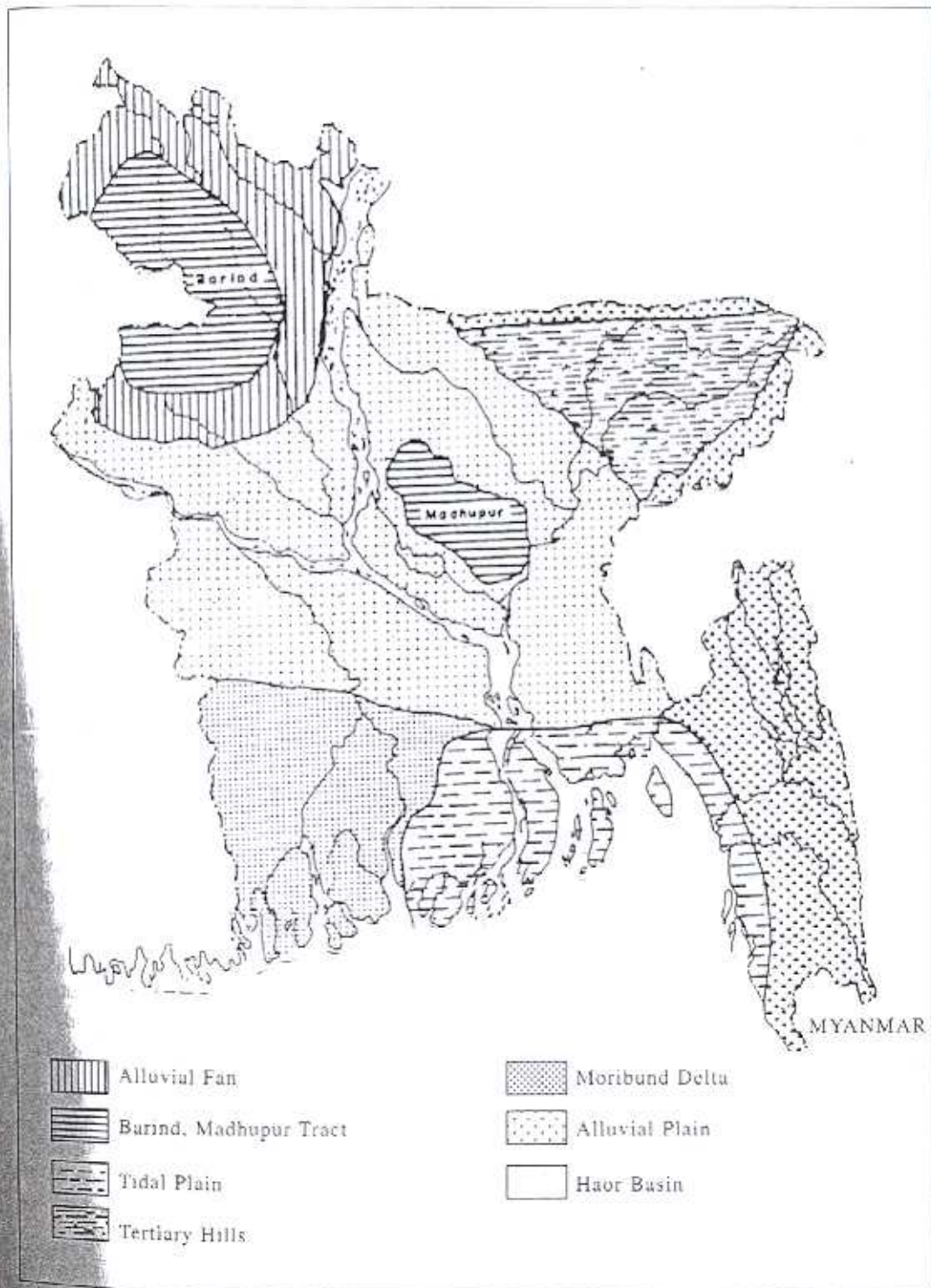


Figure 4.1: Physiographic regions of Bangladesh. Source: Drawing by Bimal Kanti Paul.

tropical cyclones (also called hurricanes or typhoons in other parts of the world) with their powerful winds and abundant rains. Long-term time-series data indicates that, on average, twenty-two per cent of the surface area of Bangladesh is flooded each year, with up to sixty per cent of the country flooded by a 100-year flood. Extraordinarily severe damage to crops, settlements, and infrastructure generally occurs when floods cover more than one-quarter of the area of the country (Haque 1997: 93).

The overwhelming majority of the people of Bangladesh are racially homogenous. About ninety-nine per cent are Bengalis, a branch of the Indo-Aryans who entered the Indian sub-continent through the north-west mountains of today's Pakistan around 2000 BC. The remaining people, most of whom live in rural settings in the Chittagong and Sylhet Hills, are largely of Mongoloid origin. Bangladesh is predominantly a Muslim country, with some ninety per cent of its population adhering to Islam. The remaining ten per cent are Hindus, Buddhists, and Christians.

With the exception of city-states such as Singapore, Bangladesh has the highest population density of any country in the world, far surpassing that of Korea, Japan, or India. With a population of approximately 123 million, this South Asian country has experienced enormous expansion of its population, an expansion that has been accompanied by widespread poverty. Although the rate of natural growth has declined since the mid-1970s, the absolute increase in population has continued to be a tremendous burden for the nation. Bangladesh is not only one of the most rural nations in the world, but poverty remains the most common aspect of Bangladeshi society.

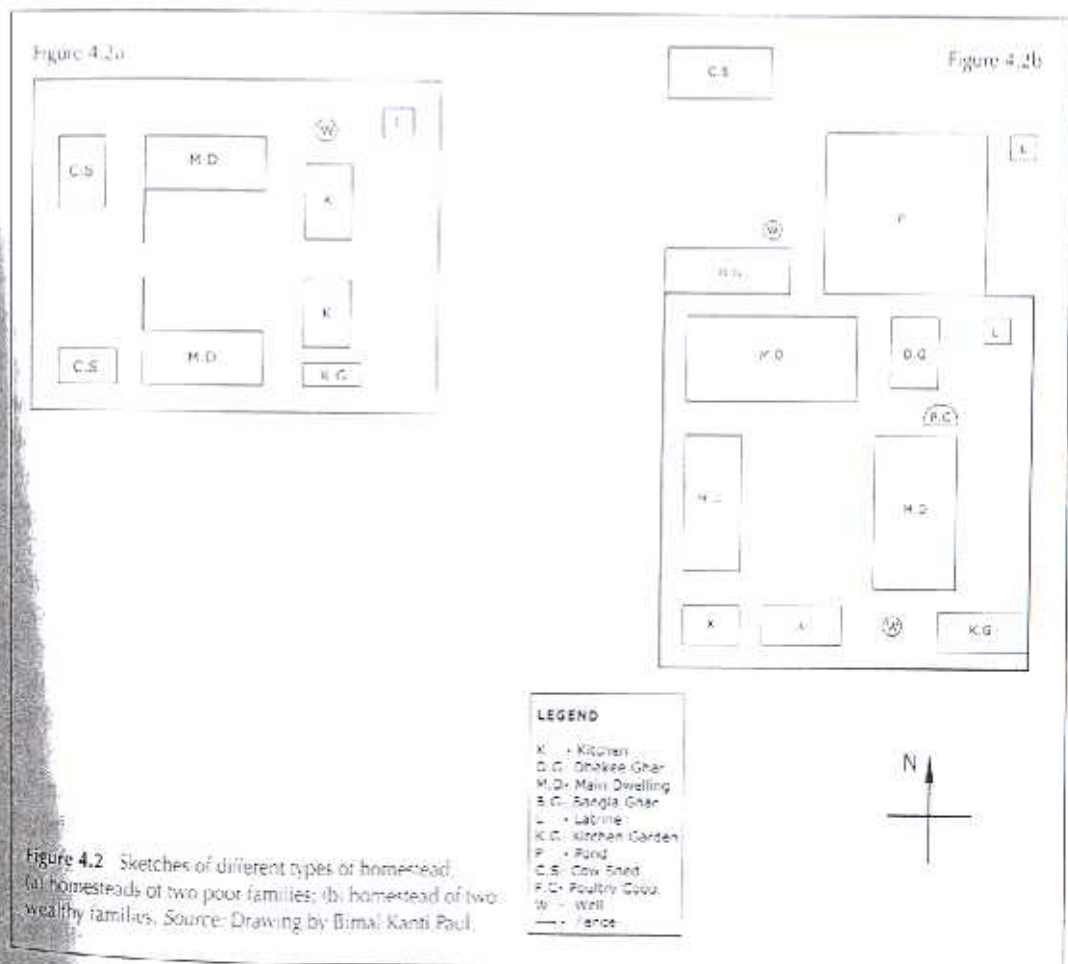
Spatial Organization of Settlement

According to the 2001 population census, about seventy-seven per cent of all Bangladeshis live in rural areas (BBS 2001a: 6). The family (*paribal* or *gushti*) generally consists of several members living together in a homestead (*bari*) and sharing the same kitchen (*chula*). This forms the basic social unit in rural areas. A *bari* comprises two to six houses, called *ghar*, arranged around a courtyard or *uthan*, the size of which depends on the wealth and number of families living within the homestead. Homesteads average about 5,000 square feet. Poor families, of course, may have only one small house and a little courtyard, while people of moderate means generally have more than one structure built around a courtyard that is often divided into two parts, with an inner and an outer courtyard. Only family members, their relatives, and neighbours have direct access to the inner courtyard, which is used for drying crops and clothing. The outer courtyard is also used for drying crops and clothes, but it is more accessible than the inner courtyard, and it also serves as a playground for children. Wealthier families often separate the inner and outer courtyards by constructing walls made of thatch, wood, corrugated tin, or brick depending on their means. In such houses, usually a main gate is used to enter the inner courtyard.

All the residents of a *bari* are members of a patrilineal family (Paul 1992: 2). In most instances, such an extended family is divided into households, each with separate houses used for sleeping, storage, and cooking. The house used for sleeping functions as the main dwelling unit for each family. While almost all families have a kitchen, most households cook food outside during the winter season. In the past, wealthy households had a separate structure for husking rice that was called a *dhekee ghar*. Irrespective of income level and in all rural areas, villagers now use a husking machine instead of husking rice manually in the *dhekee*. If a household has cattle, there is likely to be a cowshed in the outer courtyard.

Households that raise poultry keep them in very small round huts or poultry coops built on stilts and made almost entirely of bamboo or mud; they are usually placed within the inner courtyard. Wealthy families often have a small mosque or temple in the outer courtyard, usually located near a pond. Prosperous families also generally have a separate guesthouse or *bangla ghar* outside the inner courtyard. Until recently, most families did not have latrine facilities, and defecation was usually performed in surrounding bushes or fields. Families of moderate and higher means today usually have latrines that are placed at a safe distance from the major dwelling units.

Homesteads are generally built on a plot of land owned commonly by the household. This has resulted in a seemingly haphazard settlement development, with croplands situated between homesteads. Residents of most homesteads grow vegetables on tiny plots of land or kitchen gardens that are located close to kitchens and accessible to the *hari* without exposure to the outside world. As previously mentioned, many *hari* residents also raise cattle and poultry. Almost all homesteads have fruit trees, most commonly mango, jackfruit, betel nut, coconut, date palms, and banana, and some homesteads also maintain bamboo groves (Islam *et al.* 1981: 11). Different types of homestead are seen in Figure 4.2.



The *para* or 'neighbourhood' represents an intermediate settlement form between the *bari*, where a family lives, and the larger village or *gram*. For the most part, a neighbourhood comprises a cluster of adjacent *bari* or courtyards, the formation of which is usually determined by occupational, religious, social, or topographical factors (Benocchi 1975: 353). Several neighbourhoods, which may be physically separated from each other by cropland, wasteland, or woods, together form a village. While small villages may contain only one neighbourhood, a neighbourhood similarly may consist of only a single courtyard. Because of the recurrent nature of flooding in Bangladesh, all homes on floodplains are invariably built either on higher ground, such as natural levees, or on artificially raised mounds (*bhitis*), and the plinth level of individual houses may in addition be raised above the courtyard to avoid inundation (Rasid 1993: 45).

Settlement patterns in Bangladesh closely follow physiographic regions. Linear settlements on the levees are very common in floodplain areas, while nucleated settlements along main thoroughfares are common in the piedmont alluvial plain. Settlements are linear along the levees of the dead and dying rivers in the south-western coastal region of Bangladesh, whereas settlements are dispersed and isolated in the active delta region.

Since the *haor* or wetland area of the Sylhet is subject to deep flooding almost every year, homesteads here are built upon artificial mounds ten to fifteen feet (three to four metres) in height, where the low-lying settlements appear as small islands during the rainy season when the water level rises. Overall settlements in the Pleistocene terrace regions show a strong tendency towards dispersed or scattered patterns because of the juxtaposition of uncultivated hillocks and strips of cultivated fields. By contrast, fully nucleated or clustered settlement patterns are found in the hilly regions (Rashid 1977: 521).

Most urban centres, particularly small towns and cities, have strong village characteristics, and in fact many 'urban' settlement landscapes merge imperceptibly with neighbouring rural villages. Only large cities have considerable sections of purely urban built-up areas. Most cities in Bangladesh indeed lack internal functional differentiation, with shopkeepers and businessmen living above or behind their shops or business establishments. A considerable proportion of urban residents live in quarters whose frontage is occupied by offices or shops along a street or road. Until recently, most urban dwellings were of low quality, lacked modern amenities, and still house quite dense population concentrations of nuclear families and some extended-family lodgers. Several contiguous households or an urban neighbourhood may coalesce—like the rural *para*—and develop a degree of cohesiveness. Individual urban residents and households, meanwhile, often continue to maintain connections with their ancestral villages through property or family ties (Rahim 1989: 62), and thus are not totally detached from their rural origins. City dwellers usually visit their rural homes at least twice a year during the Eid holidays. During these times, cities can become quite deserted.

Dwelling Households

Before dealing with dwelling characteristics, it is necessary to provide an overview of the distribution, growth, and size of dwelling households in both rural and urban areas of Bangladesh. Additionally, the housing census, which was first conducted in 1960, does not collect information on the number of dwellings or houses per household. In the absence of such information, dwelling households will provide some idea about the distribution and growth of dwellings in Bangladesh. It is important to note that

although dwelling households account for the largest segment of total households, the two terms should not be used interchangeably. The number of households and dwelling households, for example, enumerated in 2001 were 25.36 million and 24.93 million respectively (BBS 2001a: 5).

Distribution of Dwelling Households

The Housing Censuses conducted in Bangladesh in 1960, 1973, 1981, 1991, and 2001 provide valuable information concerning the nature of households and housing. The relevant data for the latest Housing Census year is not yet available. The Housing Censuses of 1960 and 1973 were conducted independently prior to the Population Census, while the more recent three Housing Censuses were conducted in conjunction with the decennial Population Census. Households are categorized into three groups—dwelling, institutional, and other. Dwelling households refer to families living in residences, while hotels, hospitals, clinics, jails, military cantonments, and orphanages account for the institutional category. People living in a 'mess' as well as those living in offices fall into the 'other' category (BBS 1994: 4). A considerable number of working people in urban areas of Bangladesh, particularly in large cities, live in a housing situation called a 'mess', a kind of housing sub-system for a group of unrelated occupants, usually of the same sex and economic status. In addition to paying rent, the occupants of a mess share the expenses for food, which is usually served from a common kitchen. Mess housing has evolved in urban areas of Bangladesh in response to the demand for cheap and temporary low-income housing. Although there are relatively 'posh' institutional messes for unmarried government officials and defence personnel, the overwhelming majority of them have been built informally for low-income, unmarried employees working in the private and public sectors (MHPW 1995: 47).

Table 4.1 presents the distribution of households by type for the 1981 and 1991 Housing Census years. The table shows that the proportion of dwelling households was almost the same in 1981 and 1991, while there were some changes in the proportion of other households which can be attributed to a change in definitions. Similar to the national trend, the proportion of dwelling households in rural areas remained the same in 1981 and 1991, but the proportion increased in urban areas, perhaps attributable to rural-to-urban migration and the reclassification of urban areas during that period (BBS 1994).

Growth of Dwelling Households and Dwelling Household Size

The annual growth rates of dwelling households for rural and urban areas are presented in Table 4.2. It appears from the table that the growth rate for the country as a whole remained the same between the 1960–73 and 1973–81 intercensal periods, with a slight increase in the subsequent periods (1981–91 and 1991–2001). Although both rural and urban growth rates fluctuated during the entire 1960 to 2001 period, the fluctuation was more rapid in urban areas when compared to their rural counterparts. The reclassification of urban areas in the different census years was the main reason for this trend (BBS 1994: 167).

It is also evident from Table 4.2 that the average household size for dwelling households in all three areas increased between 1960 and 1981. Between 1991 and 2001, however, the national household size decreased from 5.5 persons in 1991 to 4.8 in 2001 (BBS 2001a: 6). Both rural and urban household size decreased during this period—although the relevant statistics have not yet been announced—perhaps attributed to the division of joint families. The percentage of households with five members remained

Table 4.1 Number and Distribution of Households by Type and Residence, 1981-1991

<i>Residence Type (number and per cent)</i>	1981	1991
NATIONAL	14,800,000 (98.07%)	9,000,000 (98.05%)
Dwelling	100,000 (0.77%)	100,000 (0.40%)
Institutional	200,000 (1.16%)	300,000 (1.55%)
Others	15,000,000 (100%)	19,400,000 (100%)
Total		
RURAL	12,000,000 (99.22%)	15,500,000 (99.34%)
Dwelling		
Institutional	100,000 (0.78%)	100,000 (0.64%)
Others	12,000,000 (100%)	15,000,000 (100%)
Total		
URBAN	2,000,000 (90.90%)	3,500,000 (92.11%)
Dwelling	100,000 (4.55%)	100,000 (2.63%)
Institutional	100,000 (4.55%)	200,000 (5.26%)
Others	2,200,000 (100%)	3,800,000 (100%)
Total		

Table 4.2 Growth Rate of Dwelling Households and Average Dwelling Household Size by Locality, 1960-2001

Locality		1960-73	1973-81	1981-91	1991-01	
ANNUAL GROWTH RATE						
Bangladesh		2.1%	2.1%	2.6%	2.8%	
Rural		1.8%	1.3%	2.0%	-	
Urban		6.2%	8.9%	5.7%	-	
Locality	1960	1973	1981	1991	2001	
AVERAGE DWELLING HOUSEHOLD SIZE						
Bangladesh		5.4	5.6	5.7	5.5	4.8
Rural		5.3	5.6	5.7	5.5	-
Urban		5.6	5.9	5.9	5.5	-

Sources: BSS 2001a: 5, 6; BSS 1994: 16.

always higher than all other categories in all of the censuses, with the highest rate of 17 per cent in 1991. The percentage of dwelling households with five members or fewer was about 56.2 per cent in the 1991 national census (BBS 1994: 168). The corresponding percentages were 49.4 in 1973, and 52.1 in 1981. The available data indicates that dwelling household size is relatively smaller in urban areas than the rural areas (BBS 1994: 169).

Dwelling Characteristics

The present housing or dwelling situation in rural and urban Bangladesh is not at all satisfactory. Indeed, the overall supply of housing units throughout the country continues to be inadequate in light of increasingly pressing demands. Not only has the rapid growth of population created an acute housing problem, growth has also resulted in increasing crowding, high occupancy rates, and high densities that averaged over 4.5 persons per room in 1993. Occupants per housing unit increased steadily from an average of 5.3 in 1960 to 5.8 in 1973, then 6.0 in 1981 and 7.5 more recently in 1993. This increase in the occupancy rate was observed primarily in rural areas. Average room density for the country as a whole was over 4.5 persons per room in 1993, while conditions were worse in cities, particularly in the large metropolitan centres (Islam 2001: 105).

Most dwelling units in Bangladesh, particularly those of the rural areas, are structurally in poor condition, built with temporary or semi-permanent materials such as bamboo, thatch, and reed. Dwelling quality depends mainly on the principal materials used in the construction of floors, walls, and roofs. Most rural dwelling units are only shelters, do not adequately meet even minimum needs, and are also vulnerable to climatic hazards, particularly flooding. Dwelling structures in urban areas, however, are slightly better in terms of the quality of building materials than those found throughout the country as a whole.

The relative share of rural dwelling stock has declined since 1960, while the urban share rose alongside the increase in urban population. The vast majority of households in rural areas are owner-occupied compared with only about a sixty per cent rate in towns and cities, while there is a higher proportion of tenants in large cities than in the countryside (Islam 2001: 105). Available statistics suggest that the average number of rooms per household increased in both urban and rural areas, yet more than seventy per cent of the national housing stock consisted of only one- or two-roomed dwellings.

Another important aspect of housing in Bangladesh is the quality of the infrastructure and available utility services. Until recently, the overwhelming majority of the people in rural areas used ponds, rivers, and earth wells as the principal sources of drinking water, open fields and bushes for defaecation, and kerosene lamps as their main source of light. Some improvements have occurred over the last two decades. Hand-pumped tube wells have replaced ponds, rivers, and earth wells as the primary source of drinking water in rural areas, while ponds and rivers continued to be widely used for bathing purposes. Sanitary toilet facilities were introduced on a large scale in rural Bangladesh only during the 1980s. In urban centres in 1991, only 26.2 per cent of all households had access to running tap water. Only 11 per cent of all urban households in 1991 were served by flush toilets, 30 per cent were served by sanitary latrines, and nearly 60 per cent of all urban households had no sanitary facilities. In 1991, only approximately 44 per cent of all urban households had access to electricity, while 12 per cent enjoyed a natural gas connection, with some 87 per cent burning wood or other fuels (Islam 2001: 106).

Table 4.3 House Types by Building Materials

Major Types	Sub-types			
	No.	Floor	Wall	Roof
I. SEMI-PUCCA	1	Brick/Cement	Brick	Tin
	2	Mud	Brick	Tin
II. TIN HOUSE	3	Mud	Tin	Tin
	4	Mud/Cement	Tin	Tin
III. SEMI-TIN (Tin-Non Tin Mixed)	5	Mud	Mud	Tin
	6	Mud	Bamboo	Tin
	7	Mud	Jute Stick	Tin
	8	Mud	Mud/Bamboo	Tin
	9	Mud	Bamboo/Jute Stick	Tin
	10	Mud	Mud/Jute Stick	Tin
	11	Mud	Tin/Bamboo	Tin
	12	Mud	Bamboo/Thatch	Tin/Thatch
IV. THATCH	13	Mud	Mud	Grass
	14	Mud	Bamboo Mats	Grass
	15	Mud	Jute Stick	Grass
	16	Mud	Jute Stick/Bamboo	Grass
	17	Mud	Mud/Jute Stick	Grass
	18	Mud	Mud/Bamboo	Grass
	19	Mud	Jute Stick/Bamboo	Straw
	20	Mud	Jute Stick/Mud/Bamboo	Grass
	21	Mud	Jute Stick	Grass/Straw/Jute Stick
	22	Mud	Jute Stick	Jute Stick
V. ADDITIONAL TYPE	23	Mud	Tin	Tin (double storeyed)
	24	Mud	Tin/Bamboo	Tin

Source: Islami et al, 1981: 28.

Dwelling Types

Because of the wide array of materials used for the construction of floors, roofs, and walls, it is difficult to classify house types in Bangladesh. Based on materials used for the construction of the floor, roof, and wall, it is possible to identify four main dwelling types according to the construction and the structure and durability of the dwellings. Nonetheless, various investigators have identified between eleven and twenty-four different types of house using different schemes.

As seen in Table 4.3, Islam *et al.* (1981) noted twenty-four distinct types of house in the small village of Rajabari near the capital, Dhaka. These investigators did not find a single *pucca* house, a term used to refer to a house where brick and cement are used as floor, wall, and roof materials. Sixty-five households in this village contained 148 houses (including kitchen and cowsheds), resulting in an average of 2.3 structures per family. The Bangladesh Bureau of Statistics (BBS), the organization responsible for conducting both population and housing censuses, classifies eleven different types of house (Table 4.4), which are grouped here into four major types for convenience in analysis: *pucca*, *semi-pucca*, *kutcha*, and hut, a classification scheme that is based on the materials used for the floor, wall, and roof of the main dwelling structure.

Huts

The least durable of all housing types found in Bangladesh are huts. The raised floor level or tamped plinth of this house type is constructed with mud and varies in height from barely six inches in areas with higher elevation, such as in parts of Barind and Madhupur Tracts, to four feet in low-lying parts of the active delta or Sylhet Basin of north-eastern Bangladesh. The overall structure of houses of this type primarily consists of bamboo posts anchored in the ground at five- to eight-feet (1.5 to 2.5 metre) intervals that are braced horizontally by bamboo tied together to form a rigid frame for the exterior walls. Both walls and the roof of huts are made of non-permanent materials such as bamboo, straw, thatch, reed, or jute stick as well as mud (Figures 4.3 and 4.4). However, the most common material for wall construction is bamboo, using mats made from thinly spliced bamboo which has been plaited into a square or diamond-shaped pattern (Figure 4.5).

Table 4.4 Classification of Household by Wall and Roof Material of the Main Structure

Wall Material	Roof Material		
	Straw/Bamboo	Tiles/Cl/Metal Sheet	Cement
Straw/Bamboo	1*	2	—
Mud/Unburnt Brick	3	4	—
Cl/Metal Sheet	5	6	—
Wood	7	8	—
Cement/Brick	9	10	11

* Number indicates types of structure. Types 1 and 3 are classified as huts, type 10 as semi-pucca, and type 11 as pucca. The rest are considered *kutcha* houses.

Source: BBS 1994: 170.

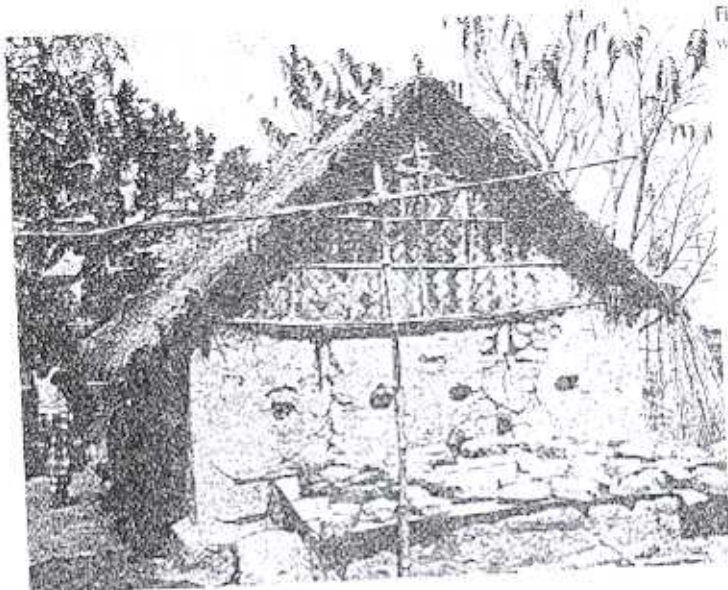


Figure 4.3 A hut with mud and bamboo wall. Source: Islam et al. 1961.

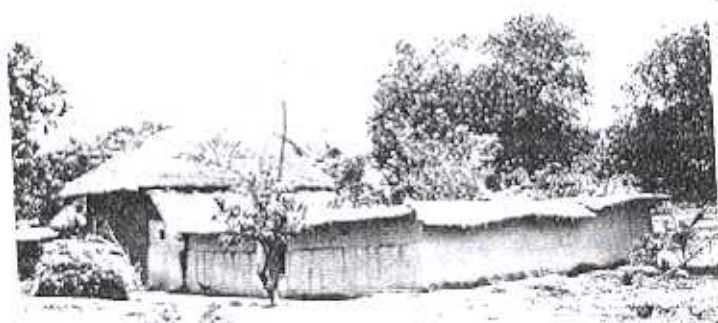


Figure 4.4 Huts with mud wall. Note: the main dwelling unit has a pitched mud with four slopes. Source: Photograph by Bimal Kanti Paul.



Figure 4.5 A kutch house. Note: the straw heap on the right. Source: Photograph by Bimal Kanti Paul.

The roof structure of huts consists of bamboo that has been framed into a triangular truss supported by the framework of the wall and horizontally braced by ridge ties (Figure 4.6) upon which a rectangular grid of split bamboo, spaced between eight to twelve inches apart both ways, is laid and is lashed together. The ridge of the roof frame is occasionally raised in the middle, facilitating a smooth run-off for rainwater (Figure 4.7). Almost all huts are double pitched, with various types of material laid in the direction of the slopes on the roof frame in order to allow the quick dispersion of rainwater. Roof materials used in hut construction differ from region to region. Chhon grass (*Imperata arundinacea*) is a common roof material in northern and eastern Bangladesh, while Golpata (*Nipa fruticans*) leaves are commonly used in the south-west, and Tal (*Borassus flabellifer*) leaves are used for roofing over much of the Barind and Madhupur Tracts. Rice straw is used throughout the country (er-Rashid 1977: 522). The durability of thatched roofs is very short, vulnerable as they are also to strong winds and fires, with the result that thatched roofs need to be redone almost every year.

Most huts are rectangular, measuring fifteen to twenty feet (five to six metres) long and ten to fifteen feet (three to five metres) wide. Square huts are found scattered over the country, but are especially common in northern Bangladesh. The space within a hut is often divided into two or three rooms with plaited bamboo partitions, one room being used for sleeping and the others for storing household items. Mud, which is generally used as floor material for huts, requires frequent maintenance—usually once a week, but more frequently during the rainy season—with the work performed usually by female members of the household.

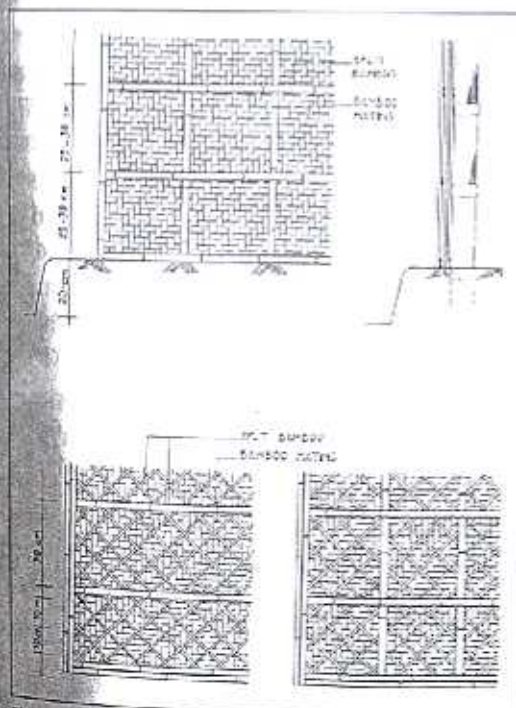


Figure 4.6 Different types of bamboo matting.
Source: Islam et al. 1989.

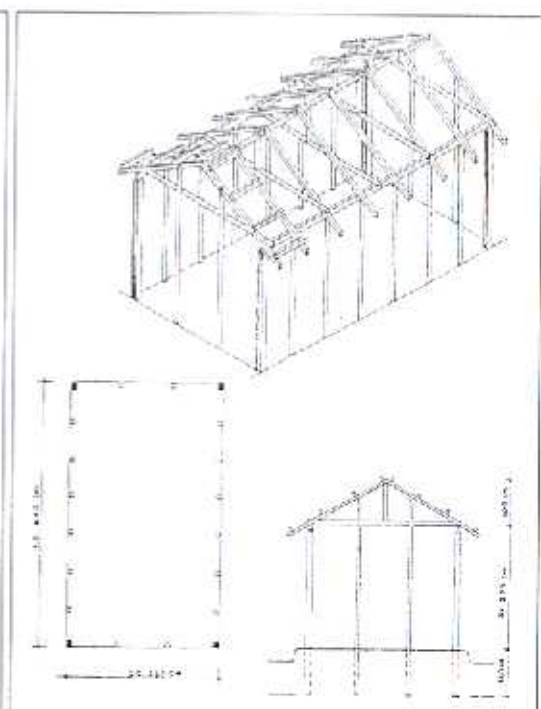


Figure 4.7 Roof framing of a hut. Source: Islam et al. 1989.

Kutcha Houses

Although either mud or brick and cement are used as flooring material, mud is most widely used for *kutcha* houses throughout Bangladesh. The raised mud floor of most *kutcha* houses is brought to a smooth finish by application of a slurry of mud and cow dung. For some *kutcha* houses, a brick strip foundation ten to fifteen inches (25.40 to 38.10 centimetres) thick is raised from trenches ten to fifteen inches (25.40 to 38.10 centimetres) deep up to the plinth level. The area within the strip foundation forming the floor is either filled with compacted earth to form a mud floor, or with brick and cement to form a *pucca*-cemented floor. In both cases, the sides of the low plinth walls are constructed with brick and cement (Islam et al. 1981: 16).

The walls and roofs of *kutcha* houses are constructed with various combinations of materials, including straw, jute stick, bamboo, mud, and unburnt bricks. Wall frames are generally made of bamboo or timber, with straw, jute stick, or bamboo matting then being used to cover the frame. Jute stick and rice straw—agricultural waste materials—are usually used in combination with mud plastering on one or both sides of the wall. Jute stick and reed construction consist of firm stalks arranged vertically to form a non-load-bearing wall surface that is tied together by horizontal bracing at approximately twelve inches (30.48 centimetres) spacing.

In some areas, such as in the Chittagong region and Madhupur Tracts, mud-walled *kutcha* houses are common. Walls are constructed from well-mixed cohesive earth and rice husks worked into a stiff mixture. Except for doors and windows, the entire wall is covered with mud, since a mud wall provides excellent insulation, can support a considerable load, and is relatively stable against stormy winds. Mud walls, combined with a thatched roof, provide an ideal combination for keeping the interior of *kutcha* houses cool during periods of intense heat. On the other hand, mud walls are vulnerable to surface wear by heavy rains and are unstable during flooding. Exposed mud surfaces also require a routine application of mud slurry mixed with cow dung every three to six months, with more frequent maintenance necessary during the rainy season.

In some *kutcha* houses, wood and corrugated tin sheets are used as wall material that is laid over a timber frame with a rectangular grid of two- to four-foot divisions. Wooden infill is commonly used in areas such as Chittagong, Khulna, Dhaka, Mymensingh, and Tangail, where there are extensive forests nearby. In this type of house, timber posts are employed that are then braced horizontally by timber beams nailed to the posts in order to form a rigid frame supporting the roof and walls. Timber-frame *kutcha* houses allow ample open spaces that facilitate the placement of doors and windows. These structures usually have a minimum of two doors—one opening to the courtyard and one to the opposite wall or to the right-angled wall. Larger structures often have more doors. Windows generally are found on opposite walls or walls at right angles in order to facilitate good ventilation. Construction with tin generally raises the internal temperature to an uncomfortable level during the summer season.

Roof structures in *kutcha* houses usually consists of a timber frame with configurations that may be single pitched with a five- to ten-degree slope, double pitched, gabled with a thirty- to forty-five-degree slope, or hipped (four pitched) with a thirty- to forty-five-degree slope. Corrugated tin is usually used as roof material for thatched and mud-walled *kutcha* houses, while roof tiles are used for *kutcha* houses constructed with tin and wood as wall materials. *Kutcha* houses are generally larger, contain more rooms, and are longer lasting than huts. While *kutcha* houses with tin and tile roofs combined with tin

and timber walls usually have a life span of nearly fifty years, they are only built by relatively wealthy families because of the cost of construction.

Semi-Pucca and Pucca Houses

Dwellings with cement floors and walls, with roofs covered either with tiles or corrugated iron, are called semi-pucca houses, while those houses with a cement floor, roof, and walls are called pucca houses. In both cases, the walls consist of thick bricks with 1:6 cement mortar raised to a height of nine to ten feet (2.7 to 3.28 metres) that is then rendered with a cement plaster on both sides. The roof configuration of a pucca building is singled-pitched with no slope. Pucca structures can last for more than fifty years and are more comfortable than semi-pucca houses.

With the exception of huts, most houses in Bangladesh have a platform that may be considered an open or semi-open verandah facing the courtyard. This space is used for several purposes, including cooking in one corner of the verandah, and sleeping, particularly during the hot summers. Middle-class households usually have three or more structures comprising their residence, one of which is a semi-pucca building, while others may be of tin or mixed tin type, or have strong walls of mud or bamboo. Poorer households usually have only a single multi-functional structure made of mud, bamboo, jute stick, thatch, or straw.

Except for the building used as the dwelling by a household, all other structures are built with inferior materials, and their size is smaller. For example, the structure that comprises a kitchen usually has floor space that is a quarter to one-eighth that of the dwelling; seven by seven feet (2.1 by 2.1 metres) is a common size for a kitchen. Two-storeyed dwelling houses are rarely found in rural areas, although multi-storeyed houses are common in urban areas, particularly in large cities. The houses of tribal people, who mostly live in the hilly areas of Bangladesh, vary in form and materials. One standard pattern is a hut on stilts, with an open platform on one side. For entry, a notched log serves as steps or a ladder. Whole bamboo pieces are used for the floor and walls, and split bamboo matting and straw are used for the roof. Some tribes have houses with wooden floors and log walls (Rashid 1977: 527). In rural areas, the design of the house is generally conceived by the owner, sometimes in consultation with local traditional craftsmen such as carpenters. In urban areas, on the other hand, people with formal institutional training are increasingly becoming involved in building houses. In terms of homestead design, the arrangement and orientation of houses follows conventional and traditional folk principles: the main dwelling unit generally faces south, cattle sheds are rarely placed in the east, and everyone tries to keep a courtyard.

Temporal Change in Dwelling Types

The distribution of dwelling households by type of house is not available for the most recent (2001) census year, but such information is available for earlier years, as shown in Table 4.5. In 1991, 4.11 per cent of dwelling households were of the pucca type and 3.8 per cent semi-pucca, while both kutcha and huts almost equally represented more than ninety per cent of the housing stock nationwide. This table further shows that the proportion of semi-pucca and pucca dwellings increased during the 1981 to 1991 period, a condition that was evident from field experience in both rural and urban areas. It is likely that the 2001 census will show even a higher proportion of semi-pucca and pucca houses compared with the proportions reported in 1991.

Table 4.5 Types of Main Structure by Type of Residence (in percentages), 1981–1991

Type	1981	1991
NATIONAL		
Hut	45.43	43.86
Kutcha	49.90	46.23
Semi-pucca	1.83	3.80
Pucca	2.82	4.11
RURAL		
Hut	61.65	50.07
Kutcha	36.64	46.92
Semi-pucca	0.96	2.07
Pucca	0.75	0.94
URBAN		
Hut	39.08	27.49
Kutcha	58.00	43.25
Semi-pucca	7.20	11.34
Pucca	15.72	17.92

Sources: BBS 1994: 170; BBS 1989: 87.

A number of factors are associated with the increase of semi-pucca and pucca houses in Bangladesh. According to some estimates, nearly four million Bangladeshis are now legally living abroad, an overwhelming majority of them living in the various countries of the Middle East as guest workers, ever since the tremendous rise in revenue enjoyed by the oil-exporting countries of the Middle East in the mid-1970s. This wealth led, not surprisingly, to significant labour migration from poorer countries to the oil-exporting countries, with thousands of Bangladeshis joining the 'great rush' to the Middle East (Ahmed 2000: 34). Later, demand for Bangladeshi labourers increased in other Asian countries such as Malaysia, Brunei, South Korea, and Japan. Increased contact with countries of the Western world also stimulated labour migration throughout the 1980s. At the beginning of the twenty-first century, many Bangladeshis live permanently or temporarily in North America and almost every developed part of Europe, in addition to some working abroad illegally. At the national level, the principal impact of Bangladeshi labour migration to the Middle East and other regions of the world has been the volume of remittances sent home. This increased dramatically over twenty-three years—from only US\$23 million in 1976 to US\$1,806 million in 1999 (BMET 2000). By the mid-1990s, repatriated remittances were equivalent to more than fifty per cent of the value of all exports from Bangladesh. In fact, since these amounts include only money that flows through formal/institutional channels, these numbers are likely to be a gross underestimation of the actual volume of remittances. At the household level, remittances have raised the standard of living of families who have one or more members working in foreign countries. Overseas

remittances have not only changed the consumption habits of migrant worker families, but most families have invested a part of this money either to improve their old houses or build new ones (Ahmed 2000: 45; Siddiqui 1986: 242).

Although the absolute number of people living in poverty in both urban and rural areas in Bangladesh has increased, the relative proportion of those in the poverty category has shown a declining trend over the last two decades, with a positive impact on housing conditions in the country. Many non-governmental organizations (NGOs) are working to alleviate poverty in Bangladesh, and several NGOs have included building material development and housing construction in their integrated rural development programmes (MHPW 1995: 33; Oakley 1992: 93). Additionally, some NGOs, such as the Grameen Bank (Rural Bank) and the Shakti Foundation, provide interest-bearing building loans to members at rates of between five and ten per cent. The Grameen Bank, which is today the largest rural credit institution in Bangladesh, also supplies loans for repairing older houses. Increasing numbers of houses have been built with Grameen Bank loans (MHPW 1995: 35). The Grameen Bank considers the house building loan a vital part of its overall rural development programme. Starting modestly in 1984, the loan programme expanded rapidly after the devastating flood of 1987 (Islam *et al.* 1989: 10). Before 1987, some NGOs built houses and donated them to the landless poor and to victims of natural disasters. However, the Grameen Bank views housing loans—rather than donations or finished structures themselves—as a form of investment capital that helps a family break out of the cycle of poverty. Because of the loan programmes of the Grameen Bank and other NGOs, a good number of very poor households in villages and towns can today live in tin-roofed houses, a situation unthinkable just a few years ago. Occupants of these disadvantaged households used to live mostly in thatched houses, which are highly vulnerable to deterioration even during normal weather conditions. Some claim that better housing has given poor families an increased level of social strength, with a consequence that a greater sense of permanency has grown even among family members (Islam *et al.* 1989: 10). The Local Government Engineering Department (LGED) of the Government of Bangladesh (GOB) has been implementing slum-improvement projects (SIP) to improve the living conditions of disadvantaged groups living in slum and squatter settlements, or *bastees*, in large cities. The SIP programme, started in Bangladesh in the mid-1980s and gradually expanding its coverage, consists of two main components: physical development and social development through the provision of health literacy, and income-earning facilities. Much of its effort is addressed to the more than forty per cent of the total population of Dhaka and up to thirty per cent of the population in other large cities of Bangladesh who live in slums and squatter settlements under extremely poor housing and environmental conditions. Most residents of these settlements do not have access to running tap water, sanitary latrines, or electricity.

Tenancy and Delivery of Housing and Dwelling Units

The Population and Housing Census of Bangladesh classified ownership of a dwelling unit into three categories: owned, rented, and rent-free. The first category is defined as a dwelling house, an apartment, or a flat that is owned by any member or members of the household. Any dwelling house which is rented on a cash payment basis is considered rented, while rent-free signifies a dwelling house which is neither owned nor rented by any member of the household residing in it (BBS 1994: 4). The 1991 census shows

that 87.02 per cent of all households owned their dwelling units, with 6.60 per cent renting, while the remaining 6.38 per cent lived in rent-free houses. However, ownership patterns differed significantly between rural and urban areas. Less than one per cent of all rural households lived in rented housing in 1991, while the percentage for urban areas was 32.54 (BBS 1994: 279). Further, in large cities, over forty per cent of all households lived in rented housing units. Urban land ownership patterns are highly disproportionate in Bangladesh. In Dhaka, for example, upper-income households—comprising a mere two per cent of the total population—own fifteen per cent of all residential land. Middle-income Dhaka households, constituting twenty-eight per cent of all households, occupy sixty per cent of the land. The remaining twenty-five per cent of the land is poorly developed and overcrowded with low-income residents of the city, who constitute seventy per cent of the population (MHPW 1995: 22). Land ownership patterns can be used as an indicator of the ownership of dwelling houses. Increased urban poverty, massive rural-to-urban migration, the high cost of urban land, and complicated tenure and transfer systems are some of the reasons for the differences in dwelling unit ownership patterns between urban and rural areas of Bangladesh.

Rural housing traditionally was constructed and maintained by the villagers themselves, but over the past decade several governmental agencies and NGOs have become involved in helping rural residents improve their existing housing conditions. Particularly in urban areas, many organizations are involved in supplying housing needs to the city residents. It is claimed that the private sector, composed of a predominant informal sector and a very small formal sector, has supplied more than ninety per cent of the urban housing units in the country (Islam 2001: 109). Government and semi-governmental agencies and autonomous institutions have supplied the rest. The Public Works Department (PWD) is the largest individual supplier and provider of a wide range of dwellings to government employees. Although the PWD is primarily responsible for building institutional and administrative buildings, it also constructs flats for low-income government employees as well as single-family detached units for government officers. Additionally, the government assists private households by providing flats or serviced sites for sale or long-term lease. Including private housing financed by the House Building Finance Corporation, the Bangladesh government has provided land and housing for more than 150,000 urban households (Islam 2001: 107).

Upper- and middle-income urban households supply detached housing for themselves and for renters, creating units that typically offer low density and good to moderate living conditions. Over the past decade, however, the number of single-family detached housing units has been decreasing because of the building of high-rise multi-family units of moderate to luxury quality that cater to the new requirements of upper- and middle-income urban residents. An increasing number of private housing companies are also involved in constructing commercial flats, which can be rented or bought by individuals, but this sub-system of housing development is still very small and limited only to larger cities.

Private households also supply multi-housing units for themselves and for renters, with high density and moderate facilities suitable for middle- to upper-middle-income households. Slum landowners supply or allow construction of very high-density housing for renters, and units typically are of very low structural quality, have minimum sanitary facilities, and offer poor environmental conditions. Often, influential individuals illegally build bustees on private or semi-private land. Additionally, in smaller urban centres rural-type, owner-occupied, low-cost housing forms a major component of the stock.

Temporal Changes in Dwelling Units

Substantial changes have occurred in the nature of dwelling units throughout Bangladesh since the 1980s. Over time in the countryside, the number of structures per dwelling household is decreasing even as population increases. For example, separate *dhokee ghar*, structures in which the husking of grain takes place, and separate *bangla ghar*, guesthouses located outside the inner courtyard, are disappearing from households throughout rural settlement systems. With increasing levels of absolute poverty and mounting pressures on existing land, rural residents are being forced to transform cropland into residential uses, with the result that the per capita share of cropped area is decreasing. Another consequence of increased poverty and pressure on the land is the development of squatting on any available land, including rural roadsides, riverbanks, and embankments.

The courtyard, as a traditional component of dwellings, is either disappearing or decreasing in size in both cities and throughout the countryside. In urban areas, garden plots are disappearing due to high land prices, and in rural areas, kitchen gardens are shrinking because of pressure on rural land. Multi-storeyed flats are being constructed in large urban centres, leaving substantial portions of cities treeless. The absence of trees and gardens reduces aesthetic appeal and contributes to the dreariness of contemporary cities in Bangladesh. With modernization, some common elements found in Western homes, such as kitchens and bathrooms, are being built as an integral part of the main house, where traditionally they were placed at some distance from the living quarters. Additional positive changes have occurred with respect to dwelling structures, particularly in rural areas since the 1980s. Huts are no longer commonly seen in villages, and even the roofs of many kitchens are now made of tin. For major new dwelling units, cement plinths have partially or wholly replaced earthen plinths, bamboo mat or jute stick walls have been replaced by tin, and tin is now being substituted for thatch as a covering for the roof.

Physical service facilities have also improved in both urban and rural areas, as seen in Table 4.6. Hand-pumped tube wells (HPTWs) increased from fifty-three per cent in 1981 to ninety-one per cent in 1994. While in the early 1970s the principal sources of rural drinking water were dug wells and ponds, today almost all rural households draw their water from HPTWs. Improvements in sanitary latrines was less dramatic in an absolute sense, even though availability increased fifteenfold from one per cent in 1981 to fifteen per cent in 1994. Supported by UNICEF, a major programme was initiated in 1993 that has continued to encourage higher levels of hygiene. In the 1970s, more than three-quarters of the rural population used open fields or bushes as latrines. While these traditional practices continue, the use of sanitary latrines has escalated because of the increased ownership of latrines as well as their convenience, as the distance

Table 4.6 Physical Service Facilities Available to Rural Households

Service Facility	1981	1994
Tube wells as sources of drinking water	53%	91%
Availability of sanitary latrines	1%	15%
Electricity connection	2%	14%

Sources: BBS 2001b: 46-7; BBS 1986: 92-3.

between dwellings and latrines decreased. Although the proportion of households with electricity connections has increased—from two per cent in 1981 to fourteen per cent in 1994—it is an undeniable fact that access to electricity is still rare in urban as well as rural areas. Progress with respect to affordable service facilities, of course, continues in order to improve the lives of rural villagers and urban dwellers.

Conclusion: Constraints on Housing Development

There are several constraints to improving dwelling conditions in Bangladesh, including the rapid growth in population since independence in 1971. Between 1974 and 2001, the population of Bangladesh increased from about 72 million to 129 million, and it continues to grow at about two per cent per annum, with some two million people added each year (BBS 2001a: 29). This rapid growth has created tremendous pressure on the housing situation. Provision of adequate housing for such a large number of people over such a short period of time is a difficult task—particularly for a low-income country such as Bangladesh, where there is a severe shortage of land of any kind.

Bangladesh is not only a poor country, but its economy is growing at a lower rate relative to many Asian countries. Growth remained static at around four per cent during the 1990s. Poverty is widespread, with about forty-seven per cent of the rural and forty-eight per cent of the urban population living below the poverty level in 1995–6, according to the 1995 to 1996 Household Expenditure Survey (BBS 2001b: 602). In absolute terms in 1995–6, the number of rural poor stood at forty-six million and the urban poor amounted to ten million. With a monthly household income of less than Tk. 3,500 (or US\$60), poor people can only afford the most rudimentary type of shelter. Any substantial improvement in housing for this poorest sector invariably demands the implementation of poverty alleviation programmes for income-poor households.

Bangladesh frequently experiences natural disasters such as floods, riverbank erosion, cyclones, and tornadoes, as well as accidental hazards, such as fire, that destroy a large number of houses every year. Each year approximately eighteen per cent of the entire area of the country is flooded, with a considerable impact on a large number of houses. When severe flooding occurs, destruction is extraordinary, as, for example, during the 1990 'flood of the century', which inundated more than two-thirds of Bangladesh and destroyed nearly one million houses (Ninno *et al.* 2001: 1, 4). A mere eleven years earlier, the devastating flood of 1987 damaged over two million houses, and similar large-scale devastation of houses occurred in the aftermath of the cyclones of 1991.

The dwellings of the poor are most affected by natural disasters, since such houses are usually built with weak and inferior material, as well as commonly being located on marginal land or at hazardous sites. After each natural disaster, the government must redirect its limited resources to help rehabilitate victims, leaving much of the effort to the disaster victims themselves to cope with the direct and indirect impacts wrought by nature. It is clear that the poor face severe difficulties in coping with natural hazards because of a general lack of economic and social empowerment. Every year in Bangladesh, over 20,000 people are rendered homeless and many more experience damage to their homes because of natural disasters, causing thousands to seek emergency shelter that usually can be found only in urban areas. In addition to victims of disasters, there is a constant flow of people from countryside to the cities because of the loss of homes and/or livelihoods due to the continuing process of riverbank erosion. This inflow of rural poor exacerbates the existing housing shortage in towns and cities, as well as intensifying other social problems.

Ineffective public housing policy is also an important limitation to housing development in Bangladesh. While the Constitution of Bangladesh recognizes housing as a basic need along with food and clothing, and the country introduced a National Housing Policy in 1993, which was reaffirmed in 1999, these policy statements remain more as rhetoric than as steps toward practical solutions (Islam 2001: 110). Further confounding the problem is the fact that the government often takes steps that work against its professed policy. For example, instead of providing housing to the urban poor, the government evicted them from many of the Dhaka slums in 1999 (ASK 2000: 70). The overall housing situation in Bangladesh is also conditioned by a host of other constraints, such as rapid urban growth, an inequitable social structure, low income levels, and the increasing cost of land and construction materials. In urban areas, particularly large cities, the number of homeless households is increasing, even with the rapid growth of slums and squatter settlements. Additionally, the housing problem in cities is compounded by a phenomenal increase in rents, the non-availability of basic services, including water and sanitation, and an acute shortage of affordable and adequate shelter for the poor and other vulnerable groups.

The housing situation in Bangladesh remains unsatisfactory, and there is still a severe shortage of habitable housing stock throughout the country. Nearly half of all households in both rural and urban areas live in simple huts, which are constructed of temporary materials such as thatch, straw, jute stick, bamboo mat, and earth that are unable to withstand strong winds and are vulnerable to fire. Households continue to lack basic and necessary services such as electricity, adequate drainage, sanitation, and access to roads. Since the 1980s, changes certainly have occurred with respect to the type, size, and design of houses, as well as in the availability of utility services both in rural and urban areas, even as the population has grown rapidly and the national economy has performed poorly. Limited availability of land has restricted homestead development as a whole and constrained the expansion of floor space within homesteads. In 2000, the housing shortage was over five million units, with a 3.5 million dwelling-unit deficit in rural areas, and a 1.5 million deficit in urban areas. One way to provide additional housing and space is to make rural settlements more compact. Most settlements in rural Bangladesh are linear, and almost all homesteads have been built on mounds, raised by earth filling, to protect them from flooding. Homesteads, moreover, are often detached, because each household generally prefers to build a house on its own land.

People are aware of the poor housing situation and less than satisfactory environmental conditions. But it is basically economic limitations that have forced many into housing that may not provide adequate security, safety, privacy, comfort, or durability. In addition, the constraints are real and present exceptional challenges: rapid population growth, a poor national economy, persisting poverty, recurrent natural disasters, ineffective public policy, and a lack of co-operation between the public and private agencies involved in improving housing for the people of Bangladesh. While there is no doubt that housing is a serious problem in Bangladesh, there is a need for a concentrated, committed, and continuous effort to provide adequate shelter for all households in the country, particularly the rural and urban poor.