

Horizontal Expansion of Housing in Rural Areas of Bangladesh: Does Population Growth Matter?

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Abstract

High population growth leads to numerous problems in Bangladesh. One of these tribulations is housing. If the number of family members increased, people need to expand their houses. However, since space is not available, they need to expand their houses horizontally in rural areas on agricultural land, which is rather our main focus in the current study, not the shortage of adequate housing. The situation leaves us with gradually decreasing cultivable lands that creates numerous socio-economic problems as a consequence. The objective of the study in general is to see how the people in rural areas perceive the problem of expanding residence on agricultural land. A qualitative study based on interview method as well as key informant was carried out in a village in Comilla, an eastern district of Bangladesh during April 2012. The study reveals the fact that there are numerous social, political, cultural and religious factors behind the horizontal expansion of housing in rural areas apart from population growth. It further exposes the need of non-demographic factors to be considered with more attention by the authority to reduce the problem.

Keywords: Cultivable Land, Horizontal Expansion, Rural Housing, Settlements

1. Introduction

Bangladesh is a country blessed with a number of natural and other resources though it is one of the densely populated countries in the world, in which 93.51% of the total areas are comprised of rural areas where 81.27% of total population inhabits (Barakat *et al.* 2007). According to a later statistics 72% of total population live in rural areas (CIA – The World Factbook 2012: 123) and about 47% people do not have any shelter. Society faces numerous problems due to high population growth where housing along with other settlements is a notable concern. With the increase of family members, households are expanding their homesteads and this expansion is horizontal that leaves us with gradually decreasing agricultural lands. Traditionally, Bangladeshi people in rural areas used to live in a *bari* (a homestead which normally includes houses to live, a yard, a backyard for women to use, and a small pond or two. It is usually dominated by patriarchal system. When the sons of the family reach adulthood, they get married and build few small rooms adjacent to the rooms occupied by the parents. Over the period of time, the entire household area becomes highly congested.). Even though space availability for horizontal expansion is limited, people forced to do so considering high cost associated with vertical expansion. On the contrary, it is observed that people in urban areas usually expand their *bari* vertically because the cost of vertical expansion is cheaper compared to the cost of land required for horizontal expansion.

High growth rate of population in Bangladesh has created enormous pressure on land. In addition to that, land-use patterns are radically changing and adversely impacting country's agricultural land, forest, water bodies and wildlife habitat (Rahmatullah 2007: 10). Making new homes on cultivable land limits the use of land for agro production. According to 2011 estimates, the growth rate of population in Bangladesh is 1.67% that stood 76th among the countries in all over the world (United Nations 2011). This high population requires huge amount of food every year. If such trend of horizontal expansion is continued, it is expected that the food security of the country will become more vulnerable. Some of the studies further suggested that the land in rural areas under agriculture should not be used for any other purpose (Barakat *et al.* 2007: 13).

Existing literature deals with different aspects of housing in rural areas. However, none of these considered housing from an indigenous perspective. Most of the studies discovered the demographic factors e.g. population growth are the major issue that determine the horizontal expansion of housing in rural areas. The situation here is not unlike Greece, where growing demand for urban (residential and industrial) space during the last 50 years has resulted in unplanned residential development and informal dwelling construction at the cost of agricultural

and forest land uses (Polyzos & Minetos 2009: 23). Some researchers also have identified few other reasons behind this expansion that include the lack of availability of land in cities for housing and the limited financial ability of the migrants there (Barakat *et al.* 2007: 29, Hafiz 2000: 16). A later study points the expansion of housing as a consequence of remittance flow from the migrant workers since remittance improves the ability to build new homestead by households (Rahman 2012: 12).

There are two levels of the problem. The first level of the problem is inadequacy of living space, which generates the second level problem – horizontal expansion of housing as its logical consequence. We will focus on this second level problem, which is not originated mere from demographics perhaps. Issues like culture, politics, religion, etc. are also penetrating the body of problems. It might be said that the study considered the problem of housing in rural areas from a subaltern perspective that incorporates views of natives who actually are taking part in the play.

2.1 Horizontal and Vertical Expansion of Housing

Housing nowadays is considered as one of the major problems in rural areas of Bangladesh. With the increase of population all basic needs are required at higher amount including adequate space within households. In response to the problem of inadequacy of living space, villagers build new households on agricultural and other productive lands, which is known as horizontal expansion of housing. Land resource is limited in supply though people seek an immediate solution of housing problem through horizontal expansion. Apparently this expansion solves the problem in rural areas but leaves with some newly generated problems at the same time.

The alternative way to expand living space is vertical expansion, which means increasing number of floors upward. Particularly it is very common in urban areas of Bangladesh, e.g. Dhaka, Chittagong, etc. Lots of high rise buildings are considered as vertical expansion of *bari* in such areas.

2.2 Implications for Rural Housing in Bangladesh

High growth rate of population and rapid urbanization in Bangladesh have created enormous pressure on country's agricultural land and ecological balance (Rahmatullah 2007: 14). People in rural areas build new homesteads on agricultural and other productive lands and its characteristic is regular and gradually increasing. Horizontal expansion of housing in rural areas is solving the part of the problem on the one hand but is again causing less agricultural production and few other inauspicious problems on the other hand e.g. climate change, deforestation, desertification and the loss of biodiversity. In addition, the availability of land per capita is decreasing, implying a further pressure on land. As a result, sustainable land use has become an important policy issue in Bangladesh.

The present housing conditions and patterns in rural Bangladesh and the trend of shrinking cultivable land through horizontal expansion of housing has a great implication on the economy (Rahman 2008: 32). For proper land utilization the government could introduce a land management act with a land zoning system and a ceiling for housing in rural Bangladesh, as well as strengthen the housing facilities for disadvantaged people in a planned way (Rahman 2008: 27). When new residence is built in new homestead it puts pressure on the surrounding land. Sometimes new resident needs new pond, which grasps some more agricultural land. Owner of the land cannot cultivate the land properly due to homestead wastage on the land. The shadow of trees of the household reduces productivity of land as well (Rahman 2012: 43). The picture is not completed yet. The domestic animals of the household sometimes damage the crop of the land. These multiple negative impacts decrease the overall production and some impacts are long lasting too.

Considering the situation, Jamil and his colleagues refer vertical expansion if horizontal expansion is not feasible (2006: 41). The role of real estate companies is very essential in this regard but however, it is a matter of regret that such companies are not interested to expand their business in rural areas concerning the difficulties and profit gain compared to the urban areas.

Some researchers suggested finding some alternative ways of rural housing. Because, after agriculture, housing is the most important vehicle for the use of land due to increase in population, number of households, and increase in rural to urban migration, requiring enhanced quantum of land for housing (Rahmatullah 2007: 45).

Some of the studies further suggested that land in rural areas under agriculture should not be used for any other purpose. Both unplanned and misuse of land are evident in Bangladesh. Barakat and his colleagues states,

About 25% acquisition of land remains unused or used in unproductive purposes. This type of misuse

of land should be stopped. Land use has to be designed in such a way that small and marginal farmers are not deprived of their lawful land water rights. Size of land covered under irrigation has to be fixed on the availability of underground water. It will prevent desertification as well as ensure proper utilisation of natural resources like water. Acquisition of land under irrigation has to be stopped strictly. Agricultural land with two or three cropping intensity or potentiality should be prohibited for non-agricultural uses such as private construction, housing, brick field etc. Non-agricultural Khas lands should be used on priority basis for nonagricultural development activities. Only in absence of alternatives, minimum amount of less fertile agricultural lands could be used for non-agricultural purposes (Barakat et al, 2007: 18).

Even in existing government policy related to making homes on arable land is not strictly implemented. A national policy paper related to the issue says, 'rural people would be discouraged to build new homes on arable land' (National Housing Policy 2008: 17).

Thus existing literature deals with different aspects of housing and other settlements in rural area. However, none of these considered housing from an autochthonic perspective as mentioned before. There might be some other facts behind constructing homes on cultivable land that people rationalize their decision based on. Perhaps people are compelled to do this sometimes. In order to take some policies to minimize horizontal expansion of housing in rural areas, government might consider native perspective as the present study anticipates with. Otherwise the policy might be tough to be implemented.

2.3 Housing Culture in Rural Comilla

Comprehending housing culture is very important in determining its horizontal expansion and other rural settlements. At present, most of the people in Comilla live in villages and with few exceptions in their ancestors' home. The houses are generally made of tin, wood, bamboo, bricks etc. However, sometimes they build new *bari* horizontally on agricultural lands if not with their family members in a joint or extended family. This housing culture has been being continued for centuries. Even an earlier literature mentions the housing patterns in Comilla that are still prevailing.

'Dwelling house Comilla district possesses brick built buildings of standard size and quality situated mostly at Comilla, Brahmanbaria and Chandpur, the three notable towns of the district. Most of the dwelling houses are made with wooden supports interlaced with bamboo walls and roof of thatching grass, laid upon bamboo-frames. The middle class people live in chouchala (four roofed) tin shed constructed with wooden posts, wooden frames and C.I. sheet roofs while the poorer section live in dochala (two-roofed) huts or bamboo frames and thatched roofs. In Brahmanbaria and Comilla sadar, mud-walled houses are found the roof of which are of chhan grass. The houses of well-to-do people have of elaborate bamboo work or C.I. sheets. Majority of the houses in village do not have much furniture. In the rural area only the well-to-do persons use chauki (cot), while the great majority sleeps on mats and chatais or pati' (Bangladesh District Gazetteers Comilla, 1977: 678).

Another portrayal of rural housing in Comilla district draws attention that is found in W. W. Hunter's book named *A Statistical Account of Bengal* which mentions,

The dwelling of an ordinary shopkeeper is composed of three rooms, with another small detached room used for cooking purposes. The dwelling of an ordinary peasant consists of a small house divided into two rooms, in one of which the family cook and eat, and in the other they sleep. The building materials used in the District consist merely of bamboos, wooden posts, thatching grass and canes, which last are used instead of rope for the purpose of binding the work together (1974: 567).

Such housing is difficult to expand vertically while needed. It is worthwhile to mention that the family tie is not stronger in Comilla Region especially in the southern part of the district as compared to other districts like Sylhet resulting occasional quarrels among family members prevailing throughout the year (Rahmatullah 2007: 46). This brings a number of changes in the society as consequences including horizontal expansion of housing.

3. Research Question (RQ)

From the above literature, we may limit our study with the following primary research questions (RQ):

- I. What are the characteristics of the households, which has two secondary RQs:
 - a. What are the major income sources of households,

- b. What are the secondary income sources of households? And
- II.** What are the reasons stimulating the expansion of housing, which has few more secondary RQs:
- a. To what extent does demographic reason, i.e. population growth influence the decision,
 - b. What are other reasons working behind, and
 - c. To what extent do the other reasons contribute?

From the findings of the latter RQ (IIc), we may reveal the following hypothesis:

Non-demographic factors affect the horizontal expansion of housing more significantly than demographic factors.

4. Methodology

The study is qualitative in nature. It is principally based on some anthropological techniques, i.e. key informant and interview method. The area has been chosen from eastern part of Bangladesh, which is a village named Narayanpur under Manohargonj upazila in the district Comilla. High concentration of current research problem in the area worked as rationale of choosing this village beside the convenience of the researchers. A large number of new homesteads were built on agricultural land in last 20 years in the village as well as the surrounding villages (information provided by key informant-1). The place was located by *Mouza*⁴ map of the village prepared latest during the period of 1993 to 1998 through BS (Bangladesh Survey). Two key informants have been taken of which one is local surveyor (Key informant-1) and other is an educated person of the village graduated from Victoria College; a government approved old institution in Comilla under the National University (Key informant-2). All 29 households were interviewed who built new *bari* on agricultural land after the year 1998 in this particular village.

The ethical issues for conducting such a research have been maintained strictly. The case studies have been developed only after getting permission from the respondents. At the very beginning of interviews, respondents were informed that data and information gathered through this process would be used only for the purpose of research. No harm or benefit would be done to the respondents. It was clearly stated to the respondents that no financial information or personal information would be provided to any other entity. Pseudo names have been used for respondents who did not permit to publish their names.

5. Findings of the Study

Rural people build *bari* and other settlements on cultivable land for various reasons. Apart from demographic factors, some non-demographic factors play vital role in this regard. The study is an explorative one that extends the research problem based on primary findings. The contribution of non-demographic factors enhancing housing expansion was the primary exploration of the study, which unfolded further interest whether non-demographic factors affect the decision more significantly than demographic factors. The details of the findings are discussed below.

5.1 Household Characteristics

The Socio economic backgrounds of the households who have changed the location of their residences and have built new homesteads are important in the study. The study explores the primary and secondary income source of the households that might help to limn their situation at large.

5.1.1 Major Income Sources of the Households

The major income source of the household in a village is generally expected would be agriculture in a country like Bangladesh. In the present study, the households who have shifted to newly built homesteads on cultivable

⁴ Mouza was the lowest revenue collection unit during the Mughal period. In the 20th century, mouza became popularly synonymous with the *gram* or village, which is indeed a social unit. However, in the 19th century and earlier, mouza was identified both as a social and revenue unit. Within a mouza there could be thus more than one village. And, at the same time there could be even one village belonging to two contiguous mouzas.

lands during the period of 1998 to 2012 have been interviewed. Major income source of participating households varies among five categories shown in Table 1. As data reveals, more than one-fourth (27.6%) of the households earns majority of their income from private service. At the same time, agriculture and business, each shares the major income sources for slightly less than one-fourth (24.1%) of the households. Remittance, however is another major income source for more than one-fifth (20.7%) of the households. Among the households, only one household is principally based on income from serving the government.

Table 1. Major Income Sources of the Households

Income Source	Frequency	Percent	Cumulative Percent
Private Service	8	27.6	27.6
Agriculture	7	24.1	51.7
Business	7	24.1	75.8
Remittance	6	20.7	96.5
Government Service	1	3.5	100.0
Total	29	100.0	

In a nutshell, income other than agriculture plays an important role for majority of the households that might stand for the reason they decide to build new homestead on cultivable land. Since their earning is not directly depended on agriculture, losing cultivable land is perhaps not their primary concern.

5. 1.2 Secondary Income Sources of the Households

Most of the households in the study have a secondary income source. The secondary income source for more than half (52%) of the households is agriculture (Figure 1). Nearly one-fourth (24%) of the households has secondary income source from business. Nevertheless, about 17% of the households do not have any secondary income source. However, income from remittance is very little (7%) in this respect.

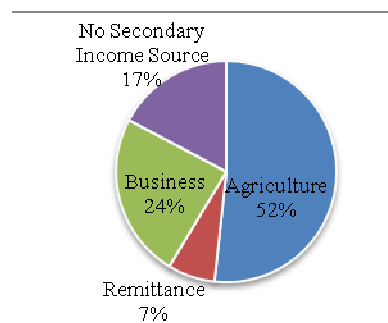


Figure 1. Secondary Income Source of the Households

5.2 Reasons for Shifting to New Homestead

Population growth is not the only stimuli for housing on cultivable land in rural areas while other reasons are also responsible. Showcased in Table 2, reasons for building new settlements include demographic, social, economic, cultural, religious and different combinations of all these.

Table 2. Reasons for Shifting to New Homestead Built on Cultivable Land (considering multiple reasons)

Reason	Frequency	Percent	Cumulative Percent
Demographic	9	31.0	72.4
Social	8	27.6	
Cultural	2	6.9	
Economic	1	3.4	
Religious	1	3.4	
Demographic and Social	3	10.3	27.6
Social and Economic	2	6.9	
Demographic and Economic	3	10.3	
Total	29	100.0	100.0

Form the Table 2 this is apparent that most of the households, nearly three fourths have shifted only for a single reason. Demographic factor like population growth induced nearly one-third (31%) of the households to move from erstwhile homesteads. Similarly, eight out of the twenty-nine households (27.6%) made new *bari* for different social causes. On the other hand, two households (6.9%) took such decision because of the housing culture in that region. Another two households of which one household shifted due to economic reasons and the other household was influenced by religious variables.

However, more than one fourth of the households (27.6%) made new homestead and shifted for multiple reasons. It is found that three households (10.3%) shifted because of both demographic and social problems while an additional three households made new homestead facing both demographic and economic difficulties. The rest two households took such a decision due to social and economic reasons.

5.2.1 Demographic Reasons

Given the land a household has for living, the pressure increases with additional member in the family. It creates increasing demand of new *bari* for new members. Lack of family planning plays a vital role here in increasing members in a family in rural areas. A good number of families take more than two children. Consequently, accommodation problem arises to make safe haven for the new born children (key informant-1).

Table 3 gives a clear state of the average family size of the households. These households made new homesteads on cultivable land after 1998 and demographic reason was found evident for most of them who have more children. The average family size of the households is more than seven (including parents). Even the maximum number of children in a family is nine for three nuclear families. In case of joint families, this maximum number is fourteen. However, the minimum size of the family is three (including parents) among twenty nine households. These indicate the family planning service is used by the households in a limited array.

Table 3. Number of Children

Total Households	Average No. of Children	Maximum No. of Children	Minimum Number of Children
29	5.62	9	1

One of the alternatives to meet the housing demand could be the vertical expansion of housing. Brick built houses with concrete roof can easily be expanded vertically. But the housing culture is accountable in this regard for making new *Bari* on a cultivable land. Because, most of the people in Narayanpur village live in tin-shed houses and these are complicated to expand vertically.

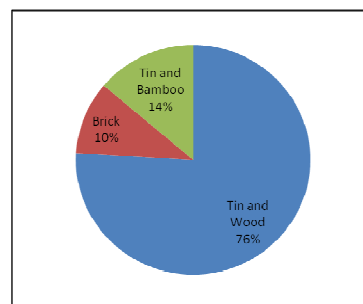


Figure 2. Pattern of Housing before Shifting to New Homestead

Figure 2 depicts that three fourths (76%) of the houses were made up of tin and wood before shifting to new homestead. Moreover, four other households (14%) out of twenty-nine households had houses made up of tin and bamboo. Such housing pattern compelled them to make new homestead on cultivable land in order to meet their housing demand (Box 1, Case 1). The pressure is mounting on cultivable land each year in the village. Despite having brick built houses before shifting to new home, some households did not expand vertically. For them, factors other than demographic were responsible in erecting new homes on a cultivable land.

Box 1

Case 1: 'S', a 40-year-old farmer shifted to new home last year (2011). He has six brothers. After distributing his father's land, each brother received only 0.0225 acre which was inadequate for making a *bari* for his (S's) five children. Furthermore, they had a tin shed *bari* that could not be extended vertically. Thus he was compelled to make a new *bari* at some other place.

Box 2

Case 2: Abdul Khalek, a retired school teacher, has only one elder brother. They lived at the same house (*bari* in local language). Even they shared same latrine. But there was no cooperation between two families. Both the brothers have five sons each. As Abdul Khalek was the teacher and worked in a distant district, he could not stay home on a regular basis. In the mean time, his brother and his (brother's) sons used to quarrel with Abdul Khalek's family members. The quarrel might have started even with a silly matter like if a hen of Abdul Khalek crosses the fence (boundary of the land occupied by the household), it would have been converted into a daylong quarrel. The quarrel further promoted into an antagonistic relationship forever. His brother's family always used to dominate in the battle.

For years of deprivation, oppression, and exploitation by the neighbours; he (Abdul Khalek) decided to get separated though it seemed a great problem to them to stay at an isolated homestead leaving the community. By this way they sought refuge from the dispute and maintained their peace and happiness.

Case 3: Hedayet Ullah, a non resident Bangladeshi, was blessed with three daughters and one son. As his daughters are getting older, some neighbouring teenager boys always used to tease them (daughters). To get rid of eve teasing, he left his old *bari* and its neighbours though the land area at their old *bari* was adequate enough to build two more new *bari*'s in future.

Box 2 [continued]

Case 4: ‘Y’ is a 45-year-old farmer. His wife informed us of some crucial reasons for their shifting. Her husband was beaten several times by his neighbours for political reason. ‘Y’ was affiliated with a political party like almost every other members of the village do. His party was in opposition while his neighbour supported a party which was in power. Y’s family was a very poor one and he was just a day labourer in agricultural sector. They were oppressed by the powerful neighbours in many ways. Even ‘Y’ was not listed for social safety-net-benefits of the government as he did not support the party in power. Finally, they sold the land of their old homestead. Moreover, his wife sold her property that she obtained from her father. They built a small new *bari* on a high fertile land, two kilometers away from their old *bari*.

Case 5: Fatema, a 55-year-old village housewife lived in a community that strongly supported the party in power. Her husband died 10 years back. However, her paternal ancestors (in the same village, known as *Hazi bari*) supported a party who are in opposition. Being surrounded by the members of political opposition, she got suffocated. One day a leader of the then ruling party threatened her “*Hazi barir sob bongshodhorderke tader nijeder barite pathiye deya hobe*” (all the descendants of *Hazi bari* would be sent to their origin). Such types of threats were very common phenomena while Fatema had been living at her old house. During the interview she was taking long breathe while describing her sufferings at the previous house. Her son Mohammed Ullah, a 20-year-old young man, staying abroad at the time of interview, was also beaten several times by the then neighbours. Finally, they decided to shift to a new homestead. Their old house remained unsold and now used by those musclemen. She did not go there even for a short visit since she got shifted.

5.2.2 Other Reasons: Social and Political

Some social factors are responsible for inducing people to make new *bari* on farming land. Weak social bonding and family integration make people alienated (Granovetter 1973, Putnam 1995: 67). Such relationship compels them seeking some other solutions to get rid of the problems at previous home.

In the study, it is found that many families suffer from lack of family harmony before shifting to new *bari*. There is always clash of interests among the family members and it happens in joint as well as extended families with a significant frequency in Bangladesh. Even some of the neighbours at old home used to dominate over the weak households in a number of ways living at the same *bari*. Some neighbours produce pressure on others; sometimes oppress innocent neighbours (Box 2, Case 2). Some of the households faced various pressures from the neighbours and did not take any legal action against the oppression. They would rather think a silent solution through shifting to a new homestead (Box2, Case 3). They leave their beloved old home and settle in an isolated homestead.

Political factors are also responsible for confining people to move new *bari* (Box 2, Case 5). The situation prevailed even in case of person’s political identity (Box 2, Case 4).

5.2.3 Other Reasons: Cultural

It has been a matter of prestige to make new *bari* on arable land in the village, as one of the key informants informed. Holding land and *bari* is considered to be not only a basic necessity, rather a symbol of high strata, power, and prestige. At the same time it is considered as an instrument toward happiness, a place for entertainment. A separate homestead is considered as a matter of honour and dignity in the society. Likewise, in city areas the rich people sometimes buy car not as a medium of transportation but as an instrument of prestige, a manifestation of more honour and personality. In rural areas, the first target of a household after being richer is to build a new homestead. This culture is getting familiar among the villagers. Out of twenty nine households in this study, two have built their new *bari*’s because of the culture grown in the village. They could have restrained from such choice. There was no shortage of land at their old homestead if they had wanted to build a new *bari* there. It has become an important part of their prestige to make one or more new homesteads (Box 3, Case 6). If the households stay at the old home despite their capacity to build a new one, their ability remains uncovered. Normally, the old home a household lives in is not his own, rather owned by the ancestors, people thinks.

Box 3

Case 6: Mr. Morsalin, a businessman, has four brothers. One of them has already settled down in a town and another has shifted to a new homestead built on a cultivable land, 500 meters away from the old *bari*. Rest of two brothers and Mr. Morsalin himself could have passed their left over days at their old homestead. The land there was adequate enough for housing. But Mr. Morsalin built a new homestead last year on a piece of cultivable land, 300 meters away from the old *bari*. He made such a homestead only because of the culture grown in his society. He wanted to show that he owned a *bari* separately and he had the capacity to do so. These are the observations of key informant-2 with reference to Mr. Morsalin's new homestead.

5.2.4 Other Reasons: Economic

The lack of economic opportunities at the old homestead was another reason since many households acknowledged the shortage of land. However, no significant evidence was found supporting their belief that new *bari* will provide with new opportunities. This is rather a superstitious notion. Two out of twenty-nine respondents answered in such a way that can easily be labeled as economic. Such considerations include new economic opportunity, business expansion, and investment in human capital (through considering children's future) (Box 4, Case 7). Moreover, one of the households mentioned that he has more freedom of choice at new homestead. We found both economic and social causes that put them forward to build a new homestead in isolation (Box 4, Case 8).

Usually in Bangladesh parents take into account the future of their children. Staying at old homestead, some parents think, the surrounding environment is not congenial for their children's socialization. According to the respondents, children mix with other children at old homestead and learn bad languages (*gali* in local language). Sometimes they (children) lose their deliberation in their study by mixing with the ill behaved children. Thus, for the sake of children's better future, parents shift their living. It seems to be an investment in human capital to ensure a better future for the children.

Almost every household considered the future betterment of their children while shifting to new homestead as showcased in Figure 3, that illustrates the answers of the respondents when being asked whether they considered the future of their children while deciding to shift to a new homestead or not. Findings show, households are almost homogeneous in their opinion regarding this issue.

Some other households stumble on new homesteads, a place likely to improve their income. More adjoining land can be cultivated as share cropper, new fishing farm can be set at the new place easily, etc.

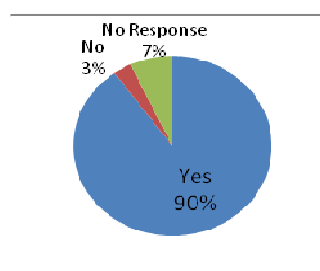


Figure 3. New Housing Induced by Consideration of Children's Future

Box 4 [continued]

Case 8: It is found in the study that some people make new homes to seek some alternative sources of income who are not unlike Mr. 'N', a retired army personnel. He shifted to a new homestead 10 years back. He says, 'at my old home everything was shared by my family members (his brothers' families). I decided to shift to a new *bari* of my own to consume personally. Here I can grow rice and other crops in my own land, cultivate fish and make poultry farm of my own. I don't need to share and I don't want that too.' The economic benefits he derives at his new *bari* include more land for cultivation, separate pond for fishing and accessible space for setting a poultry farm. Moreover, he does not require sharing such products with anyone. Sharing crops, fishes and poultry with his brothers' families were considered from an individual perspective. It was not mere economic reason that induced such shifting of Mr. 'N'. He derives a psychic benefit from new homestead through individual consumption. Thus it is clear that for ensuring some economic benefits as well as social benefits he shifted.

5.2.5 Religious Reason

Generally, the propensity of religious practice is more in rural areas of Bangladesh than in urban. In the study, Religion is found as one of the major considerations for shifting to new *bari* instead of staying at old *bari*. Although there are some families from Hindu community living in the village, it is found that new homes have been made only by the Muslim families. This is because Hindu people do not possess any cultivable land other than their home settlements. Since majority of the population is Muslim in Narayanpur village, key informant-2 informed, the number of religious institutions, e.g. mosques, and madrasahs⁵ have been increasing in the village since last fifteen years. However, the introduction of modern science and technology e.g. electricity, cell phone, computer, internet, and satellite television have played enormous role in shifting their popular beliefs, attitudes and thoughts towards a new dimension. They are entitled with a more liberal way of accepting changes sometimes contradictory with their traditional way of living. Yet this is found that a good number of households preserve their religious customs, beliefs, practices maintaining the tradition. From the study, we found one of the households shifted to new homestead considering the religious matters more than any other problems (Box 5, Case 9).

Box 5

Case 9: Sayera, a young house wife, informed that it was not possible for her to maintain *hijab* (a religious obligation for Muslim women to not to appear in front of adult males other than close relations without covering their body) at her old *bari*. The *bari* was densely populated. Adult Males always used to appear frequently before her. Sometimes she was not covered properly (without veil) while adults crossed her. It used to let her feel guilty to Allah. Sometimes she could not contemplate in her prayers while songs were being played at a high volume in her neighbouring houses. All these were intolerable to her. She insisted her husband to make a new homestead in isolation. She is found a practicing Muslim lady. Even she was talking to the researcher staying in a separate room at her new *bari* while interviewing.

5.2.6 What Contributes More

From the above discussions and the frequency analysis of the data collected from the households, this is apparent that only one third (31%) of the households have shifted facing demographic problems. Roughly speaking, rest two-thirds (69%) of the households shifted due to non-demographic reasons including multiple reasons (Table 4). However, considering the single reasons, the data can be interpreted in a different manner showing in Table 4. This table was generated by asking the households to rank a single reason first that motivated him most between multiple reasons.

⁵ A Madrasah, derived from Arabic language, is generally understood as a religious institution for the study of Islam.

Table 4. Reasons for Shifting to New Homestead Built on Cultivable Land (considering single reason)

Reason	Frequency	Percent	Cumulative Percent
Demographic	10	34.5	34.5
Social	12	41.4	75.9
Cultural	4	13.8	89.7
Economic	2	6.9	96.6
Religious	1	3.4	100.0
Total	29	100.0	

65.5%

For instance, a household has shifted for multiple reasons, but when he/she was asked to rank between the reasons, the answer was demographic factor at first, and then the other factors came. Here we see from Table 4, the cumulative percentage of the households who shifted due to non-demographic factors is more than half (65.5%) of the total respondents. Key informant-2 told that this percentage could be higher, but some of the respondents tried to hide the original reasons of their shifting. They thought, if the demographic cause is revealed and seems to be ‘normal’, it might be worthwhile mentioning, according to the key informant-2 from his years of observation. Hence the demographic reasons that induced less than half (34.5%) of the households are not the true reflection of the reality.

5.3 Testing the Hypothesis: Proportion Test

Testing the above hypothesis we take the proportion of demographic factors (34.5%) as ρ_1 and the proportion of non-demographic factors (65.5%) as ρ_2 . For testing the null hypothesis, we use the methodology described by M. Nurul Islam (2008: 254).

$$H_0: \rho_1 = \rho_2$$

$$H_1: \rho_1 < \rho_2$$

Under the null hypothesis, the following test statistic for large sample n ,

$$z = \frac{\hat{\rho}_1 - \hat{\rho}_2}{\sqrt{\hat{\rho} \hat{q} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \dots\dots\dots (i)$$

Where, $\hat{\rho}$ is the pooled estimate of ρ defined as-

$$\hat{\rho} = \frac{n_1 \hat{\rho}_1 + n_2 \hat{\rho}_2}{n_1 + n_2} \dots\dots\dots (ii)$$

From our study, the calculated value of z stood -17.98 , which is smaller than the critical value (-1.96) at 5% level of significance that entails rejecting the null hypothesis. Consequently, the assertion that *Non-demographic factors affect the horizontal expansion of housing more significantly than demographic factors* is accepted.

6. Conclusion

Although the study was based on a village from Bangladesh, it gives a number of insights regarding the issue of rural housing. In Narayanpur and the surrounding villages, a number of new homesteads are built on agricultural land every year. On an average, 1.93 homesteads are built in each year in the village for the duration of 1998 to 2012. The geographical survey reveals that a total of 15.95 acres of land has been exploited for non-agricultural purpose during the period 1998 to 2012 (Ahmed, 2012).

The study finds the fact that there are numerous social, economic, political, cultural and religious factors behind horizontal expansion of housing in rural areas apart from population growth. Out of twenty-nine households, demographic factor, i.e. population growth induced slightly more than one third (34.5%) of the households to

shift after 1998 in Narayanpur village. On the other hand, twelve out of twenty-nine households (41.4%) made new *bari* for different social causes. However, two households (13.8%) took such decision because of the housing culture in that region. Among the rest three households, two were caused due to economic reasons and one was influenced by religious variable.

The study explores the role of non-demographic factors while shifting to new homesteads and further argues through statistical test that non-demographic factors affect the horizontal expansion of housing on cultivable land more significantly than the demographic factors at 5% level of significance.

In order to trim down the incidence of the problem of horizontal expansion of housing, the socio-economic background of the respective household must be considered. The views of households and their participation in further policy formulation by government or any other authority should be incorporated to levy a ceiling on the expansion of housing on cultivable land in rural areas.

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