Living Below the Line: Sustainability and the houses of the ultra poor

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ABSTRACT: For the extreme poor in Bangladesh, day-to-day survival is the primary concern of life. Shelter is a basic need. The adequacy of this shelter is not. The ultra poor communities in Bangladesh seemingly live in the most basic form of shelter. A closer look however, reveals that the building practices of these people address sustainability, affordability and a host of socio cultural and environmental issues with deeper concern and wisdom than is apparent. The shelter issues of the participants of the CFPR/TUP (Challenging the Frontiers of Poverty Reduction/Targeting the Ultra Poor) Program of BRAC (a Bangladeshi NGO and one of the largest development NGO’s in the world) are looked at as part of a joint research by the Department of Architecture, BRAC University and the Research and Evaluation Division of BRAC. The study focuses on the homestead layouts, space-use pattern, building materials, building priorities and the environmental qualities of a selected number of households in the northern part of Bangladesh. Attempt is also made to understand how the people perceive their own houses and housing needs as a part of their existence and development. They design and mostly build their own houses from what is available in the immediate surroundings. Materials are taken from the land and return to it on decay. The house, its occupants, surrounding vegetation and livestock all form an ecosystem of their own and live on a mutually dependent environment. In physical terms these houses are not strong and are vulnerable to the elements. The indoor environment is inadequate. But in terms of affordability and availability they are clearly optimum and sustainable. It may be possible to suggest ways and means of improvement of the physical environment. The question is what level of intervention is acceptable to retain their current state of sustainability.

Conference Topic: 05 Materials and building techniques

Keywords: ultra poor, sustainability, aspiration

1. INTRODUCTION

The construction of a house can be seen as process of negotiation between the builder/owner and the environment. The builder takes from the earth what is needed to build, directly, or indirectly through a processing method. Mud is directly used for construction whereas cement is processed from limestone. Unfortunately the environment has little say in the negotiation. Man takes or often plunders what is he needs from the environment. The environment may retaliate by upsetting the balance of nature i.e global warming etc. The issue of sustainability is very much related to how direct this negotiation process is. It is also related to wealth. The poor cannot afford to buy processed materials and therefore take what is directly available and free. Their houses are environment friendly by virtue of their lack of wealth. The houses discussed in this paper belong to the poorest of a very poor country. The owners are the designers and builders. Most of the materials are acquired from very close proximity of the site. Changes depend on the changes in the owner’s economic status, as does the regularity of maintenance work. The spaces around (and between) the houses are closely interlinked to the way the house is used. Landscape and plant-materials are a part of the local ecosystem and are linked with the livelihood of the owners (Figure 1). This paper presents some of the findings of a study of the houses of a number of ultra poor households living in a Bangladeshi village. It looks at the way the spaces are laid out, constructed, their use and the users perception of them. It doesn’t take much to realize that these houses are tuned in to the surrounding environment. The householders are all part of BRAC’s CFPR/TUP program.
2. BRAC'S CFPR/TUP PROGRAM

BRAC, one of the largest development NGO's in the world has been working for the cause of alleviating poverty in Bangladesh since 1972, amongst others, though its health, education and micro-finance programs. In 2002 it embarked on a project called Challenging the Frontiers of Poverty Reduction/Targeting the Ultra Poor (CFPR/TUP) aimed at improving the quality of life of the very poor. Recent estimates suggest that 20–34% of the population of Bangladesh live in extreme poverty and some of them are the participants of this program. The selection is based on a range of socio-economic and demographic indicators [1]. All programme participants are women and there is a preference for selecting women headed households among the poorest (Table 1).

Table I: Targeting indicators used in CFPR/TUP and their rationale (source: CFPR/TUP baseline survey, BRAC, 2004)

<table>
<thead>
<tr>
<th>Targeting indicators</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exclusion indicators</strong> (needs to dissatisfy all)</td>
<td></td>
</tr>
<tr>
<td>Any member of the household has current NGO participation.</td>
<td>Targeting those extreme poor who do not/can not participate in existing NGO programmes.</td>
</tr>
<tr>
<td>Any member of the household receives benefit from GoB programmes.</td>
<td>Targeting those extreme poor who do not/can not participate in existing GoB programmes.</td>
</tr>
<tr>
<td>No physically able woman in household.</td>
<td>This is a women-targeted enterprise programme.</td>
</tr>
<tr>
<td><strong>Inclusion indicators</strong> (needs to satisfy any two)</td>
<td></td>
</tr>
<tr>
<td>Owned land of household including homestead less than 10 decimals.</td>
<td>Landless and extreme poverty highly correlated, though all landless are not extreme poor.</td>
</tr>
<tr>
<td>No adult working man in household.</td>
<td>Absence of able-bodied male labour power is an important characteristic of extreme poor households.</td>
</tr>
<tr>
<td>School-going aged children working.</td>
<td>Child labour is predominant in extreme poor households.</td>
</tr>
<tr>
<td>Adult woman selling labour.</td>
<td>Adult woman selling labour is more prevalent in extreme poor households. This also signals the desperation and motivation of the household.</td>
</tr>
<tr>
<td>No productive assets</td>
<td>Extreme poor households tend not to own any productive assets.</td>
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</table>

Figure 1: Different spaces of homestead - 1
Figure 2: Location and map of the study area map in Holhola village

Figure 3: People and homesteads
3. THE TARGET GROUP

3.1 Location and Background

The houses studied are all located in the Holholia village of a region called Domar in Niphamari district in the northern part of Bangladesh (Figure-2). Historically this part of the country has been poorer than the rest. It is hotter and drier than other parts and therefore susceptible to droughts. As opposed to crops a year in the fertile deltaic parts of the south, the north has only 2. Communication with the rest of the country has not been good until recently. Only one of the households studied owns a small parcel of cultivable land. They are at best sharecroppers or work as domestic helps in other houses or are labours.

4. HOUSE FORM IN RURAL BANGLADESH AND IN DOMAR

The traditional house form of rural Bangladesh is the open courtyard type where single room units (with or without a verandah) are placed around a courtyard with gaps between the units to allow airflow in the hot humid climate. Depending on where the houses are, materials may vary. In some parts mud is used as a walling material in some parts bamboo or dried jute stalk. The plinth is almost always mud. The roof is traditionally thatch but there is strong preference for corrugated iron because of lower maintenance and permanency in spite of high heat gain and the resultant discomfort indoors [2]. The house form in the area of the study is similar to the rest of the country except that they, apart from an indoor court also have a forecourt but this true only for the affluent population. The soil in Domar is not suitable for constructions of walls hence only the plinths are of mud.

5. THE STUDY

The study is in part an attempt to complement the information CFPR/TUP program monitors. While it is obvious that the issue of housing is important for the development and well being of any population, it is also important to understand how the poor perceive what we, as academics, professionals or policy makers, understand as their house or housing. It attempts to understand the role of the house vis a vis the homestead as a part of the self improvement process of the poor. Important from the point of view of the researchers is the issue of sustainability of these houses i.e. their interactions with the natural environment and the scope for optimization of this interaction. Further study will investigate whether, if at all, intervention from the program regarding housing issues will be of benefit to their quality of life.

5.1 Household and Homestead

Household, a demographic and socio-economic entity, consists of a person or a family or families who eat from one cooking source. Homestead, a defined spatial entity, may consist of one or several households (Table II).

<table>
<thead>
<tr>
<th>Household</th>
<th>Homestead</th>
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<tbody>
<tr>
<td>Refers to family structure composition</td>
<td>Refers to space use composition</td>
</tr>
<tr>
<td>People centred concept</td>
<td>Environment centred concept, i.e. not only people but also other elements of surrounding environment</td>
</tr>
<tr>
<td>Socio-economical entity</td>
<td>Socio-economical and architectural entity</td>
</tr>
</tbody>
</table>
The CFPR/TUP program considers household as a unit but this study considers homestead as a unit as it deals with spatial issues. The study area has 35 households but the number of homesteads is 26 as households often share a homestead. Here the 6 TUP households live in 5 homesteads, which are the units of study (Figure 2 and 3).

5.2 Information and Observations

Information and observations were noted about the layout of each homestead (Figure 4-8), use of the various spaces, building materials, plants and vegetation and the domestic animals. Discussions were held regarding the owners priorities in terms of housing and how their houses and surroundings affect the quality of their lives. 5 homesteads were studied and named cases 1- 5. Of these 4 are on the land owned by the occupants and one is on land owned by a relative.

6. ISSUES OF SUSTAINABILITY

6.1 House form

The house/homestead form; rooms/huts around a courtyard is the most common layout except in case no 2 and case no 4. No. 2 has two huts at right angles to each other and they form a kind of courtyard while no. 4 is a single hut unit with a large yard in front. These two houses have the potential of more huts to be added to them and in the event of which they would have regular courtyards. The courtyard is intimately linked to the household activities; each depends on the other both in spatial terms as well as functionally. A lot of activities take place in the open in this interdependent relationship e.g. cooking, washing, drying grain, etc. Social interactions between the family members, away from the view of the street also take place here. There is little scope for any suggestions for alternative layout of the homestead.

6.2 Materials and Construction

Since the earth in that region is not suitable for wall construction only the plinths are of mud. The frame of all the houses is of bamboo. Walling material vary. Mostly it is bamboo but a wide variety of other materials are also used. Banana leaves, jute sticks, are the natural materials used. Some houses also use polythene perhaps because it is the cheapest and the most effective means of protection. Timer use is rare. Roofs are of dried rice straw obtained during the harvesting season almost free of cost. There are instances of corrugated iron roofs but it is interesting to note that they are used not for the main sleeping quarters but mainly for the animal sheds. This is because the CFPR/TUP program gave them money to buy livestock with the cost of the roof included. It is interesting to note that the protection of the livestock sometimes takes precedence over the people themselves.

Except for polythene and corrugated iron all materials are local and almost free of cost. Natural materials are subject to decay and therefore replacement or maintenance is needed, which is unaffordable at times. Some cheap and easy means of treating the materials are possible but even that is not always affordable.

6.3 Landscape and vegetation

Landscape of rural homesteads could be termed as productive as well as ecological where all available spaces are optimised with different types of useful vegetation. Almost all the corners of a courtyard serve as kitchen gardens, which is a food source not only for people but also for domestic animals; they invite birds, insects, etc, and thereby enhance biodiversity. People have indigenous knowledge regarding the characteristics and life cycle of trees. They know which plants should be planted and where, for the overall benefit of the
homestead. For example since the courtyard needs sun for drying grain, clothes etc, they plant specific types of trees in such a way that allow sun and yet does not stop the cool breeze. Bamboo, which provides building material, is never planted in the south because sun and breeze is obstructed by bamboo foliage. Manifold benefits are obtained from the planting patterns. Climbing vines that yield vegetables cover rooftops providing food as well as insulation, grasses and herbs, which protect the soil from erosion along the ponds, are food supply for cattle and people.

Unfortunately poverty and market demand seem to be pushing the TUP members in a different direction. Fruit trees, source of nutrition, are being replaced by fast growing timber yielding trees to support the need for fuel especially for the tobacco industries, in the region.

6.4 Indoor Spaces

The huts can at best be described as marginal. They are made from the most basic materials and just manage to provide protection from the elements. In the event of a heavy rainfall or storms they are clearly inadequate. Quality of light and air inside leave a lot to be desired. As such not much time is spent indoors and most activities are outdoors. Their purpose is for sleeping at night. There is a lot of scope for improvement in their quality but not possible because of economic constraints. Even maintenance is a problem. Clearly they could do with either better quality materials or regular maintenance.

7. PERCEPTIONS AND ASPIRATIONS

From observations and interviews with the people it could be understood that their house represents their connection to the earth and therefore existence. The fact that they have a home gives them identity and credibility within their community. The layout of the house and the occupation of rooms are also indicative of family strength and oneness. Case no. 1 is a family of a mother, son, daughter-in-law, daughter, son-in-law and grandchildren. The house grows with the family and represents change and aspired prosperity. The perception of a complete homestead is one where the courtyard is complete i.e. surrounded by at least 4 huts. This is true in 3 of the cases although one of them (case 3) shares the courtyard with a relative.

Completeness also manifests through a permanent plinth. Once they have acquired sufficient land to complete the courtyard the tendency is to bind the mud plinth with bricks. Until then plinths tend to be temporary and can shift if necessary.

Aspiration is towards permanency, of land, of the courtyard and the plinth. If prosperity is achieved it would be well spent on permanent materials. Corrugated iron sheet is permanent and associated with well being, although thermally inappropriate.

Aspiration is also to get rid of the need to plant trees for profit only. They highly appreciate the beauty of flowers, of seasonal vegetables, of fresh fruits hanging from tree-branches, fragrance of the fruit trees or ripening fruits, the change of colour of new foliages. These plants are also appreciated for their associated bio-diversity values; some invite bees, which will provide honey, again some invite singing birds. It is a complex way of appreciating beauty. Native plants are appreciated because people seem to know about their details but there is no hesitation to welcome non-native useful plants that may grow there [5].

8. CONCLUSIONS

Sustainability of the environment as we understand it i.e. interaction with the environment in a manner so that resources are not depleted and are left intact for future generations – is inherent in these houses. What seems to be unsustainable is not the houses but poverty, vis a vis inability to enjoy amenities that would make life healthier and more productive. It seems that sustainability is related to poverty in the sense that being poor leads one to be closer to the environment. But the sustainability of hope and aspiration is equally important. From discussions and interviews it seems that wealth may lead to inappropriate choices in physical development of the homes such as the use of corrugated iron or that of PVC and plastics. Conventional wisdom about building and construction has a tendency to be diverted to inappropriate use of materials and construction methods fuelled by populist notions of wealth. Scientific knowledge about treatment and processing of natural materials to improve permanency, undergo less maintenance, for better thermal performance and that do not harm the environment exists [2,4,5,6]. The challenge lies in understanding local wisdom and seeking ways to transfer the simple technological options to these people so that their lives improve within the sustainable environment that they have created for themselves.

REFERENCES