3. Implementing Hazard-Resistant Housing

3.1 Introduction

The description in the previous chapters of the hazard-prone housing context in Bangladesh and the development of hazard-resistant construction technologies allows discussing in this chapter examples of putting into practice technology in context. Implementing hazard-resistant housing or building for safety programmes presents challenges often not foreseen in technical or other studies. Field experience itself presents opportunity for generating and gaining context-specific knowledge that can inform research and practice. However, the basis of this knowledge stream needs scrutiny; hence in this chapter, project and concept reviews are included alongside reports of implemented projects.

Implementation of hazard-resistant housing usually incurs extra cost, however small that might be. Because of this, especially in the low-income context, people are often unwilling or even unable to make the extra investment to safeguard their houses against hazards. Therefore, creating access to financing is a prerequisite for implementation of building for safety programmes. This chapter, therefore, begins with some concepts on affordable financing for hazard-resistant housing based on local needs and housing patterns. Then follows a review of low-income housing projects implemented by community development organisations. This shows the tremendous challenges confronted and limitations experienced in the field by implementing agencies. Another review follows next, on the participatory workshop process followed in action-research projects associated with the BUET-Exeter link. Once again, the limitations experienced in the field by such projects is pointed out, especially the lack of continuity beyond project tenure confines; but also it is evident is that this approach has more potential to empower communities to reduce their vulnerability than offered by current projects of most organisations. Case studies of two grassroots action-research projects, in Dinajpur and Gopalganj, are then presented.

Reading the preceding reviews, one is now able to objectively examine the findings of these two projects. As a final cautionary note, the last part of this chapter includes a review of current 'participatory' practice, a reminder that community participation in building for safety programmes, though much talked about, is not easy and requires genuine effort.

3.2 Affordable Financing for Housing

Extensive damages are caused to housing in Bangladesh by natural hazards, such as floods. Damages are mainly attributed to building materials used for construction. Houses are generally made of bamboo, thatch and mud – making them extremely vulnerable to floods. Anything more durable than bamboo and thatch are beyond the affordability of most rural residents. It is assumed that improved quality and the condition of housing can significantly cut down damages caused to housing. To be specific, the quality of houses can be improved through better design and use of more permanent building materials, which will consequently lead to lower damages. But this improvement involves increasing cost to housing and in this case affordability is the first barrier to quality housing.

Questions that immediately arise in this connection concern how to increase affordability so that people can make gradual improvements to housing. Is it not possible for them to construct permanent housing at one go? Is it possible to bring down construction cost to a level, so that an increasing number of people can be brought under the fold of hazard-safe housing? Is it possible for the government to play a pioneering role in providing hazard-safe housing to people who would otherwise remain without it?

In the context of the questions posed above, the aspects of affordability and finances, and the possibility of increasing access to improved housing are explored by considering the points below:

- Making housing improvement cost affordable to the rural people.
- Lowering the cost of construction to bring hazard safe housing within the reach of the general mass of rural people.
- Making finance available to the rural people so that they can make successive improvements to their houses.
- Creating financing institutions for extending monetary help to people.
- Providing hazard safe housing through government initiatives.

3.2.1 Affordable Improvements to Housing

It is assumed that improved housing design and use of more durable materials can significantly lower the extent of damages caused to housing. It has been found that with a little more than Tk 500 than the usual cost of a conventional rural house significant changes can be made and consequently bring down the extent of cost of damage. A loan of about Tk 600 is what a poor rural family might need in the first stage of graduation to improved housing. Since the general rural population is poor, even this small amount of loan is not available from friends, neighbours or relatives. In this regard, financing institutions can lend a helping hand to the rural poor in order to graduate to hazard-safe housing.

Stilt houses in flood-prone areas can be further improved by starting with reinforced concrete (RCC) pillars and maybe beams in the first phase. In the next phase, the split bamboo matting can be replaced with brick walls. In another phase the roof can be replaced with permanent materials such as RCC. The Institution of Engineers has developed the idea of thin shells for low-cost houses. The idea of thin shell can be adapted for roofing of stilt houses. Gradually more rooms can be added to the houses as affordability increases.

3.2.2 Lowering the Cost of Building Materials

In the initial stage of house building most people are constrained to use temporary materials of bamboo and thatch because of their economic condition. With improved economic condition and increasing affordability, and with some help from financing institutions, the quality of housing can gradually and surely be improved.

The technical difficulties of building houses with permanent materials are that these techniques with materials such as brick and concrete are unknown to most rural residents. The other problem is that the price of such permanent materials and the cost of construction tends to be expensive and beyond the means of most people. In such cases prefabricated building materials can partly provide a solution to building improved and hazard-safe houses.

The industry of prefabricated building materials can provide job opportunities to the rural people and at the same time produce affordable home building materials. Prefabricated materials such as pillars, beams, roofs, doors and windows, which are easy to construct and easy to transport, can be produced by such industries. This type of industry can have a positive impact on the natural

environment. The quality of prefabricated building materials has to be strictly enforced, otherwise people's life would be again at risk. Prefabricated building materials could be bought in instalments, expanding further the affordability of people.

3.2.3 Making Finances Available to People with Low Affordability

What the rural people need is a small amount of money at varying times. But there are no public sector institutions in the rural areas that might help people finance and improve housing. On the other hand the economic condition of the general rural people is not so satisfactory that they can lend money to other people. The role of Grameen Bank (Figure 3.1) and a few NGOs (like Proshika, BRAC, etc.) are very laudable, but the coverage of banks and the NGOs is small compared to the number of people that require financial and material assistance. Thus there is an urgent need to set up institutions that will provide home building and home-improvement loans to rural people.

Figure 3.1: A Grameen Bank Funded House

3.2.4 Creating Financing Institutions for the Rural Poputation

About 96 million people live in the rural areas of Bangladesh. The coverage of the Grameen Bank and NGOs like BRAC, Proshika, etc. is about 25% of the target group. It is plainly evident that the majority of people are left out. In this context the government has to intervene to enable people to build hazard-safe housing.

Most of the formal financing institutions are located in urban centers and they hardly extend loans for house building to the general people. The House Building Finance Corporation is the only public sector finance institution in

Bangladesh and its service is limited to urban residents only. There is an immediate need to create a Rural House Building Finance Corporation to provide housing loans to residents of the countryside.

Considering the number of people that require finances for building hazard-safe homes, hazard prone areas need to be identified and categorised according to the intensity of hazard experienced by specific areas, such as extreme, moderate or low hazard-prone areas.

The government cannot provide finance to all areas at once. The lending program has to initially start with areas that are extremely hazard-prone and subsequently to other less hazard prone areas. Alternatively two divisions can be created within the financing institutions to cater for extremely hazard prone areas and for areas that are less hazard-prone.

Innovative ideas can be taken up to increase funds of the financing institutions. This may be done through, say, sale of lottery tickets. This will create interest and awareness about the financing institution, as well as provide funds for the institution to function. The sale of lottery tickets by Red Cross, BIRDEM (Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder), etc. is quite popular with the people. The institution can also act like a bank. People can deposit money with the financing institution and account-holders given preference in getting loans.

3.2.5 Providing Hazard Safe Housing through Government Initiatives

In the above sections, possibilities of increasing the affordability of the rural people to improve housing through financial and material assistance have been discussed. The following section discusses an alternative for improving the housing situation in hazard-prone areas of Bangladesh.

The government is constructing cyclone shelters from its own fund and with the help of foreign aid. The Red Crescent Society along with other agencies is providing finances to such ventures. These shelters are built for one or a few villages or communities. Village people go these shelters during cyclones. They provide safety to 200 people or about 40-50 families (Figure 3.2). The shelters not only provide temporary accommodation, but they are very helpful when disasters strike. However, the efficiency of these shelters is hampered due to various reasons. They are located 2 to 2.5 km away from human habitation. Therefore, villagers are reluctant to abandon their houses and stay there until the last moment. Sometimes it is too

late to reach the safety of these shelters. Additionally, some shelters have become dens for anti-social activities, and some have their lost doors and windows. The government must ensure the maintenance and efficiency of these shelters.

Shelters, accommodating 200 to 250 people, require Tk 4-5 million to build. Therefore about Tk 0.1 million are spent for every family consisting of an average of five members. If the government spends this amount (0.1 million Taka) for each family to construct a cyclone-safe house, which would also be flood-safe, people could stay inside their houses with their belongings and livestock when disaster strikes. The government could build a permanent, hazard-safe stilt house for every family. Equipped with basic amenities, these houses would be safe and comfortable for the rural people. The rooftops of these houses could be designed to harvest rainwater during crisis.

Figure 3.2: Cyclone Shelter in a Coastal Region

3.2.6 Making Solutions Effective

It is generally seen that people do not want to leave their home during floods until the situation becomes too critical for safety. They want to stay in their own house and protect whatever belongings they have. If they abandon their homes their belongings would be lost. In this case, solutions to providing hazard safe houses by improving conventional houses has been suggested. Also possibilities are being explored for increasing the affordability of people by lowering the cost of house building components by prefabricating them or by providing safe houses through government initiative. If any solutions are to be effective, the government and concerned agencies must be aware and committed to provide hazard-safe housing for the rural people.

3.3 Rural Housing Initiatives by Development Agencies

It is frequently heard that Bangladesh is "nothing but an amalgamation of 68,000 villages". However, despite major allocations for rural development in national planning and policy making, the actual implications of this statement is rarely understood. People in rural areas are often relatively more deprived than in cities, and are vulnerable to poverty, natural calamities and social insecurity. To improve their housing conditions, the primary task is to reduce their vulnerability. Throughout the world, millions of helpless people are living at vulnerable locations in great insecurity.

> ... the number of the world's poorest rural people who are forced to live where the environment causes insecurity because of soil erosion, the threat of landslip or flooding and other environmental hazards ... is about 371 million." (New Internationalist, 1996)

This figure is certainly increasing. Rural communities have evolved their own coping mechanisms to resist these natural hazards. This section discusses organisational initiatives for providing housing to rural communities, especially to those that have lost their houses due to natural calamities such as riverbank erosion, floods and cyclones.

3.3.1 The Present Scenario

The Government, international organisations and NGOs have been working for quite a while now 'to give' shelter to the victims of natural disaster. So far the approach to solve the problem has been quick and efficient, but also usually superficial. Quite often such efforts pay more heed to the official agenda of the organisations than to actual needs of the people. Several NGOs offer housing loans to the rural poor in Bangladesh. The National Housing Trust (NHT) of the government has begun working on collaborative projects with some NGOs to provide housing on credit. This is certainly a worthy initiative and these efforts have to be commended for some of their achievements. However, on initial observation of some of these projects, it appears that community or household participation is lacking or very minimal, and a paternalistic attitude seems to prevail among related policy makers and staff. There is hardly any recognition in these quarters that low-income communities have a reservoir of locally relevant resources that might contribute to the house building process. The entire process, including beneficiary selection, site location, choice of materials and house

construction is decided at the bureaucratic level and people using the house and loan are excluded from this process. It frequently happens that they are not happy with the house they are living in, they do not like the surroundings and they are even mistrustful of the house cost they are required to repay. It is indeed alarming that the government has already invested large sums of money on these projects and is planning a very extensive programme based along the lines of present projects. A number of projects were visited and several NGO staff members and beneficiaries were interviewed, the primary basis of this section.

3.3.2 Purpose of the Study

The study of housing conditions created by various agencies should be viewed as the beginning of a development process situated within a framework of a larger institutional initiative.

It helps establishing the need for:

- independent evaluation
- public discussion
- review and analysis
- alternative ways of working with people

The purpose of this study is to introduce a way forward from the present stagnation in plans and actions for rural housing settlements. Both NGOs and government organisations have demonstrated good intentions of helping the landless rural community. However, so far the translation of these intentions reflects self-advertisement and propaganda, clearly apparent from their imposing methods, such as compelling people to live in pre-determined model houses and thus providing a superficial quick-fix to very deep-rooted problems.

It appears unknown that both the housing process and the house product itself are important issues for improving or creating a good housing condition; prevalent emphasis is only on the product. Successful examples of low-income settlement schemes are found elsewhere, including in neighbouring South Asian countries, where situations are similar to Bangladesh. Incremental housing development, self-selection processes and working with the community are some of the approaches that have proven effective, albeit with regard to context. These ways have been implemented and evaluated, then improved upon to move further. Development agencies in Bangladesh need to step forward to improve their housing support process by improving their mind-set, ideas and formulas for development with quick-and-easy solutions, such as building row houses

with army and navy personnel, imposing model houses and stigmatising these new rural communities from improving their lot further. It should be remembered that a house is principally a means to improve living conditions, not an end in itself.

3.3.3 Proshika Palli: A Case Study

The National Housing Trust (NHT) of the Bangladesh government has developed a financing network with several NGOs to deliver housing programs to homeless people, especially to victims of natural disasters. Proshika, one of the well-established local NGOs, is part of this network. Proshika was established in 1988 with the purpose of working in different fields of community development. Under its housing program Proshika had built 30,506 houses for low-income people. They had established 37 resettlement villages, named Proshika Pallis for river erosion victims, at 23 locations in 15 districts. The total number of houses built in these resettlement villages is 1,370. However, this large intervention must be evaluated in terms of its impact and contribution, not only in terms of the number of houses built. Proshika Pallis in Bashail and Diabari in Manikgonj district and also a site at Teota in the same district where a new settlement is planned to be built were studied. This study is based on field investigations, meetings and interviews with Proshika and other NGO staff members, villagers and project beneficiaries. Comparisons are also drawn with other planned and unplanned settlements visited in the course of this study.

3.3.4 Beneficiary Selection

Proshika Pallis are established for riverbank erosion victims. Beneficiaries are supposed to be selected from existing Proshika members. However, this is not always followed and people not involved with the organisation are selected in many cases. There is anecdotal evidence that beneficiaries are selected after building houses and then compelled to become organisation members. The common selection criterion was that beneficiares were at a vulnerable state, living on erosion-prone riverbanks. They had lost not only their houses but also their belongings, hence their economic base was destroyed. Many families lived in makeshift plastic huts or under the open sky. Proshika has been able to reach these poorest (or most helpless) people of this society. They were landless, homeless, hazard-stricken and distressed people. It would have been difficult for them, perhaps impossible for many, to resettle themselves. It was also possible that the loss of agricultural land, their source of production, would have led them to migrate to urban centres and live as squatters. Thus, by settling them in re-settlement

villages Proshika is reducing such possibility of rural-urban migration. Compared to other organisations such as BRAC which help only existing landowners to improve their houses, Proshika can claim some success in this regard.

3.3.5 Site Selection and Location

If available, Proshika tries to build settlements on government owned (*khaas*) land. The Assistant Commissioner of Land allots land on the basis of applications or acquires new land if necessary. Otherwise, the organization looks for suitable land and buys it for the beneficiary group. In most cases, it becomes necessary to develop 'uninhabitable' sites. Road connections into settlements are usually incorporated later.

3.3.5.1 Land Value

In Diabari, the site is by the main road and Proshika staff claim that land price is high. Surprisingly, knowing this, in nearby Teota a large plot of agricultural land (paddy field) has already been bought for establishing a re-settlement village. Since good price was offered, the landowner was tempted to sell his agricultural land. Here arises the problem with repayment of such expensive land. Eventually the extra cost of land is transferred to the loan to be repaid by beneficiaries.

3.3.5.2 Preparation of Land

Before establishing a settlement it is essential to prepare the land. When land is raised for this purpose by bringing soil from another place, it should be left to settle properly for a certain period (6 months - 1 year). The soil must settle first before structures are built on it. Otherwise the soil settles and the house sinks gradually. This problem prevails seriously in the case of Diabari Proshika Palli. The soil is still settling and inhabitants need to regularly raise house plinths and repair them. Sufficient time and care is not given to site-preparation, causing a problem to the residents.

3.3.5.3 Existing Resources

Trees, pond, roads etc. are the valuable resources of a site and the aim should be to make the best use of these resources. In the Bashail project it was found that the existing resources of the site, which was an orchard originally, were ignored and destroyed. All the trees of the site were cut down to build houses. Such an insensitive approach towards site planning cannot be encouraged (Figure. 3.3).

Figure 3.3: The 'Orchard' Site was Cleared and Trees were Cut to Create the New Resettlement Village. Background Shows the Existing Trees Outside the Site. Proshika Palli in Bashail. Manikgonj.

Figure 3.4: Steepness of Pond, Narrow Streets Deteriorating by Washing Away in Rainy Season. The Unsettled Land Causing Sinking of Plinths. Proshika Palli in Diabari, Manikgonj.

3.3.6 Employment Opportunity

The background of the beneficiaries shows that they used to depend mainly upon agricultural land and rivers for their main sources of income. Most of them were farmers or fisherfolk by profession. When resettled in a new place, they suddenly found themselves jobless. In terms of proximity to employment opportunities, none of the sites visited is ideally situated. Again, the prosperity of these settlements depends on residents having

a wide range of economic opportunities. Proshika, although promising various economic programs to help residents build strong local economies, eventually did not follow that through. According to expert opinion, 'It has been established that monthly payments to repay the loan by a household should be between 15% to 20% of its monthly family income' (Anzorena 1997). Due to the lack of employment opportunity and the lack of income-generating activities, beneficiaries of Proshika Palli are compelled to repay a big amount of loan which hardly matches their income.

Figure 3.5: The Narrow Streets in Rainy Season Become Muddy. Proshika Palli in Bashail, Manikgonj

3.3.7 Physical Planning

Very few policy guidelines are there for physical planning of these settlements. It seems true that 'inappropriate personnel without relevant experience' (Ahmed, 1999) usually plan these settlement villages. The framework of ideas behind these housing schemes does not take into account the actual users. The entire process is decided at the bureaucratic level and people availing themselves of the housing loan are excluded from this process and thus they are compelled to live in an alien environment that is imposed upon them. Several other studies of completed projects (Bhatt, 1986) have identified the following problems that are inherent in such a design approach:

The bias of economics in planning typically discounts the social aspects of design.

2. During project planning incorrect assumptions are made concerning family size, income and plot sizes.
3. Projects lack variety of plot sizes to cater to diverse needs of different households.
4. Projects do not attempt to provide multi-family plots.
5. They follow a blind plot allocation process.
6. Projects lack quality and variety of open spaces.

The spatial needs of low-income households are not uniform, but vary considerably from one household to another. These variations depend on several factors such as: the size and structure of the family; occupations; if the family engages in some economic activity at home or not; whether they maintain animals at home or not, and so on (Pandya, 1988). While visiting Proshika Pallis the authors found that very little attention is paid to these factors. An average family size of five members is assumed (which is obviously not correct in many cases) and a pre-designed housing unit is thus inappropriate. Plots of the same size (each 2 to 4 decimals) are allotted to beneficiaries and the allocation process does not allow the users to select the location or size of their plot. Without being responsive to the social, religious and family needs of its occupants, such housing schemes cannot be successful. Similar assertion have been made by Bhatt et al. (1990).

For any housing design approach to be successful, it is essential that it goes beyond mere economic factors, considers social and cultural aspects, and responds to the lifestyle of the people who will live in it.

Being responsive to these aspects requires the users' involvement in the whole process of physical planning. They will select their own plot and determine its size according to their family size and affordability, construct their own houses and decide what the materials would be and thus make such expensive projects successful. Users' participation in all steps of planning is essential.

3.3.7.1 House Placement on the Site

Simply sub-dividing land and then building houses, as generally practised, is not adequate in planning low-income settlements. "The arrangement of houses on the site is another matter that requires competent physical planning and design

skills" (Ahmed, 1999). Planned settlements visited by the authors, like the Proshika Pallis, and also the Asrayon Prokalpa and Adarsha Gram (the government's resettlement villages for the landless) and cluster villages of the Grameen Bank also have serious shortcomings in this regard.

Proshika usually arranges the houses in rows around a pond, which is dug to collect soil for the preparation of land, for raising plinths, etc. In Diabari, where 44 families are rehabilitated, the pond is too deep and since a comfortable slope is not maintained, the pond may prove hazardous (Figure 3.4). Least attention is paid to the orientation of the houses. All the houses of Bashail Proshika Palli are orientated along the east-west direction and therefore fail to benefit from the prevailing southern breeze. The narrow lane between two rows of houses is rather tight and causes various problems of privacy and movement which becomes very difficult in the rainy season (Figure 3.5). On the other hand, though different from Proshika, yet not very inspiring, is the planning approach found in Asrayon Prokalpo (Figure 3.6). The same regimental barrack type planning is practised there.

Figure 3.6: Barrack Type Asrayon Prokalpa

3.3.7.2 Plot Size

The most critical aspect of these Proshika villages is the inadequate size of homestead land. Each beneficiary has only about 3 decimals of land, inclusive of 1.5 decimals of pond area. No doubt, the place is too inadequate for maintaining a reasonable degree of privacy. There are direct and indirect effects of inadequate land. The direct effects are that it provides no space for vegetation, domestic animals, household activities (e.g., crop drying), socialisation, playing, etc. There is also no

scope for future extension. The indirect effects are lack of identity and privacy. Such inadequate land creates plot-minded or territorial mentality. Comparatively in Adarsha Gram and Asrayon Prokalpo, beneficiaries are more satisfied having 8 decimals of homestead land with a better environment there, in spite of poor physical planning principles. The allotted land allows for a frontyard and backyard in each house, where additional ancillary buildings or extensions can be built. Most beneficiaries have carried out substantial additions and extensions because of the availability of space. It can be expected that these projects would perform better over the long term, as Ahmed (1999) suggested: "if provided with the right amount of space and other necessary facilities, low income communities are able to maximise the potential of a site, incrementally transforming it to suit their needs."

Figure 3.7: Adarsha Gram Project at Boutoli, Gopalganj

The authenticity of this remark is found during the visit in Adarsha Gram project at Boultoli in Gopalgonj district. It was established 15 years ago (Figure 3.7). A somewhat strong community feeling is sensed there and the rigidity of planned settlements, like Proshika Palli and Asrayon Prokalpa, is merely seen. However, the question arises: though adequate homestead land is an advantage for households, is it sufficient to obviate other drawbacks of planning? One should not negate the necessity of careful physical planning and user participation in the housing process.

3.3.7.3 Kitchens - Tradition and Demand

In Bangladesh, kitchens are traditionally built in the yards and a distance is maintained from the main house to keep away smell,

heat and smoke. The lifestyle of rural people, the way they cook and the stoves they generally use lead them to this type of planning. It was found that most of these factors are totally ignored in the Proshika settlements. Kitchens are built attached to the house and present great problems to residents. The smoke from the kitchens blowing into the houses is a constant source of discomfort. Therefore, most households have added a separate kitchen and use the attached kitchens for other functions such as a storeroom or extra bedroom (Figure 3.8). The already small individual plots and consequently the whole site thus gets more congested. On the other hand, in the Adarsha Grams and Asrayon projects there is sufficient land for beneficiaries to utilise for their needs in ways they choose.

3.3.7.4 Water and Sanitation

Basic infrastructural services such as water and sanitation are basic requirements for making a settlement habitable. In a planned settlement, it is possible to cater to these requirements during planning. Still, "water supply in planned settlements presents a fundamental problem" (Ahmed, 1999) and also the same situation exists for sanitation. The absence of proper planning aggravates this.

In the Proshika villages, tubewells are installed usually in the ratio of 20 households to one tubewell. In Diabari, two tubewells serve 44 families in the settlement and similarly 59 families of Bashail Proshika Palli are being served by three tubewells. Because of the need for sharing, tubewells are placed outside, with no particular household responsible for vigilance and maintenance. Two aspects are important to make these water sources more workable: the number and location of the tube-wells. It was found that the number of tubewells was inadequate in these settlements. To have fewer than 20 households sharing the tubewell, where it would be shared with a small group of neighbours, might prove more workable. A group might consist of 10 households or less. In the Asrayon Prokalpo, 10 families share one tubewell and this presents a somewhat better situation. Moreover, an appropriate location of the tubewell might reduce some of the problems as suggested by Bhatt et al. (1984): "An ideal location for a stand-pipe [i.e., tubewell] is within a square in a cluster of few houses. The washing related functions blend well with other activities of the square."

No definite thought is given to in the placement of tube-wells in Proshika settlements. They are located randomly at any available corner or by the road. For some families, this

water source is at an inconvenient distance. The potential of a shared tubewell to develop as a square or community space is unrealised.

Sanitation is another problem. "Not only in planned settlements, but in general where agencies had provided sanitary pit latrines...the latrines were generally not operational" (Ahmed, 1999). As in Proshika villages, the quality of latrines are poor and break easily. These are not sufficiently deep as only three instead of five concrete rings are provided for lining the edge of the pit. In Diabari, five months after establishing the village, very few families were found using their latrines. Beneficiaries were expected to build screens around the latrines, but very few of them had done that.

Both in Diabari and Bashail, serious complaints exist regarding the location of latrines. They are too close to the house and, as eventually they become dirty, they become a constant source of discomfort for the residents (Figure 3.9). Beneficiaries suggest one common toilet instead, at a convenient distance from the house, for a number of families. In other Proshika villages built later, this idea of common toilet has been implemented and thus arises the issue of user participation. If the users were asked at an early stage, this problem might not have arisen. The time has come to ask whether it is right to use these people as laboratory guinea-pigs. Is there enough time and money for experimenting with these people's lives? Is it ethically right?

During the visit to the Adarsha Gram project in Gopalgonj district, not a single family was found to re-install their latrines when the first one (given by the government 15 years ago) was filled up or broken. This indicates the residents' reluctance to use sanitary latrines and their poor affordability. Therefore, not considering the present only, but forecasting the future is also another job of a planner. Keeping all these things in mind, proper sanitation should be planned.

3.3.8 House Construction

When a person builds a house, a sense of possession and responsibility develops. Selecting a building material, buying it, designing the space according to requirements, doing the construction work and thus having a house for the family is a useful experience. It allows residents to take their own decisions and feel that they own the houses and the maintenance of the houses is their responsibility.

Figure 3.8: New Kitchen Added Outside the Basic House. Proshika Palli in Diabari, Manikgonj

Figure 3.9: The Position of Latrine Between Houses, Causing Discomfort to the Users. Proshika Palli in Diabari, Manikgonj.

However, the process followed by development agencies is quite different. They do not want to give any credit to beneficiaries, except in the case of the failure of the project. Not only in Proshika Palli, but also in other planned settlements established so far like Adarsha Gram, Asrayon Prokalpa, cluster villages of Grameen Bank, this paternalistic attitude is prevailing. For the beneficiaries, it is too hard to be satisfied with a finished product, especially when it is a house to live in.

Naturally, they have serious complaints regarding the building material, cost to be repaid, etc. People working in this field must realise that the process is more important than the product. The process internationally endorsed now is the self-help process. The concept of self-help housing includes the complete cycle of design, formulation and execution of a housing and habitat production process by the users. For example, the alliance of SPARC/ NSDF/ MM in India that claims themselves as "Community based, community led, community initiated and community focused organisation" have through their works:

- Shown to the government that if they give land to poor people they can build cheaper and better houses for themselves.
- Increased the skills and capabilities of community groups to build houses themselves and each project is a training process that will help more people to try this possibility. (Anzorena, 1998; Anzorena, 1999).

The residents of Proshika Palli expressed a similar desire and claimed that they could have built better houses spending less money. Similarly, in Asrayon Prokalpa, army personnel, without any participation of beneficiaries, build barrack houses. During planning these settlements, the conventional approach described by Gunaratna (1991) in Sri Lanka is also followed here: "... local vernacular traditions of house-building in their variety and richness should be suppressed and supplanted by modern housing conformation to some Westernised 'urban' official standards."

No option is offered to the people, they find no scope to utilise their knowledge and are living in these settlements with great dissatisfaction. If the beneficiaries get involved at the construction phase, they become trained in building houses and may contribute with innovative input.

3.3.9 Building Materials

Regarding building materials, Proshika is trying to be innovative and especially responsive towards climate and environment. Chemically treated bamboo and MCR (Micro Concrete Roofing) tiles are introduced in the Proshika settlements. Surprisingly, this is done without even asking the residents and they are not at all aware about the positive or negative aspects of these materials.

3.3.9.1 Chemically Treated Bamboo

One of the main problems in chemical bamboo treatment is that the chemical compound used is toxic and is hazardous. Awareness-formation and strict vigilance is essential for this material so that it does not become a source of hazard to human health and safety. However, safety regulations seem lacking in Proshika villages. From meetings and conversations with the beneficiaries, it is found that, despite the durability of treated bamboo, it is still less desired than CI sheet. In status or re-sale value, it cannot compete with CI sheet.

3.3.9.2 MCR Tile

For roofing, MCR tile is promoted as an alternative to CI sheet. Some of the main advantages in comparison to CI sheet, suggested by its promoters, are its better thermal qualities, the use of local materials whereas CI sheet is imported, and small-scale labour-intensive production with potential for generating local employment instead of centralised factory manufacture (Parry Associates, undated). Still, successful dissemination of this material will be possible only where a significant cost advantage can be established. It was found by Ahmed (1999) that the cheaper variety of MCR tile is 24% less expensive than CI sheet, not enough for a significant cost advantage. Moreover, all the beneficiaries of Proshika settlements denounced it as fragile and undesirable. Since there is no local supply of MCR tile and skilled workers, beneficiaries cannot repair or replace the tiles. They complain that it is difficult and laborious to dismantle and a market for resale does not exist. Nonetheless, the residents mentioned some plus-points of MCR tiled houses: cooler and more comfortable than CI sheet and generally do not tend to lift off during storms like CI sheet, since the tiles are tied to the roof frame. Yet, provided with the choice, they would have certainly opted for CI sheet. It is their desires and needs that should have been considered.

3.3.9.3 MS Angle Roof Frame

MS angle roof frame is another option adopted by Proshika. At only about 5-10% less expensive than timber, this might not offer much cost advantage. Nonetheless, an MS angle frame, painted for rust protection may serve much longer than timber or bamboo. By avoiding direct contact with water, durability can be increased. The beneficiaries are apparently satisfied with this roofing frame, though lack of replicability

and cost are still obstacles to its widespread adoption. Such framing is also used by other organisations such as Caritas, BRAC and in the Asrayon Prokalpa. If widely used, hopefully it may reduce pressure on declining organic resources.

3.3.10 Maintenance

As mentioned by Hodgson and Seraj (2000): "Not all damage results from specific hazards. ...Poor maintenance commonly contributes to house damage..." Generally, people prefer to use such materials in construction that need less maintenance and repairing. That is one of the main reasons why rural people opt for CI sheet. Uncommon and unfamiliar materials made the beneficiaries of Proshika settlements uncertain about the future of these materials, especially about the MCR tiled roofs. In this climatic context, algae and moss tends to form on these tiles. Though it is claimed that it is possible to maintain them and keep them clean, the residents need to climb on the roofs to do so, hard to be done without damaging the tiles. Hazards associated with negligence and poor maintenance must be avoided.

3.3.11 The Way Forward

• **The need to be independent both in policy and in people's actual independence**

In order to make improvement in the field of low-income housing, a new more people-centred approach would have to be followed. This approach may be hard to implement because of self-interest and lack of understanding of the situation by development agencies. Additionally, in general professionals and academics do not have the necessary orientation to contribute significantly; indeed they are like outsiders in their own society, stated quite directly by Rahman (1993):

> "We the intellectuals of Bangladesh, trained in a colonial environment, with colonial attitudes and aspiration are educated to form and to join a class of our own, aspiring for recognition by the international brotherhood of intellectuals, but alien from our own society, ignorant of the social life and the conditions in the countryside and of the mind, the spirit of the potentials of the man in rural Bangladesh."

A better approach in policy-making would be context-specific and there should be independence in thinking and judgement. At present agencies imitate Western methods of physical planning and build prototype design solutions: monotonous, basic model houses to create a Western-biased

'modern' housing system in a sort of blindfolded way, and this is then described as progress and development.

• Learning from the present lack

Unless attitudes change towards development, the situation will remain stagnant. The rural community will remain unsatisfied with anything they receive from agencies, if their problems, opinions and decisions are not taken into account seriously. The changing attitude shown by a 'support-based system' instead of 'provider-based deliveries' has helped the Million Houses Programme in Sri Lanka to become a success (Gunaratna, 1991).

On the other hand what happens here, described accurately once again by Rahman (1993) is :

> The vast majority of the people classified as 'poor', are objects of pity, paternalistic intervention and assistance. Many of these people under the blinding light of compassionate observation which was flashed upon them, have internalised this negative self-image ... Perceiving themselves as 'inferior', sought to be developed by the sheer power of 'development' effort which has often uprooted vast masses of people from their traditional life, to become inferior citizens in alien environments itself has concentrated power.

This clearly undermines the inner resources people have that could contribute towards social improvement. By cultivating a sense of inferiority and obliterating the self-value of low-income communities and individuals, the possibility for developing independence and resourcefulness is lost. Hence a problem is created, which if not addressed will continue to make the 'poor' dependent on others.

• Willingness for improvement

The so-called educated policy makers are pursuing the same mentality of dependency. The image of poverty is the license for personal development. Bangladesh as a whole is defined as a 'poor' country, overlooking the unexplored rich qualities in rural Bangladesh. Because of the poverty in the minds of policy-makers, the whole country has become dependent on top-down deliveries. The 'poor' policy-makers have miles to go before they understand and appreciate the real rural Bangladesh.

3.4 The Housing and Hazards Workshop Process

The Housing & Hazards Group (H&H) piloted a series of Building for Safety workshops during its first field study in 1997 (Carter, 1997) (Figure 3.10). The study was conducted in Sundarban Union, Dinajpur District, in cooperation with Chetonar Dak, a small village-based non-governmental organisation. The workshops aimed to reduce poor people's vulnerability to disaster by motivating them to improve the hazard-resistance of their homes. This section presents an assessment of the impacts of that first study and indicates possible ways ahead for the workshop process.

Figure 3.10: Workshop in Progress in Sundarban Vilage

The H&H workshop approach was developed to support low-income communities' own strategies for survival in hazard-prone Bangladesh. It is intended to be flexible so as to accommodate localised and personal circumstances. The workshops provided a mechanism through which H&H worked with villagers to find ways of strengthening their homes using affordable and locally appropriate ideas. Participants worked through a series of discussions and practical exercises under the guidance of local facilitators to examine their local building methods and materials. From their analyses of the causes of vulnerability they derived "best practice" building techniques which would strengthen their homes and reduce the damage resulting from natural hazards. This process resulted in marginal cost improvements which would make more resilient homes affordable within the villagers' means and circumstances.

The participants have been slow to act. The impact assessment survey, conducted during December 1998, revealed that the rate of implementation of workshop ideas by participants has been disconcertingly low. A number of issues need to be addressed if the workshops are to achieve their objective of reducing hazard vulnerability in the community.

Firstly, a greater understanding of poverty is required. The study has suggestions for ways of negotiating a way forward within a resource-scarce environment. Implementation of building improvements is impeded by causes of inertia other than poverty alone. To overcome these, activities must be sustained beyond the workshops themselves.

3.4.1 Poverty: A Persistent Bar in the Path of Progress

There is a slowness to act upon building needs in general. Many of the workshop participants commented that building is undertaken only when it becomes more than necessary. As one respondent said: "house improvements or repairs are not necessary unless our houses have been damaged or worn out." Given this prevalent attitude, it was not surprising to find that people had not taken action to make their homes more hazard resistant before disaster struck.

Although it was not as devastating there as in other parts of Bangladesh, the 1998 flood was unusually severe for Dinajpur district. The impact was felt by workshop participants, one half of whom reported damage to their buildings. Yet, despite the participant's comments reported above, slowness to act has continued even after the disaster: the majority of participants have not yet made any repairs to their homes, even four months after the event.

Once the floods and rainy season have passed, people can usually expect that significant rain will not come again until the following year's rains. This could explain why some people feel in no hurry to make repairs, especially on buildings considered less essential than the main living/sleeping house. However, in some cases even those important buildings remain unrepaired. An example is that of one participant who is now living with his family in their small kitchen house. He lives a hand-to-mouth existence and has been unable to find the money to rebuild his living house destroyed by the floods. The winter in northwest Bangladesh which follows the rainy season is a bitterly cold experience, especially for those without decent shelter. It is

not for lack of suffering that this participant, like others similarly placed, has not been spurred into action. The reason is poverty.

An essential part of H&H's future research must be to investigate more closely the reasons why people do not progress quickly with building. This is an important key to understanding why so many participants are not taking the further step of making the kinds of improvements advocated by the H&H workshops. Of those few who have started some remedial construction, only a couple of participants have used one or two of the workshop ideas. One participant explained: "It is hard for us to rebuild after the floods because there is not enough money. Therefore, people can rebuild only in a poor way - repairing enough just so that we can get by."

Even one of the workshop demonstrators, although well disposed towards H&H ideas, struggled to implement them when building his own house. The main dwelling unit of his homestead had fallen down; being a day-labourer, he was building the new home bit by bit as money came in. Meanwhile, he and his wife were sleeping outside and winter was advancing. On days when he had enough money, he would stretch it to use H&H ideas such as painting bamboo pillars with tar to ward off insects and rot. When money was short, he put in posts without treatment. The need to complete the house so that he and his wife could sleep in warmth and security was a greater force than any thoughts of waiting for a few days to accumulate the funds to make the house more durable.

Being aware of these economic pressures facing families after disaster, H&H had expressly sought to encourage participants to make housing improvements long before hazards strike. However, the survey suggests that only the better-off could respond to this encouragement. The few cases where participants had enthusiastically put several workshop ideas into practice were new building projects and not responses to hazard damage or dilapidation. Typically, those participants had ready cash available at the time of building - enough to afford the extra cost and even to employ builders.

Perhaps it can be said that none used as many H&H ideas as the demonstration building (Figure 3.11) which was constructed at the end of the workshops. The survey also indicated a reason for this. When asked whether poor people

would be willing to spend the little extra needed to make their homes strong "like the demonstration building", only one gave an unequivocal 'yes'. The majority said that the extra materials required (i.e., a few bricks, C.I. sheet, bamboo, wheat straw thatch, a small quantity of tar and a handful of nails) would be too expensive for poor people. The demonstration house was described by one person as being "like a rich person's bedroom". Another described it as being "equivalent to four houses built in the general way". The demonstration building is relatively large (18'x12') because it was intended for communal use as a sewing training centre. This seems to account for participants' views that its cost would be beyond the means of a poor family, even though the workshops emphasised a budgeting exercise in which the marginal cost of the improvements was clearly seen to be a mere 8%. This attempt to demonstrate long term gains by spending a little extra initially seems to have been unsuccessful.

Figure 3.11: H&H Demonstration Building in Dinajpur

Most rural families have a fragile economy. Daily income varies with the seasons, weather, health and many other factors. Today's income can be as unpredictable as tomorrow's, never mind next month or next year. All income is immediately accounted for several times over by competing daily needs, and 'marginal costs' or 'long-term benefits' have little relevance. Even a workshop facilitator explained that in pondering the rebuilding of his kitchen, he and his wife are already arguing over how they can afford the time away from earning to do the building. Money for 'extras' is beyond the point.

This points to a need for better understanding of rural economies, the dynamics of household resource management in a resource-scarce environment and of how hazard-resistant building can negotiate a way forward within these constraints.

Common responses by aid projects to economic obstacles are either to offer credit or to provide some form of material assistance. However, pilot project participants mostly expressed dislike of credit as a possible solution. A few of them agreed that loans may be appropriate for business activities where profits can be used to repay capital and interest; the majority said that credit for housing is bad because poor people cannot afford credit for items which do not make money. The common sense in this attitude is difficult to dispute and it seems more appropriate to explore savings rather than credit as an economic approach.

3.4.2 Help with Building Materials: Contradiction or Complement to the H&H Approach?

Provision of building materials appears to be a departure from the H&H commitment to self-help solutions. Moreover, past failures of material distribution programmes have provided graphic warnings of the problems to be surmounted in avoiding a dependency culture. It is now seen as good practice in many sectors that beneficiaries should bear some of the costs of the 'aid'. However, with so many development initiatives now demanding contributions, the poor are sandwiched between the competing demands of essential facilities such as water, education, health care, sanitation and shelter.

Although each aid initiative sets its costs within the beneficiary's ability to pay, the cumulative effect is that even the marginal costs of H&H improvements lie beyond the means of the poorest sector of the community. Given the pressures on family incomes that have been seen in Sundarban, perhaps some kind of material assistance for hazard-resistant housing may prove worthy of consideration. Some people also remarked that organisations which conduct motivational programmes exhorting people to implement ideas but which do not fund the advocated actions, lack credibility.

Several people offered carefully considered opinions about what more could be done to help people make their homes more hazard-resistant. They called for very specific help with building materials which would be tailored to facilitate implementation of particular H&H ideas. Suggestions included :

Provision of good quality wire for making bamboo joints and for the *kata* process (cutting mud walls to control cracking);
2. Tar and brushes for treatment of bamboo poles;
3. Rice-husks for mud wall building;
4. Bricks and cement for forming the *dhari* (outer part of the mud plinth)
5. Loan of compaction rammers for building more robust mud plinths.

Participants were also keenly aware of the pitfalls of material provision and of how pressure on daily incomes could lead to misappropriation of resources intended for housing improvements. An essential recommendation came out of their comments: *Specifications for assistance should be made so that it will not be tempting for poor people to sell the designated materials and so that materials (or quantities thereof) should not be too attractive to a market of marginally better-off people in the surrounding community.* This recommendation can be met by keeping the distribution of materials tightly matched to the implementation of workshop-sanctioned improvements and activities.

The success of a materials provision programme such as this will hinge on one crucial factor: the presence of a field worker who can procure and distribute the materials justly. The H&H programmes initially relied on a local partner to host the workshops and later to conduct the follow-up activities. However, it turned out that the H&H objectives for the use of the resources did not tally with those of the local partner. This indicates a need for independent field staff who would ensure that assistance could be specifically tailored to the needs of the target (neediest) beneficiaries. Such field workers, responsible to H&H, would also provide the basis of effective monitoring and accountability structures.

3.4.3 The Need for Follow-Up Activities

Recognising that participants would need to draw support and inspiration from one another as they started to put workshop ideas into practice, the first H&H project arranged for follow-up activities during the ensuing building season. The local NGO partner agreed to host further workshops; a song team was commissioned to publicise the work; tar would be provided for bamboo treatment and advice would be given by the workshop facilitators. However, as no single person was made responsible for the coordination of this activity, the plans were slowly

forgotten. Without someone to nurture the process of hazard mitigation stimulated by the workshops, it could not survive.

It had been hoped that the participants themselves would be the sources of a spread of enthusiasm for H&H ideas. This had been discussed and agreed with the participants at the end of the workshops. However, of those who could recall making this commitment, nearly all had to admit that they had not put it into practice. They commented that as their houses had not fallen down they had not had to rebuild and so had not been in a position to spread the building for safety messages. Several respondents called for a community-based motivator. They explained this need with comments such as: "I'm only a little person - people don't listen to me." There is clearly a lack of personal confidence among the poorer people which inhibits them from taking the sort of leading role envisaged.

The second study has also found a lack of confidence about certain ideas which had been explored during the workshops. Without reinforcement of the original messages, participants were beginning to get muddled about what ideas had been covered. Many could remember that particular methods had been discussed, but could not recall the 'nuts and bolts' details that would enable them to use the techniques to good effect. This vagueness would also reduce confidence in implementation of ideas.

This all points to a need for a follow-up worker who would keep ideas fresh in the minds of participants and would stimulate the spread of building for safety practices to other members of the community. Appropriate activities for such a worker might include :

- Answering questions on practical implementation of workshop ideas;
- Finding out and attending when people are doing building work;
- Inviting neighbours to observe implementation of ideas and to lead discussion;
- Organising follow-up meetings;
- Involving participants in motivational work;
- Coordinating song team and *jatra* (drama) performances which raise awareness of the issues;
- Organising demonstration building exhibitions.

The list of potential follow-up activities is as long as the imagination can stretch.

3.4.4 The Role of Women in Home-Building and Maintenance

The first study targeted female as well as male participants, recognising that both are involved in the building process. In practice, the division of activities traditionally has men undertaking tool-based work such as site preparation, preparation of materials and roof construction. Bamboo wall construction requires the use of tools and is thus done by men; mud walling is much more a hands-and-feet activity and is often done by women.

Figure 3.12: A Woman Carries Out Weekly Plaster Maintenance on her Mud Verandah

However, once the building is completed, the woman of the house plays a much more significant role in maintaining the buildings, particularly those built of mud (Figure 3.12). The effects of rain, floods and even daily wear and tear all result in a continual erosion of the structure. The methods of construction used also contribute to a lack of long-term resistance to those hazards and the workshops suggested appropriate ways of reducing cracking in mud walls.

Two neighbours present an example of the importance of maintenance and of the woman's role:

> In home A, the women follow traditional practice, polishing the walls and plinth of the house weekly with mud paste or with water. Each month, they undertake more substantial plastering. As a result of this attention, the 26 year old house appears almost new.

> The neighbouring house of family B, only 15 years old, shows substantial decay in several places. Family B is much poorer than family A and both male and female members of the family must spend the day working away from the house. Therefore, the women are unavailable to keep the house in good repair and the building is less able to resist any hazards which may occur.

This traditional role of women in keeping building exteriors crack-free is very important in reducing penetration of rain and insects. However, it appears that such maintenance is in fact undertaken more for aesthetic reasons than for structural ones. This suggests that future workshops should emphasise the long-term benefits of mud maintenance and incorporate ways of making this possible. It also points to a need to consider how public demonstration buildings, which do not get such regular attention, will be able to demonstrate the durability of improved mud walls.

The gender division of labour based on tool use is not hard and fast. In many aspects of life women can be seen using tools too, for example, harvesting crops, tilling the land and making bamboo baskets, as well as in the kitchen. When there is work to be done, women will get on and do it, tradition notwithstanding. However, when a male arrives on the scene, with time, rather than tools, in his hands, the confidence of the women who had been getting along the he job often seems to evaporate, with the tools being handed over to the men to finish the task. Confidence and opportunity are, of course, fundamental factors which influence women's liberty and decision-making.

In particular circumstances, tradition can be bypassed, even during house-building. To give an example: Two young women had built their parental home, in its entirety by themselves. Their father is paralysed and their elderly mother works all day in the fields to earn 20 taka for their rice. The girls had been given sanctuary by a small organisation for abandoned women where they learned handicrafts and skills which developed their self-confidence. Having saved money from their handicrafts, they returned home to build the family house and provide a more secure situation for the whole family. The important stimulus was the confidence acquired through mastery of new skills plus the accompanying income.

Those parents were lucky in their children. Many households headed by elderly widows have to rely on costly professional builders for home construction. The 1997 workshops included two examples of this. In both cases, it was the young daughters who attended, but it appears that the girls, aged 15 and 16, were too young to take part in subsequent building work or to influence decisions about it. In neither case were the improved technologies implemented. These are among the poorest households in the village and can ill-afford the expense of the builders who were needed to reconstruct after storm damage. Such households should be the main focus for building for safety programmes and would benefit particularly from the work of a confidence-building motivator.

It must also be recognised that female participants are not as immediately empowered to make decisions about building (or most other things) as are their men-folk. In a resource-scarce environment, family differences over major expenditures can be a source of great tension. While the man can follow the patriarchal norm and make his own decisions, the woman has much greater difficulty in persuading her husband to use extra money for implementing ideas which she has learned from a workshop. This problem might be avoided if husbands and wives were to attend the workshops together, with the result that there would be a better likelihood of getting the full family's support for H&H ideas. Working together, a husband and wife could be a good resource team for an H&H field worker to use in motivation work in the villages. An advantage in many areas is that whilst the husband can work with the men of the para, the wife can have access into the homes and courtyards of neighbours that her husband would not.

Decisions about the methods of construction used for different houses within the family homestead can also impact adversely on women. The living/sleeping house is usually the best built and maintained. By comparison, the kitchen, in which the woman spends much of her time, is typically the least well-built of the houses. Therefore, the survey found, the kitchen is one of the first buildings to suffer damage during hazard events. As a result, working in the cold and rain makes the woman more vulnerable to sickness, further adding to her workload. Participants' stories of their suffering in the 1998 flood included problems associated with cooking and eating

as an important theme. This is an aspect worthy of more consideration in future workshop programmes; before that can happen, a closer study is needed of peoples' attitudes to kitchens.

"Distressed sales" (where materials such as C.I. sheet are resold to realise capital) can adversely affect the women and children who are left exposed in the home (Sorrill, 1998). The decision to resell C.I. sheeting is commonly made by the male of a household following spending controlled by the same male. In many cases, the men spend much of their time working or living away from the building in question while their women and children remain to occupy a house exposed in security and environmental terms. People are often very concerned about personal security and violent robbery. For example, one family building their home explained that the house would have no windows because violent individuals could easily enter through such openings. Part removal of a C.I. sheet roof creates additional (but often unrecognised) hazards of dislodged and flying sheets in high winds. These negative aspects of distressed sales might be emphasised during the workshops.

From the above it is clear that there are many aspects of the relationship between women and housing that should shape the development of the H&H workshop approach. It is worth noting that the workshops themselves provide a very good action-research opportunity for investigating women's issues and perspectives. To do this will require the development of focus discussions in both the mens' and womens' workshops which approach housing in a way that is sensitive to the different gender perspectives.

3.4.5 Realising Potential

The first H&H pilot study sought to initiate a 'process' of growing attention to self-help improved housing within the community. Having revisited that aim during the second evaluation study, it can now be seen that the sustaining of this process will require more than just the initial workshops. The following auxiliary inputs need to be considered :

- Specific types of assistance with materials, closely associated with the workshop technologies;
- Field workers to facilitate the workshops and maintain subsequent momentum;
- Careful preliminary negotiations should be conducted with the community concerned, to:

establish programme objectives;
develop understanding of the social, economic and materials constraints prevalent in that community;
arrive at a mutually agreed plan of action in which the motivators work alongside community based organisations to bring about reductions in hazard vulnerability.
consider the long-term implications of replicating and sustaining the programme.

Incorporation of these additional measures will require coordination, the training of staff and the creation of administrative structures if the workshop process is to be replicated widely. In return, the process gives a unique close acquaintance with vulnerable communities and a valuable action-research opportunity. The workshops provide the opportunity to draw on information about local situations in terms of community experience of hazards, vernacular housing, building methodologies and local constraints on good building practice. These data are needed by organisations interested in addressing vulnerability reduction and will also be vital in directing future research and development activities.

The H&H pilot study clearly pointed to the necessity of having a long-term view and strategy for continuity beyond initial programme input. Local capacity building, contibuity of contact between programme facilitators and the community and flexibility for adaptation of programme to changing needs and circumstances of the community over time are important to consider if the programme is to have a long term positive impact for the community. An organisational set-up, at least for an initial period for 5-10 years, would definitely be necessary. Once local capacity is built, the organisation might become absorbed within the community and there would be less need for facilitation by people from outside.

With such support, a community-driven approach can begin to empower communities to overcome the difficulties which impede self-help housing action. It also has the potential to make significant contributions to the strategies of development organisations working towards a Bangladesh less vulnerable to the effects of hazards.

3.5 Implementing Building for Safety in Dinajpur

Despite large expenditures on designing and constructing improved technologies for low-cost house construction, most rural people in Bangladesh live in traditional houses which are vulnerable to natural hazards, as experienced in this tropical region. Unless the low-cost house is provided to them, or credit is available, the poorest families cannot afford even the cheapest imported technology. For such people, help in identifying improvements that make their homes safer, but not significantly more expensive, is needed. Providing improved replacement houses after a disaster has not proved either timely or cost effective in terms of increasing the resilience of the most vulnerable groups to future disasters (Hodgson, 1995).

This section describes a programme to characterise the building types and construction processes in a village in northern Bangladesh. The programme aimed to identify the resources (financial, physical and skills) available in the community and to explore how those resources are applied to house building. The objective was to raise awareness among houseowners of the cost-benefits to be derived from safer building techniques, as well as the physical protection which better houses give.

3.5.1 Location and Geography

Sundarban village sits astride the main highway, midway between Dinajpur and Saidpur (Figure 3.13). The River Atrai forms the eastern boundary of the predominantly agricultural village. With a population of 7,000 (1991 census) covering an area of 10.4 sq.km, Sundarban is the largest village in the Union which also bears the name. Literacy rates in 1991 were 34% (male aged more than 7) and 14% for women. The inadequate facilities for education prompted the establishment of a local NGO, Chetonar Dak, in 1991 to organise non-formal education programmes.

The village lies on the edge of the piedmont plains in the northwestern corner of the country. This relatively raised area is not normally known for flooding and is away from the main cyclone affected areas around the Bay of Bengal. Therefore, it does not have much history of international emergency relief aid, nor, until recently, any aid at all. However, since 1991 it has been struck by several major floods (1991, 1998) and two tornadoes (1995 and 1996) which have all been devastating locally.

Figure 3.13: Location of Study Area

This makes the village appropriate for study as it is possible to investigate indigenous solutions to the problems of natural hazards. Also, there is a variety of building types and materials which enables comparison of a large range of options.

3.5.2 Programme Rationale

Illiterate daily labourers seldom have time to access vital information, even if they could read it. This programme provided a volunteer to act as a catalyst for change to encourage enquiry into traditional techniques and promote discussion of appropriate technology improvements. Involvement of the community artisans at all levels is essential, necessitating a working knowledge of the Bangla language.

The field programme started in September 1996 and continued until May 1997 following the suggestions included in communicating Building for Safety by Dudley and Haaland (1993). Work to date has included wider investigation of construction in Bangladesh and mapping construction types within the village. A start has been made on identifying appropriate media for the dissemination of information.

3.5.3 Dissemination Path

The diagram in Figure 3.14 outlines the various routes through which safe building information can be disseminated from a specialist organisation such as the H&H Group to householders within the *paras* (sub-villages). One objective of this study was to identify which dissemination route would be most effective in Bangladesh.

3.5.4 Village Survey

The Sundarban project started with a survey of present building practice in the village. Using the Thana map as a basis, the paras which together form the village unit have been identified and located. (See Figure 3.15). The physical mapping activities helped to introduce the field worker to residents of all parts of the village and to start gathering anecdotal information. It also provided opportunities to record the common building types and technologies now in use.

Some houses were numbered, apparently as a result of the 1991 census. However, not all retained their numbers and the system used does not seem to have been systematic, so it has not been used for sampling purposes. Instead, as an initial approach, three paras with the following different social characteristics had been selected for more detailed studies.

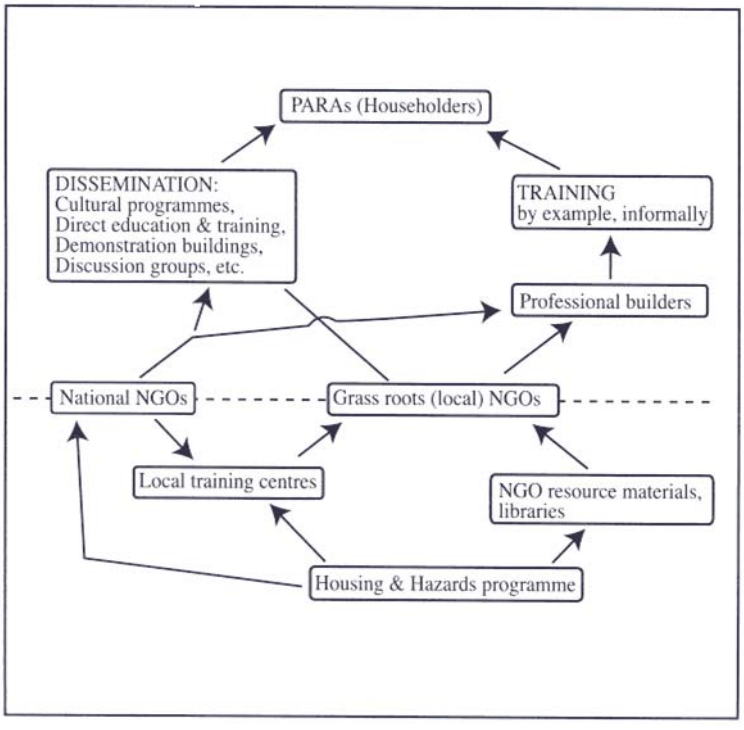


Figure 3.14: Illustrating the Various Paths for Disseminating a Building for Safety Message

Dash Para Fishermen/Hindu area
Large para
Frequently flooded (near river)
Mainly mud construction

Hari/Roshini Para Poor Hindu area
Bamboo used widely

Vatar Para Agricultural Muslim area
Mainly mud construction

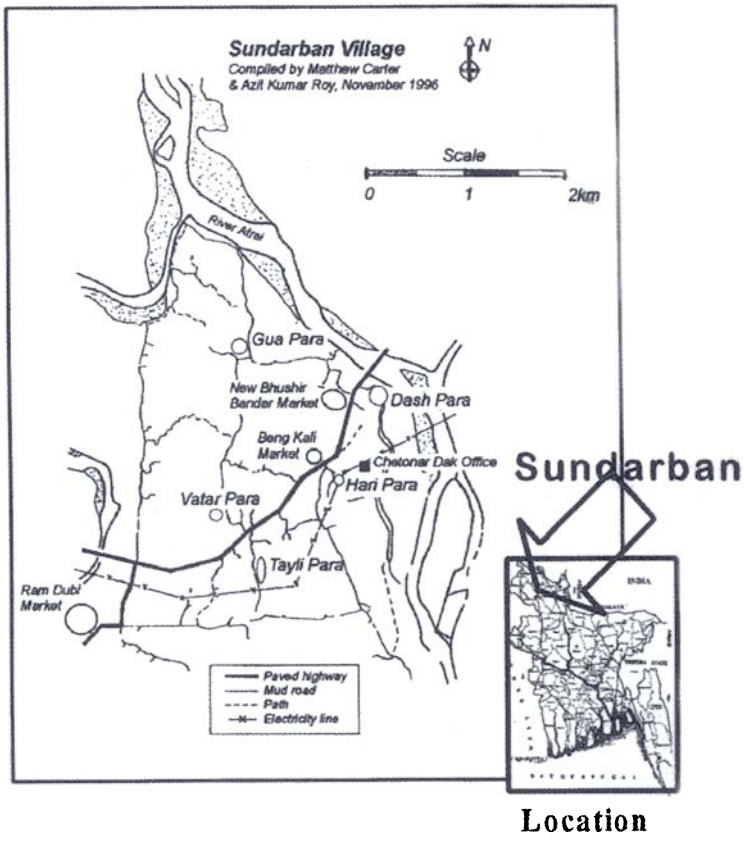


Figure 3.15: Location of Sundarban and Map of Village

3.5.5 Roof Materials and Construction

When completed, the study looked at all aspects of house construction practice. The following comments on roof construction and performance have been made by respondents to the initial survey :

Frame : Framing is almost exclusively made of bamboo. Figure 3.17 shows typical details for a pitched thatched roof and for a "flat" corrugated iron (CI) roof.

CI sheet : Locally made sheet is thin and weak, giving poor thermal insulation. However, CI sheet is associated with longevity and wealth and so is desirable. CI sheets are usually laid flat without nailing to maintain better resale values. Ahmed (1994) emphasised the importance of CI sheeting as an investment. Some good hipped roofs have been seen.

Thatch: The following four varieties are used in Sundarban:

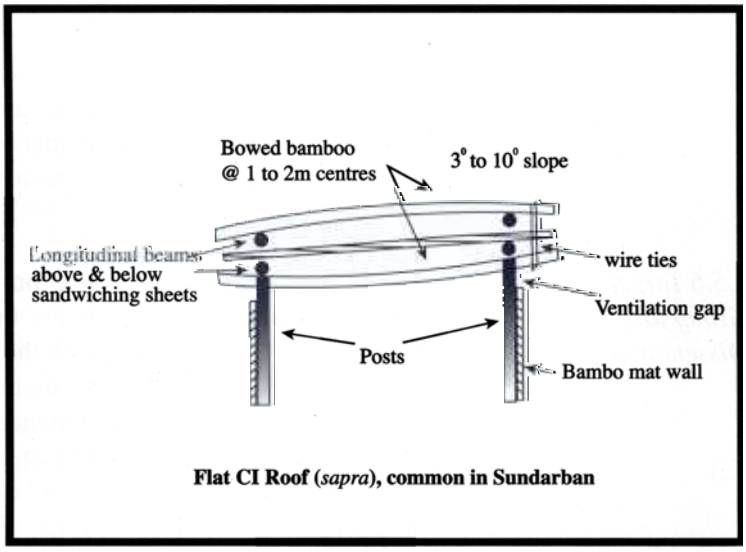
- *Chon* grass lasts five or six years, but is expensive. It used to be popular, but as there is no food crop associated with its production, it is not grown much now. One *chon* grass field has been seen in Sundarban, but its owner has not yet been traced or interviewed.
- Rice straw is used abundantly although it lasts only one year (Figure 3.16). The house-building season comes just after the main harvest and many people use the straw to rethatch annually. Apart from the rapid deterioration, rice straw appears to be a good thatching material according to the criteria of thatch experts (Hall, 1988). However, it has many other uses as fodder and fuel.

Figure 3.16: Rice Straw Thatched Houses in Sundarban Village

- Wheat straw is available after the winter harvest and is another popular thatching material. It can last two years and the stiff straight stems give a distinctive layered appearance to roofs.
- Sugar cane cover is available from nearby plantations. This broad leaf is harder to lay, but will last three or four years, so its use is becoming more widespread as thatchers become accustomed to it.

Clay tiles: Tiles are still in use on some roofs. Tile production has traditionally been a Hindu craft and continued

in this predominantly Hindu community until recently. Tiles are more durable than other roof coverings but their heavy weight soon distorts a typical bamboo frame.



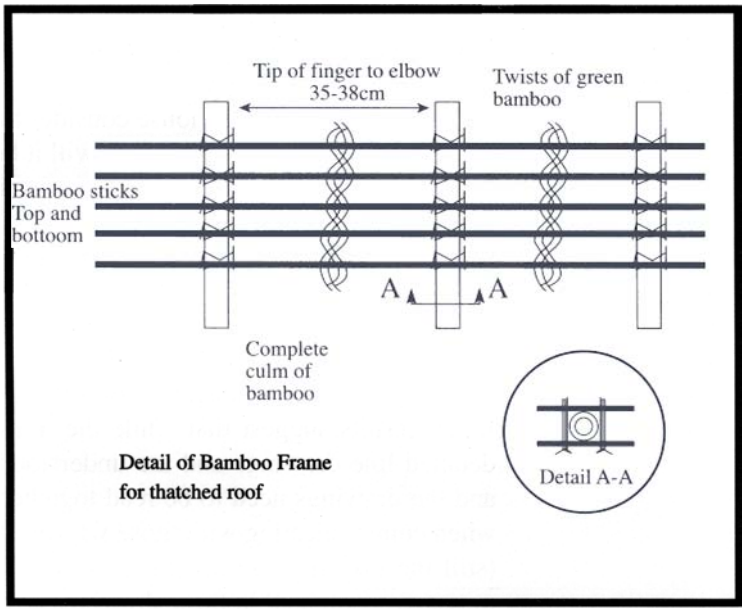


Figure 3.17: Some Roofing Details Noted in Sundarban

The following anecdote illustrates how traditional materials can last, given the correct conditions. As reflected by its name, which means "beautiful forest", Sundarban village was, a generation or so ago, largely covered by

bamboo jungle. In 1972-3 quantities of this mature bamboo were used to reconstruct houses destroyed during the Liberation War (1971). One of those houses was destroyed by flooding in 1995 and the bamboo beams were found to be as sound as when they were installed some 23 years previously. Modern bamboos are felled before they reach full size, which does not apparently allow them to attain this degree of longevity. This experience suggests that allowing bamboos to grow for a longer period may result in more durable construction.

3.5.6 Target Group for Dissemination

There are some professional house builders in Sundarban. However, most low-income houses are built by their owners, often with professional assistance with the roof construction. It appears that men generally do the main construction while women become responsible for maintenance. The survey will be extended to consider the options open to households headed by women. Therefore, dissemination must reach virtually every household in order to be fully effective. To do this required an extensive PLA (Participatory Learning and Action) approach which had been started through the initial survey.

3.5.7 Key Messages

The underlying messages which need to precede any technical innovations are:

a. When building your house consider the hazards in the light of previous experience - will it be strong enough?
b. Extra initial expenditure on hazard resistance could save a lot of money later on.

Some experiences of dissemination media are give below.

3.5.7.1 Visual

The set of drawings developed as a teaching aid by Chisholm (1979) has been introduced during the informal survey work. Initial results suggest that while the drawings are adequately detailed line drawings and are understood by people, the text and the drawings need to be read together. This is a drawback when communicating with those who are functionally illiterate (still the majority in rural Bangladesh). In general, while the messages contained in these drawings cover much of the basic technologies which are needed (treatment of bamboo against deterioration, bracing structures, tying with wire instead of string), some of the texts are ambiguous. Proposals which affect the function of a building, such as relocating the

doorway, will not be readily accepted and will need further discussion in the village. Thus, these materials do not stand alone and must be used to support training seminars.

3.5.7.2 Audio

The basic key messages outlined above lend themselves to dissemination via cultural routes. Village functions often include musical recitations and a start has been made bycomposing a suitable song containing the 'Housing & Hazards' messages. This route of dissemination might be seen as raising awareness among the audience and rendering individuals more receptive to subsequent formal training.

3.5.8 Recapping the Sundarban Experience

Stronger homes can protect livelihoods as well as lives. A participatory survey described above, identified the common building materials in use and obtained the views of a cross-section of professional and self-help builders regarding building safer and stronger homes.

The factors which govern the choices of building materials open to rural low-income families are discussed. Those factors include tradition, building function, material cost, availability and access to skills. Suggestions are made concerning incorporation of such factors in the design of housing programmes in rural areas.

Natural hazards such as earthquakes, winds and floods kill hundreds of thousands of people annually and destroy the property of many survivors. A stronger, safer built environment can thus protect both lives and livelihoods (Hodgson, 1995). There has been a lot of research into low-cost housing technology over the past few decades, but still the technologies are not widely used. The Housing and Hazards (H&H) Group was set up to explore solutions to the difficult problem of communicating affordable building technologies in rural areas.

The first H&H studies have been made in Dinajpur District in the village of Sundarban. The preceding sections described the context of the studies in Sundarban village, which has a population of 7,000 (1991 Census) and covers an area of 10.4 sq km. It is planned that experiences from the Sundarban projects will guide affordable housing programmes elsewhere in Bangladesh and other countries. Carter (1997) has given a detailed account of the first H&H project and has presented the findings of surveys of house geometries and materials used in the study village. The second study is described in section 3.4.

This section summarises the observations of these studies and discusses the factors which guide individual homeowners' choices of house form and building material.

Figure 3.18: Kutcha Type House in Sundarban Village

3.5.9 Typical Kutcha Housing in Sundarban

54 houses were surveyed in 5 paras at different locations around the village. There was a surprising variation in architecture and methodologies used, even within this fairly small area (Figure 3.18). Figure 3.19 shows graphically the materials used for walling and those used for roofing. Broadly, about half the houses had layered mud walls and just over half had some form of thatch. However, the combinations were not predictable, so there are at least four common combinations with subsets of each, depending on which of the four styles of thatching had been used, on the techniques used for bamboo construction and so on.

In plan, the single-roomed houses conformed closely to a length/breadth ratio of about 1.6. However, individual structures ranged in length from 3.2 metres to 5.5 metres. Multiple-roomed houses were similar in width to the single rooms but longer. One aspect in which there was little variation was that of orientation; typical village homes are arranged around a square courtyard and almost all dwelling houses face south.

The houses surveyed were all relatively young with nearly half being less than 5 years old. Only one exceeded 20 years. This finding probably reflects the poor durability of most untreated *kutcha* building materials as much as it does the problems of exposure to natural hazards. It should be noted that flooding and high winds do occur in this area and regularly destroy dwellings, although the exposure is lower than in the coastal belt.

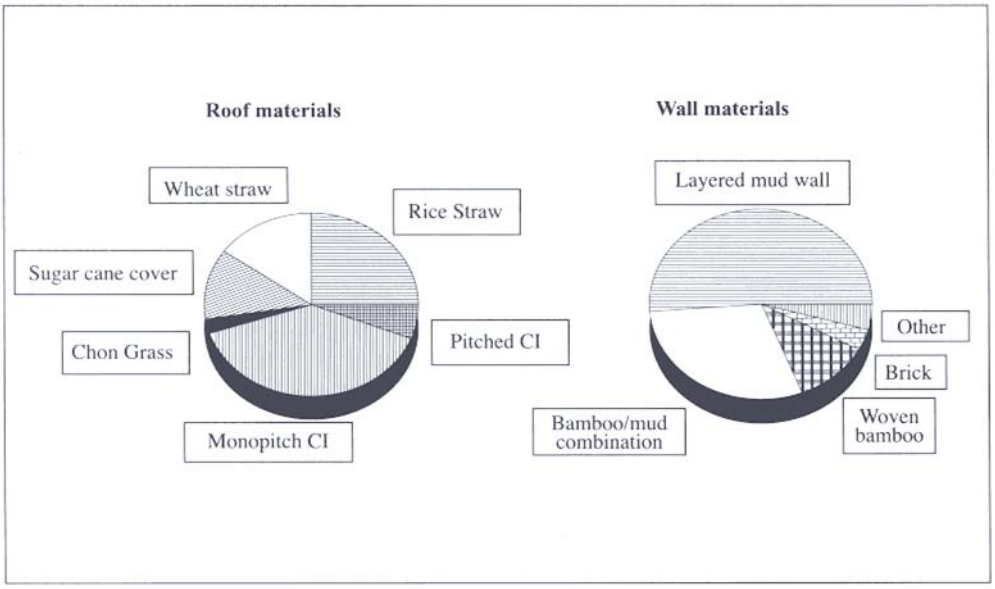


Figure 3.19: Distribution of Construction Methods Used in Sundarban

3.5.10 Why Change Traditional Methods?

It can be argued that the range of structural forms described above represents generations of experience of living in Bangladesh's hazard prone environment. Houses destroyed by cyclones or floods are rapidly rebuilt (as seen in October 1998). Why change tradition?

The main reason why the coping mechanisms of previous generations are not now so effective is that pressure on the production potential of the land has caused the price of basic materials to rise faster than other prices. Ahmed (1999) illustrated this for the example of bamboo. Thus, each disaster reduces a family's capital and increases its vulnerability to future hazards. Increasing the resilience of the home could help to stem or to reverse that trend.

3.5.11 What is Meant by "Low-Cost"

In fact, one of Carter's findings was that innovative householders do experiment with modified techniques and with modern materials, but in Sundarban there was no mechanism for sharing experiences in such a way that others might also benefit. Hodgson and Carter (1998) have described the participatory workshops which Carter developed to assist in spreading indigenous knowledge more widely throughout the village.

As noted above, the cost factor is becoming increasingly significant to low-income households. *Kutcha* housing encompasses a broad range of costs. Whilst a small mud

walled house with thatched roof could be built for as little as Tk 1,500 (with significant labour input from the householders), a similarly sized bamboo frame and mono-pitch iron sheet (*sapra*) roof costs around Tk 5,000 to Tk 7,000 to build complete. This is a large sum for a daily labourer earning, say, 30 or 40 taka per day.

Many models of low-cost housing have been proposed. Some were summarised in presentations at the first Housing and Hazards Workshop in 1996. Islam (1996), for example, quotes typical costs in the range Tk 15,000 to Tk 24,000 (that is, Tk 1,400 to Tk 2,000 per square metre). While these model houses undoubtedly have an important part to play in developing housing for the rural poor, they do not address the needs of a large population of very low-income households for whom barely sustaining themselves from day to day is a struggle.

The contribution, in labour terms, that householders are able to put in themselves is also an important factor. In Bangladesh the workload of a daily labourer or small householder is highly seasonal. It is well known that the majority of house building occurs during periods where there is little demand for agricultural labourers. During this time the opportunity of working on one's own house is available since the householder would most likely be otherwise unemployed. If low-cost housing can be built by the householders themselves, then they have the option to save money in this way.

Carter (1997) reported that a range of important strengthening techniques can be incorporated into a *kutcha* house for an increase in cost of only about 8%. The challenge is to develop appropriate techniques and better methods for communicating them to the people who could benefit from the knowledge.

One approach taken in the first pilot project was to ask participants to calculate the costs of different roof constructions over a long period. As shown in Figure 3.20, it is possible to calculate that an expensive *chou-chala* (hipped) CI sheet roof could be cheaper over 25 years (since it is more or less maintenance-free) than the cost of replacing a cheap thatched roof every two to three years. Generating this type of awareness is a big challenge for rural programmes.

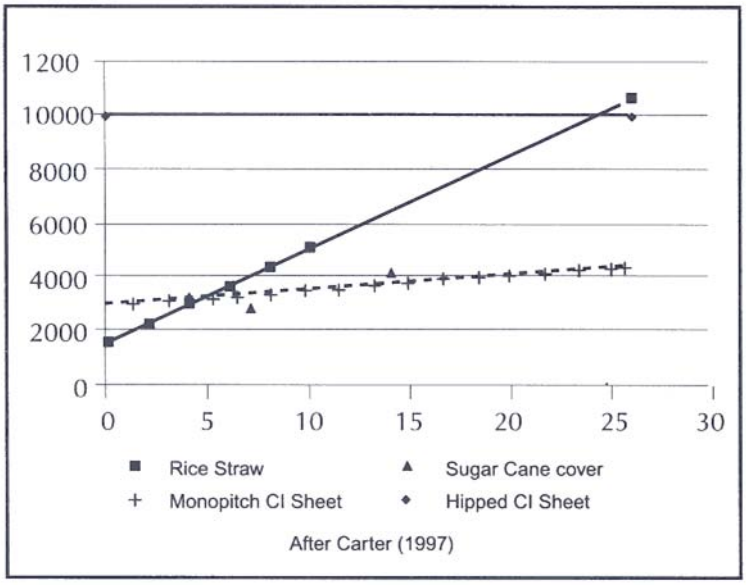


Figure 3.20: Life-Cycle Costs of Roofs, as discussed in Rural Workshops)

If people can afford the transport, they can opt for more durable mud walling. One interesting example given by Carter (1997) w as of a rickshaw puller. This is a normally poorly rewarded occupation and yet the respondent could afford mud walls because, to him, the transport was free. Any neighbour would have to buy his services!

The cheapest cost forwhich a house could typically be built is Tk 1,500 to Tk 2,000 for a mud house with a thatched roof. To achieve this the householder would need to build the house himself and only buy materials and hire labour for the roof.

Mud is commonly applied to the wall by hand. This encourages the use of mud of a fairly weak, wet consistency with consequent problems of shrinkage as the wall dries. The poorly compacted material is also easily burrowed by rats and termites.

The combination of mud and thatch was recognised by participants in the Sundarban workshops as providing an even internal environment throughout the year: cool in hot weather and warm in cold weather.

3.5.12 Brick

Brick construction is normally beyond the means of low-income households in the study area. One exception is the area nearby a brick-making field which has long since become abandoned. Many old bricks remain scattered around, which are collected by house-builders as they are

salvaged and eventually used. One can imagine that the amount of time taken to find enough bricks of sufficient quality to build a wall would make such a task attractive only to families who lived in the immediate vicinity and could find a few bricks here and there in their spare time. This accounts for the small proportion of brick dwellings recorded by Carter's survey.

3.5.13 Bamboo

Bamboo is a cheap and easily transportable building material. Houses made of bamboo can be extended easily when more money is available later and so it is the choice of those on the lowest incomes. However, the poorest people can afford only the thinnest bamboo which may last only one or two years. Poor quality bamboo framing is liable to be associated with walls made of bamboo-mat or jute-stick panels, which not only have poor durability, but also give limited protection against the monsoon rains.

However, whilst a mud house takes 3 to 4 months to build if built properly, a bamboo house can be built in a much shorter time. In an extreme case, a young man who needed a house before he could marry built one in 5 days using a bamboo frame and prefabricated bamboo matting bought at a market in town. This could be an important advantage in some circumstances.

People are well aware of the limitations of bamboo, particularly in respect to insect attack and its poor resistance to rotting (Figure 3.21). A common form of seasoning is to immerse bamboo culms in ponds for a period of 2 to 3 weeks. This results in dilution of the contained sap and reduces future insect attack, but the precise benefits have not been quantified.

Examination of old houses by Carter (1997) found that the bamboo stems embedded in some had lasted for over 20 years without significant deterioration. This led to some thought as to whether modern practice provides an inferior material. Currently, bamboo is normally cropped after about five years' growth. Proximity to rice paddies results in bamboo growths being enhanced by the artificial fertilisers used there; this may, at first, appear an attractive by-product of modern agriculture, but rapid growth usually results in a less dense, weaker material. These effects have not been investigated in depth; further studies into such hidden by-products of the current emphasis on food production are urgently needed.

Bamboo splits easily and is therefore difficult to joint by normal carpentry methods. Nails do not hold tension for long

before pulling from the culm. Frame joints are therefore commonly held together using jute cord or other natural binders which decay rapidly. Creepers may be used in forest areas, but are not seen in Sundarban village. Hasan (1985) has recorded the typical framing details of village houses.

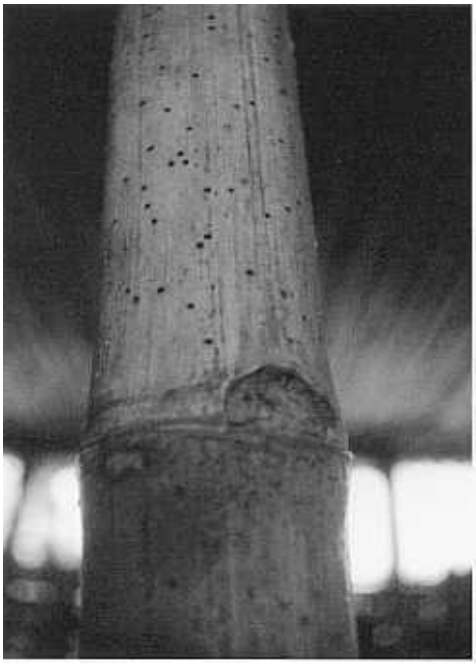


Figure 3.21: Bamboo is Susceptible to Insect Attack

3.5.14 Timber

Timber is normally too expensive to feature in *kutcha* houses. Very few low-income households will have access to cheap supplies; even timber which grows on their land must be put through the expensive processes of seasoning and sawing to make usable sections.

3.5.15 Thatch

Four different types of thatch are used in Dinajpur District. Traditionally, chon grass was used for its low cost, straight stems and relative longevity. However, this material was not cultivated for any other reason, and, since the 'green revolution', the sites where it grew have been put to rice cultivation. It is now very hard to obtain.

Rice straw is the most readily available thatching material, but the rapid-growth of high-yield rice varieties means that much of the straw available now is of very poor quality and rethatching is needed at one to two-year intervals.

Wheat is also commonly grown in the district. Wheat straw is widely used elsewhere in the world for thatching (Hall, 1998). The stems are straight and provide improved resistance

to rainwater penetration, compared with rice straw. However, it is not available until quite late in the house building season which deters many from using wheat straw, even in this area. Even more durable and almost as popular as wheat is the use of outer leaves, or covers, of sugar-cane. The large plantations of sugar-cane in Dinajpur District produce covers almost as a by-product. It is more difficult (and hence costly) to use as thatch, but it can give twice the life-span of the other materials.

3.5.16 Corrugated Iron Sheet

Corrugated iron (CI) sheet roofs are widely prized for their longevity. They also act as important repositories of savings in that sheets can be resold in future times of hardship and replaced with cheaper thatch. The most common type of CI sheet construction among low-income households in Sundarban village is the *sapra* roof. Nearly 40% of the houses inspected had these, in which the CI sheets are fixed between two frames of bamboo and mounted in a single slope at a shallow angle. Pitched roofs of this type of construction are built North East India, but so far not in North Bengal. An important factor in this construction is that the sheets are not nailed or damaged in any way; this enables them to retain their value as a hedge against hardship for much longer. It also makes them more vulnerable to removal by strong winds.

The breakdown in cost of a house of this type (*sapra*) is quite revealing. Typically, 20% of the cost is bamboo, 60% is CI sheet, 5% other materials and the remaining 15% is taken with labour costs. This type of construction is popular largely because it uses the minimum amount of CI sheet possible. Even so, over half the cost is taken up by purchase of this expensive commodity.

3.5.17 Incremental Construction

Because of the high cost of house building, an incremental approach is often adopted. Many householders with *sapra* roofs express the hope to one day be able to afford the additional CI sheet to convert the roof into a hipped structure which is both more durable and of a form which is traditionally more respectable. Houses are often built with it in mind to include additional features at a later stage when funds allow. For example, it is possible to convert a verandah from thatch to CI sheet or to add thatched covers around the perimeter of a mud walled house to protect it from the direct impact of rain. One householder had struck a bargain on a pile of bricks. Although not enough to build a house, he saw it as a worthwhile investment and expected to buy the remaining

bricks required in a few years' time. The adaptability of *kutcha* housing cannot be more vividly illustrated than one example of two brothers who initially shared a large single-roomed mud walled house. As their families grew they wished to move into separate rooms. Being some distance from suitable mud, they knocked down their existing house, reconstituted the mud and with it built a new two-roomed house.

3.5.18 Homestead Form

No overview of rural housing in Bangladesh (or anywhere else) would be complete without consideration of the organisation of the homestead around the house. Hasan (1985) comments that "traditional attitudes towards different domestic activities still dictate the space organisation of a rural house", although he does acknowledge that population pressure was already changing those traditional attitudes. The extent of the typical rural family group was reducing as children were being forced to move away to urban homes.

Nonetheless, the needs for privacy, secure compounds for agricultural activities and for housing junior family members still today dictate a courtyard-centred homestead with various buildings around the perimeter. Thus, many houses still develop linearly, one room at a time as the needs grow, and the rectangular single room with a central door and length to breadth ratio of 1:6 remains the basic unit of *kutcha* housing.

3.5.19 The Housing Process

The factors governing choice of building materials are diverse and lead to a large variety of building forms even within a very small area. Although the choice is largely cost driven, there are social and geographical factors which cannot be easily quantified. Even the cost of materials and construction vary from family to family depending upon their location, assets, expertise and available time.

Developing low cost housing for Bangladesh should not be seen as a project to design a low cost house. It should be seen as a process which enables householders to make more informed choices and to share housing knowledge and expertise within their communities.

For that process to be effective, the programme must incorporate professional technical expertise in a readily understandable form and in such a way that villagers can quickly obtain appropriate answers to sometimes complex technical questions. This will require multi-disciplinary coordination across the boundaries of technology, sociology, and economic and anthropology fields.

3.6 Implementing Building for Safety in Gopalgonj

This Participatory Action Research (PAR) project was carried out under the Higher Educational Link on Hazard-Resistant Housing between BUET and the University of Exeter, UK. The project was concerned with developing methods for improving houses and reducing vulnerability to hazards of low-income communities in a flood-prone rural area in Gopalgonj district, Bangladesh, with the view that they may also find application in other flood-prone regions.

Technological innovation was linked to a participatory research process based on mutual decisions of the research team and villagers. It was attempted to develop a process for interaction of formally trained building professionals and rural householders/builders for building stronger and safer houses. It is believed that the results of the research might prove useful in other areas and in organisational housing programmes, and, therefore, beyond the confines of the project, effort for dissemination is being continued. In the same way, periodic monitoring of the performance of the project is being carried out.

3.6.1 Conceptual Framework

Floods constitute a serious hazard in Bangladesh, particularly for low-income communities. In this context, there is a need for developing methods for improving performance of rural housing in floods. There are hardly any field-based studies on this subject in Bangladesh; even in such a comprehensive compilation as the Grameen Trust's Website on Flood 1998 (Grameen Trust, 1998), references to housing show numerical information on devastation and damage to housing, but no reference to building safer houses. To address this need, this project was conceived for developing 'building-for-safety' (BFS) options for flood-prone areas, defined as "construction technologies for building stronger and safer houses by strengthening parts of a building which are particularly weak with regard to specific natural hazards" (IT Publications, 1994). These options were intended to be context specific and adaptable in terms of income, household needs, location, etc.

The concept of Participatory Action Research (PAR) used in this project bears some discussion here (Figure 3.22). It is an all-inclusive approach involving various stakeholders in the process of developing news ideas and action agendas for problem-solving or improving a particular situation (in this case, house building technology development for flood-resistance). This approach attempts to accommodate multiple perspectives and viewpoints from both within the community

and outside in a non-hierarchical way. It was adopted here after observing the prevalent mismatch between the objectives of organisationally based low-income housing programmes and local and/or community needs and aspirations (Ahmed, 1999).

The driving force behind this process of technology development is a synthesis of professional/academic and local/indigenous knowledge through participatory consultation indicating directions for replication, assessment of local adoption, appropriateness and dissemination methods. Emphasis is placed on creation of technological choices or, as in this project, developing options for building safer houses – this is a democratic characteristic of the concept. Emphasis is placed on the process of technology development, that is, using a 'model process', instead of sole preoccupation with the 'product' aspect represented by the conventional approach of developing 'model houses' or prototypes.

Dissemination of the ideas developed in the project is of paramount importance: for the last few decades various supposedly low-cost, appropriate building technologies have been developed by organisations and at educational institutions, but most of them have yet to see widespread application. For this purpose, communication between a variety of actors is necessary, requiring specific methods, tools, knowledge, experience, attitude and behaviour. The participatory concept has been widely discussed and promoted. (see for example Chambers, 1997; Rahman, 1993; Slocum et al., 1995), but has found very limited application in the field of low-income housing in Bangladesh, an important reason for its application in this project.

3.6.2 Methodology Because this was an action research project, most activities were carried out in the field, with a small proportion of the work being done in Dhaka, such as compiling reports, accounts, etc. The main stages of the project were as follows:

Stage 1: Reconnaissance. Visiting the project area to become familiar with the context and to document local characteristics, housing patterns and building methods. Some of the main activities during this stage included:

- Area and Community Profile: Studying the salient characteristics of a low-lying settlement and its lower caste Hindu inhabitants.
- Housing Map and Household Information: Preparing a map of the settlement and collecting demographic and housing

related information of the twenty seven households living in the settlement.

- Data Collection & Documentation: A large volume of data was amassed during reconnaissance and later stages. This included information on local housing patterns and building methods, preparing building materials inventories, sketches and drawings, and extensive photographic documentation.

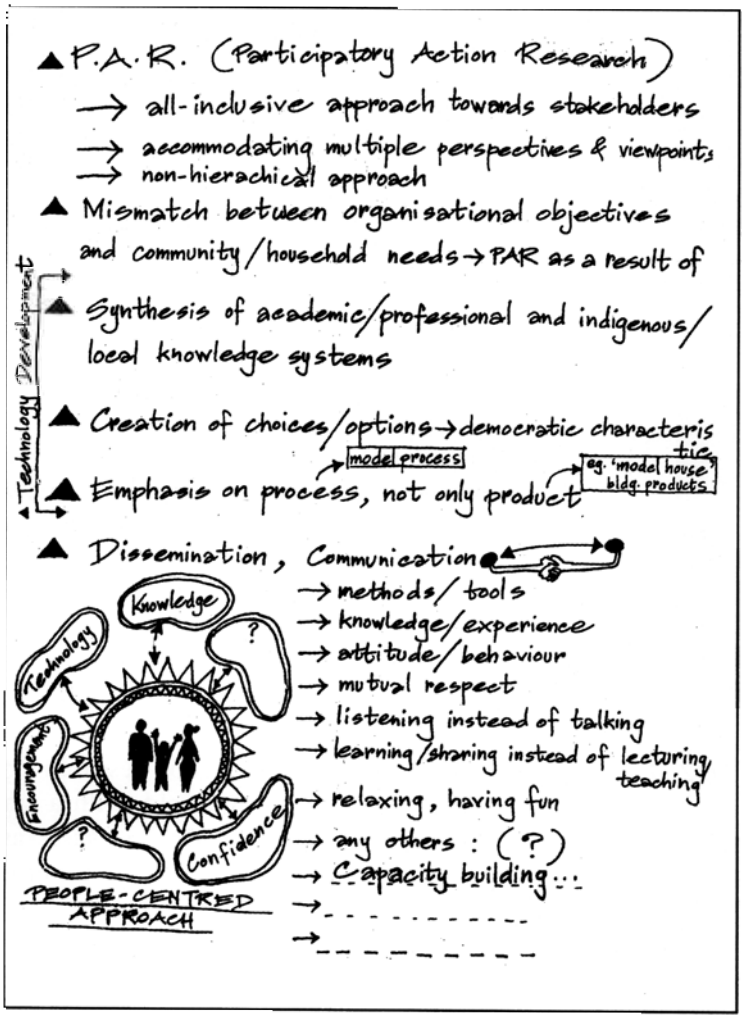


Figure 3.22: Key Concepts of Participatory Action Research (P.A.R.)

Stage 2: Workshops. Workshops were held to brainstorm ideas for improving rural houses and to thereby develop locally relevant BFS options. Specific types of construction and possible improvements for the base (including posts), walls and roof of rural houses were discussed and developed. Two workshops were held in the village - one for women and the other for men. Primarily, the main parts of buildings were

discussed in focus groups with 5-8 persons per group and in open discussions. This included:

(a) Base, including plinth and posts, (b) Walls and (c) Roof

These discussions focused on construction methods for each part with regard to:

(a) Merits and demerits, (b) Preferences, (c) Costs, (b) Possibilities for improvement

The workshop findings allowed developing BFS options for improvement of the base, walls and roof of rural houses. Participatory dialogue between the research team and villagers was the basis for developing these options. Cost was an important factor because these options, although increasing costs somewhat, were to be modest and affordable for low-income households, allowing savings from reduced maintenance over the long term.

Stage 3: Demonstration and Dissemination. This was perhaps the most important stage of the project. Two households in separate, but nearby, villages volunteered applying some of the BFS options developed at the workshops to reconstruct their houses (DH1 and DH2). These were built as demonstration houses to study the BFS options and to disseminate the results of the research (Figure 3.23). Instead of building a demonstration 'model' house, it was chosen to incorporate building-for-safety options in the reconstruction of existing houses. The houses were built in separate villages for wider impact. The idea was to demonstrate possibilities for improving a rural house by incorporating some significant changes. The demonstration houses were results of contributions, material and otherwise of both the research team and villagers, built by mutual participation. A children's song team was trained to sing and disseminate the ideas developed in this project. A 25-minute documentary film has been made to serve as a dissemination tool. Dissemination is an on-going activity extending beyond the confines of this project. The project results have been and are going to be presented at a number of conferences, seminars and other such fora, and also perhaps more pertinently, at village workshops in other regions.

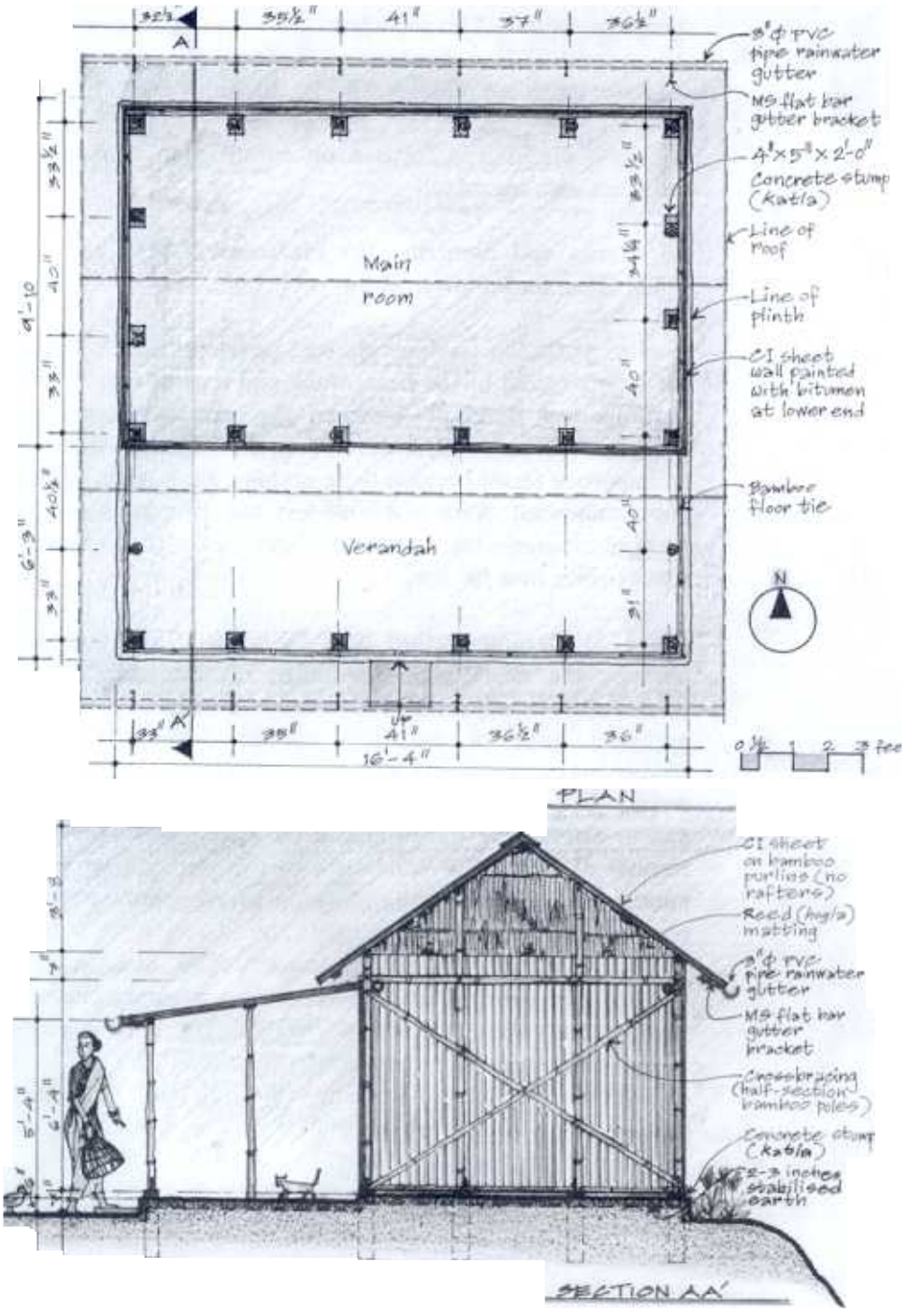


Figure 3.23: Plan and Section of a Demonstration House (DH1)

Figure 3.24: Stabilised Mud Plinth Construction in DH2; Note the Hollow Concrete Stumps (Katla)

3.6.3 Building-for-Safety (BFS) Options used in Demonstration Houses

Because the development and application of BFS options were central to the project, they are described in some detail below.

3.6.3.1 Cement Stabilised Mud Plinth

Results of laboratory studies of stabilised mud carried out under the BUET-Exeter link were applied in the field. Model stabilised plinths were made on site to confirm strength and water-resistance tests before actual construction. The existing mud plinths of the demonstration houses were levelled and prepared for a cover of 3-4 inches of cement stabilised earth. Soil was obtained from the sites. Cement was bought from Gopalgonj town and transported by tricycle vans. Because the earth had a high clay content, upon advice from a geologist in Dhaka, it was decided to add 20% sand and 8% cement by volume to stabilise the earth. Earth was dried, broken down and screened before being mixed dry with sand and cement, after which water was added to make a paste-like mix. This mix was used for stabilising the plinth, mixing small batches at a time, layering it by hand and then tamping for compaction. The completed plinth was cured by water for a week. In addition to resistance to erosion by water, other advantages of a stabilised plinth, observed by villagers, are a dry and clean surface, reduced infestation by rats and insects and security from burglary. Long-term durability is as yet unknown because there are no examples of stabilised mud plinths in that region. Thus these demonstration houses should allow gaining first-hand knowledge in this regard by monitoring over the long term.

3.6.3.2 Hollow Concrete Stump (Katla)

Local concrete stumps to protect the lower part of bamboo/timber posts (*katla*) were improvised and designed partially hollow (Figure 3.24). This reduced the cost; an extra katla could be obtained from materials savings of cement, sand and aggregate from 10 hollow katlas; i.e., 10% cost savings. A hollow katla filled with sand/earth before placing it in position is as strong and sturdy for its purpose as a solid one. Because here katlas were placed into a stabilised mud plinth, they were wrapped with polythene sheets for easy removal if necessary later. Hollow katlas were produced as follows: polythene sheets were spread on the ground and a 2-sided wooden shuttering placed. For each katla, at one end a 16-18 inch long 3/8 inch MS flat bar clamp and in the other a 2 inch diameter (outer) PVC pipe lubricated with sump oil were placed in position according to dimensions specified in the design. Casting was then done with a 1:4:4 (cement:sand:aggregate – 3/4 inch brick chips) mix to make 4 inch x 5 inch x 2 ft katlas. One hour after casting, the PVC pipe was slowly drawn out, leaving a part of the katla hollow. At least 10 days curing was necessary. For efficient use of wooden shutters, better cost-effectiveness and production, it is advantageous to produce a number of katlas together. For each demonstration house more than 20 katlas were produced over two days. To prevent rust, the clamps were painted with molten bitumen.

3.6.3.3 Bamboo Treatment

Local bamboo treatment methods were followed to encourage their practice. Bamboo poles were bought and soaked in a nearby waterbody, a local practice of flushing out the inside sap to make the bamboo unattractive to insects. However, at present, villagers often do not follow this practice. In this project this practice was encouraged: bamboo was bought a few weeks in advance and soaked in water before using. Bamboo was not locally available, it had to be bought from a weekly market in town and transported to the site by tricycle vans, adding to the cost. In the demonstration houses, bamboo posts were supported on katlas and painted with bitumen about 1.5 ft from the bottom. This is expected to extend the life of the posts; an unprotected bamboo post dug into the ground lasts only for about 2 years, requiring frequent replacing. For households unable to maintain bamboo posts, this can mean living in a hazardous house. Bamboo has become expensive and scarce, and extending its useful life as

a building material can mean cost savings and reduced vulnerability of low-income households.

3.6.3.4 Painting Walls with Bitumen

Painting the lower part of walls with bitumen for protection against rainwater splashing and water from the ground is a local practice and was encouraged in this project for wider use. A small amount (less than 1 kg) of bitumen was needed for painting an 8-12 inch band around the lower perimeter of the walls. For example, in DH1, 2 kg bitumen was bought from the town market and used for painting walls, katla clamps, rainwater gutter brackets and bamboo posts.

3.6.3.5 Cross-Bracing

Cross-bracing of the bamboo wall frame structure with split bamboo poles is common to some extent in the area. This increases the resistance of the house structure to strong wind. Cross-bracing was used in the demonstration houses with the view to encouraging this practice.

3.6.3.6 Rainwater Gutter

Rainwater falling from roof eaves and damaging the plinth, walls and ground around the house was a common problem. A simple rainwater gutter was devised with a 3 inch diameter split PVC pipe and MS flat bar brackets (at about 3 ft. intervals) (Figure 3.25). The gutter sloped to the sides, thus draining away rainwater to the corners and from there to the back of the house. Since the demonstration houses were gabled, in each house two gutters, one at each eave, were provided. The brackets were made by local blacksmiths according to the design developed by the research team and villagers. They were painted with molten bitumen for rust-prevention and attached by screws to bamboo roof purlins. There was an example of a house in the village which had a metal sheet gutter, which suggests that a less expensive and more durable gutter such as that used in the demonstration houses might be adopted locally.

3.6.4 Monitoring

In addition to periodic monitoring, about six months after constructing the demonstration houses, after the rainy season, an independent evaluation of the project was carried out (Figure 3.26). The results of this report are presented in summarised form below.

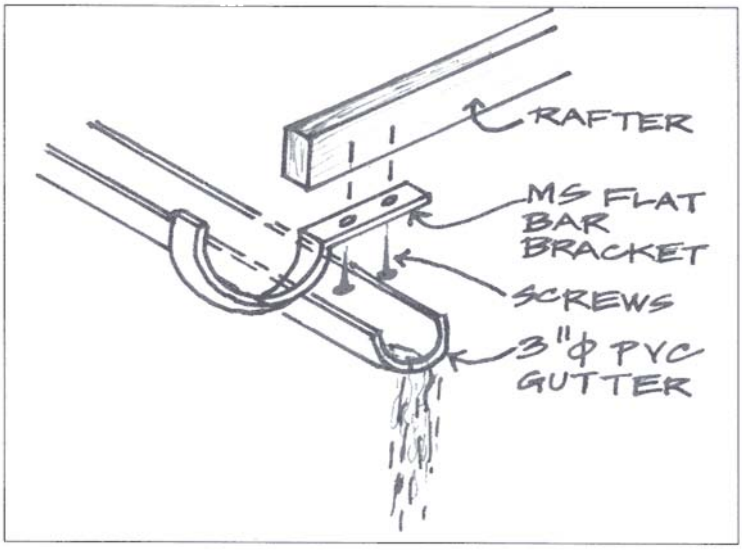


Figure 3.25: Rainwater Gutter and Bracket

3.6.4.1 Demonstration House Condition

After visiting and examining simply by touch and hitting with hand, the stabilised earth plinths seemed to be in good condition compared to ordinary earth plinths in terms of both dryness and hardness (Figure 3.27). No coating had been needed since construction. Some cracks were found on the plinth and were independently repaired by the household female members using the same mixture (cement, sand and soil). Rats and insects were unable to affect the stabilised plinth, which was highlighted positively by the household and other community members.

Figure3.26: Front View of DH1 Six Months After Construction

As the soil of the locality was clayey, the team had to mix a higher percentage of cement and sand to get desired performance,

compared to other regions with more sandy soil as evidenced in the BUET lab tests. The plinth dimensions of DH2 are 21 feet long, 18 feet wide and 1 foot high. In order to provide a 3-inch cement stabilised earth (cement: sand: soil = 0.75:1:8) covering of the top and sides of the plinth, 11 bags cement were required. The demonstration house owners and the community appreciated the stabilisation technique, but they were not yet prepared to pay for it. So it appears necessary to reduce the construction cost of the improved plinth.

Figure 3.27: In the House Next to DH2 (left) the Plinth is Getting Damaged and the Owner had Covered it with Polythene Sheets to Prevent Further Damage; In Comparsion DH2 (right) is in Much Better Condition

The hollow concrete stumps (*katlas*) have succeeded efficiently in giving protection to the bitumen-coated bamboo posts. Bamboo cross-bracing has successfully increased the stability and durability of the house walls. The introduction of rainwater gutter was an effective and appropriate technology in this research project. The DH2 household and their neighbours collect and use rainwater falling from the gutter, but the DH-1 household has chosen not to, indicating the need for follow-up motivational activity.

3.6.4.2 Local Perception and Future Prospects

Residents of the demonstration houses were happy with their houses. But neighbouring people were not convinced to build their houses using the BFS options without any financial support. This is mainly due to their poor economic condition. Lack of motivation in this respect and the relief mentality of the local people seem to be the main causes for not accepting the new technology. A social factor was also responsible for the community choosing not to replicate the demonstrated technologies. Women are solely involved in plinth

maintenance, but men control household expenditure. Because the men are not very concerned with the women's labour, they do not feel the necessity of an improved plinth that would save this labour. A man in the village where DH2 was built has expressed interest in building his house using the BFS options. This is a positive sign. Perhaps in the future, if any NGO or social organisation makes arrangements for financial support, people might be more interested. This suggests the importance of disseminating the ideas developed in this project among community development agencies which would be better placed to implement them.

3.6.4.3 Vulnerability Reduction

The aforementioned technologies that were employed in the demonstration houses have succeeded in reducing the vulnerability of their inhabitants. There was a clear difference between the condition of the demonstration houses compared to that of other houses in the village. The rainwater gutters were successful in preventing erosion of the earthen plinths. It was clearly visible that the stabilised plinths of both the demonstration houses were of superior resistance to the monsoon rains and floods. The plinths of neighbouring houses were crumbling without regular maintenance, whereas those of the demonstration houses had only sustained very minor cracks. Both the families of DH1 and DH2 had repaired the cracks with the same cement reinforced earth mixture and no further damage occurred. Even though the construction cost was a little more than the average local house, due to reduced maintenance as a direct result of better water resistance, the demonstration houses were financially more effective in the long term. A combination of the local social mentality and individual financial implications has restricted the local replication of these technologies. However, if financial assistance were offered, then many people would not hesitate at the opportunity to mitigate their homestead against floods. If the local people's vulnerability to floods, which they have to endure on an annual basis, is reduced, then the floods will not have such a catastrophic effect, loss of assets will be reduced, and the standard of living and quality of life of the rural poor will develop greatly.

3.6.5 Observations

Vulnerability to hazards is directly proportional to a household's economic position: for a low-income household even a strong gust of wind can spell trouble. Hence this project

attempted to strengthen various parts of a rural house that are susceptible to damage by not only floods, but also by other hazards such as rain and wind. Not only large disasters, but regular hazards such as deterioration and weakening of house structures by insect attack, dampness and rainwater contributes to a household's vulnerability, especially when incomes only permit less durable building materials. The BFS options were developed with regard to this aspect of vulnerability.

The BFS options used in this project were context-specific. There are also useful lessons for wider relevance, but principally, projects of this type would have to be based on context-specific studies because of regional variability and diversity of building methods, materials, resources, etc. For example, in Gopalgonj, because of the high clay content in the local earth, up to 9% cement and 20% sand had to be added. But less than 100 kilometres north in Manikganj district, also a flood-prone area, it was found that the local earth could be stabilised by adding only 5% cement.

This project was concerned with housing in flood-prone areas and not about developing a 'flood-resistant' house prototype. The options developed are not expected to provide complete resistance, which would be much too expensive for low-income communities. Rather, the purpose has been to develop ideas for minimising vulnerability that would be affordable and achievable in their circumstances. Strengthening a house does, however, increase the cost (about 15-20% if all the options developed in this project are used), which is potentially discouraging for low-income households, as indicated by the independent monitoring presented above. To balance this extra cost to some extent, cost-reducing options such as hollow katlas, were developed. A number of options were developed for a range of household incomes: households would subscribe to more options, according to affordability and prioritise them according to their own needs.

This project's objective was to conduct action research as part of an educational link programme without scope for direct continuity beyond the confines of the project. However, in order to sustain and promote the ideas of this project, an organisational set-up would be necessary to continue work on developing better housing for low-income communities as long-term action, once again suggested by the independent monitoring. This project could serve as a basis for establishing such a set-up, a reason for continuing dissemination activities.

3.7 Review of Participatory Practice

The concept of community or user participation in development programmes, particularly for the poor, has become widespread and now most international funding organisations attempt to highlight its importance in their programmes. Rahnema (1992) has chronicled the increasing popularity of participatory development, showing how this concept with its initial quasi-radical overtone has eventually been co-opted into mainstream development discourse. The term 'participation' has received tremendous attention since the 1970s and various proponents have postulated a variety of analytical conceptualisations and operational definitions.

While often used in political propaganda and in manipulative schemes to advance vested interests (of which there are many examples), participation is commonly advocated as a theoretical construct [with practical applications, characterised by Participatory Action Research (PAR)] for changing structural conditions within society which prevent self-actualisation and poverty alleviation of under-privileged individuals and communities (for example, see Chambers, 1997; Rahman, 1993). It is also common to define it more narrowly as simply involving beneficiaries in development projects. (See Fuglesang and Chandler, 1993; Oakley, et al., 1991). Touching on its more sinister applications, Hamdi has written about the spectrum of conceptual divergences regarding participation:

> "The best processes of community participation ensure that everyone involved has a stake in the outcome and that therefore they have some measure of control over it. The best processes ensure that all concerned will share the responsibilities, profits, and risks of what they will decide to do. ... The worst processes are tokenism. These are plans devised by a dominant group legislated to seek the opinion of others, who consult these others on issues that are preselected and may have little or no relevance to those invited to comment. In between, where most projects fall, are various shades of community participation... " (Hamdi, 1991)

These divergences occur because of the wholesale acceptance of the participatory concept by a variety of actors within the development establishment; its exclusion may even suggest anathema towards current development practice and

discourse. It is interesting that despite their diversity in conceptual and programme orientations, most development organisations based in the West claim to endorse participatory practice in some form or the other. There are bound to be varying interpretations and different levels of performance in application, and even misuse, when there is such widespread endorsement of a concept. Without considering the implications of participation in practice, it has become conventional for most development project documents to contain references to it. How it is practised, or whether it is practised at all, remains a different matter.

3.7.1 Participation in the Bangladeshi Context

To comply with stipulations of Western funding organisations, in Bangladesh there is also widespread reference to and claim of participation in local project documents. For example, projects of the government's Adarsha Gram Programme (AGP) for housing and resettlement of the landless are built by contractors based on centralised standard design decisions and there is no participation of beneficiaries; sometimes beneficiaries are even chosen after houses have been built. Yet an AGP annual report states: "... the Adarsha Gram Project now includes components such as landuse planning, people's participation ..." (Bangladesh Ministry of Land, 1995). Conversely, as pointed out by an observer: "The financing memorandum and the [AG] project proforma stipulate that the construction of houses has to be done by the settlers themselves. But, in fact, this has been done by contractors" (Hye, 1996). Many such examples can be cited.

If the AGP programme is compared to the example in Figure 3.28, it can be seen that in the latter there was at least an attempt at participation, albeit with poor results, whereas in the former there was only a token reference to it. In these examples organisations tended to act in response to their own perception of a community 'need', without considering community 'aspirations'. Need can perhaps be fulfilled without participation, but not aspirations. The example below shows a common pattern: the grid was a result of self-interest of both parties, replacing aspirations with perceived need. What is tacitly common between both examples is that people in a context of poverty and vulnerability generally tend to agree with how a commodity, such as housing, is provided by organisations. Even when a poor person articulates the importance of participation, it is often framed with reference to its benefit to

the organisation, not to the beneficiary: "If we were allowed to build our own houses, there would be no risk of blaming the government," said Rohima Khatun, an AGP beneficiary (Ahmed, 1999). On the other hand, a prominent AGP staff member believed that it was better to involve beneficiaries in project implementation because this led to more beneficiary satisfaction with the houses provided. However, in reality there was usually only one pre-implementation meeting with beneficiaries, which the same staff member thought made the projects sufficiently participatory.

In India, new villages were planned after the Maharashtra earthquake of 1993. The planners wanted a grid layout for the new villages. Given a choice between a grid and cluster layout, people opted for the grid. The planners said that the decision was participatory.

Eventually it emerged that several factors had combined to induce choice of the grid layout: the planners had loaded their description in favour of the grid; older people did not fully understand the choice; young men said that the grid was modern, and ridiculed the older people for their doubts ; the grid was known to be what the outsiders wanted to provide; and people believed they would get housing quicker if they agreed to the grid, since some other villages had already been constructed on those lines.

The displaced people, concerned with self-esteem, not fully understanding and feeling unable to change things, had acquiesced and said they wanted what they thought they were supposed to want and would be able to get. It seems that the planners had ventriloquised.

Figure 3.28: An Example of the Poor Application of the Concept of Participation (from Chambers, 1997)

Often, in cases where there is participation, such as the Grameen Bank's micro-credit programme, it is used more as a clever arrangement for better cost-recovery and programme efficiency (Rahnema, 1992) than for advancing human rights and liberating people's creative energy, fundamental premises of the concept (for example Rahman, 1993). Thus it is not surprising to find that in the field of low-income housing in Bangladesh there is very limited evidence of actual practice of participation by community development organisations (Ahmed, 1999). Indeed, despite its widespread endorsement, this appears to be the case with the development field in general in Bangladesh, pointed out in an UNDP report, echoing the authors' observations:

> "Usually policy decisions at the national level are based on judgements of the top level planners, politicians, bureaucrats and powerful lobbies of industry and agriculture. They talk about the poor, make decisions about their problems and priorities and allocate resources. The voice of the poor as a stakeholder in the development process is neither heard nor desired to be heard. Poverty increases and many poor groups become increasingly isolated from the mainstream of development." (UNDP, 1996)

3.7.2 Participation. An Exogenous Concept?

The fact that the participatory concept developed and became accepted in developed countries as a policy for intervention in poorer societies, perhaps an outcome of their earlier consolidation of democracy-orientated institutions, is less mentioned in literature or by its advocates; it is founded on liberal ethics and conscience about social justice, the roots of Western democracy, acting as a grand narrative. In that sense, paradoxically, it also represents one-way, vertical flow of knowledge from the epicentres of development theory in developed countries, almost similar to notions of North-to-South resource/skill transfer characterising development thinking before the participatory concept was advanced as an alternative (Chambers, 1997; Rahnema, 1992; Tripura, 2000).

This is evident from the fact that it is uncommon to find examples of its indigenous promotion in developing countries as a community development policy independent of sanction or support from developed country funding bodies. One is led to reflect seriously upon Lerner's assertion made more than three decades ago: "traditional society is non-participant, while modern society is 'distinctly ... participant" (Lerner, 1958). However, this picture of traditional society as an isolated closed system can be questioned in the present context. Such insular societies are indeed few now when West and East, North and South, rural and urban, and rich and poor are all entangled in a global web spun by the all-pervading cash economy of a single monetary system of subversion of previous modalities of exchange. Lerner's studies actually pointed out that traditional society was beginning to "pass," perhaps an oblique premonition of present-day globalisation and of the development fiasco, the forces of which had already set in motion, during the time of his publication, the then recent formation of the World Bank, IMF and the UN.

Yet, if the case of Bangladesh is considered, it is clear that its social structure is comprised of powerful hierarchies of income, age, gender, ethnicity, etc. - often a reflection of regional traditions, ideals of democracy and equal opportunities. At the same time, lip-service is given through political propaganda. Thus, the concept of participation of poor communities in their own development appears incongruous in the context of the Bangladeshi social structure; it perhaps undermines the basis of this structure.

Hence there appears to be an impasse: conventional top-down development projects are not able to meet local needs at the micro-level, hence the promotion and co-option of participatory development, often at odds with local tradition. Participation then appears as an exogenously-contrived action mode that seeks to promote endogenous autonomy; thus participatory development appears to be an oxymoron. However, informed by an Oriental philosophical perspective, some thinkers now embrace paradoxes instead of decrying them in an Occidental positivist vein, and co-existence between apparent polarities is accepted as an essentially human condition (Sillitoe, 2000), thus presenting scope for revision and re-interpretation of contradictions.

The tradition versus participation impasse can be reviewed further by considering that in the Bangladeshi context specifically, exogenously-driven change was present throughout history: socio-cultural cross-fertilisation over the ages, which is still continuing, is endemic, often belied by the apparent timelessness of the relatively less-affected Bangladeshi rural setting, the icon of Bangladeshi tradition [for example, while identifying 'timelessless' as a characteristic of Bangladeshi villages, Ashraf (1997) has chronicled the diversity of external influences over time that have shaped religious, aristocratic and public buildings in this region]. Thus if local tradition is not static, then it is only natural that widely popular concepts such as participation transcend national and cultural boundaries. In this light, the participatory concept deserves reassessment in terms of its relevance to local context.

3.7.3 Context-Specific Participatory Development

In Bangladesh, as in many other parts of the world, there is the necessity for context-specific social development in education, health and related spheres, perhaps primarily at the grassroots level, and the need for reducing vulnerability to

environmental and human-induced hazards (which seem to be on the increase), so that low-income communities are not further marginalised and deprived of their rights and of their share of national resources in a context of globalisation and consequent, often irrevocable, economic transition. There is a developmental role for the state and civil bodies in these regards, which remains nebulous and without clear direction in Bangladesh.

Anti-development notions expressed by authors such as Escobar (1995) and Rahnema and Bawtree (1997) can only be accepted in the case of projects affecting communities and households negatively, because of the lack of, or minimal, or inappropriate local consultation. As a forthcoming publication suggests through a variety of examples, participatory practice does have many pitfalls, but it still offers methodological and other advantages if its limitations and the context of application is understood well (Cooke and Kothari, 2001).

Despite its exogenous roots, the participatory concept does hold some water: the state, its institutions and civil society have a responsibility towards improving the lot of its citizens and common sense suggests that it is better to involve them in action towards their own development instead of bypassing them. However, without major structural changes in the nature of formal institutions and their relationships to poor communities, the notion of participation may remain simply rhetoric and an impasse would persist. Hierarchical arrangements and attitudes, although reflecting local tradition, need to be questioned, especially when they conflict with collective benefit. If tradition is viewed as a flexible entity continuously moulded and redefined over time, perhaps there is then space for incremental change and growth in human potential by participation in action and change that has collective relevance to society at large.

3.7.4 A Case for Participation

The arguments against participatory practice are built largely upon cases such as those cited above, perhaps because they are preponderant in the development landscape. The criticism arises mainly because participation was not an integral aspect of these projects, but more of a corollary in response to established ethos of current practice. The grinding axe is not directed against core human values such as "attention, sensitivity, goodness or compassion" or acts such as "learning, relaxing and listening" (Rahnema, 1992), which are central to

the participatory concept. Thus the criticism is not against participation per se, but against current bad practice. Indeed, even ardent critics such as Rahnema (1992) have suggested re-defining participation in an alternative vein beyond co-option by vested interests, encompassing human values that contribute towards realising social, community and personal development. In such a definition then, the core human values inherent in the concept of participation would be central and integral, beyond concerns for programme and resource efficiency.

3.7.5 Search for New Directions

Given the above framework, it is obvious that new directions in development practice regarding the place of participation within it are needed. By shedding its old skin, how can the current serpent of participation metamorphose into a genuinely humane being? Perhaps this metamorphosis begins with inquiry and reflection to enable action to inform the search for new directions. Two inter-related streams of inquiry, conceptual and pragmatic, might allow translation of thought into action; mediation between these two realms would then have to be forged. To simplify for the sake of initiating the search for new directions, the two streams of inquiry can be encapsulated thus:

1. Is there a place for basic human values, immeasurable, yet inherent in the participatory concept, such as compassion, sharing, learning from others and respecting their viewpoints and dignity however marginal they might be, and accommodating in action multiple perspectives of all stakeholders?
2. What is the role of the professional in the context of social development to which he or she is expected to contribute? Is this contribution to be made by respecting local traditions of hierarchy or by accepting exogenous concepts that apparently contradict such traditions? Can there be a blend of these two, which might perhaps indicate the way forward?

The scenario suggested by these questions is one of reconstruction: trekking through a war-ravaged landscape and salvaging tiny gems inlaid in mangled armour and undamaged pieces of the war detritus, it might be possible to create with them new implements for rebuilding the landscape as one of long-lasting peace. Not to give participation a new lease of life, but to give it new life.