

## POST-FLOOD INVESTIGATIONS 1998 AND AN ACTION AGENDA FOR RURAL HOUSING IN BANGLADESH

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### Summary

This paper reflects upon post-flood field investigations in the severely flood-affected Manikganj district and proposes an agenda for organisations implementing low-income rural housing programmes. Manikganj is also an area with a high concentration of NGOs; many of them are therefore in a position to adopt an agenda for long-term development together with participatory assessment of community vulnerability and damage by floods, incorporating safe building techniques in this process. A pilot project might be established in this area, which could thereafter serve for effective dissemination in other regions. Because of the author's familiarity with previous positions of households and communities, as well as local community-based organisations, it allowed an assessment of changes that occurred due to the prolonged and severe floods in Manikganj. The investigation was guided by anthropological field methods, partly employing ethnographic techniques and orientated towards developing a people-based understanding of social and technical processes in housing.

Based on the above and previous experience, guidelines are suggested for organisations to implement rehabilitation programmes with a long-term vision. Participatory methods, now commonplace in other fields of community development, have found very limited application in low-income rural housing in Bangladesh, which calls for a new agenda for action, incorporating and developing an understanding of these methods. It is expected that this agenda would allow for a multi-level partnership to evolve between the community, NGOs and professional teams in a participatory community development mode. Hence this paper is orientated towards an inter-disciplinary discourse of issues involved in the implementation process of housing rehabilitation and development that might allow for communication among a range of individuals and groups.

### Background

Abnormally severe floods, largely the result of heavy monsoon rainfall in the wider region of south/south-east Asia, affected Bangladesh from July to September 1988. These floods, the worst since 1988 (perhaps the worst in living memory), lasted for more than two months and affected more than 60% of the country, wreaking widespread devastation to infrastructure, agriculture, livelihoods and housing. About 25 million Bangladeshis were rendered homeless or

marooned by the floods (these floods were extensively reported in the media and documented in publications; some of them referred to here are Crace 1998; Hannan 1998; Tear Times 1998). To augment his research and to gain fresh insights, the author carried out fieldwork to assess the nature of damage to low-income rural housing and the response of communities to it. Villages previously surveyed in parts of flood-prone Manikganj district were visited once more and interviews/discussions were carried out with some of the same case study households. The author's familiarity with the previous position of these households, as well as of local agencies, enabled him to make an assessment of changes that had occurred due to the effects of the prolonged and severe floods in that region.

The floods had receded about three weeks before the field visits. Road connections were still severely disrupted and transport by boat was the only available option in many places [a CCDB (Christian Commission for Development in Bangladesh) field worker commented: 'Boatmen made lot of money because of the floods']. Communities had started reconstructing their former lives as best as they could. As usual, the author's visit was misconstrued by some villagers as portending forthcoming relief or welfare, a misconception which Moinu Mia (see Appendix) helped in dispelling because of his familiarity with the author's work in the previous year. Despite many villagers' complaints that they did not receive enough relief supplies, Moinu asserted that during this flood the government and NGOs earnestly endeavoured to distribute supplies extensively and almost everybody received something. Many of the villagers seemed as cheerful as ever, graciously giving their time to provide extensive information as well as the customary warm hospitality. Their resilience was impressive; the author kept exclaiming with incredulity: 'It doesn't seem that there were any floods here, everybody seems so normal!' However, intense suffering and uncertainty about the future were concealed beneath the veneer of apparent cheerfulness and resilience; many of these people's lives had all but been crushed by deprivation and consequent vulnerability to natural hazards over which they had little control.

### General observations

For low-income households whose houses were not completely submerged, the most common form of coping with the floods was to build *machas* (raised platforms) out of bamboo, timber or any other material that the household could find (e.g. bricks to raise the *macha*). Less fortunate victims had to seek shelter on high land, such as roads on embankments; many households camped along the sides of the Dhaka-Aricha highway for an extended period during the floods. *Machas* are both typical and traditional, and have been reported in an early study of rural housing in Bangladesh (Chisholm

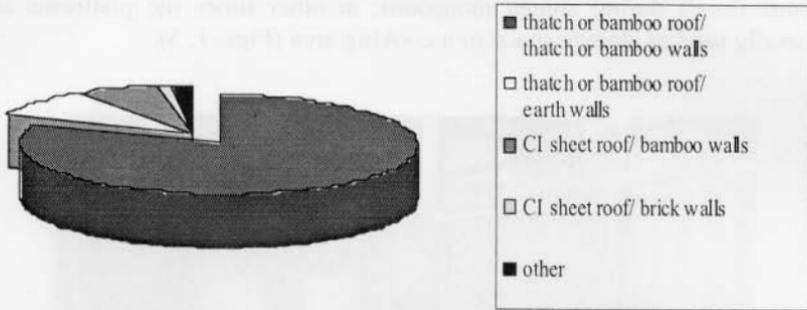
1979). Such local coping mechanisms have been discussed by several authors (Borton et al, 1992; Chisholm 1979, and hence will not be discussed here in detail. Nonetheless, it is interesting to note a specific feature in this flood-prone region, not revealed elsewhere: most houses have a built-in raised platform for normal floods during annual monsoons; at other times the platforms are generally used as storage space or a cooking area (Figs. 1, 5).



**Figure 1 : Raised and screened platform in houses of flood-prone region**

Only in exceptional floods, as in 1998, do households have to construct a *macha*. The construction of *machas* predominantly requires bamboo, exacting a demand on already scarce existing stock, further depleted by floods which damaged bamboo stands on water-logged land. Many who could not afford to buy bamboo, such as Alaya Khatun (see Appendix), had to seek a few poles by begging from neighbours. Bamboo is one of the most extensively used building materials in rural housing in Bangladesh (BBS 1993), but it is also a rapidly diminishing resource (Wells et al, 1994) and floods contribute greatly to this process of depletion. Firstly, bamboo cannot grow on water-logged land and requires a well-drained site, thus floods damage already scarce existing stock. Secondly, the destruction of houses by floods results in a subsequent increased demand for building materials to build new houses, accompanied by sharp increase in price. Previous estimates indicate that during the major floods of 1988, of total houses destroyed by the floods, more than 80% were bamboo and

thatch houses (Dunham 1989) (Fig. 2). This greatly increased pressures on the supply of these organic materials. Reduced supply eventually affects the ability of rural communities to recover from disasters (Dunham 1989), and hence leaves them more vulnerable to further hazards.



**Figure 2 : Percentage distribution of damaged housing in 1988 floods by roof/wall composition (adapted from Dunham, 1989)**

As had been noted previously, after the 1998 floods receded, the flurry of reconstruction caused the prices of all building materials, including bamboo to rise dramatically. For example, in Manikganj bamboo normally costing Tk 100 per pole was selling for Tk 150, a 50% increase. For very poor households such as Sharmila Begum's (see Appendix) living in a house made of easily perishable organic materials, there was no recourse but to rebuild almost the whole house. Becoming more entrenched in debt in the process, Sharmila and her husband Ayub Ali had to buy bamboo, rushes for the walls (*bon*) and thatching materials (*chon*) from villagers and the market. *Bon* and *chon* had become exceedingly difficult to procure, because the riverbanks or *chors* where they grew had all been inundated, resulting in depletion of stock. Traders sold previous stock (or that from hasty harvest) during the early period of the floods, or whatever they managed to salvage. When the researcher interviewed Sharmila in 1997, these fibrous materials had been bought for Tk 10 per bundle. A year or so later, after the floods, they were selling for Tk 170 per bundle, seventeen times higher.

### Cases of agency intervention

Some of the past interventions by agencies studied earlier were reassessed to validate previous findings or to obtain new insights in the light of the 1998 floods which imposed fresh trials on them. One such case was the CCDB-built community 'mini-flood-shelters' on timber stilts on individual home-

steads after the 1988 floods (Fig. 3). However, it was found that these shelters did not serve the greater interest of the community as intended. The shelter on Vanu Akhtar's (see Appendix) homestead was used only by members of her extended family, including her daughter-in-law, Halima Begum, with two children. Halima's husband was a migrant worker in Dhaka, so his family was left to fend for themselves with support from the extended family. All the other members of the extended family managed to build *machas* in their dwelling units, but Halima's unit was on the edge of the site and more affected, hence she sought refuge in the shelter. It may be mentioned that earlier investigations had indicated that the contractor-built mode employed in this project, necessitated by the choice of an unfamiliar building technology, led to substantial corruption (see Ahmed 1999).



**Figure 3: A CCDB mini-community flood-shelter**

Vanu and Halima both mentioned that they did not have any objection to poorer neighbours taking refuge in the shelter, but nobody actually did so. According to them, 'Everybody, including us, had to face problems; there was not much scope to help others.' Whatever the reasons, and no matter how valid these statements were, the shelters did not serve their purpose as designated by CCDB, which was to allow poor members of the community to find refuge during floods and it was designed to accommodate about ten people. Used well below its capacity and not as a community shelter as intended in a context of large numbers of poor households rendered homeless by the floods, shows how a well-intentioned effort by an agency to assist weaker members of a community unwittingly benefited only a relatively better-off household. The shelter

was kept locked and unused during normal times, a wasted resource originally expected by CCDB to serve as a community reading room for children. The funds invested in these relatively expensive buildings could have been utilised in some other way to reduce vulnerability of poorer households.

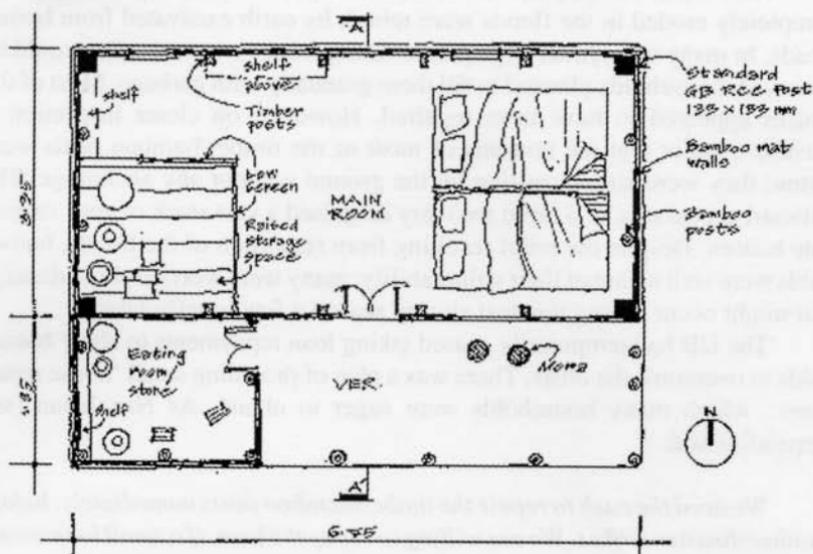
In addition to general deterioration of the building, the timber stilts had decayed badly due to submersion for an extended period. The lower parts of the stilts were so badly damaged by the floods that Vanu feared the building might tilt or topple, especially in a storm. The only solution to render the building more usable and less hazardous, according to Vanu, would be to saw off the rotten lower parts of the stilts, reusing them but consequently lowering the building. 'It's too high anyway, it would be prettier if lowered', was her rejoinder, reflecting the cultural unacceptability of such a design. Fearful of retaliation by CCDB if such a course of action was resorted to, the household refrained from it. Whether this weakened building would be able to serve effectively as a safe shelter in future floods is doubtful, although CCDB maintains that lowering it would defeat its purpose as a flood shelter. From the point of view of the household, it would at least be usable during normal times without fear of collapse.

Decay of bamboo or timber posts was widespread and represented a key problem in the aftermath of floods. In the GB (Grameen Bank) cluster villages, built as rehabilitation projects for victims of riverbank erosion in 1993, houses were built in the typical GB design of four RC posts at the corners and additional bamboo or timber posts in between. In most of the houses the bamboo/timber posts had rotten badly at the bottom and the RC posts were what kept the houses



**Figure 4 : Corner RC posts kept this GB house standing**

standing. All the residents of the cluster village unanimously said, 'These pillars [RC posts] saved the house. If they weren't there the house would have collapsed.' The validity of this observation was confirmed by the condition of the houses. Many of them had settled at places with bamboo/timber posts and the roofs of some of the houses had sagged in the middle because the rotten timber/bamboo posts had given way, the roofs were held up only at the corners by the RC posts (Figs. 4, 5).



PLAN

0 4.5 10 20 30 m

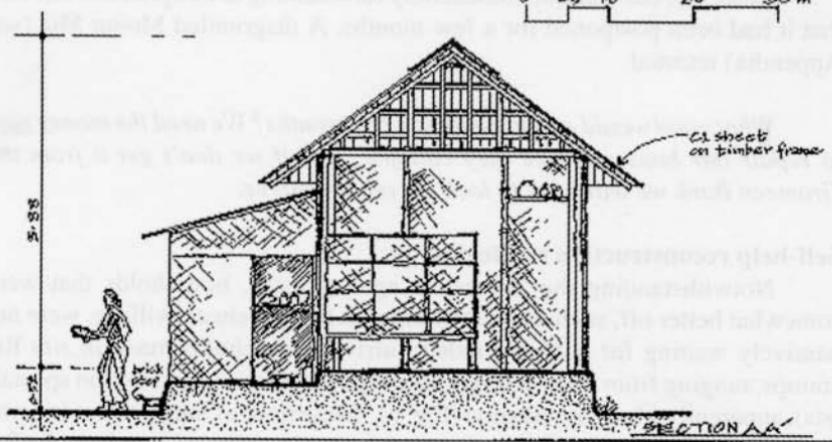


Figure 5 : Naz Jahan's GB house (note the four corner posts and the raised platform)

Not only in the GB projects but in the area generally, earth plinths that had completely eroded in the floods were rebuilt by earth excavated from home-steads. In many courtyards large pits resulting from such excavation could be observed; households planned to fill them gradually with garbage. Most of the houses appeared to have been repaired. However, on closer inspection it became evident that the bottoms of most of the timber/bamboo posts were rotten; they were simply resting on the ground without any anchorage. The outward appearance of a rapid recovery disguised a vast stock of very vulnerable houses. Despite the relief resulting from remission of the floods, households were well aware of their vulnerability; many were worried about damage that might occur during the next stormy season a few months later.

The GB had temporarily ceased taking loan repayments to allow households to overcome the crisis. There was a plan of providing small 'house repair loans', which many households were eager to obtain. As Naz Jahan (see Appendix) said:

*We need the cash to repair the timber/bamboo posts immediately, before another disaster strikes. We are willing to repay the loan, if a small loan would be given.*

However, GB was not immediately forthcoming in this plan and it seems that it had been postponed for a few months. A disgruntled Moinu Mia (see Appendix) retorted:

*What good would a loan do after a few months? We need the money now to repair our houses before they collapse, and if we don't get it from the Grameen Bank we will have to look for other sources.*

### **Self-help reconstruction strategies**

Notwithstanding the interest in agency loans, households that were somewhat better off, such as most of those in the GB cluster village, were not passively waiting for outside funds to arrive. Households made *in situ* RC stumps, ranging from 70 to 90 cms, utilising *raj-mistris* (construction specialists), apparently a local innovation (Fig. 6). These have a clamp, or two in some cases, to attach bamboo/timber posts with bolts. The concept is to bury the RC stumps into the earth plinth for anchorage, with a small part with the clamp(s) above the floor level, to which bamboo/timber posts can be fastened. In houses affected by floods, sawing off the lower rotten part of posts and then supporting them on the stumps is a local technique of repair. In the CCDB flood shelters a similar concept had been applied, but it did not appear as widespread before

as it was now after the floods. It appears that households had found their own technique of rescuing most of their damaged bamboo/timber posts; in addition to its being a general improvement over posts directly embedded into the ground, in future floods, the RC stumps would protect the posts.

However, problems remain with this local innovation. Firstly, attaching posts to clamps in this method does not offer much resistance to lateral stress from strong winds; houses with such posts are liable to easy collapse in storms. The traditional method of embedding posts into the ground for anchorage is better in this respect and offers more resistance. Secondly, a timber post with an RC stump is more expensive than a complete locally-made RC post, as well as being less durable (Table A).

**Table A : Cost comparison of RC stump-timber post and RC post**

			TOTAL COST
RC stump-timber post	RC stump = Tk 160	Medium price timber (hardwood) post = Tk 200	Tk 360
RC post (locally made)	20% less expensive than RC stump-timber post	41.7% less expensive than GB RC post	~ Tk 300
RC post (GB supplied)			Tk 425

During extended discussions on this cost factor, households mentioned that the stump technique was appropriate for repair of flood-affected houses because the timber/bamboo posts were rotten only at the bottom and the upper part was undamaged and hence usable; besides, such a method of repair did not require dismantling the whole house. In cases of building a new house, households expressed the preference for RC posts instead; especially after this experience in the floods, households were completely convinced of the utility of RC posts. In a new house (not in the GB cluster village) being built by a household with a moderately stable income, only RC posts were used and bamboo/timber posts were avoided (Fig. 7). In this regard households mentioned that they would not prefer to obtain posts from the GB because of

problems of transport, especially after the disruption of transport by floods.

They would much rather obtain a loan and use it to make *in situ* RC posts at a lower cost. This suggests the importance of allowing households to exert more control over loan utilisation, especially with respect to production of RC posts, now a building component replicable in the local context in many rural areas. It also reinforces the case for local manufacture, and its being to a standard acceptable by households.

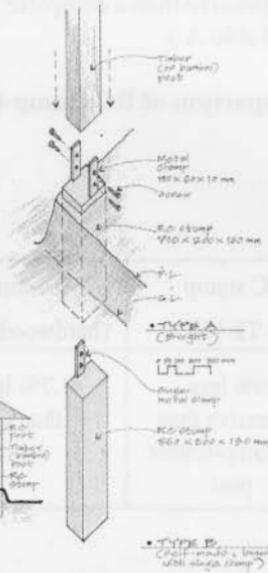
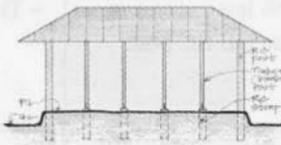


Figure 6 : RC Stumps: a local innovation

For very poor households, such as Alaya Khatun's (see Appendix), the idea of using RC components was unthinkable. Having no ability to repay even small loans, there was no alternative but to live in a house liable to collapse at any moment. Despite the poverty of her household, it had other resources such as patronage links. Since the field visit a year earlier, Alaya's sister had donated her old CI sheet to replace Alaya's previous bamboo mat/plastic sheet roof. During the floods neighbours donated her bamboo poles to build a *macha*. It appeared that she had a strong rapport with her neighbours and there was a strong sense of community within her immediate surroundings. Commonly experienced crises, such as floods, assist in forming bonds within the community; a crisis also presents opportunities for establishing patronage links.

For the poorest households squatting on embankments without land tenure, such as Sharmila Begum's (see Appendix), life is a series of crises. Increasing debt in several quarters, perhaps never repayable, compounded by floods followed by disease, obstruct participation in society with any semblance of dignity by these households. Sensing the household's predicament, the researcher could not but help asking about the future, to which Sharmila sadly rejoined: 'You came and saw us last year and once again now. By now you should know what our lives are.'



Figure 7 : House with RC posts

## Towards a new agenda

Households such as Sharmila's present the greatest challenge to agencies interested in improving the lives of low-income rural communities. Since the evolution of the NGO movement during the past two decades or so, it must be conceded that much has been accomplished. New approaches to delivering development to the poor have been devised; new approaches to relationships between agency and community have been forged; a plethora of literature on innovative concepts such as appropriate technology, participatory development, action-planning, safe building for hazards, micro-credit, human resource development, environmental sustainability, etc have been published and applied in practice. Yet the poorest households such as Sharmila's remain outside the boundaries of these accomplishments. Additionally, the typical mismatch between agency intentions and household needs persists.

To make efforts work, changes in the way of thinking of those involved in the study and practice of low-income housing in Bangladesh has to happen. New techniques of doing and making have to be embraced. And, perhaps most importantly, new professional habits or behaviour must develop, allowing formation of a relationship of mutual trust and responsiveness between agency and community. Only then can professional assistance be extended and effective communication established, allowing for a multi-level partnership to evolve between the community, NGOs and professional teams in a truly participatory community development mode.

Consistent with recommendations formulated during the Housing & Hazards 1st International Workshop (Hodgson, Seraj and Choudhury, 1999), it has to be borne in mind that it is necessary to involve a variety of individuals and groups with diverse orientations to co-operate towards a common aim. For effective communication between them, a fundamental step is to transcend disciplinary or organisational boundaries and to gain understanding of other ways of perceiving and relating. Methods followed in PRA (Participatory Research and Action) or PLA (Participatory Learning and Action) might have much to offer towards such communication (see Chambers 1997). As a prominent practitioner of these methods, Chambers (1995) (see Fig. 8) has suggested more emphasis on 'people' instead of 'things' (though both have their place) embodied in the following principles for a different nature of professionalism:

*The roles of dominant uppers have then to change. From planning, issuing orders, transferring technology, and supervising, they shift to convening, facilitating, searching for what people need, and supporting. From being teachers they become facilitators of learning. They seek out the poorer and*

weaker, bring them together, and enable them to conduct their own appraisal and analysis, take their own action. The dominant uppers 'hand over the stick', sit down, listen and themselves learn.

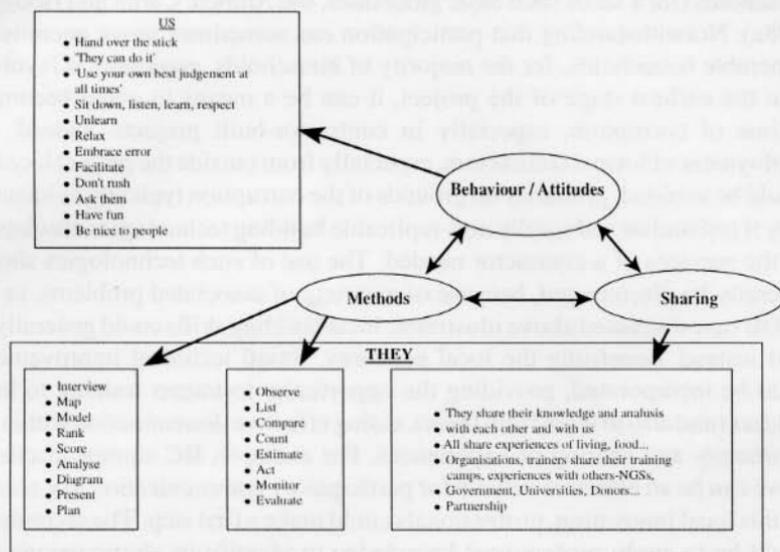


Fig. 8 : The three pillars of PRA (adapted from Chambers 1997.p. 105)

These concepts have demonstrated their effectiveness in a variety of contexts and fields, a reason why there is recent widespread endorsement of participatory methods in development. However, they have found very limited application in the field of low-income housing in Bangladesh, a reason for discussing them here. Context-specific adaptation or even modification of these methods may have to be carried out, especially for the field of low-income housing. A variety of instruction manuals and literature is available on PRA/PLA (for example, see Pretty *et al*, 1996; Theis and Grady 1991) which can be adapted; it is unnecessary to discuss specific methods here. Rather, some basic guidelines relevant to achieving communication and effective project implementation in a participatory mode are outlined in the following sections. It is beyond the scope of this paper, nor is its intention, to discuss specific technical aspects of safe building practice.

### **Participation at all stages**

It is important to consider ways of involving the community in policy decisions from the beginning, not only using participation as a device for economising on labour cost during construction. A basic 'don't' for agencies is not to apply pre-conceived ideas without consulting the community and households (for a set of such basic guidelines, see Ahmed, Carter and Hodgson 1998a). Notwithstanding that participation can sometimes prove onerous for vulnerable households, for the majority of households, especially if involved from the earliest stage of the project, it can be a means to avoid becoming victims of corruption, especially in contractor-built projects. Indeed, the employment of formal contractors, especially from outside the project locality, should be avoided, primarily on grounds of the corruption typically evidenced. Only if unfamiliar and locally non-replicable building technologies are chosen, are the services of a contractor needed. The use of such technologies should generally be discouraged, because of a variety of associated problems, as the CCDB case discussed above illustrates; local building skills could generally be used instead, benefiting the local economy. Small technical improvements could be incorporated, providing the opportunity to impart training to local builders (and also to learn from them), aiding effective dissemination within the community and sharing of experiences. For example, RC stumps discussed above can be an effective vehicle for participatory communication. By accepting this local innovation, professionals could make a first step. The second step would be to apply professional knowledge to identify its shortcomings and discuss possible improvements with the community.

### **Integrating long-term development with post-disaster rehabilitation**

The link between post-disaster rehabilitation and long-term development (or the 'emergency-development continuum' as commonly referred to) needs to be recognised; in a disaster-prone context such as Bangladesh, the distinction between the two are usually blurred. A disaster can present the occasion to introduce and promote safer building techniques. However, these need to be sustained and local NGOs are often in a position to do this. In order to introduce simple, affordable and sustainable improvements during project implementation, it is not sufficient for an outside agency simply to impart training to local builders and then leave. Rather, training members of local NGOs to become trainers of local builders, i.e. a 'training of trainers' programme, might prove more fruitful over the long term, especially in building local capacity for community self-reliance. As mentioned above, there is a plethora of literature on such programmes in other fields of community development with which many NGOs are already familiar; lessons from these can be employed in the

field of housing. Participatory training workshops, drawing together householders, local builders, agency staff and trainers-to-be of NGOs, among other appropriate individuals, should comprise an essential component of project implementation (see Ahmed, Carter and Hodgson 1998b). The primary intention of such an approach is to build local capacity for community self-reliance, hence it would be important throughout the workshops not to impart the hope and to dispel the impression that 'free' housing and hand-outs are on the way. Because of past experiences the 'relief culture' might have become endemic in some areas, and it is necessary for agencies to find ways to overcome it by not raising expectations that might retard community self-initiatives.

It is important for agencies to implement housing in areas with which they are familiar or to do so through partnerships with others that already have an existing relationship with a community instead of embarking on projects independently in unfamiliar regions. The Manikganj region with both its disaster-prone nature (floods and riverbank erosion) and plenitude of NGOs would be a prime location to initiate a programme. Generally, after a frightful disaster the moral imperative to alleviate suffering irrespective of place can be powerful, but doing so might prove counter-productive. Agencies should work in co-operation instead of competition, but this, to a large extent, depends on their international sponsors and partners. A case in point, gathered in post-flood investigations in 1998, was the British Department of International Development (DFID). DFID was planning to support two very large Bangladeshi NGOs - Bangladesh Rural Advancement Committee (BRAC) and Proshika - to carry out rehabilitation projects. Whether these two established NGOs would work together could be questioned; additionally, these local 'colossuses' would probably bulldoze smaller organisations out of localities instead of joining them, and territorialise those places. (It must be conceded that these large NGOs do have smaller partners, but their operation in the field of housing rehabilitation is yet to be revealed.) A diversity of international agencies with various agendas, each working with selected local partners in a context of competition for funding does not contribute well towards unity and local collaboration. Promoting co-operation and co-ordination should be on the agenda of international donor agencies instead of supporting 'pet' agencies or projects. Even if an individual international agency can support only a few local partners, it should abet co-operation instead of divisiveness, arising because of competition for funds for similar projects.

The supply constraints of natural building materials in Bangladesh are severe in general and after a disaster such as floods they can be further exacerbated, as discussed above. It is therefore important for agencies to keep in mind that during implementation of post-disaster housing projects, and also

in projects during normal circumstances, that organic materials (bamboo, timber, etc) which are in short supply are not over-harvested. If an agency programme purchases locally available stock in large quantities, then non-beneficiaries suffer. Keeping in view the greater benefit of the region, in such situations it might be better to transport supply from less affected areas, despite the higher project costs that this may incur.

### **Expanding the sphere of community participation**

Regardless of the hype in development discourse about promoting the involvement of women, there is virtually no programme in Bangladesh addressing their role in housing. Yet women play an important part, especially in house maintenance, and also increasingly in household decision-making during construction (Chowdhury 1992). Thus for agencies to be faithful to their agenda and also to enhance the effectiveness of their housing interventions, women have to be involved at all stages in the participatory process - before, during and after implementation. Once again, there is no lack of community development manuals and guidelines on women's participation; these need to be adapted for the field of housing. It is important to note the limited involvement of women staff also in agency-based housing programmes and in the building profession in general, especially at the grassroots. There has nevertheless been a recent emergence of NGO-based grassroots women field workers in health care, education, family planning and other such fields of community development, notwithstanding their lack of involvement in housing programmes. This is an encouraging progress and women from such ranks can begin to be enlisted and trained to contribute to the wider realm of women's participation in housing programmes, both as intervener and intervened.

A method of implementation attempting to involve members of the local community as an alternative to a completely extraneous mode is support of small-scale rural building materials producers or entrepreneurs. A leader in this field is Proshika. This initiative could prove worthwhile to other agencies, such as the GB, involved in rural housing as a long-term development endeavour. In addition to local employment generation, the benefit to agencies would be reduction of overhead costs in operating their own building component production units. These costs could be better utilised in promoting quality control and the accountability of small entrepreneurs through supervision by agency staff. Local producers could also serve as construction specialists for *in situ* production of building components; beneficiaries of partly self-built programmes such as the GB's repeatedly expressed a preference for this, indicated by the local production of RC stumps. It would overcome problems in transporting heavy components such as RC posts. Nonetheless, this mode is as yet at a rudimentary

stage, and a great deal of research and improvement is necessary before proclaiming it as a viable option. Despite this, it might be worthwhile to explore prospects for what appears a potentially valuable implementation method.

Even though this paper is restricted to housing, it should be borne in mind that low-income rural housing cannot be effectively implemented as an isolated programme. It has to be part of a larger community development programme, well-integrated with other components of such a programme. Most NGOs, especially the larger ones with an array of programmes, are in a position to integrate housing with their overall development effort; the GB has demonstrated this to some extent, although in general most agencies are somewhat lacking in this regard. Agencies that do not address this wider issue, both as a strategy to improve their overall programme and to implement effective housing projects, should consider doing so.

### Conclusions

Post-flood investigations allowed a fresh insight into local responses in low-income rural housing and performance of agency programmes. Many of the findings were consistent with previous ones, observed after the former major flood of 1988, re-affirming the importance of redress in agency operation and orientation in order to bring about meaningful improvement for low-income communities and to overcome this situation of stagnation. In the typically hierarchical and regimented social structure of Bangladesh, formidable impediments would arise in re-orientating professional values and behaviour. Therefore, the first step towards this agenda of participatory and non-hierarchical inclusivity would be to promote and develop a thorough understanding of it, currently lacking. It must however be acknowledged that in recent years the NGO sector has been able to demonstrate to some extent effective participatory practice in fields other than low-income housing. Therefore this sector is a prime target for this low-income housing agenda; it could justifiably be initiated in areas where an existing NGO infrastructure exists, such as Manikganj, the case study region of this paper.

A basic premise of participatory methods is to learn from context and to then utilise this learning for communication that promotes self-reflection by local communities, in the process contributing exogenously derived knowledge deemed relevant by the community through the communication process. Earlier ways of applying pre-conceived solutions, 'fix-it-with-technology' type approaches and imposing concepts on low-income communities, however well-meaning they might be, are paternalistic and condescending, and cannot bring about long-term and sustainable change. In that sense, even the concept

of 'participatory methods' would have to be re-assessed in the light of local input. Its limitations would have to be recognised and context-specific application would have to be formulated. But its fundamental purpose of inclusion of socially less dominant groups in the processes of analysis, dissemination and evaluation would nevertheless have to be embodied.

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## Appendix

### Profile of case study households mentioned in this paper (Names altered to protect respondents)

Main respondent (Sex)	Agency / Self	Age	No in House	Income (Tk/month)	Type of construction	Cost (Tk) (1997 prices)	Size (sqm) (without ver, etc)
Vanu Akhtar (F)	CCDB	38	10	5,000	Timber stilts on concrete blocks, bamboo walls, CI roof	50,200	15.18
Alaya Khatun (F)	Self	30	5	800	Bamboo posts, rushes/ bamboo walls, CI roof	4,000	12.24
Naz Jahan (F)	GB	19	8	2,000	4 RC posts, timber/ bamboo posts, bamboo walls, CI roof	22,800	22.61
Moinu Mia (M)	GB	30	5	5,000	4 RC posts, timber posts, CI walls and roof	26,000	20.64
Sharmila Begum (F)	Self	30	5	700	Bamboo frame, rushes walls, / thatched roof	1,200	7.63