

BUILDING FOR SAFETY IN BANGLADESH

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Keynote Presentation

Introduction

Although Bangladesh is one of the most hazard-prone areas of the world, few people outside the main cities live in homes that protect them against those hazards. This paper reviews the present housing situation in Bangladesh and looks at what is already known of appropriate building technologies. Since much is already known about hazard-resistant construction, we must consider what impediments there are to the successful dissemination of those technologies. In conclusion, some suggestions will be made regarding the way we should take this subject forward to help the mass of our fellow-countrymen to create secure homes in the 21st Century.

Review of present situation in Bangladesh

Until recently the question of housing for the rural poor has received little attention from national decision-makers. There is currently a shortfall of 3.5 million units of adequate accommodation in Bangladesh. The study titled *Bangladesh 2020 - A Long-Run Perspective Study* (World Bank-BCAS, 1998) has projected a national population of 170 million by the year 2020 (medium growth scenario), of which 110 million will be living in rural communities; so the existing problem of rural housing is likely to increase greatly if it is not addressed as a matter of urgency.

World Bank economists use three economic indicators when assessing individual poverty levels; one of those is the material used in constructing the person's house roof. Figure 1 shows the present situation in Bangladesh:

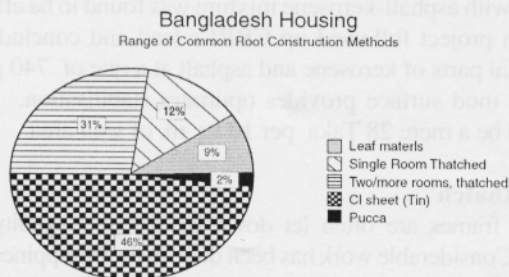


Figure 1 : Roof materials currently used in Bangladesh

Thus, more than half the buildings of Bangladesh have roofs of natural organic materials. These have a short lifespan of typically less than 5 years so natural decay is often enough to destroy them without including the hazards. Therefore, low-cost improvements that increase longevity will have a very significant role in developing rural resilience to natural hazards.

Government Policy

A National Housing Policy was approved by the government in 1993 with the prime objective of ensuring housing for all strata of society including the disadvantaged and shelterless poor. However, little action has been initiated to follow-up the above policy objectives. The current five year plan (1997-2002) has been recently approved by the government and includes considerable emphasis on rural housing (GOB, 1997). By and large, this follows the Grameen model using cheap, affordable materials allied to soft loans for low-income households. For this purpose, a special fund would be created by the government. In vulnerable coastal areas additional grants will help local bodies to further reduce costs to the homeowner.

This policy appears to reflect a significant shift of emphasis toward the rural poor. Its implementation could make a major impact on poverty alleviation but so far it remains only policy.

Mud-walling technologies : some notes

Mud walled construction remains common in North Bengal where houses made in this way are vulnerable to the high seismic risk there. There is still work needed in this area.

Mud construction is typically vulnerable also to erosion by both rainfall and flooding. The addition of a straw binder helps to increase resistance and, in the 1960s, the well-known Egyptian architect, Hassan Fathy, experimented with stabilising mud bricks with straw. A series of tests was carried out at Central Building Research Institute, Roorkee, India to find out the efficacy of different treatments to increase the durability of mud walls subjected to rain. Treating the surface of wall with asphalt-kerosene mixture was found to be effective. In 1979 a BUET research project followed up CBRI's lead and concluded that spraying mixture of equal parts of kerosene and asphalt at a rate of 740 grams per square metre onto the mud surface provides optimum stabilisation. The cost of that measure would be a mere 28 Taka per 10 sq. m. of wall area.

Bamboo and thatch

Bamboo frames are often let down by the poor quality of the jointing arrangements. Considerable work has been done in the Philippines to develop more rigid joints; that experience should be incorporated into Bangladeshi programmes.

The fire resistance and water-proofing of thatch can both be improved by

spraying appropriate chemicals onto the completed roof. Research will show us the most cost-effective and appropriate treatments for improving thatch performance and reducing the serious fire-hazard they present.

Improved structures

Many NGOs have developed improved model houses. After a tornado devastated villages in Shaturia (west of Dhaka), Enfants du Monde (EDM) set up a programme to distribute their model houses freely to poor beneficiaries. However, when subsequently surveys were carried out to determine programme impacts, it was found that almost all the distributed houses had been sold by the poor people to relatively well-off people to realise the considerable capital that they represented. This trend has been found by many other similar programmes and reinforces the need for home improvements to be affordable within the means of the owner.

There are particular problems to be overcome in the surge-prone areas where cyclones can generate wind-speeds up to 250 kph and surge waves of 6m or more. Stilted house may be appropriate here, although until now no such solution has found much acceptance. One of the reasons is the relatively high cost (around Us\$2,500 for one room (floor area 18 sq.m.) on stilts. Another problem occurs in river bank areas where land may be eroded away at any time and demountable houses will be needed. There are thus several particular cases to be considered.

The way forward

The 1996 Workshop generated important recommendations which have yet, in most cases, to be followed up. In particular, the following points should be prioritised.

- Full scale tests on various house-types to enable the preparation of design and detailing guidelines;
- Estimation of costs of improvements;
- Preparation of manuals - these should be written in simple language with pictorial instructions;
- Develop a training programme with workshops for all levels of involvement in the house-building process, including engineers, technicians, craftsmen and owners, with particular emphasis on women;
- Draw appropriate lessons from dissemination successes in other fields such as oral rehydration therapy and agricultural extension;
- Involve NGOs and the mass media such as radio and TV in the dissemination process.

References

GOB (1997), *The Fifth Five Year Plan 1997/2002*, Planning Commission, Government of Bangladesh

World Bank - BCAS (1998), *Bangladesh 2020 A Long-Run Perspective Study*, University Press Ltd., Dhaka

