

## BAMBOO CULTIVATION AND RURAL HOUSING IN BANGLADESH

I Rasul, Grameen Trust,  
K I Ahmed & S M Seraj, BUET, Bangladesh

Bamboo cultivation has a direct relevance to rural housing in Bangladesh. Bamboo is the most essential item used as natural building material for rural houses. According to the 1991 census, bamboo was used in walls of more than 56% of housing in Bangladesh and of nearly 60% in rural areas; more than 47% and more than 51% of roofs of housing throughout Bangladesh and in rural areas respectively used bamboo (BBS 1993). As most of the people living in rural Bangladesh are poor and below the poverty line, one must think of low cost and affordable building materials for the rural people. If the cost of building materials are high then its almost impossible for the inhabitants of these rural houses to build houses with their own affordability and repair their houses after natural disasters, which is very much present almost every year in Bangladesh. Bamboo is the most easily transported building material (Hodgson and Carter 1999). Some of its uses in building are other than directly as a building material. Bamboo is widely used for scaffolding, concrete framework, and ladders for various construction works (SKAT 1991). Bamboo rhizomes are used as fuel in brick kilns (Abedin and Quddus 1990; Johnson and Ritchie 1993). There are lot of small rural bridges made of bamboo, it is also the main raw material for paper and pulp factories (Choudhury 1984; SKAT 1991).

About 20/25 years back if one visited any rural household in Bangladesh one could easily see a little bamboo garden (*bash jhar*) in the backyard of the house. At that time the population of Bangladesh was not as high as now, so there was enough place for all households to have a little bamboo garden which would grow without needing that much care or nurturing. As time has passed, with high population growth, cultivable land in Bangladesh has become scarcer. As bamboo continues to play a vital role as a building material, there is still a high demand for it as a building material and also for many other purposes. However, until now very little serious initiative has been taken by anyone to improve bamboo cultivation processes (Rasul 2000). It may be noted that there are more than 70 items that can be made with bamboo which are not only linked to housing but various different items for the needs of the people of rural Bangladesh (Choudhury 1984). It can nevertheless be accepted that one

of the vital uses of bamboo is for construction and that it is the most commonly used building material in rural housing of Bangladesh.



**Fig 1 : Bamboo artisans at work**



**Fig 2 : A rural house built of bamboo**

Wells et al (1994) have written about the increasing scarcity and resulting rise in the price of bamboo in Bangladesh. This has been widely documented by various experts (Abedin and Quddus 1990; Boa and Rahman 1987; Choudhury 1984; Dunham 1992; Dunham 1991; Haque 1986; Johnson and Ritchie 1993; SKAT 1991). The price of bamboo and timber has almost tripled in the decade 1980-90, a rise greater than the rate of inflation (SKAT 1991). According to more recent figures, the price of a bamboo pole has increased further, from Tk 80 (US\$ 1.70) in 1990 to Tk 100 (US\$ 2.00) in 1997. The supply constraint, reflected in price increase, is also evident from the greater distances traveled by traders for village bamboo supplies (Abedin and Quddus 1990; Johnson and Ritchie 1993), the lesser number of bamboo traders, harvest of immature poles, smuggling in from India and illegal appropriation from state forests (SKAT 1991).

There are various factors causing scarcity. Population increase is considered the main cause (Abedin and Quddus 1990; Choudhury 1984; Johnson and Ritchie 1993; Dunham 1992; Dunham 1991; SKAT 1991). This is true, but other factors are also responsible. Poor management of bamboo resources, both in the villages and forests, has led to falling production. It seems that while there is increased demand for bamboo, there is a lack of management skills in the villages (Abedin and Quddus 1990); new poles are harvested ever more frequently from the edge of clumps, leaving old poles at the centre. These are then prone to disease that eventually affects the whole *bash jhar* (Johnson and Ritchie 1993). In fact, the disease, bamboo blight, is common in Bangladesh (less common in other bamboo-producing countries) and due to poor management has reduced supply greatly (Boa and Rahman 1987). This does not mean that villagers do not care at all for their bamboo plantations. They do apply simple management techniques; however, the increased demand and poverty makes them over-harvest immature bamboo, adding to the scarcity and increasing the chance of disease (Johnson and Ritchie 1993). This is a vicious cycle: more demand leads to over-harvesting, which then leads to scarcity and further pressure of demand.

According to the Forestry Master Plan (Wells et al 1994) and Johnson and Ritchie (1993), forest bamboo is declining at about 3% per year. Along with over-exploitation and encroachment of agriculture due to increased population, poor management is also responsible (Johnson and Ritchie). The lack of management is added to by over-harvesting of easily accessible areas of the forests, while remote areas are left alone (Choudhury 1984), thus affecting the overall stock.

An effect of bamboo scarcity on households with lower income is that they use inferior quality bamboo. Because the quality of bamboo is low, they need frequent maintenance and as they are not strong enough, that creates hazard for the people living in those houses (Ahmed 1999).

During the Housing & Hazards International Conference 1999 in Dhaka, there were recommendations suggesting the need for research into the regeneration of supplies of natural building materials. Research into socio-economic factors was another major recommendation of the H&H Dhaka conference. These two recommendations gave the inspiration to Mr Imtiaz Rasul to conduct research on bamboo cultivation. The methodology followed for the research was Participatory Action Research (PAR), emphasising the importance of involving the end-user in the research. This research was a learning-by-doing type, where the principal research investigator, a rural inhabitant, was the end-user himself. The research was primarily concerned with socio-economic factors such as awareness building for bamboo cultivation for the rural people rather than purely technical matters.

At the end of February 1999, through consultation with the villagers, a person who knows how to cultivate bamboo with his indigenous knowledge was identified and consulted. At the very beginning of this research, the villager cut a little piece of bamboo (2 feet high) from an existing bamboo garden. Then the root, called *guri* in Bangla, was planted by the side of a pond for two months. The *guri* was planted there because the environment of that place is the best for growing new bamboo shoots. The shoots are called *gei* in Bangla.

In April the *gei* was transplanted in the bamboo garden by digging a hole of 3 inches by 3 inches. The depth of the hole was one and a half feet. After transplanting the *gei* necessary organic (mainly cow dung) and also some chemical fertiliser was mixed into the soil. The little bamboo (*gei*) was watered until the rainy season came at the end of August. There were now more *geis* in the bamboo. Once more shoots start coming out from the bamboo, it starts growing longer and longer. One of this newly grown bamboo plants will produce more bamboo in the coming years. In 3/5 years, one of the grown plants would produce about 30 new bamboo plants around it (Rasul 2000).

Raising awareness of bamboo cultivation is very important for rural housing in Bangladesh. The cultivation process is very simple indeed. It can be done easily in villages and the rural people of Bangladesh can be benefited by efforts for promoting improved bamboo cultivation. Economic benefit, access to bamboo as a building material and the opportunity for generating local employment would be possible if such bamboo cultivation initiatives are taken.

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