

Bamboo “Poor Men Timber”: A review Study for its potential & market scenario in India

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Abstract: *India is the second richest country in the world in terms of genetic resources of bamboo, after China. Bamboo's excellent growth, environmental, mechanical and engineering properties make it a fine alternative to tropical timber. It has been stated in a study conducted by Marsh and Smith (2007) which claims that the industrial factor of Bamboo sector has an excellent potential as far as its impact on poverty alleviation is concerned. Bamboo is foremost in biomass production, with up to 40 tonnes per hectare per year in terms of culms only in managed stands. An estimated one-quarter of the biomass in tropical regions and one-fifth in subtropical regions comes from bamboo. Considering its vast application diversity, it can provide ample scope for the development of rural livelihood especially the tribal population and simultaneously contribute towards the sustainable growth keeping environment its ally.*

Key words: *Growth, Tropical timber, Poverty, Genetic resource, Biomass*

I. Introduction

‘Bamboo ‘is also known as ‘green gold’ in Asian culture. Bamboo is the fastest growing and highest yielding renewable natural resource and different species occur in different parts of the country. In India, bamboo is mostly found in the forests. As per Forest Survey of India (1999) estimates, 9.6 million hectares forest area of the country contains bamboo amounting to 12.8% of the forest cover. India has the largest area under bamboo in the world, which is estimated around 11.36 million hectares. India is also very rich in bamboo diversity. India has the World's second largest Bamboo resource and the largest area under bamboo plants, with 136 species, 23 genera covering 13.96 million hectares (FSI, 2011)

Distribution

Sharma (1987) reported 136 species of bamboos, across 22 genera, occurring in India. Out of these, nineteen are indigenous and three are exotic. Naithani (1993) reported 124 indigenous and exotic species, under 23 genera, to be found naturally and/or under cultivation in India.

The distribution is, however, not uniform. The rich areas are confined to the North-Eastern parts of the country, Siwalik Hills of Uttar Pradesh, Bastar, region of Madhya Pradesh, Western Ghats in South India and the Andaman Islands. The North-East is the richest source. Fifty-eight species of bamboo belonging to 10 genera are distributed in the North-Eastern States alone. Around two thirds of the growing stock or 66% of the growing stock of bamboo in India is found in the Northeastern States, but with just 28% of the total area under bamboo in the country. Madhya Pradesh has the second highest area under bamboo, estimated at 20.3% of the area and with 12% of the growing stock.

According to FSI report 2011 forest area according to bamboo density shows that Pure Bamboo brakes are found in less than 1% of the country. They are found most commonly in Mizoram (226 sq km). Dense Bamboos are found in 7% of the total area, and 8% is occupied by scattered bamboos. Dense bamboos are found mostly in Arunachal Pradesh (8681 sq km) followed by Mizoram (6116 sq km) and Manipur (5825 sq km) and report also indicate that the maximum number of green sound bamboos is found in Arunachal Pradesh (2666 million), followed by Assam (2046 million), Manipur (2035 million) and Mizoram (1953 million). The green sound weight is also maximum in Arunachal Pradesh (12. 4 million T), followed by Manipur, Mizoram and Karnataka.

Domestic Demand of bamboo:

Accordingly The Planning Commission's 2003 report which detailed the creation of the National Mission on Bamboo Technology and Trade Development focuses on harnessing the potential of Bamboo as a crop in a multi-disciplinary fashion (NBM Operational Guidelines, 2003). The Report lays out a roadmap for the future of the Bamboo plant's development, providing one of the few existing comprehensive analyses of the potential growth of the Bamboo sector domestically.

Uses	Consumption%
Pulp	35%
Housing	20%
Non – residential	5%
Rural uses	20%
Fuel (non- industrial)	8.5%
Packing, including basket furniture	5%
	1%
Other including ladders,mats etc	3%
Total	100%

The extent of Bamboo resources, the second largest in the world, indicates the presence of a vast pool of untapped resources, due to regulation barring access to these forests resources. It is estimated that only about 15.4% of the total Bamboo resources of India lie on private lands; as a result, 84.6% of the resources are unavailable for utilization in industrial purposes without regulation getting in the way (FAO, 2005).

Source: Tewari, D.N. (1992)

Utilization of bamboo:

Bamboo's excellent growth, environmental, mechanical and engineering properties make it a fine alternative to tropical timber. Its potential for different value added products and application make it an extremely important material for dispersed employment generation and economic activities. Perhaps these properties and potential usage coupled with increased urgency of environmental issues ought have been sufficient to change the attitude towards bamboo, and solved the problems of tropical deforestation. Bamboo is in the process of being 'rediscovered' in India. Its attributes and potential are increasingly being recognized. Khan et al (2007) classify the various applications of bamboo utilization.

A. Wood Substitutes and Composites: These include:

- 1) Bamboo based Panels: Bamboo panels present significant advantages over wooden boards owing to their strength, rigidity and flexibility.
- 2) Bamboo flooring, Bamboo Sticks for Blinds and Incense sticks
- 4) Bamboo furniture:.

B. Food Products: This category essentially includes Bamboo shoots which are consumed after cooking. It is estimated that 200 species can provide edible and palatable shoots. Bamboo shoots can provide further entrepreneurial opportunities to communities in the form of cultivation, processing and packaging as value added economic activities.

C. Construction and Structural Applications: Bamboo housing can be classified into 3 types:

- 1) Traditional houses using culms as the primary building material
- 2) Traditional bamboo houses using a bamboo frame plastered with cement or clay
- 3) Prefabricated houses made of bamboo laminated boards, veneers and panels.

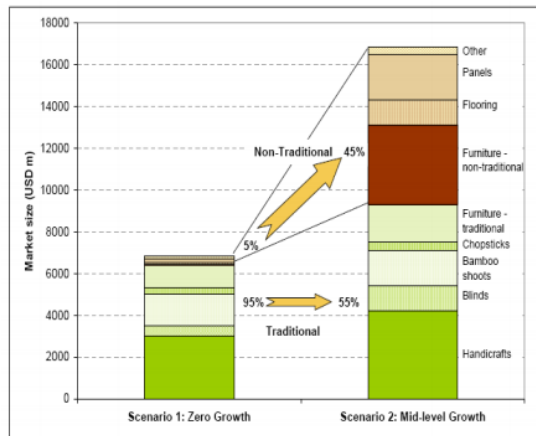
These buildings are cheaper than traditional wooden houses, and are light, strong and earthquake resistant. They can be packed flat, transported, and are environmentally friendly.

D. Bamboo based Fibres and Fabrics: Bamboo fibre is longer than wood fibre, which gives bamboo some technological advantages. Bamboo fibres have been adapted for the manufacture of fibre for yarn and into fabrics, which are naturally anti-microbial, and absorb thrice the moisture absorbed by cotton due to the presence of micro-pores in the fabric.

E. Bamboo charcoal as a fuel: Bamboo charcoal is traditionally used as a substitute for wood charcoal or mineral coal. It can serve as a fuel, absorbent and conductor. The calorific value of bamboo charcoal is almost half that of oil of the same weight. Activated bamboo charcoal can be used for cleaning the environment, absorbing excess moisture and producing medicines. The absorption capacity of bamboo charcoal is six times that of wood charcoal of the same weight.

F. Bamboo for Paper and Pulp: Several bamboo-producing countries, such as China and India, use bamboo in paper and pulp. Bamboo paper has practically the same quality as paper made from wood. Its brightness and optical properties remain stable, while those of paper made from wood may deteriorate over time. The morphological characteristics of bamboo fibres yield paper with a high tear index, similar to that of hardwood paper. The tensile stiffness is somewhat lower compared with softwood paper. The strain strength is between that of hardwood and softwood papers. The quality of paper may be improved by refining the pulp.

Figure 1: Two Global Bamboo scenarios



(Source: OHK, 2006)

Market productive scenario

There has been a growing awareness in recent years about the importance of bamboo being an important means of economic growth and of improving the socio-economic conditions of the rural poor. Bamboo as an industrial material can substitute wood to a great extent and that too at low cost. Bamboo has been traditionally harvested from forest lands in India and the homesteads which may have a few clumps of one of the many species of bamboo for household use but very little intervention in terms of purposive planting has been done in the past. Convincing and informing users and policymakers of bamboo's versatility may fit in with a strategy of poverty alleviation and reducing pressure on tropical forests. Smallholders at the forest fringe can, in particular, improve their livelihood by processing bamboo or

growing it in their backyard. Bamboo as a resource needs to be seen as a form of development, with the primary value addition done closer to the resource in order to reap the livelihood benefits.

Bamboo Item	Market Size, 2003 (Rupees Crore)	Expected Market Size, 2015 (Rupees Crore)
Shoots	5	300
Timber Substitution	10,000 (Import Substitution)	30,000 (in 20 years)
Plyboard	200	500
Plyboard for Trucks/Railways	1000	3400
Bamboo Matboards	NA	3908
Bamboo Flooring	100 for Exports, 100 for Domestic Cons.	1950
Pulp	100	2088
Furniture	380	3265
Scaffolding	NA	861
Housing	NA	1163
Roads	NA	274
Miscellaneous (Pencils, Matches, etc.)	394	600

Source: NMBTTD Report, Planning Commission, 2003 little intervention in terms of purposive planting has been done in the past. Convincing and informing users and policymakers of bamboo's versatility may fit in with a strategy of poverty alleviation and reducing pressure on tropical forests. Smallholders at the forest fringe can, in particular, improve their livelihood by processing bamboo or growing it in their backyard. Bamboo as a resource

needs to be seen as a form of development, with the primary value addition done closer to the resource in order to reap the livelihood benefits. At the same time, a large stock of bamboo contributes to broader environmental goals of erosion control, reforestation and watershed management.

II. Conclusion

By analyzing bamboo potential it can be easily pointed out that bamboo can be regarded as one of the most valuable natural resource available. Considering its vast application diversity, it can provide ample scope for the development of rural livelihood especially the tribal population and simultaneously contribute towards the sustainable growth keeping environment its ally. According to planning commission's 10th plan document, an estimated 8.6 million Indian depends upon bamboo for their livelihood. Development in bamboo cultivation and utilization can be called in to make efforts for rural poverty alleviation empowerment of women and environmental rejuvenation.

There is the need for market establishment of Bamboo products, with product testing for quality being a necessity which will ultimately lead to market acceptability. In this regard, the National Mission on Bamboo Technology & Trade Development was mooted by Planning Commission to accord Bamboo development a strategic role in rural economy, poverty alleviation and bamboo based handicrafts & industrial development.

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