

BAMBOO INDUSTRY: CRAFTING THE LIVELIHOOD OF RURAL PEOPLE

Dr. S.C.Lahiry

Bamboo is an integral part of our life and culture, as it is used in religious ceremonies, art and music. Thus it is a mystical plant that engulfs our daily lives. For tribal and forest dwellers “bamboo for living and living with bamboo” is still norm. This offers an excellent starting point in increasing employment, income generation and improving nutritional status of rural poor. Since bamboo can provide the basis for an expanding small and medium enterprise sector, it offers an effective mechanism for rural poverty alleviation and livelihood securities.

Bamboo is a versatile crop and has recorded 1500 uses including food, as wood substitute, building and construction material, as resource of handicraft, pulp and paper, etc. Around 80 per cent of bamboo forests lie in Asia with India, China and Myanmar having 19.8 million hectares of bamboo. India has one of the richest bamboo resources in the world, second only to China in bamboo production. According to Ministry of Agriculture and Farmer Welfare, Government of India, the annual bamboo production in the country is estimated at 3.23 million tonnes. Though India is the world's second largest grower of bamboo with 136 species, 23 genera, covering 13.96 mill ha area, the country's share in the global bamboo trade and commerce is only 4 per cent (During 2015–16, 2016–17, the export of bamboo and bamboo products was Rs 0.11 cr and Rs 0.32 cr respectively while the import was over Rs 148.63 cr and Rs 213.65 cr hence a net importer of bamboo despite of having growing stock both within and outside forests). Its potential for expanding the area under bamboo cultivation is immense.



For tribal and forest dwellers “bamboo for living and living with bamboo” is still norm. This offers an excellent starting point in increasing employment, income generation and improving nutritional status of rural poor. Since bamboo can provide the basis for an expanding small and medium enterprise sector, it offers an effective mechanism for rural poverty alleviation and livelihood securities. A bamboo tree matures in 4 to 5 years whereas a hardwood tree takes almost 60 years to mature. Unlike hardwood trees, bamboo can be harvested without adverse effect on the environment. Bamboo can tolerate both heavy and low rainfall. Every year it gives out 8-10 shoots. Bamboo releases 35 per cent more oxygen than other plants and absorbs 20 per cent carbon dioxide from the environment. Scientific plantation of bamboo could dramatically improve air quality with the release of more oxygen and sequestering more carbon dioxide.

According to the Forest Survey of India (2011), more than 50 per cent of bamboo species are found in eastern India, including in states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura and West Bengal. Bamboo utensils, fishing nets, jars, vases, and baskets make it a quintessential cultural tradition in the region. Mizoram has the largest bamboo cover in India as compared to the geographical area covered by other states; more than half of Mizoram's land has bamboo forests.

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With the rapid socio-economic transformation of our country, bamboo gained importance as a raw material not only for cottage industry but also for large scale industry. Around 25000 bamboo based industries

provide employment to about 20 million people while 2 million people work on bamboo based crafts. With attractive physical and strength properties, bamboo has great potential as construction and structural material. Pulp and paper industry and bamboo craft sector are the two major users of bamboo resources. The consumption of bamboo in different sectors in the country indicates that 24 per cent of bamboo is being utilized in scaffolding, 20 per cent for pulp and paper, 19 per cent for handicrafts and 15 per cent for miscellaneous items. However, its industrial potential in the manufacture of a host of value added products eg laminated board, bamboo fibre cement board, flooring, wood substitutes, medicines, food products, etc., provide opportunities for employment and income generation and at the same time ensures efficient and sustained utilization of available resources. Bamboo based technology has attracted attention of a numbers of entrepreneurs and few industries have already been set up in the country.

Bamboo is amenable to multiple uses and is therefore well suited to value addition activities, generating thereby number of employments in rural sector. Bamboo plays a vital role in rural employment, every hectare of bamboo plantation generates about 160 workdays. An average of 8–10 workdays is needed to harvest one ton of bamboo. Five workdays per tonne are generated by transportation and handling of bamboo. As many as 80 workdays are required for processing of one ton of bamboo and its weaving into usable product. In cottage industry about 600 workdays are required for per ton of bamboo processing. Based on the studies, the summary of employment potential of bamboo economy (below) indicates that bamboo can generate 516.33 million mandays of work per annum.

Summary of Employment Potential of Bamboo use:

Bamboo Use	Estimated capacity/ Quantity	Quantity Mandays (Per annum in million)
Silviculture	25000 ha	75
Bamboo plantations	6 million tons	40
Harvesting	6 million tons	100

Bamboo Use	Estimated capacity/ Quantity	Quantity Mandays (Per annum in million)
Transport/ storage/handling	6 million tons	30
Weaving into products	3 million tons	240
Industrial labour	3.3 million tons	7.33
Cottage industries	40 000 tons	24
Total		516.33

(Source: Committee of Doubling of Farmers' Income Report, Min of Agriculture. GOI, 2018)

Recognizing the potential of bamboo and the fact that it has been subjected to neglect and thus remain disorganised with poor market linkages and sub-optimal level technology applications for manufacture of value added products in the industrial and artisanal sector, the National Mission on Bamboo Technology & Trade Development, 2003 Report has highlighted the need to upgrade bamboo economy by according bamboo development a strategic role in rural economic development, poverty alleviation and bamboo based handicrafts and industrial development. The potential of Bamboo as an economic resource capable of generating employment for the rural people in commercial plantation and other value addition activities has remained largely untapped due to lack of appropriate policy, institutional framework covering plantations, technology upgradation, product and market level. Bamboo has thus tremendous untapped potential in our country for transforming rural economy. There is vast scope for expanding bamboo in the areas outside forest because: a) its management is easier in these lands than in natural forest and b) due to close to user agencies, economic harvesting is possible. Land degradation is a major problem confronting India. According to State of India's Environment 2017, nearly 30 per cent of India's land is degraded. With its unique ability to stitch and repair damaged soils, bamboo is ideal for rehabilitating degraded soil.

National Bamboo Mission (NBM) which was commenced in October 2006 is an initiative of the Government of India (GOI) to provide a new impetus and direction to enable the realization of bamboo's considerable potential. It is multidisciplinary

and multidimensional in its approach. The major interventions planned to achieve its broad objectives focus on R&D, plantation on forest and non-forest lands through Joint Forest Management Committees (JFMC) or Village Development Committee (VDCs) and ensuring supply of quality planting materials by establishing centralised and kisan/mahila nurseries, promotion of bamboo handicrafts, marketing, export and establishing bamboo wholesale & retail market.

NBM was started as a Centrally Sponsored Scheme in 2006–07. Since 2006–07, 3,61,791 ha land has been covered with bamboo plantation, out of which 2,36,700 ha under forest area and 1,25,091 ha under non-forest area. An area of 91,715 ha of existing bamboo plantation has been improved for higher productivity. Around 1,466 nurseries have been established to supply quality planting material. In different states, 61,126 farmers and 12,710 field functionaries have been trained in the area of nursery management and bamboo plantation. In addition, 39 Bamboo wholesale & retail markets near villages, 29 Retail outlets and 40 Bamboo bazaars have been established. However, under NBM, during the period 2006–17, new area covered through plantation is around 3.62 lakh ha (including 1.25 lakh ha in non-forest areas) whereas one of the objectives of the Mission among others was to expand area under bamboo plantation by 2 million ha in the Tenth Plan and overall 6 million ha in the Tenth and Eleventh Plan. It is noted that achievement in non-forest area has been much lower than its potential. The Indian Forest Act, 1927 defines bamboo as a tree — a contradiction in the law that has deterred the growth of bamboo plantations particularly in non-forest areas. Bamboo grown outside forests were subjected to regulatory rules of felling and transportation till the end of 2017. It was perceived that the emphasis of NBM has, by and large, been on propagation and cultivation of bamboo, with limited efforts on processing, product development and value addition. This has caused weak linkage between the farmers and the industry. There is need to develop an integrated bamboo industry in the country. A restructured NBM has been approved by Government of India in April 2018 with an investment of Rs 1290 cr in the coming 2 years. It focuses on the development of complete value chain of bamboo sector to link growers with consumers and to support the development of entire value chain starting from planting material,

plantation, creation of facilities for collection, aggregation, processing marketing, micro, small & medium enterprises, skill development and brand building initiative in a cluster approach mode. This will contribute to doubling of farmers' income and also generate more employment opportunities for skilled and unskilled worker especially youths in rural areas.

To facilitate the benefit flow to the farmers, bamboo stock outside forest areas has been excluded from the definition of tree by amending Section 2 (7) of the Indian Forest Act, 1927 by the Government of India in November 2017. Besides, a scheme called SFURTI (Scheme of Fund for Regeneration of Traditional Industries) is being implemented by the Ministry of Micro, Small and Medium (MSME) in order to boost traditional industries and bamboo artisans. Proper understanding of bamboo culture and technical support could unleash a bamboo revolution that has the capacity to uplift the bamboo based industry.

New Initiatives

1. In order to boost bamboo cultivation on a commercial level, the Government of Himachal Pradesh (HP) will constitute a State Level Bamboo Development Agency (SLBDA) along with setting up of bamboo economic zones as per industry requirement. Many areas in the lower parts of HP have immense potential for growing bamboo which is in great demand by industries. As such, the setting up of a board would help farmers to take to bamboo cultivation, specifically in view of heavy demand from industries.
2. The Government of Telangana has decided in June, 2018 to launch a massive bamboo plantations project on 506 hectares (1,250 acres) to provide a source of sustainable income to farmers.
3. Maharashtra State is quite keen on promoting bamboo as a source of income for farmers. In August, 2018 it created the Maharashtra Bamboo Development Board (MBDB) for this purpose. It ensures that village communities have total control over the sale of bamboo and not the Forest Department. It even set up a bamboo research centre funded by the Tata Group.
4. Japanese Government may extend help to Mizoram in the development of its bamboo industry and road construction projects. Along

with this, it may help in alleviating the impact of natural disasters in the area. The push will be towards setting up an industry for the value addition to the state's bamboo resources. It lacks major industry that could harness the potential of its resources.

5. TRIFED, an apex body, under Ministry of Tribal Affairs, Government of India would open establishments to train tribal people in using bamboo optimally with zero waste and make agarbatti, matchboxes and even textiles. This would help in augmenting tribals' income and opening of markets.

The Way Forward

To arrest the pace of land degradation in the country, a national programme of intensive bamboo plantation involving all stakeholders need to be undertaken beyond 2019–20. Following the footsteps of China, Indian Government needs to support rural farmers to establish bamboo plantations in barren lands and slopes. The national housing scheme (PMAY) should utilize bamboo as construction material. Developing bamboo as a load bearing structural element would pave the way for its high value application in construction which can make bamboo cultivation an economically viable way of greening the vast wastelands (Smita Chugh, Bamboo-A Green Option for Housing). Edible bamboo has huge demand in East Asian cuisines and medicine. Bamboo grown in the North East (which is 66 per cent of growing bamboo stock in India) can be exported to East Asian countries like Japan and Taiwan for competitive prices with the Government's support. There is a big market in the agarbatti industry. India imports 35,000 tonnes of round sticks from Vietnam and China. Earlier, square ones were hand made from bamboo, in the North East. But when the technology changed and machines took over, round sticks were preferred. India produces 3,000 tonnes of them. The entire activity can be indigenised by local cultivation of bamboo of a particular variety required by the industry. It is observed that illegal bamboo export to Bangladesh and Myanmar accounts for 13 per cent of usage. As mentioned before that the country imports sizeable bamboo stocks due to shortage, there is an urgent need to stop this illegal trading of bamboo.

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(The author has vast expertise on issues related to agriculture, allied sector and environment. He had been associated with Planning Commission for over 25 years and served in different capacities in sectors like Minerals & Industries and Agriculture. The author also served as Chief Executive in Haryana Environmental Management Society. Email: sclahiry@gmail.com)