

## Bamboo for sustainability & climate friendly growth

Bamboo is an important part of rural livelihood in a developing country like India. Due to its versatile nature and multiple uses, it is also called 'poor man's timber'. Though it grows tall like a tree, it belongs to the grass family. It can withstand the drought as well as flood. During the annual floods in Kosi region in Bihar, it is the bamboo that helps the flood hit villagers. Even during Tsunami, bamboo came to the rescue of people rendered homeless to erect shelters at short notice. There are more than 70 genera divided into about 1,450 species of bamboo all over the world. India is second only to China in terms of bamboo diversity having more than 130 bamboo species spread across 18 genera. The North Eastern states are the store house of bamboo diversity with 58 species belonging to 10 genera. Bamboo is grown on 9 million hectares in India, covering almost 13 per cent of the total forest area of the country. In addition, nearly 1.75 million hectares of bamboo area lies outside the natural forest area. The total production of bamboo is 5 million tons per year.

The bamboo culture thrives in the North Eastern region. From the tender shoots as a delicacy food item to the rice cooked in the hollow of raw bamboo, it is part of the everyday life. From house construction to flooring, agricultural implements, the bamboo pervades the life and culture. We find the most artistic skills in bamboo weaving in these regions. Millions of families are dependent on bamboo resources for their livelihood in India.

New bamboo plantations may curb the pressure from deforestation by serving as wood substitutes. It can be planted to reclaim severely degraded sites and wastelands. It is good soil binder owing to their peculiar clump formation and fibrous root system and hence also plays an important role in soil and water conservation.

**Climate change and Bamboo** Recent studies suggest that bamboo is more effective plant than trees in increasing carbon stocks through sequestration of carbon. The researchers studying bamboo plantations estimate that a hectare of bamboo has the potential to sequester between 12-14 tons of carbon every year above the ground. Additionally, the extensive root system builds up the carbon sink faster than trees.

The international community, Clean Development Mechanism as well as Indian government have overlooked the potential of bamboo to address the issue of climate change and enhance livelihood opportunities. When bamboo forest is managed by annual harvesting of mature culms it can sequester more carbon, especially if harvested products are converted into durable products like bamboo furniture or household timber. It can be a good substitute for energy intensive products, thus helping to reduce fossil fuel based

products. It is used in over 1500 applications, but until recently the life span of these products was short. However, the upgradation in processing techniques has enabled to manufacture durable products that have longer life, mainly in housing components and furniture. Compared to growing trees, a bamboo plantation would repay the investments in carbon development costs within first four years. Moreover, when mature bamboo is harvested, it would fetch handsome net revenues providing employment opportunities to people, mainly artisans. In fact the Medar community in Karnataka is entirely dependent on bamboo weaving, producing items like baskets. They are the poorest groups belonging to the lowest caste among Dalits. One of the ways to strengthen their economic situation is through enhancing bamboo stocks.

The carbon credit business world wide is in billions of dollars. Large high tech projects as well as those which destroy natural forests like hydel projects get carbon credit benefits. Contrary to these dubious carbon credit ventures, bamboo plantations can bring the carbon credit business at the doorsteps of poor, marginal communities. If CDM as well as those agencies that are aiming to address the issue of climate change include bamboo as one of the tools to mitigate climate change, it would yield 'poor man's carbon credits'. If this can happen directly between the governments and the communities, without the intermediary of market, that would be even better.

While it has many positive impacts on climate change, one should also be aware of the negative impact. Gregarious flowering of bamboo in North Eastern part of India and in some regions of Western Ghats may lead to releasing of large amounts of carbon in the form of dry bamboo. There is an urgent need to evolve a rationale policy to procure and utilize enormous quantity of bamboo crop after the flowering. Ignoring this would cause a devastation of fire that would engulf the diversity in the region. Though India has launched the National Bamboo Mission in 2007, the implementation of this mission is not only slow, but it has failed to address the enormity of the issues related to bamboo.

May be, the step motherly attitude meted out to the North Eastern states is one of the prime reasons for such gross neglect of poor man's timber and negation of bamboo culture. A proper understanding and empathizing with the bamboo culture and financial and technical support would have unleashed the bamboo revolution that would have uplifted the living standards of people in this region. It is high time the national action plan to address climate change in India incorporates these ideas in 'green mission'. (Pandurang Hegde in Morung Exp 200910)