

## Bamboo Based Natural Packaging: Indian Scenario

**Bamboo is a strategic resource growing across the world particularly in Northeast India, which can be processed in various ways to produce different products, to be used as substitutions for the existing plastic material as it is biodegradable. Before the existence of plastic, there were products made from bamboo and packaging was also made from bamboo. This begs the question, is this packaging sustainable and how it can substitute other material. Traditionally, in India bamboo basket weaving has rich cultural identity and used in all household applications mainly in packing which is now needed to bring into the modern packing for various products. The paper discuss the sustainable development and uses of bamboo packaging in Northeastern region.**

**T**HE Benefits of Bamboo for Packaging is Low Cost. Since bamboo grows around the world, it's much easier to access. Bamboo is a great replacement for materials such as plastic, and it can meet the sustainability goals of many businesses. Bamboo from harvesting, value chain includes regeneration of quality bamboo stock, product, and distribution, which can create much needed employment opportunities in rural areas. India bamboo packing for various products and promoting their inclusion packaging industry in India can greatly contribute to improve local livelihoods and rural development as well as ensuring conservation and reduced Carbon Footprint. Bamboo packaging is not harmful like Plastics and is convenient disposal, versatility and sustainable. Bamboo has characteristics of high biomass productivity, self-regeneration and tolerance to poor soils which makes it most suitable energy crop for environmental sustainability. Bamboo has a lifespan of 40-60 years and if it is not utilized in the productive manner, then existing huge resource can get waste. Due to bamboo's versatility, it is being used in an increasingly wide range of products and open ample of opportunity. As a local resource bamboo makes a lot of sense to use for packaging in India.

Bamboo, a grass family is growing across the world particularly

in Northeast India, which can be processed in various ways to produce different products. It is used as substitute for the existing plastic material as it is biodegradable. In the earlier days, there were products made from bamboo and packaging was made from bamboo. Bamboo, one of the fastest growing plants, whether to call as poor man's timber, green gold, giant grass or woody grass, it is one of



Bamboo traditional uses

the amazing raw materials to explore in various ways and means for all kinds of applications for day to day uses. The rhizomes, shoots, sheaths, culm, branches, leaves, buds are used for various purposes. It is used in preparation of structure, housing, tools, food, fiber, paper, rayon, etc.

Bamboo is found in all tropical regions of the world. There are more than 1,500 species of bamboo. It is a fast growing perennial plant of family gramineae. Its basic characteristics are woody culm above the ground, rhizome under the ground, culm and rhizome form a framework. The leaf has a short stalk. It is multiplied mainly through vegetative. It flowers sporadic/ gregariously. Commercial recommended Bamboo species by NBM are *Bambusa tulda* (Jati), *Bambusa balcooa* (Bhaluka), *Bambusa nutans* (Mokal), *Bambusa bambos* (Kota Bah), *Dendrocalamus hamiltoni* (kako), *Dendrocalamus giganteus* (Munro), *Dendrocalamus asper* (Malasia bamboo), *Dendrocalamus strictus* (Lati Bah), *Melocanna baccifera* (Muli). *Ochlandra travancoria* (Oda/Odai). There are two types of bamboo i) Sympodial which grow in clumps, and ii) Monopodial which grows singly.

India is the second richest country of the world after China in terms of bamboo genetic resources. The total bamboo bearing area of the country is estimated to be 8.96 million ha, which is half the total area of bamboo reported for Asia. As per FSI 2011, total growing stock in India is 80.43 m MT and total collection of bamboo is 13.5 m MT. Total no. of culms at the national level has been estimated to be 23,297 million out of which the percentage of green sound, dry sound and decayed has been estimated as 79%, 16% and 5% respectively. In India, 28% of area and 66% of growing stock of bamboo is in the Northeast region (NER) and 20% of area and 12% of growing stock is in Madhya Pradesh and Chhattisgarh. Nearly 136 species of bamboo are occurring in India out of which 58 species belonging to 10 genera distributed in Northeastern States alone. India taps only one-fourth of its bamboo potential and contributes only 4% share of the global market, mainly because of low productivity of around 2 ts/ha/annum. India's total demand of bamboo is estimated at 27 million tonnes whereas the total supply is only 13.47 million tonnes.

Bamboo is integral part of the culture traditions of the Northeastern Region. The bamboo is an important part of agriculture as it is used in green houses, tools, grain bins, traps, fences, agriculture, fishing, structures, wind breaks, etc. There is a rise of sustainable packaging demand and it is becoming an important topic for companies all over



Fruits and vegetable packaging

the world. The primary reason is that it is becoming important to the consumer. This means that consumers are now prioritizing goods that are sustainable, transparent and aligned with sustainable values when making these purchase decisions. Because of the new market trends, manufacturers around the world are beginning to implement eco-friendly materials in their manufacturing processes. Amongst several options, they increasingly choose bamboo as the material of choice because it is durable can be used in different forms and has less environmental impact.

#### Why Bamboo Packaging?

**Versatility & Innovation:** It offers a high level of durability and when used as a material for packaging, it keeps this important feature of versatility. Moreover, designers are truly innovating the packaging sector by experimenting new great design adopting this material.

**Elegant alternative to plastic and paper:** It is an eco-friendly replacement for metal, plastic, hardwood, paper, and cotton. This material has made it into nearly every corner of our lives from being used in toothbrushes and fabrics to toilet paper and everything in-between.

**Sustainability:** With the increased awareness and concern over climate change, consumers and companies are constantly searching for environmentally responsible options for their everyday needs and bamboo packaging is a sustainable option.

**Bamboo packaging:** Bamboo is the most abundantly



Bamboo products

available natural raw material of Northeast India. Its sustainable, eco-friendly nature makes it the most desirable material in today's context. But in India Bamboo usage has been constricted to mainly household products. If it could diversify, the efforts in making products that have a constant demand in the market, productivity will increase, in turn increasing the revenue in the Bamboo sector. One such sector that has this never ending demand is the Gift Packaging Sector to increase their face value. For example, if tea is packaged in an attractive manner using bamboo as the material, it would not only allude the customers in taste but also in outer appearance. Moreover, this material also speaks a lot about the background of the place the tea is from. In Gift packaging we celebrate the process of opening. The transition from one mood to another, from attraction to anticipation to surprise to delight, is handled with attentive care.

Some bamboo products ideas are Tea Packaging, Gift boxes for sweets/chocolates, Gift bags/ Carry bags, Nested boxes, Gift Packaging for wine bottles, Gift Baskets/trays, etc. NID, Bengaluru has also designed some bamboo products.

### Need for integrated policy framework

There are no policies, plans that are directed towards the development of the bamboo and cane sector in the NE Region of India – an extreme opinion expressed by many Handicrafts, Bamboo Timber Substitute, Ply Boards, Bamboo shoots, Agarbatti Sticks all have different Policies. There is an urgent need for R&D and design development

to introduce in bamboo industry for sustainable use of the bamboo.

### Value Chain & Supply chain and transport optimization

The bamboo and cane sector in the NE region has serious problems with respect to value due to the very high logistics and transportation costs. This is a peculiarity of the hilly region due to the geographical structure as well as the existing agreements on trade with India's neighbouring countries in the region.

### Revamping institutional structure to achieve core objectives

The need for institutional restructuring, in formulating any policy framework to bring about development in the entire NE Region of Indian Union, the legal perspective would address and deal with the following core issues:

- Facilitate production of bamboo, cane and allied products.
- Facilitate transportation and transit of bamboo, cane and allied product.
- Facilitate and strengthen the terms of trade in favour of the producers and cultivators.
- Facilitate and strengthen the institutional framework in favour of industrial products.
- Promote as non plastic products.

**Enabling Regulatory Mechanism:** Uniform Bamboo Policy for the NE region is needed – Key inputs from various states where Bamboo Institutional Mechanism is already in place other than State Bamboo Mission under NBM in other states like NBDA , APBRDA, MBDA, etc.

### Way forward

- **Enabling Bamboo Enterprise:** Promotion of Start ups, Corpus funds, design and product design, capacity and skill, building, incentives and tax benefits, etc.
- **Enabling Manufacturing:** Industrialized Handicrafts enterprises, Setting up of Bamboo Economic Zones, Bamboo Parks, Clusters, etc.
- **Enabling Marketing:** Common branding, Bamboo Festivals, Expos, Eco Tourism, Home stays, etc.

For further interaction, please write to:

South Asia Bamboo Foundation, Guwahati, Assam, India  
Email: kamleshshalam@gmail.com