

Doubling of Farmer Income through Agroforestry: Bamboo Farming

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ARTICLE ID: 056

ABSTRACT-

With the objective of doubling farmers Income by 2022, Government of India had launched several scheme among which National Bamboo Mission supports the farming of bamboo with no further restriction as it had been excluded from Indian forest act,1927 with the sole aim of increasing commercial farming and overcome the demand of Import timber from foreign country to satisfy our own demand and also to conserve the indigenous culture and skills of rural artisan which could directly help in employment generation along with Economic benefit of our Country.

INTRODUCTION-

“World Bamboo Day” officially celebrated on 18th September, every year since 2009 to increase awareness about use of bamboo planting through ceremonies, races, various contests etc. around the globe. In world, India is the second largest country in bamboo production, after China. Both, contribute 50% of total bamboo resources. Approximately 148 species of bamboos, (both wild and cultivated) are currently found in India, mostly found in the regions of forests of North and South India which are occupied by 90 species of bamboos.

RESTRUCTURED NATIONAL BAMBOO MISSION-

Recently, Union Minister for Agriculture and farmer’s welfare launched logo for National Bamboo Mission on 8th september,2020 indicating “Green Gold Aka Bamboo symbolise by Green and Yellow colour where figure shows bamboo culm in Centre of a circle composed of half farmers and an industrial wheel, stating the objectives of NBM.

Minister, also launched the 22 clusters in 8 states to increase the export of Bamboo Products and to protect the local artisans for sustainable source of Income. Goal of doubling farmer’s income is being achieved with the concerted efforts of all stakeholders in bamboo sector due to importance of bamboo. Where in 2017 amendment of Indian Forest Act 1927 done, to remove bamboo from the category of trees which can help everyone to undertake cultivation and business in bamboo and its products.

To overcome the problems of Import, import policy has also been modified to ensure progress of the bamboo industry in the country. Minister Tomar states, the ancient traditional use of bamboo in India and now Youth are being getting training to work and support bamboo Industry with modern technology. Which will enhance income of farmers meanwhile also reduce dependency on imports of raw material. Overall aim is to establish India in global markets for both engineered and handcrafted products.

Holistic upgradation of the complete value chain of sector. Hub (industry) & Spoke model will be used for Bamboo mission implementation, with ultimate goal of weaving farmers to markets through value chain so to make producers market ready which can enhance supply of desired raw material to domestic industry. 10 most important species required by industry being identified and quality planting material is being made available to farmers for plantations.

Whole idea is to engaged in raising nurseries and bamboo plantations and development of furniture, handcraft product, to use as base product like in agarbatti, basket, jewellery etc. Recently a town of Sikkim launch bamboo based water bottle to reduce the carbon footprint of plastic bottle.

Both Industrial products and National Bamboo Mission endeavours to enhance the skills of traditional bamboo craftsmen as per standards and need of market which tie up with Firms and Top institutes to continuously preserve our cultural heritage and also encourage the youth to carry forward their family traditions.

National Skill Development Agency plays the role of skills implementation and also to help in recognition of Learning skills to artisans taking Indian Culture forward.

BAMBOO BASED AGROFORESTRY-

Bamboos intercropped with other crops like rice-wheat for maximum utilization of land resources, high revenue generation and for sustainability. Studied showed that bamboo based agroforestry systems are more profitable and economically viable than mono-cropping system. Example-

- Bamboo + Crops (Soybean, Pigeon Pea, Ginger, Turmeric, etc.)
- Bamboo + Crops+ fish Ponds
- Bamboo + edible Fungi (mushroom species like *Dictyophora sp.*, *Pleurotus ostreatus* etc)
- Bamboo + Medicinal Plants
- Bamboo + Chicken + fish pond + Earthworm rearing

Quality of Planting material is an important criterion to get into bamboo planting due to late flowering it's not possible to depend on seed for planting therefore vegetative or cultural practices are followed in Nursery i.e., Number of culm and well developed rhizome formation helps in determination of vigour of plant to get healthy Plant stock.

Here, are some Selection criteria for quality of shoot, rhizome and root system to be followed in the nursery.

1) Shoot system-

Good quality- 4 sturdy shoot of 50cm with healthy leaves

Acceptable quality – Minimum 3 sturdy shoot of 50cm with leaves

Rejected quality - only 1-2 Shoots and less or no leaves

2) Rhizome System-

Good Quality and Acceptable- Developed Rhizome number => shoot number.

3) Micro-propagation (Tissue Culture)-

National Certification System for Tissue Culture Plants (NCS-TCP) of Department of Biotechnology shall be adopted for the purpose of recognizing/certifying bamboo micro-propagation of bamboo plants which is maintained by genuine records in Nursery.

Different Bamboo species uses for economic benefit are -

- Boundary Plantation done with the purpose of protection & boundary making for long run by planting any *Bamboo spp.*
- Block plantation (e.g. for shoot production for tropical humid) done for 5 or more than 5 years with the purpose of shoot cultivation for profit attainment in humid tropics. Example-*Dendrocalamus asper*
- Block plantation done for culm production for 5 years with *Dendrocalamus strictus* for profitable venture recommended specially for bamboo plantation.
- Where *Bambusa balcooa/nutans* or bambos used for paddy protection from dry & cold wind.
- *Bambusa cacharensis /vulgaris /balcooa can* be used for Increase in culm density over the years reflects its potential for carbon storage.

A study analysis by *Pande et al. (2012)* has shown that a cash flow of 30,000 per hectare to 48000 per hectare from 7th year onwards which generates an average minimum benefit cost ration of 1.83 with 18.60% Internal Rate of Return and recommended bamboo plantation for productive and protective utilization of degraded lands.

CONCLUSION-

Poor man's timber another name of Bamboo which is a versatile and durable resource used as unique alternatives of timbers in the rural culture for creativity and recreation purpose creates demand of bamboo raw material for rural artisans in rural industry. To achieve the objective of doubling farmers income based on utilization of indigenous knowledge and skills for selecting the suitable location specific bamboo-based agroforestry system or technology, its adoption, implementation and management will be beneficial.

