



# **Operational Guidelines of National Bamboo Mission**

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**Government of India  
Ministry of Agriculture & Farmers  
Welfare  
Department of Agriculture, Cooperation  
& Farmers Welfare**

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## **OPERATIONAL GUIDELINES OF RESTRUCTURED NATIONAL BAMBOO MISSION**

### **1. Background**

Bamboo is a versatile group of plants which is capable of providing ecological, economic and livelihood security to the people. India has the highest area (13.96 million ha) under bamboo and is the second richest country, after China, in terms of bamboo diversity with 136 species (125 indigenous and 11 exotic). The bamboo and rattan industry of India is worth Rs. 28,005 crores. During 2015-16 & 2016-17 the export of bamboo & bamboo products was Rs. 0.11 crore and Rs. 0.32 crore respectively while the import was Rs 148.63 crores and Rs 213.65 crores. Hence, inspite of the growing stock both within and outside forests, India is a net importer of bamboo. It means that there are greater opportunities to harness the market potential by increasing its production and ensuring establishment of a proper value chain ecosystem. In most of the hilly States of the country, bamboo is used as building material/construction material, besides, having a potential niche market in other countries as well with various traditional and an ever-increasing range of contemporary uses/applications in industries like construction, furniture, textile, food, energy production, herbal medicine etc. This is especially important from the potential of bamboo based livelihoods and employment for rejuvenating the rural economy and doubling of farmers' income. Keeping in view the vast untapped potential of the bamboo sector, the restructured National Bamboo Mission (NBM) has been approved for implementation across the country for boosting cultivation of quality and appropriate species, treatment, primary processing for supply to our industry so as to make it competitive both in the domestic and global markets.

### **2. Review of the earlier NBM and Issues to be addressed**

The National Bamboo Mission (NBM) was launched as a Centrally Sponsored Scheme in 2006-07 and was subsumed under Mission for Integrated Development of Horticulture (MIDH) during 2014-15 and continued till 2015-16. Funds were released thereafter only for maintenance of bamboo plantations raised earlier under NBM. It was however largely limited to propagation and cultivation of bamboo, with limited seasoning and treatment units and bamboo bazaars. Significant achievements under NBM from 2006-07, also available on website [www.nbm.nic.in](http://www.nbm.nic.in), are as under:

- i) 1466 Nurseries and 3 Tissue Culture units were set up/rehabilitated.

- ii) Bamboo plantations were taken up in about 2.37 lakh ha in forest areas and about 1.25 lakh ha in non-forest areas.
- iii) Existing bamboo stocks of 0.91 lakh ha were treated for productivity improvement.
- iv) Pest & disease management was taken up in about 0.86 lakh ha in non-forest areas.
- v) 39 bamboo wholesale markets, 40 bamboo bazaars and 29 retail outlets were established.
- vi) Employment generation was a concomitant outcome/ benefit of the various activities promoted under the Mission.
- vii) Bamboo raw material was also made available for development of Bamboo Industries.

State wise list of infrastructure created, including tissue culture labs, preservation and treatment plants, bamboo bazaars, etc is placed at **Annexure I** States must endeavor to build up on these assets for optimum utilization. States shall also map the plantations carried out, including those in non forest areas so that these could be included in the value chain in addition to the new plantations to be created under the restructured NBM.

Though NBM contributed significantly towards enhancing bamboo areas both in forest and non-forest areas, the main weakness of the scheme had been the absence of a linkage between the producers (farmers) and the industry and a strong value addition component and also weak efforts in organizing bamboo farmers for aggregation through institutions such as cooperatives, SHGs, JLGs etc.. Hence the emphasis now will be on propagation of quality plantations of bamboo of the commercially required species, product development and value addition including primary processing and treatment; micro, small & medium enterprises as well as high value products; markets, and skill development, thus ensuring a complete value chain for growth of the bamboo sector to boost bamboo based industry which would also have a ripple effect on rural economy. Primary processing units specializing in specific steps of pre-product processing would be established through different modes such as individual effort or group effort through cooperatives / FPCs / FPOs/ federated SHGs near areas of bamboo production. These units would converge into bigger units doing secondary processing, which would, in turn, converge into industries, both MSME and high end, making finished products. .MSMEs in many States are also industrial cooperatives or FPCs, hence the value chain eco-system can embrace bamboo farmers at multiple levels to increase net income to them. This would reduce wastages, promote efficiency and develop expertise in specific steps thereby

resulting in a significant drop in cost of production. Ideally it would be endeavored to have zero waste, since each part of bamboo is useful including the leaves and the powder generated in processing. It will also address the issues faced by the Indian bamboo based industry to make it more competitive both in domestic and global markets. In the NBM, it is envisaged to focus on development of complete value chain to link growers with consumers starting from planting material, plantation and creation of facilities for collection, aggregation, processing, marketing and brand building initiative in a cluster approach mode including cooperatives / FPCs / FPOs/ federated SHGs.. District or block level clusters would be formed and common facilities/ technology centers (CFCs) with appropriate machinery would be developed.

Accordingly, the main segments of bamboo development would rely on:

- i) Enhancement of productivity in non forest land, both Government and private.
- ii) Innovations in value addition and new product development
  - (i) Development of market infrastructure and linkages with farmer producers such as cooperatives / FPCs / federated SHGs
- iii) Strengthening of existing bamboo based industry and explore new emerging areas to make the industry competitive
- iv) Extensive IEC campaigns, skill development and R&D for bamboo as an environmental friendly, fast growing substitute for wood

The following issues should be addressed in order to enable holistic development of the bamboo sector:

- i) Inter sectoral synergy: The multifarious utilities of bamboo are linked with activities of various Ministries, Departments and Statutory Organizations like National Cooperative Development Corporation (NCDC) at the Center as well as in the States. NBM will serve as a platform for bringing harmony and synergy across the various elements and cross cutting edges.
- ii) Enhanced productivity: Emphasis will be on improving productivity to minimize the demand supply gap in the country. Focus will be on quality planting material, good cultivation and harvesting practices supported with R&D interventions as per requirements of conservation and industry. Bamboo with a higher capacity of carbon sequestration will contribute significantly to India's Nationally Determined Contribution (NDC) under the Paris Agreement of climate change.
- iii) Indigenous tools/ equipment/ machineries/ technologies: Research and Development (R&D) activities will be encouraged for developing tools and



- equipment suitable for Indian species, for more efficient processing both at community and industry levels to reduce post-harvest losses
- iv) Product Development, Processing and Market: focus will be on innovations in product development, value addition, preservation & storage, primary processing, market linkage, skill development, etc.
  - v) Policy Issues: Bamboo industry will be incentivized so as to accelerate the pace of development of bamboo sector. This is especially important due to the huge potential it holds in contributing to enhancing farmers' income
  - vi) Incentivize construction industry: to give impetus to the use of bamboo in construction, eco-friendly government construction shall be mandated. Present consumption of bamboo products particularly in the construction activities is not encouraging. It is seen that the few bamboo based industries that currently exists are also not functioning to their full capacity. A policy decision may be taken to ensure that a minimum certain percentage of all government constructions including offices, residences, schools under SarvaSikshaAbhiyan, PHCs, CHCs , Doctor/ Nurses quarters for expansion of health infrastructure, barracks of paramilitary forces, school furniture, railways, airports, etc use bamboo and bamboo products to give a fillip to this eco-friendly industry. These would prove to be ideal disaster resilient structures.

### **3. Objectives**

- i) To increase the area under bamboo plantation in non forest Government and private lands to supplement farm income and contribute towards resilience to climate change as well as availability of quality raw material requirement of industries. The bamboo plantations will be promoted predominantly in farmers' fields, homesteads, community lands, arable wastelands, and along irrigation canals, water bodies etc.
- ii) To improve post-harvest management through establishment of innovative primary processing units near the source of production, primary treatment and seasoning plants, preservation technologies and market infrastructure.
- iii) To promote product development keeping in view market demand, by assisting R&D, entrepreneurship & business models at cooperative, micro, small and medium levels and feed bigger industry.
- iv) To rejuvenate the under developed bamboo industry in India.
- v) To promote skill development, capacity building, awareness generation for development of bamboo sector from production to market demand.

- vi) To realign efforts so as to reduce dependency on import of bamboo and bamboo products by way of improved productivity and suitability of domestic raw material for industry, so as to enhance income of the primary producers.

#### 4. **Strategy**

To achieve the above objectives, the Mission would adopt the following strategies:

- i) The Mission will focus on development of bamboo in limited States where it has social, commercial and economical advantage, particularly in the North Eastern region and other States including Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu and Kerala. Other States with a potential and which evince interest may be considered for inclusion.
- ii) Production of genetically superior planting material of bamboo species with commercial and industrial demand.
- iii) Adoption of end to end solution in bamboo sector i.e. complete value chain approach starting from bamboo growers to consumers would be emphasized. Focus will not only be given on production and productivity enhancement and good agronomic practices, but also on preservation, processing, product development, and marketing in an integrated manner adopting cluster approach involving inter alia Farmers Producers Organizations and Cooperatives.
- iv) Since end to end solution for development of bamboo sector is envisaged, each stage of the value chain will require relevant expertise and networking for its effective implementation. Accordingly Mission shall provide a platform for pooling of resources and expertise of various Ministries/ Departments/ Agencies with implementation responsibilities given based on their competency and allocation of business rules, ensuring appropriate synergy and seamless development process. The details are given in **Annexure - II**.
- v) Besides product development, emphasis will also be given for higher economic realization to growers/producers through initiatives on export promotion and benefit of domestic market through market infrastructure, e-trading etc.
- vi) Capacity building of the officials, field functionaries, entrepreneurs and farmers through skill development and trainings will be emphasised.
- vii) Focus will be given on Research & Development (R&D) to increase the production and productivity of bamboo by identifying its superior clones, improvement of processing technology, development of new products and improvement of tools & machinery, etc.



- viii) Executive Committee (EC) headed by Secretary (DAC&FW) will oversee the implementation & monitoring of the Mission at national level. It will approve the Annual Action Plan (AAP) of the States and coordinate partnership, convergence & synergy among various Ministries/Departments. The EC will be assisted by two sub-committees.
- ix) State Level Executive Committee (SLEC) headed by Chief Secretary would be set up to oversee effective implementation of the programme in the States

## **5. Key Outputs**

NBM is a dedicated initiative focusing on comprehensive development of bamboo sector through cross sectoral and multi-disciplinary approach. Keeping in view Hon'ble Prime Minister's vision of doubling farmers' income and 'Har Medh Par Ped', NBM will supplement income and livelihood sources, including risk management during crop damage caused by extreme events. Bamboo can grow on marginal land, not suitable for agriculture an agroforestry/farm forestry crop. Bamboo plantation will optimize the farm productivity and income thereby enhancing livelihood opportunities of small and marginal farmers including landless and the women. As such, given the factors like shrinking of land resources for cultivation and reduced farm income, the plantation interventions may become potential instrument to help achieve the desired sustainable growth in agriculture. Cooperatives farming or group farming models have proved to be of economic value in the context of fragmentation of holdings. Apart from the high above ground biomass production, bamboo also stores substantial carbon in below ground parts, *i.e.* rhizomes and roots and would contribute to enriching carbon pool at lower depths, even up to one metre and beyond. Hence scientific bamboo plantations would also be important for mitigating measures against climate change.

Modern technologies allow use of bamboo as a durable and high-quality wood substitute. Premium products such as bamboo flooring, laminated furniture, mat boards, strand lumber, etc. have huge international demand with big pro-poor financial impact and employment potential. Bamboo bridges and pre-fabricated houses have large potential in defence, disaster management and low-cost housing. Pack-flat and knockdown furniture are novel concepts. Hence there would be a focused approach towards blending traditional and innovations with infusion of technology to give value added products at par with global standards.

North Eastern Council (NEC) has also identified bamboo cultivation as a major

source of economic gains to the North Eastern Region having potential to provide additional source of income to the small and marginal farmers, which is the present priority of the Government. NCDC has re-oriented its strategy for bamboo sector development focused on cooperative societies at different levels, primary, District and State/Apex. With revitalizing of the bamboo industry, through various innovations and policy support, it would contribute by way of climate resilient structures and contribute to Make in India mantra also, giving stiff competition to other global players in the sector.

The key outputs envisaged are:

- (i) Coverage of 1,05,000 ha area under bamboo over a period of two years by ensuring adequate stocks of selected genetically superior quality planting material
- (ii) Promotion and diversification of bamboo products through establishment of micro, small, medium & large processing units and development of value chain in bamboo
- (iii) Setting up and strengthening of bamboo mandi/bazaars/rural haats, including promoting online trade.
- (iv) Enhanced cooperation within the country related to research, technology, product development, machinery, trade information and knowledge sharing platform particularly for NE States to give a boost to the low key bamboo based industry in the country.

## **6. Mission Structure**

The NBM will be a sub scheme of National Mission on Sustainable Agriculture (NMSA) under the umbrella scheme Krishonnati Yojana.

### **I) National Level**

#### **Executive Committee**

The EC will oversee activities of the Mission and approve the action plan of the States/UTs. The modifications in operational guidelines, if any, will be recommended for approval of Minister for Agriculture and Farmers Welfare. The implementation of the State`s action plans will be reviewed by EC. The EC shall meet at least twice in a year. The EC will comprise of the following:

<b>Secretary (AC&amp;FW)</b> <b>Director General of Forests and Special Secretary</b> <b>MoEFCC</b> <b>Secretary (DoNER)</b> <b>Secretary (MSME)</b>	<b>Chairperson</b>  Co-Chair Co-Chair Co – chair
Additional Secretary (NRM), DAC & FW	Member
AS&FA, DAC&FW	Member
Joint Secretary, Ministry of Rural Development	Member
Adviser Agriculture, NITI Aayog	Member
2 Experts* (Production, Processing, Designing & Product development, Industrial Promotion and Marketing)	Members
Mission Director, NBM	Member Secretary

\*The tenure of the non official members will be for 2 years from the date of nomination

Joint Secretary equivalent officers of concerned Ministry/Department will be special invitee as and when required

### **Sub Committee 1**

To deliberate on issues related to propagation and cultivation (identification of appropriate species, planting techniques, tissue culture, development of new varieties, improving the productivity of bamboo plantations in the country. The Deputy Director General (Research), ICFRE would be the Convenor of this sub-committee and members would be drawn from *inter alia* ICAR, CAFRI, DST, State Agriculture Universities, Central Food Technological Research Institute (CFTRI), etc

### **Sub Committee 2**

To advise on ways and means to rejuvenate the bamboo industry, both small enterprises and cottage industry, as well as the larger commercial units to enable a definite role in both domestic markets and for exports. Innovations in product development and processes, including indigenous tools and equipment will be the main mandate of this sub-committee. Market research and advice on related policies would be essential to make the bamboo based industry competitive with other commercial products. Mission Director, NBM would be the Convenor of this group, with members drawn from *inter alia* Ministries of MSME, DONER, Skill Development & Entrepreneurship, Textiles and Commerce, various organizations and industry representatives.

## **National Bamboo Mission Cell**

A National Bamboo Mission Cell (NBMC) headed by the Mission Director, NBM will be established at the DAC&FW, Govt. of India. An appropriately qualified and nationally/internationally reputed expert will be engaged as Senior Advisor to guide and advice for effective implementation, with commensurate remuneration to be approved by EC as per the provisions of experts under NMSA. Two Advisors with specialization/experience in bamboo plantation and product development respectively will also be engaged. In addition other consultant/technical assistant and staff will be engaged on contract for the period of the Mission. NBMC shall be the repository of information on various aspects of the bamboo value chain, with adequate support from the various other Ministries and Departments of GOI. NCDC would set up a Bamboo Division for the Cooperative sector.

Indicative composition is given in the **Annexure III**.

## **Bamboo Technical Support Group (BTSG)**

National Level Agency called Bamboo Technical Support Group (BTSG) will be set up to provide necessary technical support to the Mission. The existing three BTSGs which are providing services to the Mission/ States namely, (i) Cane and Bamboo Technology Centre (CBTC), Guwahati (ii) Indian Council of Forest Research & Education (ICFRE), Dehradun and (iii) Kerala Forest Research Institute (KFRI), Peechi, Kerala shall continue under Restructured National Bamboo Mission for development of bamboo sector.

BTSG will have the following role and functions:

- i) To visit the partner States frequently to provide guidance in policy, organizational and technical matters
- ii) Recommend/advice appropriate species of bamboo well suited to the region or the end user.
- iii) Synergise inter sectoral interaction for innovations
- iv) To compile materials for conduct of regional workshops in respect of bamboo plantations, handicraft, product development, bamboo marketing and exports
- v) To conduct studies on different aspects of development of the bamboo sector
- vi) To assist the States in organizing capacity building programmes
- vii) Undertake publicity campaigns to promote the Mission objectives
- viii) To document and disseminate case studies
- ix) To conduct specialized Training Programmes at the Regional Level

- x) To network with various stakeholders and Institutes/ Organizations/ Agencies, both in India and abroad To enhance involvement of coopeartives in bamboo value chain eco-system.

The BTSGs will be funded by the NBM and report to the National Bamboo Mission Cell.

## II) State Level

### State Level Executive Committee (SLEC)

The State Governments shall identify the Department for anchoring the State Bamboo Mission (SBM) and nominate the Mission Director . State Level Executive Committee (SLEC) headed by Chief Secretary of the State and having representatives from Departments of State Government including *inter alia* Agriculture, Industries, Forests, State Agricultural Universities (SAU), Institutes under Indian Council of Agricultural Research (ICAR), Growers’ Associations/FPOs, etc to guide policy and implementation of the Mission in the State. The SLEC will be responsible for approving the annual action plans of the States before communicating to the Executive Council of the NBM at the National level for approvals and release of funds and ensuring effective implementation & periodic monitoring of progress and impact. The suggested composition of SLEC is as follows:

Chief Secretary	Chairman
Secretaries: Agriculture, Environment & Forests, Industries, Finance, Science and Technology, Rural Development, Tribal Affairs	Members
Nominee of DAC&FW, Ministry of Agriculture, Govt. of India	Member
Two experts* (Production, Processing, Designing & Product development, Industrial Promotion and Marketing)	Members
State Mission Director	Member Secretary

\*The tenure of the non official will be for 2 years from the date of nomination.

Dedicated Project Management Teams at District, State and National Level would be set up to address effective coordination and synergy of different segments of the value chain. Besides, robust monitoring mechanism would be in place for periodic and effective reporting using web applications and space technologies. The administrative & contingency expenditure, concurrent& impact evaluation, organization of meetings of EC etc. would be met from the project management cost as per the norms placed at **Annexure IV**

The programme shall be operational through the existing employees of the anchoring Department and other associated Departments, SAUs and ICAR Institutes only. Contractual staff (Advisors/consultants, Technical assistants, Data entry/MIS/IT staff etc.) of adequate nature at District and State levels may be engaged under the provisions of Project Management Team (PMT).

### **State Bamboo Mission**

State Bamboo Mission (SBM) shall be set up in each State headed by the Mission Director, as nominated by the State Govt. SBM will have representatives from concerned departments such as Forests, Agriculture, Industries, Rural Development, etc. The Panchayati Raj Institutions and statutory cooperative institutions existing in the State (for example Regional Directorate of NCDRC) would be fully involved in the implementation of NBM activities. The SBM will be responsible for implementation and overall coordination of NBM within the State. The State Level Agency will have the following functions:

- i) Organize base-line survey and feasibility studies in different parts (District, sub-District, or a group of Districts) to determine the status of bamboo production, its potential and demand, and tailor assistance accordingly. A cluster based market (industry) led approach needs to be adopted for linking of farmers/FPOs/FPCs/Cooperatives/ SHGs/federated Cooperatives to markets.
- ii) Work towards setting up of Bamboo Economic Zones as per location of hinterland and industry requirements
- iii) Prepare perspective and annual State Level Action Plan in consonance with Mission goals and objectives in close coordination with Bamboo Technical Support Group (BTSG) and oversee its implementation;
- iv) Receive funds from the State Government and other sources for carrying out the Mission activities, maintain proper accounts thereof and submit utilization certificates to the concerned agencies.
- v) Furnish periodic progress reports to SLEC for onward transmission to the NBM (DAC&FW), Ministry of Agriculture.
- vi) Release funds to the implementing organizations and oversee, monitor and review the implementation of the programmes.

- vii) Assist and oversee the implementation of the Mission's programmes in the State through Farmers Cooperative Societies, NGOs, growers, entrepreneurs, associations, self-help groups, State institutions and other similar entities;
- viii) Organize Workshops, Seminars and skill development/ training programmes, participation of artisans in exhibitions / trade fairs etc. for all interest groups/ cooperatives/associations as per action plan approved.

### **III) District Level**

The State Bamboo Mission will constitute a District Level Agency. The Agency will comprise of officials from Industries, Agriculture/ Horticulture, Forest, Rural Development and other line departments, Cooperatives, SHGs, NGOs etc. All proposals received by the Agency would be compiled and sent to the SBM for appraisal and scrutiny. This Agency will also oversee, coordinate and control all activities at the district level for non-forest areas. The District Industries Centre (DIC) Planning Committee and Panchayati Raj Institutions (PRI) will be integrated/ involved in implementing the programme depending on their expertise and available infrastructure. The District level officer of the nodal department will be the Member Secretary. To avoid duplication, coordination will be ensured by the Committees at different levels while approving the district plans.

The details of the interventions / activities with the unit cost/ subsidy component permissible under NBM are given in **Annexure IV**

In State Bamboo Mission (SBM) focus will be on primary processing units specializing in specific steps of pre-product processing to be established near areas of bamboo production. These units would converge into big units doing secondary processing, which would, in turn, converge into industries, both MSME and high end, making finished products. This would reduce wastages, promote efficiency and develop expertise in specific steps thereby resulting in a significant drop in cost of production. District or block level clusters should be formed and common facilitation/ technology centers with appropriate machinery be developed. The Development Institutes of the Development Commissioner, MSME located in different States would play a major role in skill development/ training and guiding the entrepreneurs/ rural youths for promotion of product development and starting of production units and marketing of bamboo products



## **7. Preparation of Action Plan and Approvals**

States shall prepare a comprehensive Action Plan envisaging all interventions under NBM for a 5-year period, outlining specific short, medium as well as long term plans for a structured reform of the sector keeping in view the potential areas for cluster formation, cultivation and establishment of industries so that supply –demand can be addressed. The Annual Action Plan (AAP) shall be prepared on the basis of this document. The AAP will be area based, premised on existing potential for bamboo development, required infrastructure for implementation and monitoring, allocation of funds under NBM and capacity to absorb the funds in taking up activities. While finalizing Annual Action Plans, States should follow bottom up approach with involvement of farmers in cluster based approach. Plans are best prepared at the District level and submitted to the SBM for preparation of the State plan for consideration and approval of the SLEC. The AAP approved by the SLEC will be considered by the EC at national level. Attempt would be made in the AAP to address all the issues relating to bamboo development covering nursery management and bamboo plantation, postharvest storage and treatment, product development, production of bamboo products, handicraft, marketing and development of marketing infrastructure. Format for submission of Annual Action Plan to the National Bamboo Mission is given in **Annexure V**.

Funds would be made available to the respective States after approval of the action plan by the Executive Committee. The State Govts shall endeavor to release the Central funds as well as the State share immediately to the anchoring Department so that the works can progress at a rapid pace. The periodic progress and achievement by the participating Departments need to be shared with the State Nodal Department for onward consideration of EC.

For particular R&D activities or specific assignments if given to any national Institutes functioning under any Central Ministry/Department, financial support shall be given directly to the Institutes on recommendation of the concerned Ministry/Department.

## **8. Monitoring and Evaluation**

Monitoring & Evaluation (M&E) will be an integral part of programme implementation. Besides monitoring the physical/financial achievements, other socio-economic and environmental impact on various indicators shall also be taken into consideration. A two tier

M&E system will be adopted i.e. Executive Committee (EC) at National Level and State Level Executive Committee (SLEC) at State level. Third party independent evaluation study as approved by EC shall also be done. Third party evaluation must ensure participation & feedback from the farmers, farmers groups, artisans, women, etc.

A separate MIS for the Mission will be made operational in the NMSA portal to submit annual action plans, as well upload progress and achievements by the States Geo-tagging of all infrastructure created is mandatory **and shall be uploaded on Bhuvan Portal in collaboration with NRSC by the State Mission Directors.**

The details of the operational mechanism will be as per these Guidelines framed by EC and with the approval of Minister for Agriculture and Farmers Welfare. These may be modified as and when required within the allocated budget.

## **9. Funding Pattern**

The funding pattern will be 60:40 between Centre and State Govt. for all States excepting NE & Hilly states, where it would be 90:10 and 100% in case of Union Territories/ R&D Institutes/ Bamboo Technology Support Groups (BTSGs) and National Level Agencies. For Cooperatives sector the Central Funding component would be routed through NCDC as the Nodal Agency. The States may avail loans from NCDC for funding their requirements of State Share for the Cooperative sector The pattern of assistance of major activities is given in **Annexure V**.

## **10. Mission Intervention**

The Mission will be demand driven and need based in each segment. Technology will play an important role in different interventions. Technologies such as Information Communication Technology (ICT), Remote Sensing and Geographic Information System (GIS) will be widely used for planning and monitoring purposes. All efforts will be made to utilize all the infrastructure created in the earlier NBM, if required the permanent assets to be transferred to the nominated nodal Department for implementation of the restructured NBM.

The interventions envisaged for achieving the set target would be varied and regionally differentiated with focus on bamboo plantation using quality planting material in clusters by developing hi-tech nurseries and tissue culture labs including strengthening of the existing ones; backward and forward linkages, creating

infrastructure for treatment and processing, product development, marketing ensuring complete value chain development. Details of the components, its estimated cost along with the approved norms of assistance is given at **Annexure IV**

Key Elements of the National Bamboo Mission – hub and spoke model with backward and forward linkages in the value chain

- Research and Development for sustainable development of bamboo sector beginning with identification of high yielding bamboo germplasm and its improvement for further multiplication, improve planting technique, preservation and treatment of harvested bamboo, processing, product development and marketing.
- Establishment of new Nurseries including high-tech nurseries with tissue culture lab to produce quality planting material.
- Raising high yielding bamboo plantations on commercial basis
- Pest and Disease Management of bamboo.
- Sharing best agronomic practices for bamboo cultivation by the farmers
- Skill development/ capacity building and Human Resource Development of farmers, field functionaries, entrepreneurs and others.
- New Marketing Strategy for Bamboo and establishment of Bamboo Markets, Bamboo bazaar and retail outlets.
- Promotion of bamboo based industry
- Involvement of cooperatives and other federated groups
- Product design and development and production of high value bamboo products.
- Establishment of new micro, small and medium enterprises in bamboo sector.
- Promotion of marketing / exports of bamboo products.
- Meticulous monitoring, evaluation and reporting, Database generation, compilation and analysis.

Bamboo should become a tool not only in poverty elimination but also in prosperity accumulation.

### **10.1 Research and Development**

The programmes under research and development will concentrate on technology generation as appropriate to each region/ State/UT, keeping in view their specific agro-climatic and socio-economic conditions. Bamboo-based agroforestry systems include homesteads, block plantations, wide-row intercropping, wind breaks and miscellaneous systems. However, relatively less information is available on

intercropping options in agroforestry such as compatibility with crops, effect on crop yield and quality, optimum planting density and other management options. R&D would be encouraged in various other links of the value chain for improving complete, more efficient usage so as to compete with the other options and technology available. Emphasis will be on effective documentation/ transfer and dissemination of technologies available in India and abroad. Demonstration for exhibiting best practices to farmers shall be established in Krishi Vigyan Kendras (KVKs) as well as on-farm by State Govts, as well as post harvest value addition protocols.

Collaboration with international organizations like International Network for Bamboo and Rattan (INBAR), World Agroforestry Center (ICRAF) and Food and Agriculture Organisation (FAO) will be strengthened for the bamboo sector.

## **10.2 Plantation development**

This component primarily aims at expansion of area under bamboo plantation, both in Government as well as in private farmlands, community lands, culturable wastelands, non-forest lands for commercial utilization and remunerative returns to farmers. The main objective of this component is to increase production and productivity of commercially important bamboo species for boosting domestic supply to industry and reduce dependence on imports. Commercially important bamboo species for plantation under the mission, as identified after discussion with stakeholders are *Bambusa tulda*, *B. bambos*, *B. balcooa*, *B. cacharensis*, *B. polymorpha*, *B. nutans*, *Dendrocalamus asper*, *D. hamiltonii*, *Thyrostachys oliverii*, and *Melocanna baccifera*. Besides, States may encourage plantation of indigenous species as per choice of farmers and industrial importance.

The overall goal of this component is to supply quality raw bamboo of appropriate species to industry, ensure employment generation and strengthen rural economy. Hence it is important that plantings are done in conjunction with projected demand in the vicinity. Development Institutes of Ministry of MSME, Industries and Agriculture Departments of States, etc should work in tandem so that the farmers/clusters are appropriately identified and hand held.

The principal activities under this include:

### **10.2.1 Establishment of Nurseries**

A sizable quantity of quality planting material will be required to meet the targets set. Nurseries (Small, Big & Hi-tech) shall be established in public & private sector. Tissue culture raised planting materials of superior germplasm should be resorted to wherever required to ensure quality and productivity. Multiplication of superior clones of different bamboo species identified and established under previous NBM should be scaled up also. States must keep a vigil on incidences of bamboo flowering and make adequate arrangements for collection and utilization of the seeds which are a rare and precious commodity – a uniqueness of bamboo. These measures may be through Forest Departments, User Industries, Research Institutions, Universities, Farmer Groups, Self Help Groups, KVKs / NGOs and individual farmers. Commercial production in private sector and cooperatives should be encouraged for regular and sustained supply of planting material

### **10.2.2 Certified Planting Material**

In order to ensure quality of planting material a suitable Certifying Agency will be identified by the respective SBM for each State in consultation with BTSG of their zone. A protocol for certification of planting material and accreditation of nurseries shall be put in place by NBM so as to check proliferation of spurious planting material in the market.

### **10.2.3 Nurseries**

- i. Hi Tech Nurseries: For supply of quality planting material in large quantities, which is free from diseases and viruses, Tissue Culture Units shall be set up. Efforts will be made to set up these units in the ICFRE / ICAR institutes & other organisations in private/ public or cooperative sector. Tissue culture Units would be set up under the close supervision and technical support from ICFRE / ICAR. Each nursery shall produce a minimum of 50,000 nos of sapling/ seedlings per ha per year of mandated species duly certified for its quality. Nursery should have own composting unit, drip irrigation system and green house /shademist chamber for temperature regulation. It should have its own tissue culture lab or tie up with accredited tissue culture lab.
- ii. Big Nursery: Each nursery shall produce a minimum of 25,000 nos of sapling/ seedlings per ha per year of mandated species duly certified for its quality. Nursery should have own composting unit, proper source of certified seeds/propagule/ irrigation system and green house /shade/mist chamber
- iii. Small Nursery: Each nursery shall produce a minimum of 16,000 nos of sapling/ seedlings per year of mandated species duly certified for its quality. Nursery

should have own composting unit, and proper source of certified seeds/propagules.

#### **10.2.4 Raising New Plantations**

The identification of land is a pre-requisite for raising new plantations. Satellite imageries to identify wastelands are available with North Eastern Space Applications Centre (NESAC), Soil & Land Use Survey of India (SLUSI), National Bureau of Soil Survey And Land Use Planning (NBSSLUP) and State Remote Sensing Agencies, which can be taken up for plantation after appropriate ground truthing. The SBM will identify and demarcate land immediately so that plantations can be raised expeditiously. Related departments will need to work in close coordination for this important first step in the value chain. Contract farming, buy back agreement with industry, leasing of land may be promoted for planting of bamboo on private, community, cooperative, wastelands, etc with an appropriate network of nurseries. For achieving economies of scale it is imperative that preference be given to Farmer Producer Organisations (FPOs), Farmer Producer Companies (FPCs), Cooperatives, Village Producers' Organizations (VPOs), Self Help Groups (SHGs), Cooperatives and the like. All plantations are to be geo-referenced.

- i. High density plantations: the species to be planted would be as per the approved plan. Certified planting material to be used so as to ensure quality and high yields. For plants per hectare refer Annexure IV. Adequate arrangement for irrigation and fertigation should be made. States should ensure convergence of NBM with PM Krishi Sinchai Yojana – Per Drop More Crop for ensuring micro-irrigation to the plantations raised. Maintenance funds in subsequent 2 years shall be linked to survival percentage - minimum 80% after 1<sup>st</sup> year and 100% after 2<sup>nd</sup> year, with replacement saplings of the same age as that of the remaining surviving ones.
- ii. Block plantation/boundary plantations on farmers' fields: Expected numbers would be 375-450 plants per ha at least. It should be ensured that certified planting material of desired species is provided to the farmers along with proper agronomic practices so as to maximize overall returns from bamboo + agricultural crops. Maintenance in subsequent 2 years shall be linked to survival percentage - minimum 80% after 1<sup>st</sup> year and 100% after 2<sup>nd</sup> year, with replacement saplings of the same age as that of the remaining surviving ones.

#### **10.3 Extension, Education and Skill Development**

Extensive Information, Education & Communication (IEC) campaigns will need to be undertaken for raising awareness among the farmers, along with complete package

of agronomic practices of appropriate species, bamboo based agroforestry models and sustainable harvesting as per requirement of the industry linked up with, for enabling producer-industry link. Transfer of technology through training, frontline demonstration, publicity and training of the trainers are an integral part of the NBM. Under this programme, skill development / training of farmers, field level workers, cooperatives and entrepreneurs will be taken up. Appropriate training is required to be imparted to the farmers for the adoption of scientific measures (pre and post harvest management) for high yielding plantations of bamboo and harvesting as per respective end utilization. These important activities are to provide resource material to the trainees and acquaint them with various farming techniques through exhibitions and demonstrations. This activity will be carried out both by the government as well as private sector and NGOs in accordance with the National Skill Qualifications Framework (NSQF) and respective Sector Skill Councils.

Assistance will be provided as per norms given in **Annexure IV**

#### **10.4 Micro-Irrigation**

Irrigating the bamboo plantations, particularly during the summer months is essential for better yield. Assistance for micro-irrigation and fertigation for plantations raised under NBM may be availed of under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - Per Drop More Crop of DAC&FW as per guidelines of the scheme. Cases of farmers who have been approved for undertaking plantation under NBM shall be expeditiously considered and disposed under PMKSY being implemented by Agriculture Depts of the State Govts

#### **10.5 Post-harvest storage and treatment facilities**

Bamboo is affected by several insects and fungi during growth, storage and after product manufacture. Preventive and remedial measures employing physical, chemical and biological techniques are available. Integrated pest management is suggested for managing these problems. Raw bamboo falls in class-III (non-durable category) and possesses little variation in durability among different species. However, with improved technology, its durability can be increased beyond 50 years if treated with preservatives. Pre-harvest and post-harvest treatments are effective in reducing damage by fungi and insects. Several preservatives have been developed and commercialised. It is also possible to treat bamboo with fire retardant chemicals. Finding a suitable and cost-effective treatment for protection against biodegradation and fire needs further research. Standards will be developed by Central Building Research Institute (CBRI), Roorkee



and Bureau of Indian Standards (BIS) The processes leading to engineered bamboo products also protect it against biodegradation. Once the bamboo crop is harvested from the field, it is required to be transported safely and stored properly. For this purpose, suitable warehouses need to be constructed near the villages. While storing the produce, it needs to be treated to enhance its durability.

Establishment of primary processing units close to the production area is imperative to reduce transportation costs, utilize the entire bamboo to move towards zero wastage and improve economies. Dovetailed will be the micro/medium processing units so as to improve livelihoods of the local communities through upgradation of traditional artisanship and introduction of new skills.

#### **10.6 Promotion and Development of Infrastructure for Bamboo Market**

Bamboo grown outside forest areas would need to be declared as an agri-produce to enable its sale in regulated markets including the APMCs in consonance with the provisions of the model Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017, giving options of direct marketing, farmer consumer markets, adhoc buyers, inter State trading, etc. States are exhorted to implement the directive of MoEF&CC to issue pan India transit permit for bamboo. Tradable parameters for bamboo have been notified for the e-National Agriculture Market (e-NAM) and hence States integrated with e-NAM should commence marketing of bamboo on this transparent and competitive portal for ensuring better returns to the producers. Market information related to various forms of bamboo and primary processed products would be made available to the farmers and the primary processors will have direct access to such information and data, which in term will help them to plan their activities well ahead. The Directorate of Marketing and Inspection (DMI), DAC& FW as well as the State Marketing Boards will support the information on prices and arrivals in the markets. Rural haats in conjunction with the programs of Ministry of Rural Development and DRDAs in the States will be set up to revitalize rural infrastructure and enable farmers to directly sell their produce to the traders/industry.

#### **10.7 Bamboo Market Research**

Although a large number of market surveys have been conducted in recent times on high value and up market bamboo products, yet there remains a massive gap to address the needs, requirements and profitability of low and medium value bamboo products that are being made. This is all the more necessary in view of the fact that all Financial Institutions and Banks while appraising project proposals lay stress on the marketability of the products to be produced. As such, it would be in track to conduct a

market survey especially related to bamboo products like tooth picks, window blinds, cotton ear buds, skewers and the like which have been conventionally made of wood/plastics in our country and the consumers are used to it. This market survey, apart from estimating the demand supply chain and present players and future demands, will also highlight how bamboo products will have to be positioned and the market entry strategy thereby indicating pricing, supply position and branding. This project based activity would be done by the NBM/ BTSGs directly through a suitable Agency to be identified, after floating tenders and assistance will be 100%.

#### **10.8. Incubation Centres**

This component is drawn from a similar scheme of the Ministry of MSME and similar norms and processes will be followed.

#### **10.9 Production, Development & Processing**

Production, Development & Processing related intervention including Common Facility Centre (CFC) proposal in detail like name of location, availability of the production of bamboo, machine/ tool wise details and their cost, yearly employment generation etc., are required to be submitted dully approved by State Level Executive Committee for further approval. Rehabilitation of existing units may be considered after proper viability studies and rehab plan.

#### **10.10 Role of Krishi Vigyan Kendra (KVK) & Other Agencies for capacity building**

State may suitably identify KVKs under Central/State Agricultural Universities (SAUs) for training to farmers & other stakeholders. Model plots for demonstration purposes may be established through KVKs/ SAUs. Training of farmers may also be taken up through Sector Skill Councils or other Central or State Government renowned Institutions like National Institute of Design (NID), Bamboo and Cane Development Institute (BCDI), Agartala etc.

#### **10.11 Export of bamboo based products**

For promotion of bamboo based products specially handicrafts, State Bamboo Mission shall periodically organized trainings and capacity building of the entrepreneurs in collaboration with Export Promotion Council for Handicrafts (EPCH)

## State wise list of infrastructure created in earlier NBM

S. No	States	Nurseries*	Training (in nos.)		Plantation (in ha.)				Improvement of existing stock (in ha.)	Tissue Culture/ Rehabilitation of Tissue Culture units (nos.)	Bamboo Bazaar (nos.)	Retail outlets (nos.)
			Farmers	Field Functionaries	Forest area	Non-forest area	Govt. land	Non-forest area with Drip Irrigation				
1	Andhra Pradesh	10	37	10	1064	19	0	0	0	0	0	0
2	Bihar	3	2249	82	2445	1507	0	0	1753	0	0	2
3	Chhattisgarh	95	1911	225	12234	6274	0	0	8590	0	0	0
4	Goa	3	50	0	11	0	0	0	21	0	0	0
5	Gujarat	31	715	183	9599	4467	0	500	4045	0	0	1
6	Himachal Pradesh	15	316	212	3640	1228	0	0	1179	0	0	0
7	J & K	42	379	66	1301	415	0	0	189	0	0	0
8	Jharkhand	16	328	70	4292	12	100	0	3110	0	0	0
9	Karnataka	26	274	147	15755	588	0	0	5806	0	0	0
10	Kerala	11	311	200	787	4	0	250	606	0	0	4
11	Madhya Pradesh	29	7050	3983	7480	514	50	4000	5570	0	5	2
12	Maharashtra	33	3028	1198	4117	2569	24	0	1775	0	1	3
13	Orissa	183	3500	270	11705	3815	500	0	4901	0	7	8
14	Punjab	2	0	0	800	0	0	0	0	0	0	0
15	Rajasthan	64	2354	70	4632	2850	29	0	0	0	0	0
16	Tamil Nadu	14	4145	447	285	2818	0	20	275	0	1	1
17	Telangana*	0	0	0	0	0	0	0	0	0	0	0
18	Uttar	32	662	194	4153	2095	0	0	800	1	0	0

	Pradesh											
19	Uttarakhand	19	1130	310	4970	876	182	0	839	0	0	1
20	West Bengal	29	115	0	130	260	0	0	107	0	0	0
	<b>SUB-TOTAL</b>	<b>657</b>	<b>28554</b>	<b>7667</b>	<b>89400</b>	<b>30311</b>	<b>885</b>	<b>4770</b>	<b>39566</b>	<b>1</b>	<b>14</b>	<b>22</b>
	<b>NE STATES</b>											0
21	Arunachal Pradesh	104	3977	788	14595	23982	0	0	3950	0	4	7
22	Assam	52	4665	1040	17591	1300	1500	0	8989	2	6	7
23	Manipur	98	4580	505	18226	31498	0	0	6258	0	0	1
24	Meghalaya	34	766	309	4997	917	0	0	753	0	0	0
25	Mizoram	147	2821	480	38601	16572	300	1200	8876	0	6	13
26	Nagaland	92	4603	462	44430	0	0	0	16429	0	10	11
27	Sikkim	106	2941	545	4712	7844	745	100	3004	0	0	7
28	Tripura	176	8219	914	4148	3167	0	0	3890	0	0	0
	<b>SUB-TOTAL (N.E.)</b>	<b>809</b>	<b>32572</b>	<b>5043</b>	<b>147300</b>	<b>85280</b>	<b>2545</b>	<b>1300</b>	<b>52149</b>	<b>2</b>	<b>26</b>	<b>46</b>
	<b>GRAND TOTAL</b>	<b>1466</b>	<b>61126</b>	<b>12710</b>	<b>236700</b>	<b>115591</b>	<b>3430</b>	<b>6070</b>	<b>91715</b>	<b>3</b>	<b>40</b>	<b>68</b>

\* including Centralized, Mahila, Kisan, Hi-tech & Small nurseries

## Intervention for implementation role of Ministries/ Departments

Sl. No	Ministry/Dept of GOI	Interventions for implementation	Remarks
1	Department of Agriculture Cooperation and Farmers Welfare	<ul style="list-style-type: none"> <li>i) Propagation &amp; Cultivation in non forest lands</li> <li>ii) Promotion and Development of Infrastructure for Bamboo Markets</li> <li>iii) Training and skill development</li> </ul>	Cultivation for the benefit of the farmers; Related R&D involving Indian Council of Agricultural Research (ICAR); involvement of cooperatives through NCDC
2	Department of Agriculture Research and Education	<ul style="list-style-type: none"> <li>i) Project based R&amp;D activities</li> <li>ii) Field trials, demonstration and pilot projects</li> </ul>	Project based research works and demonstration
3	Ministry of Environment Forest and Climate Change	<ul style="list-style-type: none"> <li>i) R&amp;D including on high productivity varieties, tissue culture, testing and standardization and field trials</li> <li>ii) Development of value added products</li> <li>iii) Bringing in bamboo grown in forests into the value chain developed under the Mission</li> </ul>	R&D related to suitable species for industry agronomic practices at Indian Council of Forestry Research and Education (ICFRE) viz. Indian Plywood Industrial Research Institute (IPIRTI) and other Institutes
4	Ministry of Micro, Small and Medium Enterprises	<ul style="list-style-type: none"> <li>i) Promotion of bamboo treatment and preservation</li> <li>ii) Establishment of Micro/Medium processing units;</li> <li>iii) Promotion of products developed by IPIRTI and other Institutions</li> <li>iv) Handicrafts/Cottage industry, Furniture making, Fabric/ Jewellery making, Incense stick making, Bamboo board /mat/corrugated sheets /floor tiles making, etc</li> <li>v) Establishment of Common Facility Centre (CFC)</li> <li>vi) Establishment of Livelihood Business Incubators (LBI)</li> </ul>	Establishing forward linkages including development of primary processing units; micro, small and medium bamboo based enterprises; bamboo bazars (outlets for value added products) Convergence with Credit Guarantee Trust Fund for Small and Medium Enterprises will be important. Involvement of industrial cooperatives through NCDC can be done.
5	Ministry of Development of North East Region	To take up these indicative activities in the 8 States of the North East in conjunction with the concerned line Ministries.	To ensure close involvement of Institutions like North East Centre for Technology Application and Reach

		This would give a focused approach for the region which bears 60% of the country's bamboo resource	(NECTAR), Cane and Bamboo Technology Center (CBTC), North Eastern Finance Development Corporation (NEDFI), Bamboo and Cane Development Institute, etc. Linkages with North East Bamboo Development Council (NEBDC) established under NEC.
6	Ministry of Rural Development	To promote bamboo based livelihoods and constructions	In convergence with National Rural Livelihood Mission (NRLM) and other programs
7	Petroleum and Natural Gas	To provide technical support and policy frame work for development of bio-fuels and promote use of bamboo as raw material for bio-fuel	Provision for use of waste from other bamboo industry should be made
8.	Ministry of Textiles	i. To promote R&D and upscaling of technology for use of bamboo fibre and fabric ii. To promote design, product development, establishment of CFC, skilling and capacity development on Furniture, Basketry, utility products, Jewellery, mat based product, turning products etc, including PG Diploma iii. To promote technology adaptation and promotion and marketing of innovative products	R&D, skill, design and product development, education and extension through DC (Handicrafts) and established institute like Bamboo and Cane Development Institute (BCDI). Agartala. Promotion and brand building by Export Promotion council of Handicrafts (EPCH). Thematic display and exhibition by National Centre for Design and Product Development (NCDPD) and Development Commissioner (Handicrafts).
9.	Ministry of Power	To promote use of bamboo and bamboo waste in power generation	Bamboo waste to be used to supplement conventional fuel
10	Ministry of New and Renewable Energy	To promote use of bamboo and bamboo waste in power generation	Bamboo waste to be used
11	Ministry of Commerce and Industry	Support on international trade issues related to bamboo industry and export promotion; promotion of domestic bamboo industry	Import duty on various bamboo products to be rationalized
12	Ministry of Housing and Urban	Support and mandate use of bamboo in all Govt constructions, especially in	

	Development	major bamboo bearing States.	
13	Ministry of Science & Technology	Support R&D for various activities in the value chain	NECTAR and other regional laboratories and Institutes as well as o/o Principal Scientific Advisor to GOI
14	Ministry of Skill Development & Entrepreneurship	Develop job roles and curriculum for accredited courses on various faces of bamboo sector in association with the concerned Ministry/Department and Sector Skill Councils, including Recognition of Prior Learning (RPL)	



## Indicative BTSG Component

## A. National Level

Sr. No.	Items	Total	Honorarium per month (in Rs.)	Qualifications & other conditions/ Remarks
1	Senior Adviser	01	70,000 to 100,000 (depending upon qualification & experience)	<b>Essential:</b> i) PhD in Agriculture/ Forestry related subject/MBA ii) Minimum 15 years experience of working on Management of natural resources and development of value chain Age upto 65 years.
2	Adviser (Production)	01	40,000/- to 50,000/- (depending upon qualification & experience)	<b>Essential:</b> i) Master's degree in Agriculture/ Forestry from a recognised university or institute" ii) Five years experience in project formulation including forestry, bamboo, agro-forestry project in Govt Departments or recognised research institution or Councils or agricultural university or public sector undertaking or semi-Government or autonomous or statutory organization." ii) Age upto 65 years. <b>Desirable:</b> Doctorate Degree in any of the subjects mentioned above.
3	Adviser (Value addition and Marketing)	01	40,000/- to 50,000/- (depending upon qualification & experience)	<b>Essential</b> i) MBA in Trade and/or Marketing ii) Minimum 10 years experience in product development, value chain development and marketing and/or trade in natural resources iii) Age upto 55 years.

4	Technical Assistant (Production)	1	30,000/- to 35,000/- (depending upon qualification & experience)	<b>Essential</b> i) Master's degree in Agriculture/ or Forestry from a recognised university or institute" ii) Three years experience in project formulation including forestry, bamboo, agro-forestry project in Central or State Government Department or Union Territory Administration or recognised research institution or councils or agricultural university or public sector undertaking or semi-Government or autonomous or statutory organization." <b>ii) Age upto 40 years</b>
5	Technical Assistant (Value addition and Marketing)	01	30,000/- to 35,000/- (depending upon qualification & experience)	<b>Essential</b> i) MBA in Trade and/or Marketing ii) Minimum 3years experience in product development and marketing and/or trade iii) Age upto 40 years.
6	Programmer	1	35,000/- to 40,000/- (depending upon qualification & experience)	<b>B.Tech in Computer Science /IT or MCA with one years experience in web designing, online and offline MIS Development, programming</b>
7	Data Entry Operator	4	20,000/-	Should not be less than the Minimum wages as notified by Delhi Government's/ Labour Department/ State Government.
8	MTS	3	17,000/-	

**B. BTSG**

Sr. No.	Items	Total	Honorarium per month (in Rs.)	Remarks
1	Bamboo Consultant	2	50,000/-	
2	Bamboo Assistant	2	20,000/-	
3	Programmer	1	30,000/-	
4	Data Entry Operator	2	10,000/-	Should not be less than the Minimum wages as notified by respective State Government's/ Labour Department/ State Government.

**Annexure-IV**

**Interventions with cost norms and funding pattern**

Sl	Tentative Activities		Indicative unit cost (upper limit) (Rs in lakh)	Pattern of assistance
<b>A Propagation &amp; Cultivation</b>				
1.	Bamboo Nursery both in public and by private sectors including strengthen (project based)	i) Hi-tech (2 ha) ii) Big (1 ha) iii) Small (0.5 ha)	50 16 10	<b>100% of cost to Govt. sector and 50% of cost to private sector as credit linked back ended subsidy</b>
2.	High density Bamboo plantation on Govt./ Panchayat/ Community land including waste lands		Rs 1.00 lakh per ha over a period of 3 years	100% of cost to Govt. sector. For private sector 50% of the cost upto 2 ha (~ <3000 plants), 20% of the cost for 2 - 4 ha (up to 10000 plants) over 3 years (50:30:20). Additional 10% assistance for NE States. For plantation above 4 ha no subsidy will be provided. Maintenance funds will be linked to performance (survival % as per para 10.2.4)
3.	Block plantation/ boundary plantation on farmers field		Rs.1.00 lakh per ha (equivalent to Rs 240 per plant)	100% of cost to Govt. and 50% of the cost to Private Sector over 3 years (50:30:20) Additional 10% assistance for NE States Maintenance funds will be linked to performance (survival % as per para 10.2.4)
<b>B. Promotion of bamboo treatment and preservation</b>				
1.	Establishment of bamboo treatment and seasoning plants	In Govt. & private Sector	20 (Project based)	100% of cost to Govt. For Private Sector 50% of project cost subject to maximum upto indicative cost as credit linked back ended subsidy
2.	Establishment of carbonisation plants	In private Sector	30 (PB)	-do-

3.	Establishment of livelihood business incubators	Govt./Private sector	100 (PB)	100% of cost to Govt. For Private Sector 50% of project cost subject to maximum upto indicative cost as credit linked back ended subsidy for purchase of plant & machineries only. (additional 10% for NE states)
<b>C Product Development and Processing</b>				
1.	Establishment of processing units for value addition of Bamboo (in Nos.)	Setting up of unit for cross cutting, slicing, splitting, knots removing, shaping etc	30 (PB)	100% of cost to Govt. For Private Sector 50% of project cost subject to maximum upto indicative cost as credit linked back ended subsidy (additional 10% for NE states)
2.	Management of Bamboo waste in primary processing units	For making of value added products like pellets & activated carbon.	25(PB)	-do-
3.	Establishment of Micro/Medium processing units (in Nos.)	Handicrafts/Cottage industry	15 (PB)	- do -
		Furniture making	25 (PB)	- do -
		Jewellery making	15 (PB)	- do -
		Bamboo shoots processing	20 (PB)	- do -
		Incense stick making	25 (PB)	- do -
		Fabric/Fibre extraction	50 (PB)	- do -
		Common facility centre (CFC)	25 (PB)	-do-
		Bamboo board /mat/corrugated sheets /floor tiles making	200 (PB)	-do-
		Bio Energy extraction	200 (PB)	- do -
		Activated Carbon product	200 (PB)	-do-
		Ethanol Gassifier	500 (PB)	-do-.
<b>D Promotion and Development of Infrastructure for Bamboo Market</b>				
1.	Establishment of bamboo depots and godowns	In Govt. sector/ Private sector	50 (PB)	100% of cost in Govt. sector. 25% assistance as credit linked back ended subsidy in for private sectors subject to maximum upto indicative

				cost (33% for NE States).
2.	Promotion of bamboo mandi (bamboo market place) and e-trading	In Govt. sector/ private sector	100 (PB)	100% of cost in Govt. sector. 25% assistance in private sectors subject to maximum upto indicative cost (33% for NE States).
3.	Rural Haat	Retail direct marketing	20 (PB)	-do-
4.	Bamboo bazaar	Retail outlets for value added products at prominent places in the State	15(PB)	-do-
<b>E Development of tools, equipment &amp; machinery</b>				
1.	Technological enhancement of indigenous tools, equipment & machinery		Project based	100% grant to Govt. institutions for development of design etc., 50% grant to those machine making units who are developing these machines
2.	Import of technological superior tools, equipment & machinery in Common Facility Centre		-do-	-do-
<b>F Skill Development and awareness campaign (upto 5% of allocation)</b>				
	i) Training of Farmers/ Artisans/ field functionaries/ International training / visit for exposure of NBM staff/ field functionaries including farmers and entrepreneurs in bamboo sector to upcoming technologies/ Entrepreneurs Training		Project based	100% of cost Rs. 1000 per head per day or as per the approved rates of the Govt. Institute
	ii) Organizing workshop/ Seminars/training at International/ National/ State/ District		Project Based	100% for Government

	iii) Participation in domestic trade fairs/ international trade fairs/exhibition etc. including travel + boarding/ lodging of participating artisans		Project Based	-do-
<b>G Research &amp; Development (upto 10% of allocation)</b>				
1	Identification of genetically superior species / varieties	Project based	For private sector upto 10 lakhs	
2	Establishment of tissue culture lab including strengthen for propagation of identified species / varieties + field trials		For Government organisation 100%	
3	Demonstration plots to exhibit best practice to farmers			
4	Incubation Centre			
5	Bamboo market research			
<b>H Project Management (upto 5% of allocation)</b>				
	Project management contingency Monitoring & Evaluation	Proposal based	Upto 5%	100%

**NOTE:** The funding pattern proposed is 60:40 between Centre: State Govt for all States excepting 8 states of NE Region, the hilly states of Himachal Pradesh, Uttarakhand and Jammu & Kashmir where it would be 90:10 fund sharing and 100% in case of UTs/ BTSGs (existing). If funds are released by NBM (Headquarter) directly to any Central Institution for any specific project / intervention the funding will be 100% central share.

## Format for submission of Annual Action Plan

SI	Activity	Cost norms (Rs. in lakh)	Subsidy	Physical Target (in no. / ha)			Financial Target (Rs. in Lakh)			Number of beneficiaries			
				Govt.	Private	Total	Total	Centre Share	State share	SC	ST	General	Women
<b>A</b>	<b>Propagation and Cultivation</b>												
1	Bamboo Nursery both in public and by private sector												
	Hi-tech (2 ha)	50	100% Govt., 50% Pvt.										
	Big (1 ha)	16	100% Govt., 50% Pvt.										
	Small (0.5 )	10	100% Govt., 50% Pvt.										
	<b>A1 (Total Nursery)</b>												
2	High Density Bamboo Plantation on Govt./ Panchayat/ community land including waste lands	1	100% Govt. 50% Pvt.										
3	Block plantation/ boundary plantation on farmers field	1	100% Govt. 50% Pvt										
	<b>A2 (Total Plantation)</b>												
	<b>Sub Total (A) = (A1 + A2)</b>												
<b>B</b>	<b>Promotion of bamboo treatment and preservation</b>												
1	Establishment of bamboo treatment and seasoning plants	20	100% Govt., 50% Pvt.										
2	Establishment of carbonisation plants	30	100% Govt., 50% Pvt.										
3	Establishment of livelihood business incubators	100	100% to Govt agencies & 50% to Private sector										



<b>Sub Total (B)</b>													
<b>C</b>	<b>Product Development and Processing</b>												
1.	Establishment of processing units for value addition of Bamboo (in Nos.)	30	100% Govt. 50% Pvt. (+ 10% for NE states)										
2.	Management of Bamboo waste in primary processing units	25	-do-										
3.	Handicrafts/Cottage industry	15	- do -										
4.	Furniture making	25	- do -										
5.	Jewellery making	15	- do -										
6.	Bamboo shoots processing	20	- do -										
7.	Incense stick making	25	- do -										
8.	Fabric/Fibre extraction	50	- do -										
9.	Common facility centre (CFC)	25	-do-										
10.	Bamboo board /mat/corrugated sheets /floor tiles making	200	-do-										
11.	Bio Energy extraction	200	do										
12.	Activated Carbon product	200	-do-										
13.	Ethanol Gassifier	500	do										
<b>Sub Total (C)</b>													
<b>D</b>	<b>Promotion and Development of Infrastructure for Bamboo Market</b>												
1	Establishment of bamboo depots and godowns	50	100% Govt., 25% Pvt., 33% NE										
2	Promotion of bamboo mandi (bamboo	100	100% Govt., 25% Pvt.,										

	market place) and e-trading		33% NE									
3	Rural haat	20	100% Govt., 25% Pvt., 33% NE									
4	Bamboo bazaar	15	100% Govt., 25% Pvt., 33% NE									
<b>Sub Total (D)</b>												
<b>E</b>	<b>Development of tools, equipment &amp; machinery</b>											
1	Technological enhancement of indigenous tools, equipment & machinery	Project Based	100% Govt. & 50% Private insti									
2	Import of technological superior tools, equipment & machinery in CFC	Project Based	100% Govt. & 50% Private insti									
<b>Sub Total (E)</b>												
<b>Total (A+B+C+D+E)</b>												
<b>F</b>	<b>Skill Development and awareness campaign (upto 5% of allocation)</b>											
i)	Training of farmers/ artisans	Project Based	100% Govt.									
ii)	Training of field functionaries	Project Based	100% Govt.									
iii)	International training/ visit for exposure of NBM staff/ field functionaries including farmers and entrepreneurs	Project Based	100% Govt.									
iv)	Training of Entrepreneurs	Project Based	100% Govt.									
<b>F1 (Total Training)</b>												

v)	Organizing workshop/ seminars at International	Project Based	100% Govt.										
vi)	Organizing workshop/ seminars at National	Project Based	100% Govt.										
vii)	Organizing workshop/ seminars at State	Project Based	100% Govt.										
viii)	Organizing workshop/ seminars at District	Project Based	100% Govt.										
ix)	Participation in domestic trade fairs	Project Based	100% Govt.										
x)	Participation in international trade fairs	Project Based	100% Govt.										
xi)	National/ International exhibition	Project Based	100% Govt.										
<b>F2 (Total workshop/ seminar/ trade fairs/ exhibition)</b>													
<b>Total (F) = (F1+F2)</b>													
<b>G</b>	<b>Research &amp; Development (upto 10% of allocation) (for pvt. Sector upto Rs.10 lakhs)</b>												
i)	Identification of genetically superior species / varieties	Project Based	100% Govt.										
ii)	Establishment of tissue culture lab including strengthen	Project Based	100% Govt.										
iii)	Demonstration plots to exhibit best practice to farmers	Project Based	100% Govt.										
iv)	Incubation Centre	Project Based	100% Govt.										
v)	Bamboo market research	Project Based	100% Govt.										
<b>Total (G)</b>													
<b>H</b>	<b>Project Management (upto 5% of allocation)</b>												

(100% Govt.)										
<b>Grand Total (A to H)</b>										

**Format for application for the approval of Executive Committee**

**PART I: General Details**

1. Name of the organization with full address, telephone fax, email id
2. Item/ activity of the Annexure IV
3. Registration No. and date (if any)
- 4.
5. Concept and justification (detailed project report)
6. Detail of infrastructure available

**PART II: Technical details**

1. Project area – Geographical spread including GPS details, district, village
2. Species proposed to be raised in case of nursery/ plantation with justification
3. Present existing stock species-wise in case of nursery/ plantation
4. Justification for procurement of machinery in case of purchase of equipments
5. Justification for holding workshops/ seminars/ exhibition
6. Justification for establishment of depot/ godowns
7. Any other important related information

(Note: Only relevant information to be furnished)