

# **Make in India**

## **Unleashing the Benefits of Bamboo**

A ROADMAP CONCEPT FOR BAMBOO SECTOR DEVELOPMENT IN INDIA

## Abstract

*Providing input into the efforts of the Indian Ministry of Environment, Forest, and Climate Change to take the country's bamboo sector forward.*

This document argues that systematic, integrated and actionable approaches to developing the bamboo sector will help strengthen resilience and reduce India's carbon footprint.

Bamboo sector development in India will contribute to the emergence of new businesses, job creation, poverty alleviation, and the empowerment of women and minorities. As a source of renewable energy, bamboo production will also support national and international sustainable development frameworks.

### OVERALL GOAL

Strengthening India's bamboo sector to increase the resilience of livelihoods and ecosystems against the adverse effects of human activity and climate change.

### ACTION CLUSTERS

**Human and  
Institutional  
Capacity  
Building**

**Policy  
Framework  
Development**

**Business  
Development**

**Sustainable  
Land  
Management**

For overcoming existing constraints along the sector value chains the document recommends to capitalize on untapped potential and create and maintain synergies among a strengthened worldwide network of partners

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# 1. Introduction

The roadmap is an input into the efforts of the Indian Ministry of Environment, Forest, and Climate Change to take the Bamboo sector forward. Its specific contribution to the already ongoing initiatives in view of fostering the development in the sector is to focus on “how”, not only at the national but also regional and global level, particularly for markets and trade: providing a systematic, integrated and, most importantly, *actionable approach to scaling up development*.

The roadmap aligns with and supports the agenda of the ruling Government, headed by Prime Minister Narendra Modi, the articulated Green India Mission and the Sustainable Development Goals of the Post 2015 Development Agenda as well as related work from the UNFCCC, helping to *strengthen resilience and reduce the global carbon footprint of India*.

In view of the agenda of the Indian Government, the results generated by implementing the roadmap will contribute to the *development of business, job creation, poverty alleviation, women empowerment* and will *reach out to minorities* and *provide renewable energy*. Thereafter, the outcome of the activities will help mitigate and adapt to climate change.

The roadmap is closely linked with INBAR’s initiative “*Global Assessment of Bamboo and Rattan Resources*” (GABAR) and builds on decades of practice and experience in making strategic partnerships on ground. It draws on collaboration with line agencies of INBAR’s member countries, international and local non-government organizations, and experts from various sectors across the world.



## Where Bamboo contributes to the Sustainable Development Goals

- SDG 1:** End poverty in all its forms everywhere.
- SDG 7:** Ensure access to affordable, sustainable, and reliable modern energy services for all, including the aim to double the share of renewable energy by 2030.
- SDG 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- SDG 11:** Build inclusive, safe and sustainable cities and human settlements, including access to adequate and affordable housing.
- SDG 12:** Promote sustainable consumption and production patterns, which includes sustainable management and efficient use of natural resources by 2030.
- SDG 13:** Promote actions at all levels to address climate change.
- SDG 15:** Protect and restore terrestrial ecosystems and halt all biodiversity loss, especially the call for restoration of 15% of all degraded ecosystems by 2030, and increase forest cover and integration of natural resources into planning and development processes.

## 2. Why a Roadmap for Bamboo in India?

Bamboo has the potential to convert the environment versus development debate into an environment and development dynamic. Bamboo can include, strengthen and diversify the incomes of smallholder farmers, particularly women to turn the country into one of the largest producer of value added bamboo products that can be exported globally with smallholder farmers, marginalized communities and tribals as significant actors in the nation's drive towards industrial growth.

Bamboo and its applications are *still a cottage industry sidelined in India*, where as China has formalized and industrialized the entire bamboo value chain and is the world leader in exporting value added bamboo products.

Though India has the second largest Bamboo resources worldwide, efficient bamboo processing technologies that add significant value and design and systems' thinking required, to make bamboo products more palatable to consumers, are lacking. Perhaps the most significant piece missing for development is the entrepreneurs who will buy bamboo and transform it into a product that can be used within India and also traded to other countries in the world.

Furthermore, unlike policymaking for other industries, typically housed under one or two ministries, Bamboo crosses over and overlaps with multiple ministries resulting in inadequate leverage and lack of a collective and joint national vision and strategy.

Hence, an action plan at national level that *strengthens driving factors for economic development of the sector* and provides a foundation for developing a comprehensive and sustainable *Bamboo strategy for India* is required.

## 3. A Common Goal

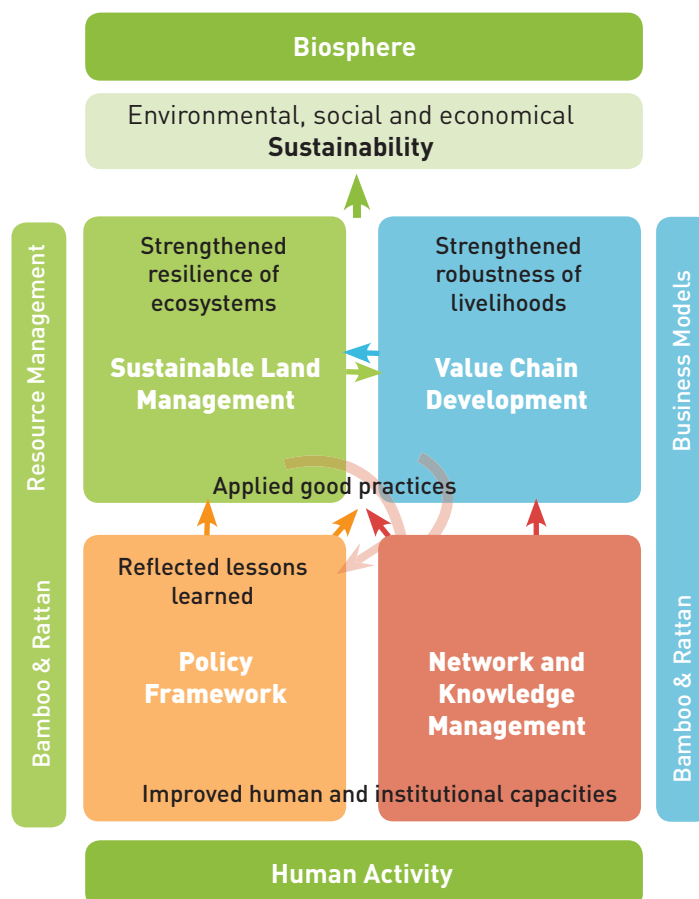
### The Trinity of Livelihoods, Ecosystems and Resilience

INBAR's strategy outline for South Asia 2016-2020, which is based on sector analysis and consultations with relevant stakeholders, provides the action items to overcome gaps and potential barriers for Bamboo sector development. A roadmap for India should consist of the following four components:

- (1) Human and Institutional Capacity Building,
- (2) Policy Framework Development,
- (3) Business Development, and
- (4) Sustainable Land Management.

The overall goal is

*to increase the resilience of livelihoods and ecosystems in India against adverse effects of human activity and climate change through the application of Bamboo solutions.*



The expected outcomes and measurement of achievement within the four components are:

**Outcome 1: Human and institutional capabilities of relevant stakeholders in the Indian Bamboo sector are improved.**

Indicator: Number of individuals, particularly women, and organizations whose performance has improved.

**Outcome 2: Guidance for nationwide future development of the Bamboo sector is provided.**

Indicator: Number of released guidelines and availability of a National Bamboo Policy.

**Outcome 3: Successful business models are adopted and upscaled nationwide.**

Indicator: Income of value chain actors and employment in the sector.

**Outcome 4: Bamboo is an integral part of sustainable land management in India.**

Indicator: Share of Bamboo in land rehabilitation and socioecological production landscapes.

## 4. Action Clusters for Bamboo Sector Development

### Creating Sustainable and Inclusive Economic Development

Realizing Bamboo's full potential as a driver of environmental sustainability and inclusive economic growth requires a fundamental shift in the present way the system operates in India. Innovative tools only work if they are supported by the right policy, have available absorption capacities and market structure. Improved Bamboo varieties do not yield a full harvest without proper soil and stand management, and an improved harvest can result in price erosion and regional surplus without appropriate *market links*.

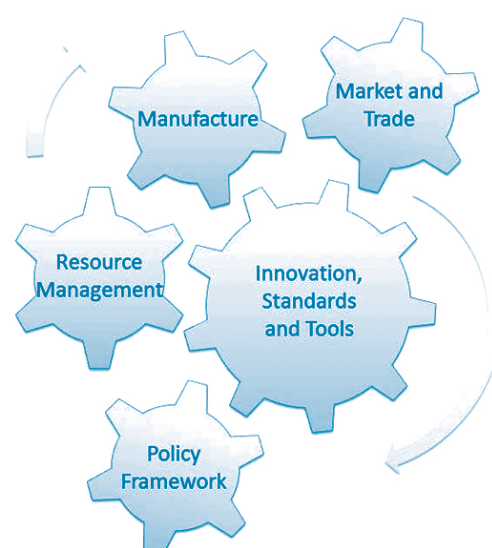


*Introducing change will require everyone* to step up their efforts. The Government must lead, setting the direction for the transformation and creating the appropriate environment to achieve it. Businesses drive implementation through innovation, investment and competition. Civil society mobilizes and supports communities, builds local capacity and bridges the gaps, not addressed by the market. Smallholder farmers and women have enormous untapped potential for stimulating rural economies and to become earners instead of net buyers, when provided adequate access to assets and information within a conducive finance and market environment.

Overcoming existing constraints along the *value chain* requires more than technical capacity. It requires better dissemination of knowledge and tools. Too many value chain actors are unable to access or effectively use *proven technologies and practices*. Methodologies for sustainable resource management, product development, technical assistance and extension must emphasize affordability and benefits, and harness existing knowledge to maximize adoption.

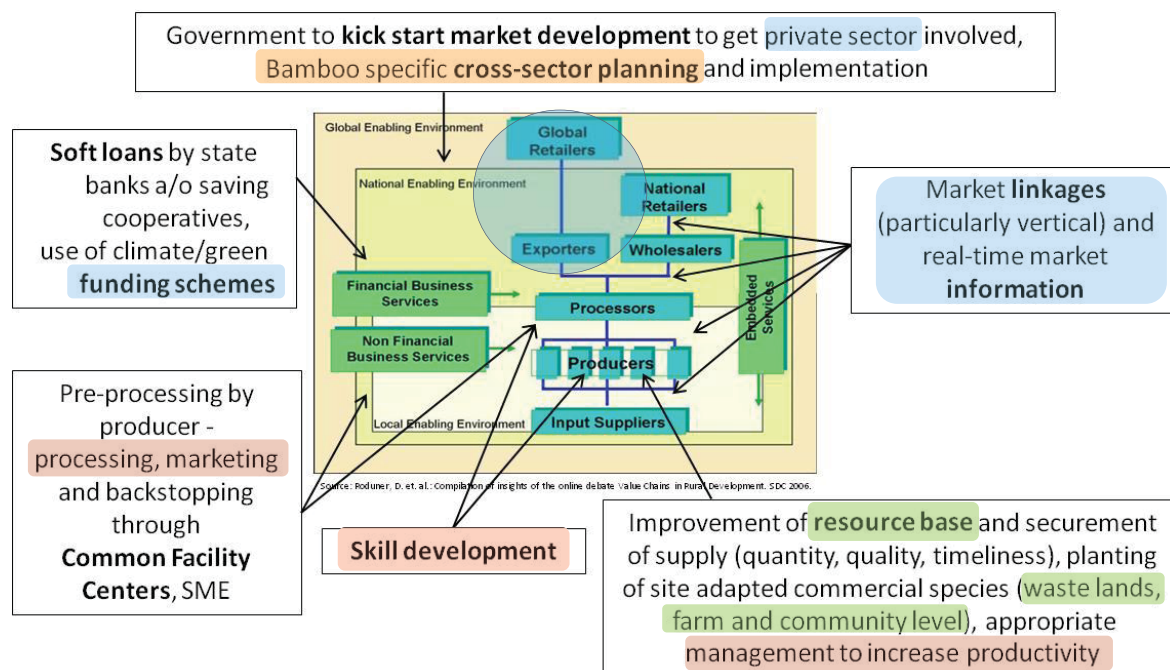
Furthermore, to ensure that increased production meets its objectives, *human capacity* and better *networks* must be developed for processing, trading and distributing Bamboo commodities both domestically and globally.

Closing these gaps will require funding and incentives for researchers, companies, farmers and consumers to develop and adopt solutions *where greatest value can be added*.





## Interventions and Timeline



## Component 1: Human and Institutional Capacity Building

**Output 1.1: Up to date information is made available and recalled by stakeholders.**

Indicator: Number of released documents/articles and hits/downloads for knowledge pool.

**Output 1.2: New methodologies and technologies are transferred.**

Indicator: Number of trained multipliers and share of introduced new methodologies and technologies along the value chain.

**Output 1.3: Government and enterprise policies reflect lessons learned.**

Indicator: Number of updated and new policy and strategic documents based on evidence-based inputs.



## Key Activities:

No	Activity	Partner*	Year			
			1	2	3	4
1	Establishment of a Bamboo Information and Resource Center (incl. network platform and Communities of Practice )	TERI	X			
2	Preparation and dissemination of lessons learned and evidence-based information (incl. inputs to policy development and implementation)	TERI, FRI, local NGOs	X	X	X	X
3	Workshops and trainings on business planning, marketing, trade, and other (training needs assessment, manuals, training of trainers and multipliers)	Local NGOs, IPIRTI, GIZ	X	X	X	
4	Trainings on sustainable Bamboo resource management (increase of productivity, rehabilitation of degraded land)	FRI, local NGOs	X	X		
5	Feasibility testing and training on new methodologies and technologies	IPIRTI, FRI	X	X	X	X

\* Indian Ministries / Line Agencies and National and State Bamboo Missions are not explicitly listed

## Component 2: Policy Framework Development

### Output 2.1: National Bamboo policy is prepared.

Indicator: Bamboo policy document is available.

### Output 2.2: Guidelines for policy implementation are available.

Indicator: Number of new guidelines and explanatory documents for policy implementation.

## Key Activities:

No	Activity	Partner*	Year			
			1	2	3	4
1	Review existing strategies and policies	YES Institute, TERI	X			
2	Support preparation of a harmonized National Bamboo Policy		X			
3	Support the preparation of guidelines for policy implementation		X	X	X	

\* Indian Ministries / Line Agencies and National and State Bamboo Missions are not explicitly listed

## Component 3: Business Development

### Output 3.1: Information on business and market/trade related issues is generated.

Indicator: Number of assessments and appropriate business models.

### Output 3.2: Inclusive finance solutions for Bamboo and Bamboo-integrated Agroforestry are developed and enacted.

Indicator: Number of finance agreements.

### Output 3.3: Bamboo-based businesses are upgraded.

Indicator: Share of micro, small, and medium enterprises with adopted good practice.

### Output 3.4: Business partnerships are established.

Indicator: Number of newly established business partnerships, particularly PPPs.

## Key Activities:

No	Activity	Partner*	Year			
			1	2	3	4
1	Establish a Bamboo Center of Excellence (Leading by Innovation - forum for exchange and discussion of good practices/experiences and making business contacts)	TERI, YES Institute	X	X		
2	Conduct business events (business champions and change agents meets, round tables, open markets, exhibitions)	YES Institute	X	X	X	X
3	Develop business models and support branding (new products, contemporary designs, improvement of manufacture, climate-friendly production)	TERI, YES Institute		X	X	X
4	Foster market and trade development (study on market potentials, market access and trade map - conformity assessment, trade promotion /campaigning, market information)	YES Institute, TERI, GIZ, local NGOs	X	X	X	X
5	Assess and coordinate promotion of Bamboo for generation of renewable clean energy (HH and industrial)	TERI, GIZ	X	X	X	
6	Develop finance solutions for Bamboo and Agroforestry business schemes	YES Institute	X	X		
7	Support development of standards and certification schemes	BIS, ISO	X	X	X	

\* Indian Ministries / Line Agencies and National and State Bamboo Missions are not explicitly listed

## Component 4: Sustainable Land Management

**Output 4.1: Updated information on existing Bamboo resources and ecosystem services is generated.**

Indicator: Report on nationwide assessment of Bamboo resources.

**Output 4.2: Bamboo is increasingly used for land rehabilitation initiatives.**

Indicator: Area of through use of Bamboo rehabilitated land.

**Output 4.3: Bamboo is an integral part of Agroforestry systems.**

Indicator: Number of agroforestry initiatives incorporating Bamboo.

**Output 4.4: State Governments consider Bamboo as important tool for management of public land.**

Indicator: Number of public rural and urban land use schemes with Bamboo.





## Key Activities:

No	Activity	Partner*	Year			
			1	2	3	4
1	Conduct Bamboo resource surveys (particularly mapping) and assist national inventory	FRI	X	X		
2	Support development and implementation of Bamboo-based government land use schemes such as highway roadside plantations with Bamboo	Local NGOs	X	X	X	X
3	Support approaching green funding schemes such as REDD+ and PES	YES Institute	X	X	X	
4	Develop and pilot land rehabilitation models and promote and support nationwide application of successful models	WRI, FRI, Local NGOs	X	X	X	X
5	Develop and support piloting and rolling out of Bamboo-integrated Agroforestry models	ICRAF, local NGOs	X	X	X	X

\* Indian Ministries / Line Agencies and National and State Bamboo Missions are not explicitly listed

## 5. Moving Forward Together

### Lasting Partnerships

Our world is changing more and more from well-structured and manageable systems into interwoven networks of partners. Creating and maintaining synergies resulting from the *network of partners* is essential to successfully handle complex tasks like the development of sectors, and enhance efficiency, sustainability, and up-scaling of interventions.

INBAR as a network and learning organization will strengthen existing and enter into new alliances particularly with actors in the *private sector and research*, aiming for new partnerships with institutions and organizations that share vision and values and comply with the defined requirements on operational and financial management.

In close cooperation with its focal government institution in India, INBAR will work towards *linking players* in the bamboo sector through its *worldwide* network, particularly within the frame of INBAR's programme on south-south transfer of knowledge and technologies. For implementation at the field level, INBAR will cooperate with local partners on contractual basis that are *action and target group oriented*, and are able to bring about positive change.

Lasting partnerships are enabled in the frame of INBAR's global network community and the centers planned to be established in India, which contribute to the *sustainability of the intervention*.

### Ensuring Resources

Putting the roadmap into action will need an appropriate operational set-up and adequate funding for human resources and other prerequisites, conducive to the successful implementation, to be specified in the *plan of operation* and budgeted in due time.

### Operational Set-up

INBAR will establish an *implementation unit* comprising a team of 3 (4) full-time experts with office in New Delhi. The leader of the team shall be responsible for the joint preparation of the plan of operation and its

efficient and effective implementation. He/she shall act as focal person and report to the *steering committee* composed of representatives of shareholders of the programme.

## Cost Structure

Estimated total costs: US\$ 4,000,000

### Indicative costs per annum:

Year	1	2	3	4
US\$	800,000	1,400,000	1,300,000	500,000

### Indicative cost element structure:

Element	Personnel	Materials	Financing	Miscellaneous	O&A*
US\$	900,000	400,000	1,600,000	600,000	500,000

\* Operating and administrating costs



## Tracking Progress

Essential to ensure that the desired outcomes will be achieved is to measure the roadmap progress at different points in time and make adjustments based on the new data and information.

Applying the *results-based management approach*, the focus is on direct benefits for the target groups and positive changes in the socio-economic and ecologic setting. Within the project cycles that are linked to activity based budgeting and financial control, monitoring and evaluation is regarded as a repetitive process referring to the steering and completion of the intervention.

Impact analysis and ex-post evaluations serve regular progress review based on the criteria *relevance, effectiveness, efficiency, impact, sustainability, and replicability*. Poverty alleviation, participation, good governance, gender equity, and conflict sensibility are cross cutting issues taken into consideration in the entire project cycle.

Great importance is attached to the *learning function* within the project cycle and priority will be given to impact assessments and evaluations for identifying replicable solutions that will be communicated to practitioners in the Bamboo sector, politicians, and the public.

## Communicating Results

Communication and knowledge sharing are important pillars of the roadmap, and essential to help in *achieving visibility and drive the uptake of good practices and policy approaches*. As an integral part of the monitoring and evaluation system, they will synthesize lessons learned and inform about the areas where improvements or changes of course are needed.

Communication will take place through various media - visual, audio, written, digital and social - and lessons learned will be documented and presented to stakeholders in India and in other countries interested in similar work and collaboration. Linear linkages will be strengthened in order to expand the *dissemination of information* about developments and innovations within the sector.

Rolling information and marketing campaigns will target key groups including decision makers, investors and the business community, community-based organizations, and the media. Communications will act as the *backbone of the roadmap* and will not only support the structure that hinges on to it but also ensure that it is correctly positioned in the broader national as well as regional and global development frameworks.





# **Bamboo & Rattan is our Business**

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