NATIONAL BAMBOO MISSION

Proposal from Karnataka

KARNATAKA STATE BAMBOO MISSION
• Karnataka’s total geographical area is 191,976 sq. kms.
• Forests are 36000 sq kms.
• Total cultivable area is 121000 sq kms.
## Bamboo Resources in Karnataka

<table>
<thead>
<tr>
<th>Agroclimatic zone</th>
<th>Districts</th>
<th>Bamboo Species that can be grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Dry Zone</td>
<td>Koppal, dharwad, belgaum, bagalkot, bellary, davangere</td>
<td>D. strictus, D. stocksii, B. bambos, B. tulda, B. nutans</td>
</tr>
<tr>
<td>Central dry zone</td>
<td>Davangere, tumkur, chikmagalur, Hassan</td>
<td>D. strictus, D. stocksii, B. bambos, B. tulda, B. nutans</td>
</tr>
<tr>
<td>Eastern dry zone</td>
<td>Bangalore rural, ramanagar, Bangalore urban, kolar, chikkaballapur, tumkur</td>
<td>D. strictus, D. stocksii, B. bambos, B. tulda, B. nutans</td>
</tr>
<tr>
<td>Southern dry zone</td>
<td>Mysore, chamrajnagar, mandya, tumkur, Hassan</td>
<td>D. strictus, D. stocksii, B. bambos, B. tulda, B. nutans</td>
</tr>
<tr>
<td>South transition zone</td>
<td>Hassan, chikmagalur, shimoga, mysore, davangere</td>
<td>D. hamiltonii, D. asper, B. tulda, B. pallida, B. nutans, B. balcooa</td>
</tr>
<tr>
<td>North transition zone</td>
<td>Belgaum, dharwad, haveri,</td>
<td>D. hamiltonii, D. asper, B. tulda, B. pallida, B. nutans, B. balcooa</td>
</tr>
<tr>
<td>Hilly zone</td>
<td>Uttar kannada, belgaum, dharwad, haveri, shimoga, chikmagalur, kodagu, Hassan</td>
<td>G. angustifolia, D. asper, B. balcooa, B. nutans, D. hamiltonii</td>
</tr>
<tr>
<td>Coastal zone</td>
<td>Udupi, dakshin kannada, uttar kannada</td>
<td>G. angustifolia, D. asper, B. balcooa, B. nutans, D. hamiltonii</td>
</tr>
</tbody>
</table>

Grows naturally in biologically diverse forests throughout Karnataka, the climate is ideally suited to grow in almost all districts of Karnataka under farm conditions as well.
The best Bamboo resources are found in the forests of Western Ghats in Karnataka through the districts of Belagavi, Uttara Kannada, Dharwad, Shivamogga, Chikmagalur, Mangalore, Udupi, Mysore, Hassan and Chamrajnagar.

In case of farm lands the Bamboo grows best in the farm lands of the above districts.
Gregarious flowering of Bambusa bambu from 2006-12 in the state, depleting the resource, now in the process of recovery.
NATIONAL MISSION ON BAMBOO KARNATAKA PROPOSAL

✓ Good planting material
✓ Growing Bamboo estates in Forest lands
✓ Growing Bamboo estates in Private lands
✓ Improvement of Machinery & process technologies
✓ Propagation & cultivation
✓ Bamboo for energy
Why Karnataka is at an advantageous position to take this forward?

- A good chain of producers, markets, industries and research institutions
- Good governance
- History of wood based industries like Sandal, Bamboo, Veeneer, Carvings, Handicrafts etcs
- Good infrastructure for asset creations and end use product generation
Key stakeholders in Bamboo cultivation in Karnataka

- Wood Based Industries
- LAMPS Societies and Rural Artisans
- Agri and Horti Universities
- NGOs
- Karnataka Forest Department
- Indian Institute of Science
- IPRITI
- Wood Science Institute
STRATEGY OF KARNATAKA STATE BAMBOO MISSION

✓ Adopt a coordinated approach covering production and marketing to assure appropriate returns to growers/producers.

✓ Promote Research and Development (R&D) of varieties and technologies for enhanced production.

✓ Enhance acreage (in forest and non-forest areas) and productivity of bamboo through varietal change and improved agriculture practice.
STRATEGY OF KARNATAKA STATE BAMBOO MISSION

✓ Promote partnership, convergence and synergy among R&D and marketing agencies in public as well as private sectors, at all levels.

✓ Set up National, State and sub-State level structures, to ensure adequate returns for the produce of the farmers and eliminate middlemen, to the extent possible.
Aligning with all stakeholders

• The Government in its State Level Executive meeting of 05-07-2018 has agreed to the proposal and approved the action plan for 2018-19 for 22,464.06 lakhs and also committed on the State share of contribution (includes Private investment/contribution)

• The Finance Department of the State of Karnataka has agreed to release the state share of the budget

• The State Level Executive meeting has agreed align different stakeholders for the realization of the objectives of NBM

• Different organisations like Bamboo Society of India, local NGOs and Bamboo based industries have been a part of the consultative meetings during the preparation of the project and have endorsed the project and assuring their active participation
To overcome the shortage of saplings, state mission aiming to promote private and government organisations to establish nurseries including Hitech, Big and small nurseries and with the help of IWST and private entrepreneurs targeting to establish 2 tissue culture lab to produce suitable certified saplings which is suitable for the state climatic zones.
To achieve this goal Karnataka state bamboo mission targeting 5000 hectare in Government waste land and 10,000 hectare in private lands
3. Improvement of Planting Material

To monitor district wise growth, targeting 100 demonstration plots or bamboo setums across the state.
4. Farmers training and awareness programe

To develop professional bamboo farmers and plantation state mission in association with IWST targeting to conduct 60 bamboo farmers training
5. Training to Field functionaries and support to Harvesting community
6. Online mapping of Bamboo farmers and end users

Being IT capital of the country, Karnataka can play big role with the help of IT companies to develop necessary technology to map Bamboo assets to end users.
7. Bamboo Mandi / Bamboo Corridor

State mission aiming to provide support for street vendors and bamboo raw material sellers to sell their products in an organised manner by creating bamboo corridor/bamboo Mandi with the help of Municipalities and City Corporations
8. Craftsman training and skill upgradation

With the support from National Institute of Design, Bamboo mission targeting to conduct 30 craft/skill training programs to introduce bamboo to the unemployed youths. Also with the help of NID preparing curriculum to introduce bamboo as trade in selected ITI as pilot project.
9 Proposal for Exemption of bamboo species from harvesting and transit permit, co-terminus with new directions
10. Bamboo heavy machine operation training

In association with IPIRTI and IWST AWTC, state bamboo mission targeting to conduct 30 bamboo training programs and 25 members per batch.
Karnataka is not only the IT capital also the Agarbathi Hub of India. State bamboo mission is targeting to create 50 agarbathi making units across the state to reduce the import of agarbathi sticks.
11. Setting up call center for farmers to industry

This is to help the artisan to bamboo industry support for next 2 years.
13. Udyog mitra/ KIADB land for bamboo sector

State Bamboo mission requesting government to reserve 50 acre land at concessional rate for bamboo industries in notified industrial areas of all the districts.
Utilization of bamboo requires simple technology and is ideally suitable for rural usage. Bucherie process for treatment of bamboo is a simple machine which can increase the service life of bamboo to more than four folds.

With the treatment of bamboo culm, the durability increases from 4 years to 16 years.
The machine required for bamboo processing are less energy demanding as compared to other timber conversion machines which require enormous amount of electricity. E.g: Bamboo splint machine can be operated manually while timber turners require 440 volt current for operation.
16. Continued focus on Major Bamboo users

• **Pulp, paper and rayon:** However due to its high silica content the use of bamboo for rayon grade pulp has reduced.

• Selection of low silica content species would be required for increasing the bamboo usage in this sector. E.g - *Dendrocalamus strictus*, *Bambusa bambos*, *Dendrocalamus stocksii* etc.
16. Focus on Artisanal products

- **Bamboo baskets:** *Dendrocalamus stricturs*, *Bambusa bambos*

- **Stacking material:** *Dendrocalamus strictus*, *Dendrocalamus stocksii*, *Bambusa arundinacae*

- **Agriculture implements:** *Oxytenanthera travancorica*, *Dendrocalamus strictus*, *Dendrocalamus stocksii*
17. Focus on Housing and Hospitality sector

- **Bamboo houses**: Disaster resistant bamboo buildings, walling and roofing:
  - *Dendrocalamus stocksii*, *Bambusa tulda*, *Bambusa vulgaris*, *Dendrocalamus strictus*, *Bambusa gigantea*

- **Bamboo cottages** *for the eco-tourism sector*
18. Focus on Value addition of existing products

- **Handicraft:** *Bambusa bambu*, *Ochlandra travancorica*, *B.brandissi*

- **Furniture:** *Ochlandra travancorica*, *D stocksii*, *D asper*

- **Cottage industries:** *Dendrocalamus strictus*, *Dendrocalamus stocksii*, *Gigantochloa rostrata*

- **Agarbatti sector:** *B.brandissi*, *B.bambus*
19. Focus on New applications of Bamboo

- **Charcoal**: The bamboo carbon characteristics (lumped or fibrous) allows it to be used for making active carbon without turning it into granular form.

- Bamboo charcoal is extensively used as water purifier (activated charcoal): *Melacoma baccifera, Bambusa tulda*

- However efforts have to be made for technological research in identifying more species for charcoal conversion and the process of pyrolysis.
20. Focus on Bamboo based cuisine

- **Bamboo shoots**: Pickle, Candy, Chutney, Curry, Vinegar, food nutrient (minerals and vitamins)

- However use of bamboo shoots for food is hampered by the fact that the shoots contains cyanogenic glycosides which are neurotoxins and can harm the health if used for longer periods.

- The technology for removal of these cyanogenic glycosides should be top focus of the research if the bamboo food industry has to be expanded.

- *Dendrocalamus asper, Dendrocalamus hamiltonii, Dendroclamus strictus, D stocksii*
20. Focus on Medicinal value of Bamboo

- **Medicinal uses:**
  - Juice of bamboo known as Tabsheer, shoots possesses protease activity that helps digestive activity
  - Anti-bacterial property: Cleaning of wounds
  - Bamboo leaves are rich in hydrocyanic and benzoic acid used for controlling spasmodic disorders and bleeding. E.g: B bambus
THANK YOU