

Poverty Alleviation Through Bamboo High-End Products: Case Study from Kerala State, India.

By

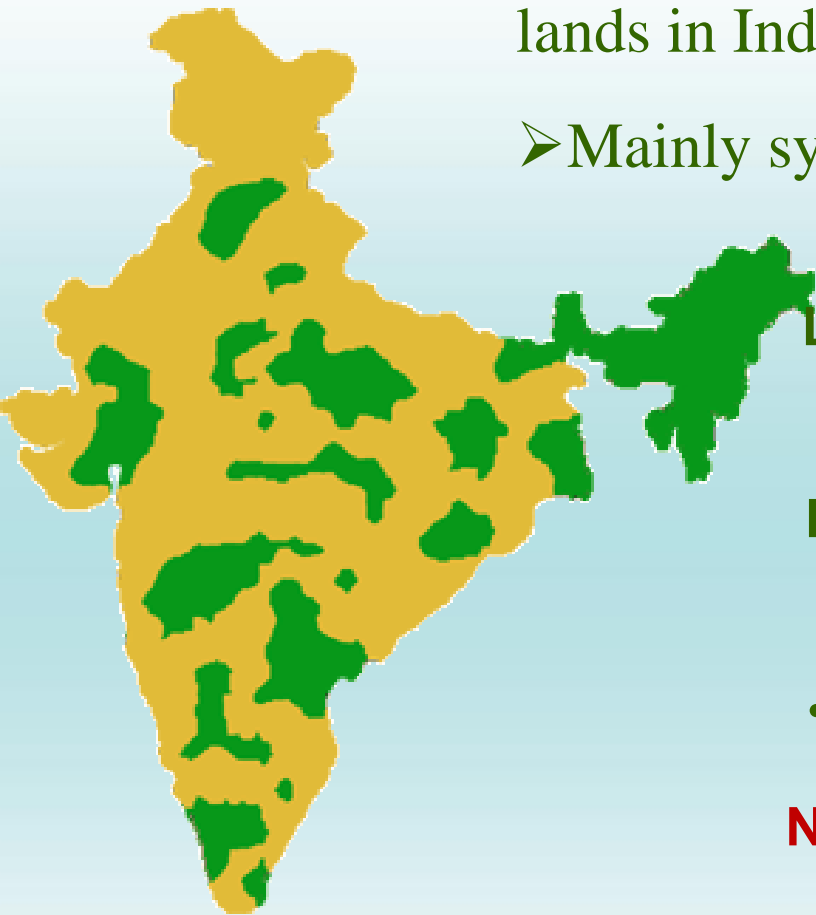
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BAMBOO IN INDIA

- Intertwined with human life and welfare
- Occupies **14 million ha** (SFR, 2017) of forest lands in India
- Mainly sympodial clump forming variety.



Land area	:	328.7 MHa
Forest Area	:	67.8 MHa
Bamboo Area	:	13.96 Mha
• Clump Forming	:	67%
• Non Clump Forming	:	33%

**NEXT TO CHINA, INDIA HAS THE RICHEST
BAMBOO GENETIC RESOURCES**

SPECIES DISTRIBUTION OF BAMBOO IN INDIA

136 species
(125 indigenous + 11 exotic)

Three species = 78% of the growing stock



Dendrocalamus strictus
(45%).



Melocanna baccifera
(20%)



Bambusa bambos
(13%).

Kerala State : Case Study Area



Angamaly



Bamboos of Kerala

About 28 species of bamboo

Main species are

- *Bambusa bambos*,
- *Ochlandra travancorica*,
- *Dendrocalamus strictus*
- *Dendrocalamus stocksii*



Bambusa bambos



Dendrocalamus strictus



Dendrocalamus stocksii

MAIN SPECIES FOR MAT WEAVING

- Thin walled reed bamboos (*Ochlandra travancorica*) - used mainly for weaving by the traditional artisans.

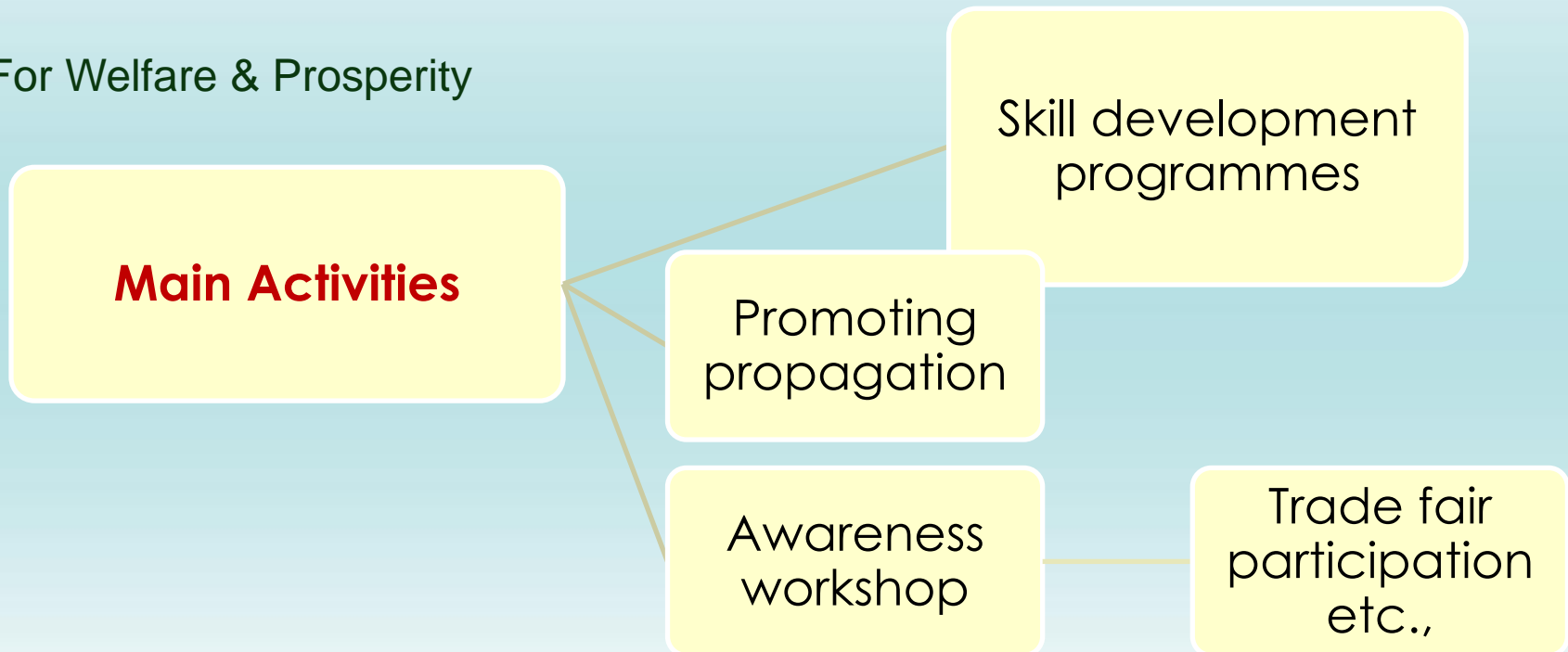


Grows extensively beside Water Bodies



Kerala State Bamboo Corporation (KSBC)

- **Head office: Angamaly near Cochi**
- Established in 1971 – A State Government Undertaking.
- **Main objectives - to develop & promote industries based on bamboo, reed, cane, etc.**
- For Welfare & Prosperity



Bamboo Board Factory, Angmally

- Established in 1985, to produce BMB using Bamboo mats
- 1990 : Commercial production in single shift
- 1998: the second shift started and production doubled.
- Now Daily Production of 21,500 sq. feet (1998 Sq.meter) of Bambooply of 4 mm

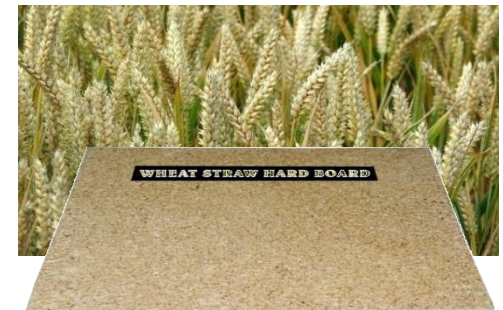




INDIAN PLYWOOD INDUSTRIES RESEARCH & TRAINING INSTITUTE

An Autonomous Body of Ministry of Environment, Forests & Climate Change, Govt. of India

- Located in Bengaluru, Karnataka, India
- Mandate: R&D, Training, Testing & Extension activities related with panels from lingo-cellulosic materials (Wood, bamboo, agro-residues, etc)



KSBC + IPIRTI for Bamboo Ply Industry

- IPIRTI transferred the technology to KSBC for manufacture of BMB in 1985.
- BMB has immense market potential for housing and furniture applications in India & outside
- BMB : An ISO Certified Bamboo Panel (equivalent to Marine grade plywood in strength properties)
- Using BMB, KSBC takes turnkey projects to build huts, eco-hubs in forests and other tourist places for aesthetics and eco-friendly characteristics.



Process of making BMB: Mat Weaving



Slivering Reeds using machines for Weaving



Weaving of mats at Mechanized Community Mat Weaving Centre



Making Boards from Mats



Now 21,500 sq feet (1998 Sq.meter) of Bambooply (4 mm) produced daily on an average

Innovative applications & uses of BMB



Application Range



Forest Department



FD

Reed Cutters



RD

**Value Chain
Network**

Weavers Community



WC

Maunfacturer



KSBC

Forest Department (FD)

- Forest Department (Govt. of Kerala) allows reed bamboos to KSBC free of cost
- KSBC provides reed bamboos to Community Mat Weaving Centres (CMWC) and its depots as collected through registered Reed Cutters (RC)



Reed Cutters (RC)



15000 Registered Reed Cutters

Reed cutter Earnings

Cutting Cost for one Reed
Rs.11-00

Additional Incentives
Rs.17.5%
of total number of reeds cut

Average earning per annum
Rs. 2.7 Lakhs

(US\$ 4500)



Weavers Community (WC)

Weaver Earnings

Weaving cost per Mat

Rs.166-00

Mat Size : 8.25" X 4.25"

Number of Mats weaved per day

3 Mats

Average Earning per day

Rs.500-00

Earning per annum

220 Workdays X 500

Rs.1.1 Lakh

(US\$ 1830)



10000 Registered Weaver Family

**Karnataka State Bamboo Corporation
KSBC**

**Community Mat Weaving Centres
CMWC**

One Lakh Artisans



Karnataka State Bamboo Corporation KSBC

17 CMWCs

85 Main & Sub Depots

One Lakh Artisans

ksbc_ver01



Reed Cutters



Earning
2.7 Lakh (US\$ 4500)
per annum

Weavers



Earning
1.1 Lakh (US\$ 1830)
per annum

Economic potential of BMB activities

- Average production of 613 mats with 17 labourers resulting in foregone benefit of Rs.2550/-.
- Aggregate predetermined benefit or the opportunity cost is Rs. 9150/-
- Average earned benefit with respect to the market price is Rs.10065/-.
- Bamboo has a great potential to generate income and employment.

Economic potential of BMB activities

Production stages	Earned benefit		Required labour days		Foregone benefit (in Rs.)	
	TAs	MBDs	TAs	MBDs	TAs	MBDs
Collection	71 poles	2-3 poles (30-35 slices)	02	5.5	300	825
Processing	20,448 slivers	390-396 slivers	42	12	6300	1800
Production	613 mats	40 small baskets	17	04	2550	600
Marketing	613 mats	40 small baskets	0	01	0	150
Total	Rs.10065	Rs.2250	61	22.5	9150	3375

Primary data estimates

TAs- Trained Artisans; MBDs- Marginalized Bamboo Dependent

Kerala Model

FD

Forest
Department

RD

Reed
Cutters

WC

Weavers
Community

KSBC

Kerala State
Bamboo Corporation

of community mat weaving

time tested

all weather

longstanding module

for rural economic upliftment

with the help of

Bamboo Value Addition Technology



CONCLUSIONS

- Rural & Tribal India grappling long time Livelihood Challenges, offers a sustainable option with bamboo processing
- An average Reed Cutter earns about Rs.2.70 Lakhs (US\$ 4500) annually.
- Besides the Weavers earn about Rs.1.10 Lakh (US\$ 1830) annually.
- Remunerative regular income to the Reed Cutters and Weavers ensures sustainable growth of Bamboo Industry, especially in rural Kerala.

RECOMMENDATIONS

- Kerala model of community mat weaving is a time tested, all weather and longstanding module for rural upliftment with Bamboo Value Addition Technology.
- Needs to be emulated in other States of India as well as similar parts of the Globe.



Gracias...

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