

# BAMBOO MAT TRAYS

TECHNOLOGY PROFILE

IPIRTI/BMT/2001

Bamboo, popularly known as “Poorman’s Wood” has been used for constructional purpose and other uses since time immemorial. Bamboo grows well in India covering about 12.8% of the forest cover, with an annual production of 4.5 million tons. India ranks second in the world in bamboo production next to China.

Bamboo has been a potential source of raw material for handicraftsmen. It also provides basic raw material for making various household articles for rural people. Even otherwise one-third of human race uses bamboo in one way or other. The unique strength properties of bamboo coupled with easy processing into useful products have enabled man to make many innovative products. IPIRTI has developed a very simple but fool proof technology for production of moulded tray, in a Small Scale as well as cottage industry sector. This technology has been developed as a part of the IDRC sponsored project “Wood Substitute India”. Since the main raw material is hand woven mat of bamboo, the product is both environment and people friendly.

The commercialization of the technique of making a small item like a tray out of bamboo mat in a cottage industry or SSI unit has many benefits. No doubt, the quality of handicrafts made by our artisans are praiseworthy but due to lack of handy tools and machines, mass production is very often hindered. A household thing like tray is not only a thing of beauty but also a thing of much use. Such a widely used article needs to be manufactured in mass scale so that the cost of the article remains within every one’s reach.

Technology developed at IPIRTI is simple and does not require very high cost machineries. The process can be adopted after undergoing a short training or through IPIRTI technology transfer and the product can be manufactured in a cottage or small-scale industry. Tray being a part of every household there is a wide market for this product.



## MANUFACTURING PROCESS

After cross cutting and splitting the bamboo, the epidermal layer is removed, 0.6mm ( $\pm 15\%$ ) thick slivers are made manually or mechanically. Slivers are woven into herringbone or rectangular pattern. Prophylactic treatment is given to enhance durability. The treated mats are dried in the sun or in oven or dryer. The mats are then soaked in resin and stacked for 2 hours. Resin treated mats are then dried to 8 percent moisture content. The mats are then assembled and hot pressed in a moulded press under high pressure and temperature. Hot pressed trays are ready to use after minor hand finishing.



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# Project Cost (Cottage Industry)

30000 Trays/Plates per years (one shift per day)

<b>♣ Capital investment (Equipments)</b>	
1. Hot Press (Electrical)	
2. Resin Applicator	: Rs. 6,90,000/-
<b>♣ Electrical connection &amp; Miscellaneous</b>	
	: Rs. 75,000/-
<b>Raw materials</b>	
Bamboo mats (10000 sq.m)	: Rs. 3,37,500/-
Resin (2500 Kgs)	: Rs. 75,000/-
Releasing paper	: Rs. 19,000/-
<b>♣ Energy</b>	
Electricity (40 units per day)	: Rs. 30,000/-
<b>♣ Maintenance cost</b>	
	: Rs. 35,000/-
<b>♣ Staff and Labour</b>	
Supervisory (1 No.)	: Rs. 36,000/-
Administration (1 No.)	: Rs. 24,000/-
Labour (1 No.)	: Rs. 15,000/-
Rent for building	: Rs. 24,000/-
Production cost per tray	: Rs. 20/-
Selling price expected	: Rs. 50/-

## Project Cost (SSI Unit)

<b>♣ Annual Production (Two shifts per day, 300 working days)</b>		: 1,20,000 Trays
<b>Equipment cost</b>		
1. Hot Press with mould		
2. Drying Chamber		
3. Baby Boiler		
4. Resin Plant (50 Kg Capacity)		
5. Resin Applicator		
6. Stand by Generator	: Rs. 16,00,000/-	
<b>♣ Land and Building (if rented)</b>		
	: Rs. 2,40,000/-	
or i) Land	4000 sq.m	
ii) Building	950 sq.m	
<b>♣ Electrical connection and Miscellaneous..</b>		
	: Rs. 20,000/-	
<b>Raw Materials</b>		
Bamboo mats (40,000 sq.m)	: Rs. 13,50,000/-	
Resin (10,000 Kg)	: Rs. 3,00,000/-	
Releasing paper	: Rs. 74,000/-	
<b>♣ Energy</b>		
i) Electricity (80 units per day)	: Rs. 60,000/-	
ii) Oil/Firewood for boiler	: Rs. 60,000/-	
<b>♣ Maintenance cost</b>		
	: Rs. 85,000/-	
<b>♣ Staffs and Labour</b>		
Supervisory (2Nos.)	: Rs. 72,000/-	
Administration (1 No.)	: Rs. 24,000/-	
Marketing (2Nos.)	: Rs. 72,000/-	
Labour (4Nos.)	: Rs. 60,000/-	
<b>♣ Production Cost (per tray)</b>		
	: Rs. 20/-	
<b>♣ Selling price expected</b>		
	: Rs. 50/-	

\*(All costs are indicative only)

### Salient features of the Trays

Size : 30 cms x 22.5 cms, 40 cms x 30 cms  
 Water resistant,  
 Heat resistant,  
 Scratch resistant  
 Unbreakable  
 Resistant to termite and borers  
 Do not warp  
 Washable  
 Attractive Design  
 Ecofriendly



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