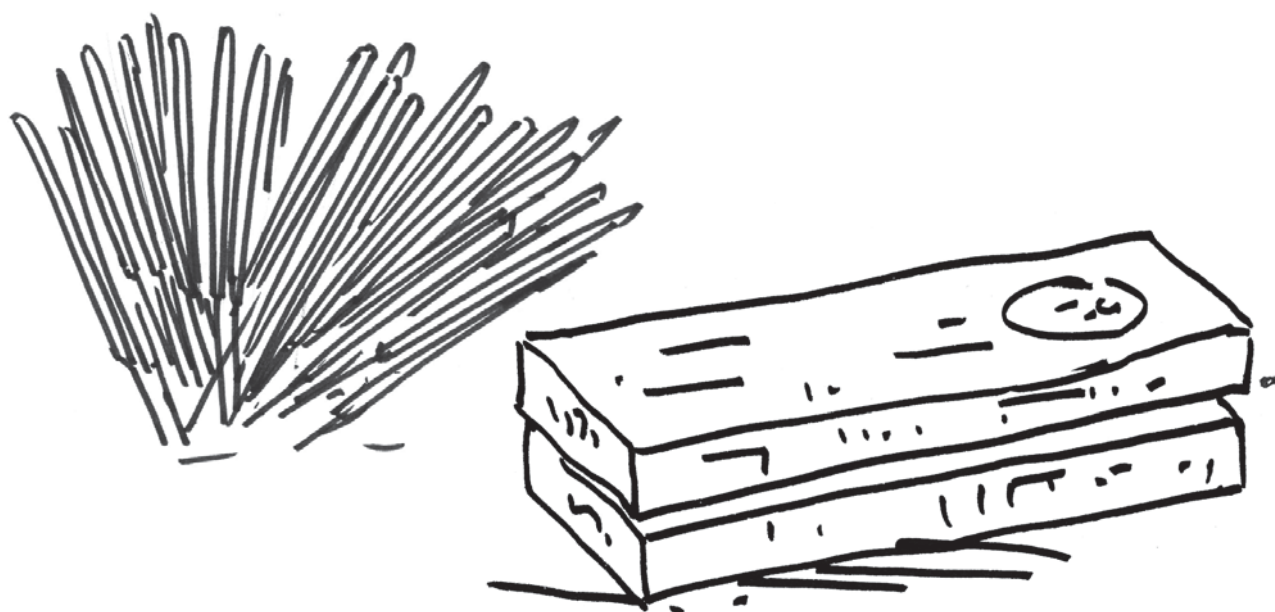


BAMBOO STICK (AGARBATTI) MAKING



1.0 INTRODUCTION

India is the largest producer of incense sticks or agarbatti in the world, with an estimated production of 208 billion sticks annually and market value of more than INR 41.63 billion in 2008. This amounts to over 42,000 tonnes of sticks made from nearly 85,000 tonnes of bamboo. The sector is estimated to be growing at 20 percent annually.

Industry sources say that, at one time, about 90 percent of the bamboo sticks used in the agarbatti industry came from Tripura, a state in the north-eastern part of India. Much of the growth in stick production has since taken place outside the state, and now Tripura's share has come down.

A large number of women are involved in the bamboo stick-making activity. They mostly work during the time spared from domestic chores and subsistence activities. The work brings in the much-needed cash income that has a high opportunity cost for them even though the bamboo sticks capture only 1 percent of the final value of agarbatti.

In the past, bamboo has been mostly obtained free of cost from the forest and hence, all the earnings from the stick making activity belonged to the women involved. Increasingly, these earnings are being affected by the

growing scarcity of bamboo, resulting in communities having to buy much of the bamboo used for stick making leading to reduction in net income.

Bamboo sticks are the major raw materials used in the Agarbatti industry. These are collected through contract labour system, prevalent in the unorganized sectors. There are wide differences in wages because of the differences in minimum wage rules that are different in different states. For processing of bamboo, electricity operated high capacity machines are available, which are suitable for industries but not for rural poor who make strips and sticks using knife. Looking at the need, an innovative set of two machines i.e. Bamboo Strip Making Machine and Incense Stick Making Machine has been developed, which are used for making incense sticks from bamboo pieces. These machines are manually operated, easy to use and maintain and most suitable for the tribal people. A first generation entrepreneur can set agarbatti stick making unit by installing the machines.

This project profile is for setting up of a Bamboo Stick Making unit by use of the above mentioned set of machines. The unit will install 5 set of the machines and will have installed capacity of 45,000 kg of sticks based on 8 working hours per day and 300 working days per annum.

2.0 MARKET POTENTIAL

India has a leadership position in agarbatti production and meets more than half of the world's incense sticks requirements. India exports Agarbatti to nearly 90 countries. Every year more than 1000 billion sticks are produced and the market is growing at a rate of 7% per year.

The incense stick market faces a sudden upsurge in demand during the festive season. Demand from both domestic and international sectors peaks up during

festivals like Dussehra and Diwali. The market for incense sticks is vast and the demand is high even in the far-flung rural areas. Owing to the low level of technology, production activity of agarbattis can be taken to rural areas without much difficulty.

3.0 PROCESS DETAILS

The first machine (Bamboo Strip Making Machine) is used to slice the bamboo pieces of definite size and length. The slices cut are then fed in the Stick Making Machine to produce the sticks.

4.0 COST OF THE PROJECT

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	2.87
Machinery & Equipment	2.28
Misc. Fixed Assets	0.20
Preliminary & Pre-operative Expenses	0.61
Working Capital	0.43
TOTAL	6.38

4.1 Land & Site Development: No. cost has been considered for land & site development. It is assumed that the unit will be set up in own land.

4.2 Building & Civil Works: Details of building & civil works are given below.

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Work Shed cum store room (Brick wall, CGI sheet roof, concrete floor)	58	4500	260465
Add: Electrification, etc @ 10%			26046
TOTAL			286511
Say (Rs. in lacs)			2.87

4.3 Machinery & Equipment: Details of machinery & equipment are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Bamboo strip making machine	5	20000	100000
Incense stick making machine	5	20000	100000
Weighing balance (10 kg capacity)	3	800	2400
Miscellaneous items	LS	LS	5000
Sub total			207400
Add: Transportation, taxes, etc @ 10%			20740
TOTAL			228140
Say (Rs. in lacs)			2.28

4.4 Misc. Fixed Assets: Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
TOTAL			20000
Say (Rs. in lacs)			0.20

4.5 Preliminary & Pre-operative Expenses: Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Fees	0.20
Interest during implementation	0.11
Miscellaneous expenses	0.10
TOTAL	0.61

4.6 Contingencies & Escalation: Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipments and miscellaneous fixed assets.**4.7 Working Capital:** Details of working capital are given below.

	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	30	0.06	0.07	0.08
Power	30	0.01	0.01	0.01
Salary	30	0.12	0.12	0.12
Finished Goods	15	0.10	0.11	0.12
Receivables	15	0.14	0.17	0.19
Total		0.43	0.48	0.53
Working Capital Margin in Yr 1 (100%)				
	0.43			

5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

Particulars	Percent	Amount (Rs lacs)
EQUITY		
A. Equity from Promoters	40%	2.55
B. Subsidy from Central/State Govt.	-	
DEBT		
Term Loan from Banks/FIs	60%	3.83
TOTAL	100%	6.38

6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
A. INCOME					
Production capacity (kg/annum)	45000	45000	45000	45000	45000
Capacity utilisation	50%	60%	70%	70%	70%
Production/annum at capacity utilisation	22500	27000	31500	31500	31500
Price of agarbatti stick (Rs/kg)	15	15	15	15	15
Total income/annum	3.38	4.05	4.73	4.73	4.73
B. OPERATING EXPENSES					
Raw Materials & Consumables	0.68	0.82	0.95	0.95	0.95
Power	0.09	0.11	0.13	0.13	0.13
Salary	1.50	1.51	1.52	1.52	1.53
Repair & Maintenance	0.10	0.11	0.12	0.14	0.15
Selling Expenses	0.07	0.08	0.09	0.09	0.09
Miscellaneous Expenses	0.03	0.04	0.05	0.05	0.05
Total Operating Expenses	2.48	2.67	2.87	2.89	2.91
Less: Working expenses capitalised	0.43	0.00	0.00	0.00	0.00
Operating profit	1.32	1.38	1.86	1.84	1.82
C. FINANCIAL EXPENSES					
Depreciation	0.27	0.27	0.27	0.27	0.27
Interest on Term Loan	0.30	0.26	0.18	0.11	0.04
Net Profit	0.75	0.85	1.41	1.46	1.51
Net cash accruals	1.02	1.12	1.68	1.73	1.78
Principal Repayment	0.23	0.90	0.90	0.90	0.90

6.1 Estimation of Production Capacity: Production of bamboo sticks at installed capacity is estimated as below.

Machine Capacity (kg/hr of sticks)	3.75
No. of stick making machine	5
No. of working hrs/day	8
No. of days/annum	300
No. of sticks per annum at installed capacity (kg)	45000

6.2 Raw Materials & Consumables: Expenses on raw materials & consumables at installed capacity is estimated as below.

No. of sticks per annum at installed capacity (kg)	45000
Wastage during conversion from bamboo culms (%)	5%
Raw material (bamboo culms) required (kg)	47250
Average weight of individual culms (kg)	10
Quantity of bamboo culms required	4725
Price of individual bamboo culms (Rs/kg)	25
Expenses on raw material (Rs)	118125
Add: Consumables, packing materials, etc @ 15%	17719
Expenses on raw materials & consumables at installed capacity (Rs)	135844

6.3 Power: Expenses on power at installed capacity is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
General Lighting	6	0.10	0.58
Miscellaneous	LS	LS	1.00
Total power requirement/ day (Kw)			1.58
No. of hrs per day			8
No. of days/annum			300
Annual power requirement (kwh)			3789
Rate per unit (Rs)			5.00
Expenses on power per annum at installed capacity (Rs)			18946

6.4 Salary: Expenses on salary in the 1st year is estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager (Self)	0	0	0
Machine operators	5	2500	150000
Expenses on salary in the 1st year (Rs)			150000

6.5 Repair & Maintenance: Expenses on repair & maintenance in the 1st year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 10% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Lacs)
Building & Civil Works	2.87	1%	0.03
Machinery & Equipment	2.28	3%	0.07
Misc. Fixed Assets	0.20	3%	0.01
Expenses on repair & maintenance in the 1st year (Rs)			0.10

6.6 Selling Expenses: Selling expenses have been assumed at 2% of sales.

6.7 Miscellaneous Expenses: Miscellaneous expenses have been assumed at 1% of sales.

6.8 Depreciation: Depreciation has been calculated by straight line method. The details of calculation are given below.

Description	Cost (Rs)	Rate	Amount/annum (Rs lacs)
Building & Civil Works	2.87	3.34%	0.10
Machinery & Equipment	2.28	7.07%	0.16
Misc. Fixed Assets	0.20	6.23%	0.01
TOTAL			0.27

6.9 Interest on Term Loan & Principal Repayment: Interest rate has been assumed at 8% per annum. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 9 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5
Month 1	Opening balance	3.83	3.60	2.70	1.80	0.90
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest (8%)	0.03	0.02	0.02	0.01	0.01
	Closing balance	3.83	3.53	2.63	1.73	0.83
Month 2	Opening balance	3.83	3.53	2.63	1.73	0.83
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.01
	Closing balance	3.83	3.45	2.55	1.65	0.75
Month 3	Opening balance	3.83	3.45	2.55	1.65	0.75
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.01
	Closing balance	3.83	3.38	2.48	1.58	0.68
Month 4	Opening balance	3.83	3.38	2.48	1.58	0.68
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	3.83	3.30	2.40	1.50	0.60
Month 5	Opening balance	3.83	3.30	2.40	1.50	0.60
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	3.83	3.23	2.33	1.43	0.53
Month 6	Opening balance	3.83	3.23	2.33	1.43	0.53
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	3.83	3.15	2.25	1.35	0.45
Month 7	Opening balance	3.83	3.15	2.25	1.35	0.45
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	3.83	3.08	2.18	1.28	0.38
Month 8	Opening balance	3.83	3.08	2.18	1.28	0.38
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	Closing balance	3.83	3.00	2.10	1.20	0.30
Month 9	Opening balance	3.83	3.00	2.10	1.20	0.30
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	Closing balance	3.83	2.93	2.03	1.13	0.23
Month 10	Opening balance	3.83	2.93	2.03	1.13	0.23
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	Closing balance	3.75	2.85	1.95	1.05	0.15
Month 11	Opening balance	3.75	2.85	1.95	1.05	0.15
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	Closing balance	3.68	2.78	1.88	0.98	0.08
Month 12	Opening balance	3.68	2.78	1.88	0.98	0.08
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.02	0.02	0.01	0.01	0.00
	Closing balance	3.60	2.70	1.80	0.90	0.00
Principal Repayment		0.23	0.90	0.90	0.90	0.90
Interest		0.30	0.26	0.18	0.11	0.04

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	TOTAL
Profit After Tax (Net Profit)	0.75	0.85	1.41	1.46	1.51	
Depreciation	0.27	0.27	0.27	0.27	0.27	
Interest	0.30	0.26	0.18	0.11	0.04	
Total	1.32	1.38	1.86	1.84	1.82	8.22
Interest	0.30	0.26	0.18	0.11	0.04	
Loan repayment	0.23	0.90	0.90	0.90	0.90	
Total	0.53	1.16	1.08	1.01	0.94	4.72
DSCR	2.50	1.19	1.72	1.82	1.93	

Average DSCR = 1.74

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales (Rs. lakh)	3.38	4.05	4.73
B. Variable cost			
Raw Materials & Consumables	0.68	0.82	0.95
Power	0.09	0.11	0.13
Selling Expenses	0.07	0.08	0.09
Miscellaneous Expenses	0.03	0.04	0.05
Total variable cost	0.88	1.05	1.23
C. Contribution (A-B)	2.50	3.00	3.50
D. Fixed & Semi-fixed Costs			
Salary	1.50	1.51	1.52
Repair & maintenance	0.10	0.11	0.12
Interest on Term Loan	0.30	0.26	0.18
Depreciation	0.27	0.27	0.27
Total fixed cost	2.18	2.15	2.09
E. BREAK EVEN POINT	87.10%	71.52%	59.78%
F. BEP at operating capacity	43.55%	42.91%	41.85%
G. Cash BEP	38.16%	37.53%	36.46%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)						
Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	5.35	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	0.43	0.05	0.05	0.00	0.00
Total (A)	5.35	0.43	0.05	0.05	0.00	0.00
CASH INFLOW						
Profit After Tax		0.75	0.85	1.41	1.46	1.51
Add: Depreciation		0.27	0.27	0.27	0.27	0.27
Add: Interest		0.30	0.26	0.18	0.11	0.04
Add: Salvage Value (15%)						0.80
Total (B)	0.00	1.32	1.38	1.86	1.84	2.62
NET FLOW (B-A)	-5.35	0.90	1.33	1.81	1.84	2.62

IRR = 15%

MACHINERY SUPPLIER/ TECHNICAL CONSULTANT

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