



## **BAMBOO SHOOTS** **PROCESSING**

### **Introduction**

Bamboo shoots are the young and tender culms of bamboo that are consumed for various food items after harvesting. The freshly harvested shoot is cream yellow in color, has a strong smell and is sweet in taste. Bamboo shoots are low in fat and calories but rich in fiber with about 90% water. Bamboo shoot forms traditional delicacy in North-Eastern region of India. Bamboo shoot is consumed either raw or processed because of its exotic taste and flavor. Bamboo shoots are very seasonal, short-lived and perishable in nature. Edible fresh bamboo shoot is available only during June to October. Therefore, the processing of bamboo shoots for preservation becomes important to make product available for round the year. **In the DPR, bamboo shoots are processed into bamboo shoots pickle and dried bamboo shoots powder.**

### **Market Potential**

The use of bamboo as food in India is mainly restricted to Northeastern part of the country where they form an indispensable part of several traditional specialty dishes. They either consume the bamboo shoots either fresh in the harvesting season and majorly in the form of pickles in the off-season. The prospect of bamboo shoot industry in Northeast India is bright due to its rich genetic resources of bamboos. Due to the variety of health benefits, bamboo shoots are of high demand in national as well as international markets. Processed bamboo shoots have a very good demand from restaurants, caterers, other caterers, etc.

### **Product Uses**

Bamboo shoots are mostly used for consumption in various forms such as pickles, curries, soups, etc. It is one of the main traditional food of the North-east India. The product act as an important ingredient for various recipes. Also, these shoots are used in pharmaceutical industry.

### **Manufacturing Process**

**PRE-TREATMENT:** Removal of Anti-nutrients such as **Cyanoglycosides (Taxiphyllin)**. This pre-treatment can be in the form of boiling, blanching, steaming and soaking in water, etc. Such anti-nutrients can cause general sickness, diarrhea, goiter, etc.

## MANUFACTURING PROCESS –

**Bamboo shoots Pickle** processing starts with thorough washing followed by peeling off the skin, shredding, slicing and cutting into small pieces. Next, they are boiled for about 10 min to remove bitterness and unwanted matter. This is followed by storing in brine solution with 5% salt and 1% citric acid. After that, necessary ingredients and oil are added and mixed thoroughly before packaging in suitable jars.



**Dried bamboo shoots powder** is prepared by giving direct sunlight to the bamboo shoots. After drying, these bamboo shoots are crushed in a crushing machine into a fine powder which is used as a spice in many dishes.

## Cost of Project

Particulars	Amount (Rs. in Lakhs)
Land (Own)	-
Civil Works and Building	14.40
Plant & Machinery (Annexure)	22.90
Miscellaneous fixed assets	2.20
Escalation & Contingencies	1.98
Preliminary & Preoperative Expenses	0.42
<b>Sub-total (A)</b>	<b>41.89</b>
Working Capital Margin @40% of Total WC Requirement	2.24
<b>Total Project Cost</b>	<b>44.13</b>
Total Working Capital Req. (25% of 1st Year Proj. Turnover) (B)	5.61
<b>MEANS OF FINANCE</b>	
<b>Total Funds Required (A+B)</b>	<b>47.50</b>
<u>Loan Component-</u>	
TERM LOAN (60% of A)	25.13
WORKING CAPITAL (60% of B)	3.36
<b>Total</b>	<b>28.50</b>
Equity	19.00
<b>Total</b>	<b>47.50</b>

## Detailed Cost Element

SL	Particulars	Quantity	Rate	Amount (Rs. in Lakhs)
1	Slicing Machine	1	70000	0.70
2	Grinder and Mixer Machine	2	30000	0.60
3	Heating Kennel	1	80000	0.80
4	Burner Stove	2	40000	0.80
5	Pickle Filling Machine	1	180000	1.80
6	Cap Sealing Machine	1	120000	1.20
7	Drying Machine	1	200000	2.00
8	Crushing Machine	2	150000	3.00
9	Storage Drums	-	LS	10.00
10	Material handling and other Equipments	1	200000	2.00
	<b>Total</b>			<b>22.90</b>

## Contingencies and Escalations

It has been assumed at approximately 5% at cost.

## Preliminary Expenses

Particulars	Amount (Rs. in Lakhs)
Incorporation Expenses	0.02
Project Report Preparation and Consultation	0.03
Feasibility and Engineer's/Architect's Report and Plans	0.05
Legal Charges - Drafting for agreements, contracts, stamp paper, notary and affidavit cost	0.02
Interest Cost for period before commercial operations	0.30
<b>Total</b>	<b>0.42</b>

## Salary

Designation	Manpower	Amount (Rs. In Lakhs)
Workers	4	2.16

## Profitability Statement

Particulars	Amount (Rs. in Lakhs)				
	Year- 1	Year- 2	Year- 3	Year- 4	Year- 5
<b><u>A. INCOME</u></b>					
Production Capacity (kgs/annum)	15000	15000	15000	15000	15000
Capacity Utilization	65%	70%	75%	80%	85%
Production During the year	9750	10500	11250	12000	12750
Annual Revenue	22.43	24.15	25.88	27.60	29.33
<b>Total revenue during the year</b>	<b>22.43</b>	<b>24.15</b>	<b>25.88</b>	<b>27.60</b>	<b>29.33</b>
<b><u>B. OPERATING EXPENSES</u></b>					
Raw Material	9.75	10.50	11.25	12.00	12.75
Salary	2.16	2.20	2.25	2.29	2.34
Repair & Maintenance	0.22	0.24	0.26	0.28	0.29
Power & utilities	0.92	0.94	0.96	0.97	0.99
Depreciation and Amortization	2.42	2.42	2.42	2.42	2.42
<b>Total Operating Expenses</b>	<b>15.47</b>	<b>16.30</b>	<b>17.13</b>	<b>17.96</b>	<b>18.80</b>
<b>Operating Profit (A-B)</b>	<b>6.95</b>	<b>7.85</b>	<b>8.74</b>	<b>9.64</b>	<b>10.53</b>
<b><u>C. FINANCIAL EXPENSES</u></b>					
Interest on loan	2.00	1.69	1.39	1.08	0.75
Interest on working capital loan	0.29	0.29	0.29	0.29	0.29
<b><u>D. Other Expenses</u></b>					
Administrative and General Expenses	0.11	0.12	0.12	0.13	0.14
<b>Total Expenses</b>	<b>2.39</b>	<b>2.09</b>	<b>1.80</b>	<b>1.50</b>	<b>1.17</b>
<b>Profit before Tax</b>	<b>4.56</b>	<b>5.75</b>	<b>6.95</b>	<b>8.14</b>	<b>9.36</b>
Provision for Tax	1.14	1.44	1.74	2.03	2.34
<b>Profit After Tax</b>	<b>3.42</b>	<b>4.31</b>	<b>5.21</b>	<b>6.10</b>	<b>7.02</b>
Dividend	0.00	0.00	0.00	0.00	0.00
<b>Retained Profits</b>	<b>3.42</b>	<b>4.31</b>	<b>5.21</b>	<b>6.10</b>	<b>7.02</b>

## Breakeven Point

Break Even Point (BEP)				Amount (Rs. in Lakhs)		
SL	Particulars	Year - 1	Year - 2	Year - 3	Year - 4	Year - 5
A.	Net Sales	22.43	24.15	25.88	27.60	29.33
B.	Variable Cost					
	Raw Material	9.75	10.50	11.25	12.00	12.75
	Power and Utility	0.92	0.94	0.96	0.97	0.99
	<b>Total Variable Cost</b>	<b>10.67</b>	<b>11.44</b>	<b>12.21</b>	<b>12.97</b>	<b>13.74</b>
C.	<b>Contribution (A-B)</b>	<b>11.76</b>	<b>12.71</b>	<b>13.67</b>	<b>14.63</b>	<b>15.58</b>
D.	Fixed Cost					
	Salary	2.16	2.20	2.25	2.29	2.34
	Repair & Maintenance	0.22	0.24	0.26	0.28	0.29
	Interest on term Loan	2.00	1.69	1.39	1.08	0.75
	Interest on working capital loan	0.29	0.29	0.29	0.29	0.29
	Depreciation	2.42	2.42	2.42	2.42	2.42
	<b>Total Fixed Cost</b>	<b>7.09</b>	<b>6.84</b>	<b>6.60</b>	<b>6.36</b>	<b>6.09</b>
E.	<b>Breakeven Point</b>	<b>60%</b>	<b>54%</b>	<b>48%</b>	<b>43%</b>	<b>39%</b>
F.	<b>Cash BEP</b>	<b>40%</b>	<b>35%</b>	<b>31%</b>	<b>27%</b>	<b>24%</b>

## Debt-Service Coverage Ratio

				Amount (Rs. in Lakhs)		
SL	Particulars	Year- 1	Year- 2	Year- 3	Year- 4	Year- 5
i	Profit	3.42	4.31	5.21	6.10	7.02
ii	Depreciation	2.42	2.42	2.42	2.42	2.42
iii	Interest	2.00	1.69	1.39	1.08	0.75
A	<b>Total (i + ii+ iii)</b>	<b>7.84</b>	<b>8.43</b>	<b>9.02</b>	<b>9.61</b>	<b>10.19</b>
i	Interest	2.00	1.69	1.39	1.08	0.75
ii	Principal repayment	3.59	3.59	3.59	3.59	3.59
B	<b>Total (i + ii)</b>	<b>5.59</b>	<b>5.28</b>	<b>4.98</b>	<b>4.67</b>	<b>4.34</b>
	<b>DSCR (A / B)</b>	<b>1.40</b>	<b>1.60</b>	<b>1.81</b>	<b>2.06</b>	<b>2.35</b>

## Interest on Term Loan and Principal Repayment

Refer Annexure I for Loan Repayment Schedule.

We have assumed the repayment tenure of term loan for a period of 7 years, Rate of interest being 8.5% p.a. and moratorium of 3 months.

## Address of Vendors

Name of Vendor	Address and Contact Number
Sagar Trading	Jalpaiguri Ph No.: 98000 89005
Gandhi Spices Pvt. Ltd.	Satta Bazaar, Rajkot Ph No.: 0281 223 2473
Sumit Udyog Pvt.Ltd.	Bawana Industrial Area, New Delhi Ph No.: 080 4807 7820

# ANNEXURE- I

Year	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Annually
I													
<b>Principal</b>													
Opening	25.13	24.83	24.54	24.24	23.94	23.64	23.34	23.04	22.74	22.44	22.14	21.84	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	24.83	24.54	24.24	23.94	23.64	23.34	23.04	22.74	22.44	22.14	21.84	21.54	
<b>Interest</b>	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.15	2.00
II													
<b>Principal</b>													
Opening	21.54	21.24	20.95	20.65	20.35	20.05	19.75	19.45	19.15	18.85	18.55	18.25	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	21.24	20.95	20.65	20.35	20.05	19.75	19.45	19.15	18.85	18.55	18.25	17.95	
<b>Interest</b>	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	1.69
III													
<b>Principal</b>													
Opening	17.95	17.65	17.35	17.06	16.76	16.46	16.16	15.86	15.56	15.26	14.96	14.66	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	17.65	17.35	17.06	16.76	16.46	16.16	15.86	15.56	15.26	14.96	14.66	14.36	
<b>Interest</b>	0.13	0.13	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.10	1.39
IV													
<b>Principal</b>													
Opening	14.36	14.06	13.76	13.46	13.17	12.87	12.57	12.27	11.97	11.67	11.37	11.07	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	14.06	13.76	13.46	13.17	12.87	12.57	12.27	11.97	11.67	11.37	11.07	10.77	
<b>Interest</b>	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	1.08
V													
<b>Principal</b>													
Opening	10.77	10.47	10.17	9.87	9.57	9.28	8.98	8.68	8.38	8.08	7.78	7.48	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	10.47	10.17	9.87	9.57	9.28	8.98	8.68	8.38	8.08	7.78	7.48	7.18	
<b>Interest</b>	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.75
VI													
<b>Principal</b>													
Opening	7.18	6.88	6.58	6.28	5.98	5.69	5.39	5.09	4.79	4.49	4.19	3.89	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	6.88	6.58	6.28	5.98	5.69	5.39	5.09	4.79	4.49	4.19	3.89	3.59	
<b>Interest</b>	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.45
VII													
<b>Principal</b>													
Opening	3.59	3.29	2.99	2.69	2.39	2.09	1.80	1.50	1.20	0.90	0.60	0.30	
Repaid	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	3.59
Closing	3.29	2.99	2.69	2.39	2.09	1.80	1.50	1.20	0.90	0.60	0.30	0.00	
<b>Interest</b>	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.14