

# MSME PROJECT PROFILES

Vol-2  
Food Processing Sector



North Eastern Development Finance Corporation Ltd.

## MSME PROJECT PROFILES

100 Micro, Small and Medium Enterprises (MSME) Project Profiles have been prepared as per the mandate of the MoU agreement signed with Ministry of Development of North Eastern Region (MDoNER) for the financial year 2012-13 under TEDF fund administered by NEDFi. The main objective of this initiative is to assist the first generation entrepreneurs as well as other entrepreneurs of the north-eastern region regarding business venture opportunities, market details, technical & financial aspects and addresses of machinery suppliers etc. with updated information.

The Project profiles are available in 4 (Four) volumes containing 25 sector-wise profiles each.



Agriculture and Allied Sector



Food Processing Sector



Manufacturing and  
Miscellaneous Sector



Services and Tiny Sector

Price: Rs. 1,000/- Per Volume.

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**Disclaimer:** The Project Cost estimates indicated in the Project Profiles were calculated based on the information available and the market price prevailing at the time of preparation of the Project Profiles. However, actual Project Cost may vary depending on the project location, applicable charges prevailing in the area, cost of infrastructure/input and capital expenditure etc.



पबन सिंह घाटोवार  
**Paban Singh Ghatowar**



राज्य मंत्री (स्वतंत्र प्रभार)  
उत्तर पूर्वी क्षेत्र विकास मंत्रालय  
एवं  
संसदीय कार्य राज्यमंत्री  
भारत सरकार

Minister of State (Independent Charge)  
Ministry of Development of North Eastern Region  
&  
Minister of State for Parliamentary Affairs  
Government of India

## **MESSAGE**

I am happy that the North Eastern Development Finance Corporation Ltd. (NEDFi) has brought out a compendium of 100 Projects Profiles in the Micro, Small and Medium Enterprises (MSME) Sectors based on the Pre-investment Feasibility Studies. These Project Profiles would help first generation as well as the existing Entrepreneurs of the Region in selection of suitable business ideas based on market demand and help them prepare project reports.

MSME sector plays a crucial role in Indian economy in terms of employment generation, development of entrepreneurial base and production of goods and services. The sector is particularly relevant in North Eastern context because it involves lower capital cost than the large industries and also help in industrialization of rural and backward areas. As we know North East Region faces variety of challenges viz., poor infrastructure, inadequate supply of power, lack of skilled manpower, difficult terrain, inadequate industrial land etc; MSME sector has got promising potential to provide suitable solutions.

The Government of India is committed for the development of North Eastern Region and thus is making necessary interventions from time to time, 10% gross budgetary allocation is being inverted in North Eastern Region from the allocation of non-exempted Ministries.

I commend NEDFi for the initiative in helping budding Entrepreneurs which will eventually lead to accelerate the pace of industrial and economic development in the North Eastern Region.

**(Paban Singh Ghatowar)**

यू के संगमा

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3<sup>rd</sup> October, 2013



### **MESSAGE**

I am glad that the North Eastern Development Finance Corporation Ltd. (NEDFi) as a part of its ongoing effort to guide first generation entrepreneurs has brought out a compendium of 100 Project Profiles in the MSME Sector. The project profile will facilitate new entrepreneurs for identification of the projects and help them to prepare detailed project reports. The existing entrepreneurs looking for diversification may as well can use the compendium as a tool to analyze available options.

I urge upon potential young entrepreneurs to make full use of the compendium and take forward the entrepreneurial movement in the region.

  
(U.K. Sangma)

# FOREWORD

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The Micro, Small and Medium Enterprises (MSME) segment is a key source of economic growth and capital formation. The development of MSME sector leads to a greater utilisation of natural resources, production of goods and services, creation of employment opportunities and improvement in the general standard of living.

Being the Development Financial Institution of the North Eastern Region for the past 16 years, we have witnessed slow growth of industrial development, particularly in the Micro and Small Enterprises (MSE) sector despite abundant natural resources and supportive government policies and incentives.

It has always been the endeavour of NEDFi to create an enabling environment by providing hand holding support services to the entrepreneurs apart from extending financial assistance, in the MSME sector. Recently, the Corporation has taken a major initiative in setting up Business Facilitation Centres in the NE states to assist, guide and mentor potential entrepreneurs of North East.

To further assist the entrepreneurs of the region, NEDFi has developed 100 MSME Project Profiles. We hope that these Project Profiles would help first generation as well as the existing entrepreneurs of the region in selecting suitable business ideas based on market demand, availability of resources and of course their individual skills & expertise.

**B. Paul Muktieh**  
Chairman cum Managing Director



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# BAKERY



## 1.0 INTRODUCTION

Bakery is a traditional activity and occupies an important place in food processing industry. Despite the advent of fully automatic/semi-automatic bread and biscuit making plants, a sizeable number of people still prefer fresh bread and other products from bakery. Bread and biscuit consumption is more in cities and towns where industrial working group population is more. They are also being increasingly used for various feeding programmes managed by voluntary agencies and government departments.

This project profile is for setting up of Bakery for bread and biscuits making unit with installed production capacity of 240 kgs of bread and 25 kgs of biscuits per day.

## 2.0 MARKET POTENTIAL

India produces more than 80 million tonnes of wheat. Most of it is used for direct consumption in the form of chapati & bakery products. The per capita consumption of bakery products in India is about 2 kg per annum, against 50-100 kg bread alone in western countries. Consumption of bread and biscuits is increasing at estimated rate of 135% with a scope for further enhancement. The bread and biscuits making unit in

small towns and villages will meet the local demands as the consumers are compelled to buy branded ones sourced from outside in absence of fresh products which are made locally.

## 3.0 PROCESS DETAILS

**3.1 Bread:** The production process of bread is as follows.

- (i) Sifting of flour
- (ii) Preparation of suspension
- (iii) Preparation of dough by kneading all the ingredients
- (iv) Fermentation of dough
- (v) Baking
- (vi) Cooling and packing.

**3.2 Biscuit:** The production process of biscuit is as follows

- (i) Mixing of ingredients except flour in required proportion in paste form
- (ii) Preparation of dough by mixing with flour
- (iii) Placing dough in biscuit moulding and cutting machine
- (iv) Baking
- (v) Cooling and packing.



**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

Particulars	Amount (Rs Lacs)
Land & Site Development	-
Building & Civil Works	4.03
Machinery & Equipments	3.03
Misc. Fixed Assets	1.68
Preliminary & Pre-operative Expenses	0.59
Contingencies & Escalation @ 3%	0.26
Working Capital	1.02
<b>TOTAL</b>	<b>10.62</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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)
Factory Building (Half brick wall, CGI sheet roof, Concrete Floor)	80	4500	360000
Add: Electrification, water supply, etc @ 12%			43200
<b>TOTAL</b>			<b>403200</b>
<b>Say (Rs. in lacs)</b>			<b>4.03</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Dough Kneader	1	275000	275000
Flour Sifter	1		
Hand Dividers	4		
Oven	1		
Baby boiler	1		
Moulds & Dies			
Weighing Scale	1		
Mixing Vessels	4		
Miscellaneous items			
Add: Installation, transportation, etc @ 10%			27500
<b>TOTAL</b>			<b>302500</b>
<b>Say (Rs. in lacs)</b>			<b>3.03</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (20 HP)	1	150000	150000
Furniture & fixtures	LS	LS	5000
Miscellaneous items	LS	LS	5000
<b>Sub total</b>			<b>160000</b>
Add: Installation, transportation, etc @ 5%			8000
<b>TOTAL</b>			<b>168000</b>
<b>Say (Rs. in lacs)</b>			<b>1.68</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.14
Miscellaneous expenses	0.05
<b>TOTAL</b>	<b>0.59</b>

**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	0.34	0.39	0.45
Power	30	0.06	0.07	0.08
Salary	30	0.22	0.22	0.22
Receivables	15	0.40	0.47	0.53
Total		1.02	1.16	1.29
Working Capital Margin in Year 1 (100%)	1.02			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.25
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.37
TOTAL	100%	10.62

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Installed capacity (Nos/annum)					
(a) Bread	180000	180000	180000	180000	180000
(b) Biscuit	30000	30000	30000	30000	30000
Capacity utilisation	60%	70%	80%	80%	80%
Production at capacity utilisation					
(a) Bread	108000	126000	144000	144000	144000
(b) Biscuit	18000	21000	24000	24000	24000
Price (Rs/packet)					
(a) Bread	6	6	6	6	6
(b) Biscuit	18	18	18	18	18
Income from sales/annum (Rs lacs)	9.72	11.34	12.96	12.96	12.96
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	4.11	4.80	5.48	5.48	5.48
Power	0.75	0.88	1.00	1.00	1.00
Salary	2.70	2.71	2.73	2.74	2.75
Repair & Maintenance	0.13	0.14	0.15	0.17	0.18
Selling Expenses	0.10	0.11	0.13	0.13	0.13
Miscellaneous Expenses	0.05	0.06	0.06	0.06	0.06
Total Operating Expenses	7.84	8.70	9.56	9.59	9.62
Less: Working expenses capitalised	1.02	0.00	0.00	0.00	0.00
Operating profit	2.91	2.64	3.40	3.37	3.34
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.40	0.40	0.40	0.40	0.40
Interest on Term Loan	0.51	0.42	0.30	0.18	0.06
Net Profit	2.00	1.82	2.70	2.79	2.88
Net cash accruals	2.40	2.22	3.10	3.19	3.28
Principal Repayment	0.37	1.50	1.50	1.50	1.50

**6.1 Production Capacity:** Total production of bread and biscuit at installed capacity is estimated as below.

<u>Rated plant capacity (per day)</u>	
(a) Bread (kg)	240
(b) Biscuit (kg)	25
<u>Weight of each packaged product</u>	
(a) Bread (kg)	0.40
(b) Biscuit (kg)	0.25
<u>Production/day</u>	
(a) Bread (Nos.)	600
(b) Biscuit (Nos.)	100
<u>Days/annum</u>	300
<u>Total production per annum at installed capacity (No. of packets)</u>	
(a) Bread (Nos.)	180000
(b) Biscuit (Nos.)	30000

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

Particulars	Qty (Tonnes)	Rate (Rs)	Amount (Rs)
Flour	52	8000	416000
Yeast	0.8	22000	17600
Sugar	3.3	17000	56100
Ghee	2.5	45000	112500
Milk Powder	0.2	80000	16000
Salt	1.2	4000	4800
Total			623000
Add: Packing materials, consumables, etc @ 10%			62300
Expenses on raw materials & consumables at installed capacity (Rs)			685300

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

Connected load (kw)	14.92
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	25066
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	125328

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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)	-	-	-
Technicians/ machine operators	2	5000	120000
Helpers	5	2500	150000
Expenses on salary in the 1st year (Rs)			270000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> 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 (Rs lacs)
Building & Civil Works	4.03	1%	0.04
Machinery & Equipment	3.03	2%	0.06
Misc. Fixed assets	1.68	2%	0.03
Expenses on repair & maintenance in year 1			0.13

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	4.03	3.34%	0.13
Machinery & Equipment	3.03	5.28%	0.16
Misc. Fixed assets	1.68	6.33%	0.11
<b>TOTAL</b>			<b>0.40</b>

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. 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	6.37	6.00	4.50	3.00	1.50
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.87	4.37	2.87	1.37
Month 2	Opening balance	6.37	5.87	4.37	2.87	1.37
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.75	4.25	2.75	1.25
Month 3	Opening balance	6.37	5.75	4.25	2.75	1.25
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.62	4.12	2.62	1.12
Month 4	Opening balance	6.37	5.62	4.12	2.62	1.12
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.50	4.00	2.50	1.00
Month 5	Opening balance	6.37	5.50	4.00	2.50	1.00
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.37	3.87	2.37	0.87
Month 6	Opening balance	6.37	5.37	3.87	2.37	0.87
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.37	5.25	3.75	2.25	0.75
Month 7	Opening balance	6.37	5.25	3.75	2.25	0.75
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.37	5.12	3.62	2.12	0.62
Month 8	Opening balance	6.37	5.12	3.62	2.12	0.62
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.37	5.00	3.50	2.00	0.50
Month 9	Opening balance	6.37	5.00	3.50	2.00	0.50
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.37	4.87	3.37	1.87	0.37
Month 10	Opening balance	6.37	4.87	3.37	1.87	0.37
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.25	4.75	3.25	1.75	0.25
Month 11	Opening balance	6.25	4.75	3.25	1.75	0.25

	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.12	4.62	3.12	1.62	0.12
Month 12	Opening balance	6.12	4.62	3.12	1.62	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.00	4.50	3.00	1.50	0.00
	Principal Repayment	0.37	1.50	1.50	1.50	1.50
	Interest	0.51	0.42	0.30	0.18	0.06

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.00	1.82	2.70	2.79	2.88	
Depreciation	0.40	0.40	0.40	0.40	0.40	
Interest	0.51	0.42	0.30	0.18	0.06	
Total	2.91	2.64	3.40	3.37	3.34	15.66
Interest	0.51	0.42	0.30	0.18	0.06	
Loan repayment	0.37	1.50	1.50	1.50	1.50	
Total	0.88	1.92	1.80	1.68	1.56	7.86
DSCR	3.29	1.37	1.89	2.00	2.14	

Average DSCR = 1.99

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	9.72	11.34	12.96
B. Variable cost			
Raw Materials & Consumables	4.11	4.80	5.48
Power	0.75	0.88	1.00
Selling Expenses	0.10	0.11	0.13
Miscellaneous Expenses	0.05	0.06	0.06
Total variable cost	5.01	5.84	6.68
C. Contribution (A-B)	4.71	5.50	6.28
D. Fixed & Semi-fixed Costs			
Salary	2.70	2.71	2.73
Repair & maintenance	0.13	0.14	0.15
Interest on Term Loan	0.51	0.42	0.30
Depreciation	0.40	0.40	0.40
Total fixed cost	3.73	3.68	3.59
E. BREAK EVEN POINT	79.28%	66.93%	57.09%
F. BEP at operating capacity	47.57%	46.85%	45.67%
G. Cash BEP	42.46%	41.74%	40.56%



**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

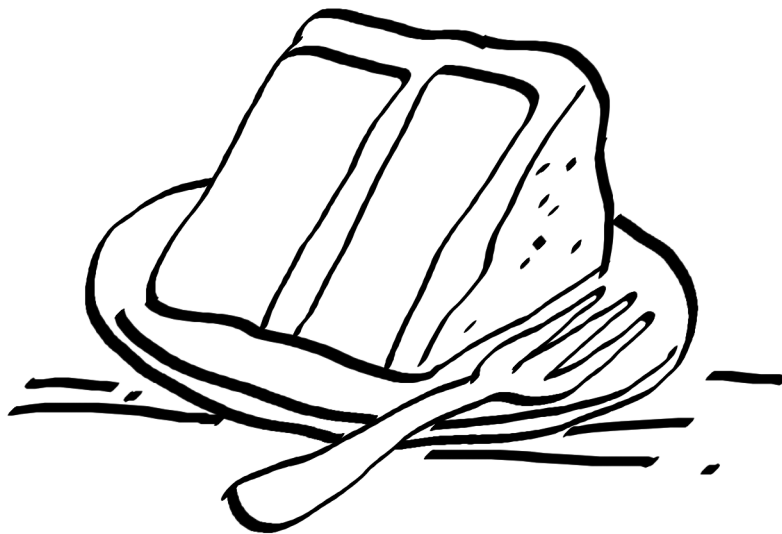
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	9.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.02	0.13	0.13	0.00	0.00
Total (A)	9.00	1.02	0.13	0.13	0.00	0.00
<b>CASH INFLOW</b>						
Profit After Tax		2.00	1.82	2.70	2.79	2.88
Add: Depreciation		0.40	0.40	0.40	0.40	0.40
Add: Interest		0.51	0.42	0.30	0.18	0.06
Add: Salvage Value						
Total (B)	0.00	2.91	2.64	3.40	3.37	3.34
<b>NET FLOW (B-A)</b>	-9.00	1.88	2.51	3.27	3.37	3.34

IRR = 16%

**MACHINERY SUPPLIERS**

- (a) Baker Enterprises  
23, Bhera Enclave, Paschim Vihar, New Delhi - 110 087, Delhi, India
- (b) Kanteen India Equipments Co.  
C. B - 59, Sector - 1, Salt Lake City, Near P. N. B., Tank No. 2, Opposite Mafatlal Showroom, Kolkata - 700 064, West Bengal, India
- (c) Perfect Bakery Engineers  
Plot No. 266, Near Shivalik Play School, Tops Achar Factory Road, Matiyala Gaon, Uttam Nagar, New De lhi - 110 059, Delhi, India

# CAKES & PASTRIES



## 1.0 INTRODUCTION

Bakery products have become very popular throughout the country. Breads and biscuits are the most common products but other items like cakes, pastries, cream-rolls, cookies etc. are also not lagging far behind. These items are consumed by people of all age groups across the board. Nature of these products is such that the promoters prefer fresh items. Shelf life of cakes & pastries is limited and thus local promoters enjoy distinct advantage. In spite of continuous increase in the consumption of these items during last few years, the per capita consumption is still very low compared to the advanced countries. There is, thus, good scope for these items.

Cakes & pastries are sweet wheat preparations usually made with beaten eggs and yeast as they act as aerating agents. These are, thus, concentrated foods of high caloric value with rich in fat. There are many varieties and flavours of cakes & pastries.

This project profile is for setting up of a Cake & Pastries making unit with installed production capacity of 50 kg per day.

## 2.0 MARKET POTENTIAL

Changing lifestyles and increase in the standard of living have changed the eating habits of people with liking for instant or ready-to-eat food items. This trend has spread throughout the country in all age groups and now even

people from the rural areas have also joined this bandwagon. Bakery products fall under the same category and apart from bread and biscuits; items like cakes, pastries, cream-rolls, cookies etc. have become very popular.

Established brands try to enter this market in a big way but they face difficulty in capturing the market as the consumer preference is always for freshly prepared cakes or pastries. There are always some well-known bakers even in small towns. Thus, opportunities for starting Cake & Pastries making unit are huge.

## 3.0 PROCESS DETAILS

To make cakes, wheat flour and baking powder along with cream, sugar and ghee is mixed thoroughly till it becomes fluffy. Then mixture of beaten eggs is added to it along with caramel colour and chopped fruits and the mixture is poured into cake pans and baked for around 30-40 minutes. Pastries are made in different shapes like square, rectangular etc. from thick cake sheets. Butter cream, jam, etc are placed between layers of cake. The layered cake is then chilled and cut with sharp knife in the required shape and size. Sides of the pieces are iced with butter cream or fudge and topped with finely ground cake crumbs or pieces of fruits or chocolate strips and decorated with proper design, colour and garnish.

There are no standard flavours or varieties and preference of local population need to be kept in mind. There is very good scope to introduce new varieties palatable to local tastes.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.75
Machinery & Equipment	4.21
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.61
Contingencies & Escalation @ 3%	0.33
Working Capital	2.08
<b>TOTAL</b>	<b>13.98</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 (Half brick wall, CGI roof, Concrete floor)	100	3500	350000
Store (Brick wall, CGI roof, Concrete floor)	20	4500	90000
Add: Electrification, etc @ 10%			35000
<b>TOTAL</b>			<b>475000</b>
<b>Say (Rs. in lacs)</b>			<b>4.75</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Flour Sifter	1	67000	67000
Egg Beater	1	36000	36000
Cake Mixer	1	110000	110000
Sugar Pulveriser	1	54000	54000
Electrically-operated Oven	1	36000	36000
Baking Pans and Moulds	LS	LS	30000
Miscellaneous items	LS	LS	50000
<b>Sub-total</b>			<b>383000</b>
Add: Transportation, taxes, etc @ 10%			38300
<b>TOTAL</b>			<b>421300</b>
<b>Say (Rs. in lacs)</b>			<b>4.21</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (20 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.10
Interest during implementation	0.21
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.61</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment 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	0.73	0.87	1.02
Power	30	0.05	0.06	0.07
Salary	30	0.56	0.57	0.57
Receivables	15	0.74	0.89	1.04
<b>Total</b>		<b>2.08</b>	<b>2.39</b>	<b>2.70</b>
Working Capital Margin in Year 1 (100%)	2.08			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	5.59
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	8.39
<b>TOTAL</b>	<b>100%</b>	<b>13.98</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Installed capacity (kg/annum)	15000	15000	15000	15000	15000	15000	15000
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at capacity utilisation	7500	9000	10500	10500	10500	10500	10500
Avg. Selling Price (Rs/kg)	240	240	240	240	240	240	240
Income from sales/annum	18.00	21.60	25.20	25.20	25.20	25.20	25.20
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	8.87	10.64	12.41	12.41	12.41	12.41	12.41
Power	0.63	0.75	0.88	0.88	0.88	0.88	0.88
Salary	6.84	6.87	6.91	6.94	6.98	7.01	7.05
Repair & Maintenance	0.11	0.13	0.16	0.19	0.23	0.27	0.33
Selling Expenses	0.18	0.22	0.25	0.25	0.25	0.25	0.25
Miscellaneous Expenses	0.09	0.11	0.13	0.13	0.13	0.13	0.13
Total Operating Expenses	16.71	18.72	20.73	20.80	20.87	20.95	21.04
Less: working expenses capitalised	2.08	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	3.37	2.88	4.47	4.40	4.33	4.25	4.16
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Interest on Term Loan	0.67	0.60	0.49	0.38	0.27	0.17	0.06
Net Profit	2.19	1.78	3.47	3.51	3.55	3.58	3.59
Net cash accruals	2.70	2.29	3.98	4.02	4.06	4.08	4.10
Principal Repayment	0.34	1.34	1.34	1.34	1.34	1.34	1.34

**6.1 Production capacity:** Total production of cakes and pastries at installed capacity is estimated as below.

Rate production capacity per day (kg)	50
Days/annum	300
Production of cakes & pastries per annum at installed capacity (kg)	15000

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

Particulars	Unit	Usage rate/ kg	Quantity/ annum	Price (Rs/unit)	Amount (Rs)
Wheat flour	kg	0.40	6000	25	150000
Sugar	kg	0.40	6000	35	210000
Ghee	kg	0.25	3750	250	937500
Eggs	Nos	4	60000	3	180000
Sub total					1477500
Add: Expense on additives @ 15%					221625
Add: Packing materials @ 5%					73875
Expenses on raw materials & consumables at installed capacity (Rs)					1773000

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

A. Expenses on power

Connected load (kw)	15
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	125328

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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)	-	-	-
Skilled workers	4	8000	384000
Salespersons	2	5000	120000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			684000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil Works	4.75	1%	0.05
Machinery & Equipment	4.21	1%	0.04
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.11

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	4.75	3.34%	0.16
Machinery & Equipment	4.21	5.28%	0.22
Misc. Fixed Assets	2.00	6.33%	0.13
TOTAL			0.51



**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 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	6	7
Month 1	Opening balance	8.39	8.05	6.71	5.37	4.03	2.68	1.34
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest (8%)	0.06	0.05	0.04	0.04	0.03	0.02	0.01
	Closing balance	8.39	7.94	6.60	5.26	3.91	2.57	1.23
Month 2	Opening balance	8.39	7.94	6.60	5.26	3.91	2.57	1.23
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.04	0.03	0.02	0.01
	Closing balance	8.39	7.83	6.49	5.14	3.80	2.46	1.12
Month 3	Opening balance	8.39	7.83	6.49	5.14	3.80	2.46	1.12
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.03	0.02	0.01
	Closing balance	8.39	7.72	6.38	5.03	3.69	2.35	1.01
Month 4	Opening balance	8.39	7.72	6.38	5.03	3.69	2.35	1.01
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.02	0.01
	Closing balance	8.39	7.61	6.26	4.92	3.58	2.24	0.89
Month 5	Opening balance	8.39	7.61	6.26	4.92	3.58	2.24	0.89
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.01
	Closing balance	8.39	7.49	6.15	4.81	3.47	2.13	0.78
Month 6	Opening balance	8.39	7.49	6.15	4.81	3.47	2.13	0.78
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.01
	Closing balance	8.39	7.38	6.04	4.70	3.36	2.01	0.67
Month 7	Opening balance	8.39	7.38	6.04	4.70	3.36	2.01	0.67
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.39	7.27	5.93	4.59	3.24	1.90	0.56
Month 8	Opening balance	8.39	7.27	5.93	4.59	3.24	1.90	0.56
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.39	7.16	5.82	4.47	3.13	1.79	0.45
Month 9	Opening balance	8.39	7.16	5.82	4.47	3.13	1.79	0.45
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.39	7.05	5.70	4.36	3.02	1.68	0.34
Month 10	Opening balance	8.39	7.05	5.70	4.36	3.02	1.68	0.34
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.28	6.93	5.59	4.25	2.91	1.57	0.22
Month 11	Opening balance	8.28	6.93	5.59	4.25	2.91	1.57	0.22
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.16	6.82	5.48	4.14	2.80	1.45	0.11
Month 12	Opening balance	8.16	6.82	5.48	4.14	2.80	1.45	0.11
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.05	6.71	5.37	4.03	2.68	1.34	0.00
Principal Repayment		0.34	1.34	1.34	1.34	1.34	1.34	1.34
Interest		0.67	0.60	0.49	0.38	0.27	0.17	0.06

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	2.19	1.78	3.47	3.51	3.55	3.58	3.59	
Depreciation	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Interest	0.67	0.60	0.49	0.38	0.27	0.17	0.06	
Total	3.37	2.88	4.47	4.40	4.33	4.25	4.16	27.86
Interest	0.67	0.60	0.49	0.38	0.27	0.17	0.06	
Loan repayment	0.34	1.34	1.34	1.34	1.34	1.34	1.34	
Total	1.00	1.94	1.83	1.72	1.62	1.51	1.40	11.02
DSCR	3.36	1.49	2.44	2.56	2.68	2.82	2.97	

Average DSCR = 2.53

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	18.00	21.60	25.20
B. Variable cost			
Raw Materials & Consumables	8.87	10.64	12.41
Power	0.63	0.75	0.88
Selling Expenses	0.18	0.22	0.25
Miscellaneous Expenses	0.09	0.11	0.13
Total variable cost	9.76	11.71	13.67
C. Contribution (A-B)	8.24	9.89	11.53
D. Fixed & Semi-fixed Costs			
Salary	6.84	6.87	6.91
Repair & maintenance	0.11	0.13	0.16
Interest on Term Loan	0.67	0.60	0.49
Depreciation	0.51	0.51	0.51
Total fixed cost	8.13	8.11	8.06
E. BREAK EVEN POINT	98.64%	82.02%	69.90%
F. BEP at operating capacity	49.32%	49.21%	48.93%
G. Cash BEP	46.24%	46.13%	45.85%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

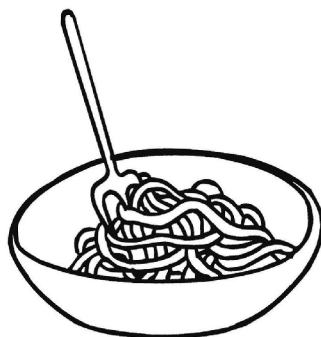
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	11.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.08	0.31	0.31	0.00	0.00	0.00	0.00
Total (A)	11.29	2.08	0.31	0.31	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		2.19	1.78	3.47	3.51	3.55	3.58	3.59
Add: Depreciation		0.51	0.51	0.51	0.51	0.51	0.51	0.51
Add: Interest		0.67	0.60	0.49	0.38	0.27	0.17	0.06
Add: Salvage Value								
Total (B)	0.00	3.37	2.88	4.47	4.40	4.33	4.25	4.16
NET FLOW (B-A)	-11.29	1.29	2.57	4.16	4.40	4.33	4.25	4.16

IRR = 21%

**MACHINERY SUPPLIERS**

- (a) Baker Enterprises, 23, Bhera Enclave, Paschim Vihar, New Delhi - 110 087, Delhi, India
- (b) Kanteen India Equipments Co.  
C. B - 59, Sector - 1, Salt Lake City, Near P. N. B., Tank No. 2, Opposite Mafatlal Showroom, Kolkata - 700 064, West Bengal, India
- (c) Tools & Machinery Stores, No. 10, B. B. B. Basu Road, Kolkata - 700 001, West Bengal, India

# NOODLES



## 1.0 INTRODUCTION

Fresh noodles are an extruded product made of tapioca flour and maida. They are long thread-like food item of 0.22 to 0.4 mm thickness. This is an eatable food item under instant food products and very popular now-a-days as break-fast food. It is one of the most conventional foods available in the market. Noodles is the term being used to designate products made from blend of flours, the major component of which is tapioca flour and maida. Noodle is made in different sizes, hollow as well as solid, for different cooking methods. Some are made for cooking and others are for frying.

This project profile is for setting up of a unit for making noodles for frying, with installed processing capacity of 200 kgs per day.

## 2.0 MARKET POTENTIAL

Noodles and chowmein are very popular in developed countries and now it has created good market potential in our country also and is becoming a popular item. The factors governing its demand are:

- (a) Rapid industrialisation in the country.
- (b) Increase in the purchasing capacity of the people.
- (c) Change in people's eating habits especially the younger generation.
- (d) It is ready-to-eat product.
- (e) Convenience of preparation.

Keeping in view the above factors, the demand of this product is likely to increase manifold in the coming years.

## 3.0 PROCESS DETAILS

The process of manufacturing of noodles is as follows.

**(a) Dry Mixing:** The three ingredients, viz, maida, starch

and soda bicarbonate is blended in a vertical mixer alongwith edible colour.

**(b) Dough Formation:** Satisfactory dough can be made from the above blend only by using boiled water, when a part of the starch is gelatinized. The ingredients are mixed in dough mixer for about 12 to 15 minutes.

**(c) Extrusion:** The kneaded dough is then transferred to noodles making machine where extruded material of desired shape and length is obtained by using an appropriate type of die and suitably adjusting the distance between the dye surface and cutting blade. The moisture content of the product at this stage is about 33%.

**(d) Pre-drying:** The cut noodles from the cutting machine falls on wooden trays. The product undergoes surface drying and becomes sufficiently hard enough to be handled without sticking or being crushed. The moisture content of the pre-dried product is about 29.5%.

**(e) Drying:** The pre-dried product is finally semi dried. The moisture content of the product will be 17%. Drying is done by exposure to indirect sunrays or placing in shade. The noodles dried as above do not have a satisfactory cooking quality and undergo a heavy loss on cooking. This can be reduced considerably by giving heat treatment to the product. This is optional as this gives a brown colour to the product, which may not be appealing to some of the customers.

Sometimes the product is exposed to steam. The steamed product has three advantages: (i) longer shelf-life (ii) harder grain and (iii) better eating quality than unsteamed product. Steaming is done by exposing the product in thin layer to steam for about 15 minutes. The steamed and subsequently dried product has a moisture content of about 10%. The steaming is done before the product is semi-dried.

**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	6.05
Machinery & Equipment	4.14
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.76
Contingencies & Escalation @ 3%	0.37
Working Capital Margin	1.46
<b>TOTAL</b>	<b>14.77</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 roof, Concrete floor)	100	5500	550000
Add: Electrification, water supply, etc @ 10%			55000
<b>TOTAL</b>			<b>605000</b>
<b>Say (Rs. in lacs)</b>			<b>6.05</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Powder Mixer	1	25000	25000
Dough Mixer	1	50000	50000
Noodles Making Machine	1	250000	250000
Miscellaneous items	LS	LS	20000
<b>Sub-total</b>			<b>345000</b>
Add: Transportation, taxes, etc @ 20%			69000
<b>TOTAL</b>			<b>414000</b>
<b>Say (Rs. in lacs)</b>			<b>4.14</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (30 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.30
Professional & other fees	0.20
Interest during implementation	0.16
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.76</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment 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	0.25	0.30	0.35
Power	30	0.08	0.09	0.11
Salary	30	0.33	0.33	0.33
Finished Goods	15	0.52	0.59	0.66
Receivables	7	0.29	0.35	0.40
Total		1.46	1.65	1.85
Working Capital Margin in Year 1 (100%)	1.46			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	5.91
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	8.86
<b>TOTAL</b>	<b>100%</b>	<b>14.77</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Installed capacity (kg/annum)	60000	60000	60000	60000	60000
Capacity utilisation	50%	60%	70%	70%	70%
Production at capacity utilisation	30000	36000	42000	42000	42000
Price (Rs/kg)	50	50	50	50	50
Income from sales/annum	15.00	18.00	21.00	21.00	21.00
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	7.33	8.79	10.26	10.26	10.26
Power	0.94	1.13	1.32	1.32	1.32
Salary	3.96	3.98	4.00	4.02	4.04
Repair & Maintenance	0.17	0.19	0.21	0.23	0.25
Selling Expenses	0.15	0.18	0.21	0.21	0.21
Miscellaneous Expenses	0.08	0.09	0.11	0.11	0.11
Total Operating Expenses	12.62	14.36	16.10	16.14	16.18
Less: Working expenses capitalised	1.46	0.00	0.00	0.00	0.00
Operating profit	3.83	3.64	4.90	4.86	4.82
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.55	0.55	0.55	0.55	0.55
Interest on Term Loan	0.71	0.59	0.42	0.26	0.09
Net Profit	2.58	2.50	3.93	4.06	4.18
Net cash accruals	3.13	3.05	4.48	4.61	4.73
Principal Repayment	0.52	2.09	2.09	2.09	2.09

**6.1 Production Capacity:** Total production of noodles at installed capacity is estimated as below.

Rated processing capacity/day (kg)	200
Days/annum	300
Total production of noodles at installed capacity (kg)	60000

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

Particulars	Composition	Quantity (kg)	Rate (Rs)	Amount (Rs)
Maida	50%	30000	20	600000
Starch	44%	26400	25	660000
Sodium Bicarbonate, salt, etc	6%	3600	20	72000
Total				1332000
Add: Packing materials, etc @ 10%				133200
Expenses on raw materials & consumables at installed capacity (Rs)				1465200

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

Connected load (kw)	22
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	37598
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	187992

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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)	-	-	-
Machine operators/ skilled workers	3	6000	216000
Helpers	5	3000	180000
Expenses on salary in the 1 <sup>st</sup> year (Rs)			396000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> 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 (Rs lacs)
Building & Civil Works	6.05	1%	0.06
Machinery & Equipment	4.14	2%	0.08
Misc. Fixed Assets	2.00	2%	0.03
Expenses on repair & maintenance in year 1			0.17

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	6.05	3.34%	0.20
Machinery & Equipment	4.14	5.28%	0.22
Misc. Fixed Assets	2.00	6.33%	0.13
TOTAL			0.55

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. 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	8.86	8.34	6.26	4.17	2.09
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest (8%)	0.06	0.06	0.04	0.03	0.01
	Closing balance	8.86	8.17	6.08	4.00	1.91
Month 2	Opening balance	8.86	8.17	6.08	4.00	1.91
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.04	0.03	0.01
	Closing balance	8.86	8.00	5.91	3.82	1.74
Month 3	Opening balance	8.86	8.00	5.91	3.82	1.74
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.04	0.03	0.01
	Closing balance	8.86	7.82	5.74	3.65	1.56
Month 4	Opening balance	8.86	7.82	5.74	3.65	1.56
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.04	0.02	0.01
	Closing balance	8.86	7.65	5.56	3.48	1.39
Month 5	Opening balance	8.86	7.65	5.56	3.48	1.39
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.04	0.02	0.01
	Closing balance	8.86	7.47	5.39	3.30	1.22
Month 6	Opening balance	8.86	7.47	5.39	3.30	1.22
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.04	0.02	0.01
	Closing balance	8.86	7.30	5.21	3.13	1.04
Month 7	Opening balance	8.86	7.30	5.21	3.13	1.04
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.03	0.02	0.01
	Closing balance	8.86	7.13	5.04	2.95	0.87
Month 8	Opening balance	8.86	7.13	5.04	2.95	0.87
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.03	0.02	0.01
	Closing balance	8.86	6.95	4.87	2.78	0.70
Month 9	Opening balance	8.86	6.95	4.87	2.78	0.70
	Repayment	0.00	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.03	0.02	0.00
	Closing balance	8.86	6.78	4.69	2.61	0.52
Month 10	Opening balance	8.86	6.78	4.69	2.61	0.52
	Repayment	0.17	0.17	0.17	0.17	0.17
	Interest	0.06	0.05	0.03	0.02	0.00
	Closing balance	8.69	6.60	4.52	2.43	0.35
Month 11	Opening balance	8.69	6.60	4.52	2.43	0.35
	Repayment	0.17	0.17	0.17	0.17	0.17
	Interest	0.06	0.04	0.03	0.02	0.00
	Closing balance	8.52	6.43	4.35	2.26	0.17
Month 12	Opening balance	8.52	6.43	4.35	2.26	0.17
	Repayment	0.17	0.17	0.17	0.17	0.17
	Interest	0.06	0.04	0.03	0.02	0.00
	Closing balance	8.34	6.26	4.17	2.09	0.00
Principal Repayment		0.52	2.09	2.09	2.09	2.09
Interest		0.71	0.59	0.42	0.26	0.09

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.58	2.50	3.93	4.06	4.18	
Depreciation	0.55	0.55	0.55	0.55	0.55	
Interest	0.71	0.59	0.42	0.26	0.09	
Total	3.83	3.64	4.90	4.86	4.82	22.06
Interest	0.71	0.59	0.42	0.26	0.09	
Loan repayment	0.52	2.09	2.09	2.09	2.09	
Total	1.23	2.68	2.51	2.34	2.18	10.93
DSCR	3.12	1.36	1.95	2.08	2.21	

Average DSCR = 2.02

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	15.00	18.00	21.00
B. Variable cost			
Raw Materials & Consumables	7.33	8.79	10.26
Power	0.94	1.13	1.32
Selling Expenses	0.15	0.18	0.21
Miscellaneous Expenses	0.08	0.09	0.11
Total variable cost	8.49	10.19	11.89
C. Contribution (A-B)	6.51	7.81	9.11
D. Fixed & Semi-fixed Costs			
Salary	3.96	3.98	4.00
Repair & maintenance	0.17	0.19	0.21
Interest on Term Loan	0.71	0.59	0.42
Depreciation	0.55	0.55	0.55
Total fixed cost	5.39	5.31	5.18
E. BREAK EVEN POINT	82.75%	67.96%	56.85%
F. BEP at operating capacity	41.37%	40.78%	39.80%
G. Cash BEP	37.17%	36.58%	35.59%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

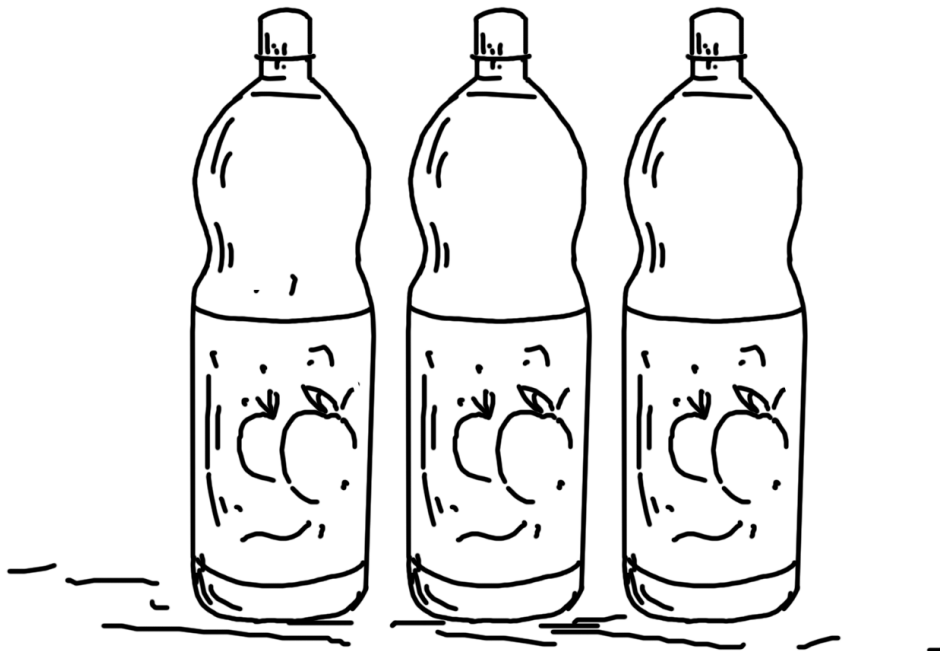
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	12.56	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.46	0.20	0.20	0.00	0.00
Total (A)	12.56	1.46	0.20	0.20	0.00	0.00
<b>CASH INFLOW</b>						
Profit After Tax		2.58	2.50	3.93	4.06	4.18
Add: Depreciation		0.55	0.55	0.55	0.55	0.55
Add: Interest		0.71	0.59	0.42	0.26	0.09
Add: Salvage Value						
Total (B)	0.00	3.83	3.64	4.90	4.86	4.82
<b>NET FLOW (B-A)</b>	-12.56	2.38	3.45	4.71	4.86	4.82

IRR = 16%

**MACHINERY SUPPLIERS**

- (a) Rising Industries Teghoria Loknath Mandir, Jhowtala, Ghosh Dutta Para, Near Honda Service Center, Tanushree Apartment, Kolkata - 700157, West Bengal, India
- (b) Grace Food Processing & Packaging Machinery, 426, 3rd Floor, Zakir Nagar West, Okhla, New Delhi - 110 025, Delhi, India
- (c) Technocraft, Kolkata, No. 5- B, Kundu Lane, Belgachia, Kolkata - 700 037, West Bengal, India

# FRUIT SQUASH



## 1.0 INTRODUCTION

Fruits are an important source of energy for human-beings. But their availability is seasonal and they are perishable. Hence, they need to be processed and preserved which also results in value-addition. India produces many varieties of citrus fruits and the project can be set up in states like Maharashtra, Uttarakhand, HP and the North-Eastern states. The North-East states grow in large quantities many fruits like pineapple, orange, lemon, mango etc. Hence fruit squash making activity on a small scale is suggested.

Squashes are sweetened juice of fruits containing some pulp. They contain at least 25% (by volume) of fruit juice and are consumed after dilution. Squashes also contain added flavours. Since preservatives are added in adequate quantities, the shelf life of squashes is fairly longer.

This project profile is for setting up of Fruit Squash manufacturing unit with installed processing capacity of 50 tonnes per annum of fresh fruits. It is proposed to make squashes from different fruits and hence average prices

have been assumed for raw materials and finished product.

## 2.0 MARKET POTENTIAL

Fruits are popular amongst all age groups but their availability is limited during season only which lasts for a period of 3-4 months for most of the fruits. Hence, squashes are becoming popular. They are sold at many places like provision and departmental stores, cold drink centres, restaurants, etc. and since they have a longer shelf life, consumers prefer them. Squashes of some conventional and selected fruits are available in the market but it is worth trying some fruits grown in the North East as their tastes are palatable to local populace.

## 3.0 PROCESS DETAILS

Good quality ripe fruits are washed, peeled and cleaned. Then juice is extracted from fruits and it is filtered to remove seeds and fibres. Then juice is processed and sterilised and then syrup of sugar, preservatives etc. are added and this mixture is stirred till uniform solution is formed. In the final process, bottling and packing is done.



#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	5.83
Machinery & Equipment	6.56
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.87
Contingencies & Escalation @ 3%	0.43
Working Capital	1.10
<b>TOTAL</b>	<b>16.79</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 (Open shed, CGI roof, Concrete floor)	80	3500	280000
Store cum office (Brick wall, CGI roof, Concrete floor)	50	5000	250000
<b>Sub-total</b>			<b>530000</b>
Add: Electrification, water supply, etc @ 10%			53000
<b>TOTAL</b>			<b>583000</b>
<b>Say (Rs. in lacs)</b>			<b>5.83</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Fruit Washing Tanks	3	20000	60000
Juice Extractors	2	90000	180000
Steam Jacketed Kettles	2	45000	90000
Stirrer	1	20000	20000
Baby Boiler	1	80000	80000
Bottle Washing and Filling Machine	1	90000	90000
Weighing scales, testing equipment, etc	LS	LS	50000
<b>Sub-total</b>			<b>570000</b>
Add: Transportation, taxes, etc @ 15%			85500
<b>TOTAL</b>			<b>655500</b>
<b>Say (Rs. in lacs)</b>			<b>6.56</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (30 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.30
Professional & other fees	0.20
Interest during implementation	0.27
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.87</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment 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
Fruits	7	0.06	0.07	0.09
Bottles	30	0.41	0.51	0.62
Power	30	0.06	0.08	0.09
Salary	30	0.62	0.62	0.63
Finished Goods	15	0.77	0.89	1.00
Receivables	15	0.82	1.03	1.23
Total		2.74	3.20	3.66
Working Capital Margin in Year 1 (40%)	1.10			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	6.72
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	10.07
<b>TOTAL</b>	<b>100%</b>	<b>16.79</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Installed capacity (Nos)	250000	250000	250000	250000	250000	250000	250000
Capacity utilisation	40%	50%	60%	60%	60%	60%	60%
Production at CU	100000	125000	150000	150000	150000	150000	150000
Price (Rs/bottle)	20	20	20	20	20	20	20
Income from sales (Rs)	20.00	25.00	30.00	30.00	30.00	30.00	30.00
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	10.00	12.50	15.00	15.00	15.00	15.00	15.00
Power	0.75	0.94	1.13	1.13	1.13	1.13	1.13
Salary	7.56	7.60	7.64	7.67	7.71	7.75	7.79
Repair & Maintenance	0.14	0.16	0.17	0.19	0.21	0.23	0.25
Selling Expenses	0.20	0.25	0.30	0.30	0.30	0.30	0.30
Miscellaneous Expenses	0.10	0.13	0.15	0.15	0.15	0.15	0.15
Total Operating Expenses	18.76	21.57	24.39	24.44	24.50	24.56	24.62
Less: Working expenses capitalised	1.10	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	2.34	3.43	5.61	5.56	5.50	5.44	5.38
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Interest on Term Loan	0.80	0.71	0.59	0.46	0.33	0.20	0.07
Interest on Working Capital Loan	0.26	0.31	0.35	0.00	0.00	0.00	0.00
Net Profit	0.87	2.05	4.36	4.43	4.50	4.57	4.64
Net cash accruals	1.54	2.71	5.03	5.10	5.17	5.24	5.31
Principal Repayment	0.40	1.61	1.61	1.61	1.61	1.61	1.61

**6.1 Production Capacity:** Total production of fruit squash at installed capacity is estimated as below.

Rated processing capacity/annum (tonnes)	50
Yield of fruit juice	75%
Production of fruit juice (tonnes)	37.5
Percent of fruit juice in fruit squash	30%
Production of fruit squash (tonnes)	125
Capacity of packing 600 ml bottle (kg)	0.50
Total Nos. squash bottles per annum at installed capacity (Nos)	250000

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

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Fresh fruits	Tonnes	50	15000	750000
Bottles	Nos	250000	5	1250000
Sub-total				2000000
Add: Additives, etc @ 25%				500000
Expenses on raw materials & consumables at installed capacity (Rs)				2500000

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

Connected load (kw)	22
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	37598
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	187992

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

Particulars of Employee	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	1	10000	120000
Machine operators/skilled workers	4	7000	336000
Sales Staff	2	5000	120000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			756000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> 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 (Rs lacs)
Building & Civil Works	5.83	1%	0.06
Machinery & Equipment	6.56	1%	0.07
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.14

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	5.83	3.34%	0.19
Machinery & Equipment	6.56	5.28%	0.35
Misc. Fixed Assets	2.00	6.33%	0.13
TOTAL			0.67

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 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	6	7
Month 1	Opening balance	10.07	9.67	8.06	6.45	4.84	3.22	1.61
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest (8%)	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	9.54	7.92	6.31	4.70	3.09	1.48
Month 2	Opening balance	10.07	9.54	7.92	6.31	4.70	3.09	1.48
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	9.40	7.79	6.18	4.57	2.95	1.34
Month 3	Opening balance	10.07	9.40	7.79	6.18	4.57	2.95	1.34
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	9.27	7.66	6.04	4.43	2.82	1.21
Month 4	Opening balance	10.07	9.27	7.66	6.04	4.43	2.82	1.21
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	9.13	7.52	5.91	4.30	2.69	1.07
Month 5	Opening balance	10.07	9.13	7.52	5.91	4.30	2.69	1.07
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	9.00	7.39	5.78	4.16	2.55	0.94
Month 6	Opening balance	10.07	9.00	7.39	5.78	4.16	2.55	0.94
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	8.86	7.25	5.64	4.03	2.42	0.81
Month 7	Opening balance	10.07	8.86	7.25	5.64	4.03	2.42	0.81
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.07	8.73	7.12	5.51	3.90	2.28	0.67
Month 8	Opening balance	10.07	8.73	7.12	5.51	3.90	2.28	0.67
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	10.07	8.60	6.98	5.37	3.76	2.15	0.54
Month 9	Opening balance	10.07	8.60	6.98	5.37	3.76	2.15	0.54
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.07	8.46	6.85	5.24	3.63	2.01	0.40
Month 10	Opening balance	10.07	8.46	6.85	5.24	3.63	2.01	0.40
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.05	0.03	0.02	0.01	0.00
	Closing balance	9.94	8.33	6.72	5.10	3.49	1.88	0.27
Month 11	Opening balance	9.94	8.33	6.72	5.10	3.49	1.88	0.27
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.06	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.80	8.19	6.58	4.97	3.36	1.75	0.13
Month 12	Opening balance	9.80	8.19	6.58	4.97	3.36	1.75	0.13
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.07	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.67	8.06	6.45	4.84	3.22	1.61	0.00
Principal Repayment		0.40	1.61	1.61	1.61	1.61	1.61	1.61
Interest		0.80	0.71	0.59	0.46	0.33	0.20	0.07

**6.10 Interest on Working Capital Loan:** Interest rate on working capital loan has been assumed at 16%. The details of calculation are given below.

(Rs. in lacs)

Particulars	Year 1	Year 2	Year 3
Total current assets	2.74	3.20	3.66
Bank Loan (60%)	1.65	1.92	2.19
Interest @ 16%	0.26	0.31	0.35

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	0.87	2.05	4.36	4.43	4.50	4.57	4.64	
Depreciation	0.67	0.67	0.67	0.67	0.67	0.67	0.67	
Interest	0.80	0.71	0.59	0.46	0.33	0.20	0.07	
Total	2.34	3.43	5.61	5.56	5.50	5.44	5.38	33.26
Interest	0.80	0.71	0.59	0.46	0.33	0.20	0.07	
Loan repayment	0.40	1.61	1.61	1.61	1.61	1.61	1.61	
Total	1.21	2.33	2.20	2.07	1.94	1.81	1.68	13.23
DSCR	1.94	1.47	2.55	2.69	2.84	3.00	3.20	

Average DSCR = 2.51

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	20.00	25.00	30.00
B. Variable cost			
Raw Materials & Consumables	10.00	12.50	15.00
Power	0.75	0.94	1.13
Selling Expenses	0.20	0.25	0.30
Miscellaneous Expenses	0.10	0.13	0.15
Interest on Working Capital	0.26	0.31	0.35
Total variable cost	11.32	14.12	16.93
C. Contribution (A-B)	8.68	10.88	13.07
D. Fixed & Semi-fixed Costs			
Salary	7.56	7.60	7.64
Repair & maintenance	0.14	0.16	0.17
Interest on Term Loan	0.80	0.71	0.59
Depreciation	0.67	0.67	0.67
Total fixed cost	9.17	9.14	9.06
E. BREAK EVEN POINT	105.64%	84.01%	69.34%
F. BEP at operating capacity	42.26%	42.00%	41.60%
G. Cash BEP	39.18%	38.94%	38.54%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

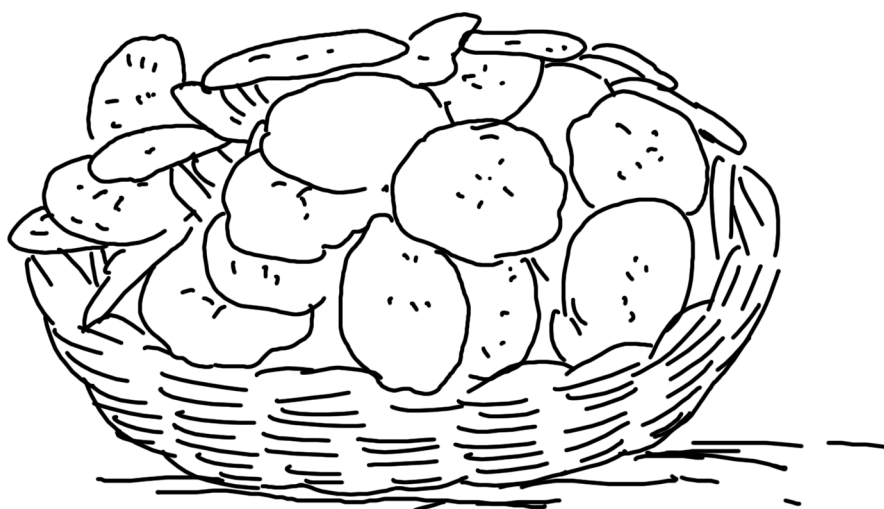
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	14.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.74	0.46	0.46	0.00	0.00	0.00	0.00
Total (A)	14.82	2.74	0.46	0.46	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		0.87	2.05	4.36	4.43	4.50	4.57	4.64
Add: Depreciation		0.67	0.67	0.67	0.67	0.67	0.67	0.67
Add: Interest		0.80	0.71	0.59	0.46	0.33	0.20	0.07
Add: Salvage Value								
Total (B)	0.00	2.34	3.43	5.61	5.56	5.50	5.44	5.38
<b>NET FLOW (B-A)</b>	-14.82	-0.40	2.97	5.16	5.56	5.50	5.44	5.38

IRR = 16%

**MACHINERY SUPPLIERS**

- (a) Raman Industries  
W. Z. - 40/3, Sant Garh, Street No. 30, Tilak Nagar, Delhi - 110018, Delhi, India
- (b) Wholesale Mart  
S-562, 1st Floor, Main Road, School Block, Shakarpur, New Delhi - 110092, Delhi, India
- (c) Madaan International  
21 B Swasthya Vihar Appartment, Preet Vihar, Delhi - 110 092, Delhi, India

# BANANA CHIPS



## 1.0 INTRODUCTION

Banana is one of the most important fruits in India and occupies about 27.4 thousand hectares area with an annual production of about 42.33 thousand tonnes. The main banana growing states are: Tamil Nadu, Maharashtra, Kerala and Andhra Pradesh. Banana contains about 20% sugar and reasonable amount of Vitamins A, B and C. The fruit is considered a rich source of energy producing food. It is consumed in several forms and preparations, amongst which Banana chip is considered the most popular.

Banana chips are made from unripe bananas. Chips or wafers are crispy, salty or spicy and consumers prefer fresh quality. Since they are made from banana, they have nutritious values as well. The product needs to be packed in transparent polythene bags.

This project profile is for setting up of Banana Chips making unit with installed processing capacity of 30 tonnes per annum of unripe bananas.

## 2.0 MARKET POTENTIAL

Chips are the most popular variety of snacks and they are consumed round the year by people of all age groups from

all income segments. Potato chips are more popular than banana chips but banana chips have a special category of consumers and they are preferred by many. Competition is not as fierce as in case of potato chips. There are some national as well as regional established brands for potato chips but they are not in banana chips as the market is small. This provides an ample opportunity to a new entrant as the market is not dominated by popular brands with good quality and competitive pricing, it is possible to capture adequate market share.

## 3.0 PROCESS DETAILS

Banana Chips making process is simple, well established and standardised. Damaged or ripe bananas are taken out during inspection and only good quality unripe bananas are washed in water. Then they are peeled and trimmed before slicing or cutting them in the required size. Then they are washed in boiled water and dried. Dried pieces are deep fried and then either salt or spices or both are applied on them. After cooling, they are packed. The process and weight loss is in the range of 15% to 20%.



#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.73
Machinery & Equipments	1.87
Misc. Fixed Assets	1.50
Preliminary & Pre-operative Expenses	0.49
Contingencies & Escalation @ 3%	0.24
Working Capital	1.24
<b>TOTAL</b>	<b>10.06</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 Storage Room (Half brick wall, CGI roof, Concrete floor)	100	4500	450000
Add: Electrification, etc @ 5%			22500
<b>TOTAL</b>			<b>472500</b>
<b>Say (Rs. in lacs)</b>			<b>4.73</b>

**4.3 Machinery & Equipments:** Details of machinery & equipments are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Banana Peeling Machine	1	40000	40000
Fruit Washing Tanks	2	10000	20000
Slicer	2	15000	30000
Gas Furnace with Burners (Bhatti)	1	20000	20000
Frying Pans	2	10000	20000
SS Utensils	4	5000	20000
Weighing scales, sealing machine, etc	LS	LS	20000
<b>Sub-total</b>			<b>170000</b>
Add: Transportation, taxes, etc @ 10%			17000
<b>TOTAL</b>			<b>187000</b>
<b>Say (Rs. in lacs)</b>			<b>1.87</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (7.5 HP)	1	50000	50000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>150000</b>
<b>Say (Rs. in lacs)</b>			<b>1.50</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.10
Interest during implementation	0.85
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.49</b>

**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.

Particulars	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	30	0.29	0.35	0.41
Power	30	0.02	0.02	0.03
Salary	30	0.25	0.25	0.25
Other Expenses	30	0.02	0.02	0.03
Finished Goods	15	0.29	0.32	0.36
Receivables	15	0.37	0.44	0.52
Total		1.24	1.41	1.59
Working Capital Margin in Year 1 (100%)	1.24			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.02
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.04
<b>TOTAL</b>	<b>100%</b>	<b>10.06</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Installed capacity (tonnes/annum)	24.00	24.00	24.00	24.00	24.00
Capacity utilisation	50%	60%	70%	70%	70%
Production at capacity utilisation	12.00	14.40	16.80	16.80	16.80
Price (Rs/tonne)	75000	75000	75000	75000	75000
Income from sales/annum	9.00	10.80	12.60	12.60	12.60
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	3.56	4.27	4.98	4.98	4.98
Power	0.23	0.28	0.33	0.33	0.33
Salary	3.00	3.02	3.03	3.05	3.06
Repair & Maintenance	0.11	0.12	0.13	0.14	0.16
Selling Expenses	0.09	0.11	0.13	0.13	0.13
Miscellaneous Expenses	0.05	0.05	0.06	0.06	0.06
Total Operating Expenses	7.04	7.85	8.66	8.69	8.72
Less: working expenses capitalised	1.24	0.00	0.00	0.00	0.00
Operating profit	3.20	2.95	3.94	3.91	3.88
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.35	0.35	0.35	0.35	0.35
Interest on Term Loan	0.48	0.40	0.29	0.18	0.06
Net Profit	2.37	2.20	3.30	3.39	3.47
Net cash accruals	2.72	2.55	3.65	3.74	3.82
Principal Repayment	0.36	1.42	1.42	1.42	1.42

**6.1 Production Capacity:** Total production of banana chips at installed capacity is estimated as below.

Rated processing capacity (tonnes/annum)	30
Less: Process & weight loss	20%
Production of banana chips per annum at installed capacity (tonnes)	24

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

Particulars	Qty (Tonnes)	Rate (Rs)	Amount (Rs)
Unripe bananas	30	10000	300000
Edible oil	5	50000	247500
Total			547500
Add: Additives, packing materials, etc @ 30%			164250
Expenses on raw materials & consumables at installed capacity (Rs)			711750

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

Connected load (kw)	5.60
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	9400
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	46998

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

Particulars of Employee	Numbers	Salary/ Month (Rs)	Cost/annum (Rs)
Manager (Self)	-	-	-
Skilled workers	2	5000	120000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			300000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> 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 (Rs lakh)
Building & Civil Works	4.73	1%	0.05
Machinery & Equipments	1.87	2%	0.04
Misc. Fixed assets	1.50	2%	0.02
Expenses on repair & maintenance in year 1			0.11

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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 lakh)
Building & Civil Works	4.73	3.34%	0.16
Machinery & Equipments	1.87	5.28%	0.10
Misc. Fixed Assets	1.50	6.33%	0.09
TOTAL			0.35

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. 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	6.04	5.68	4.26	2.84	1.42
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01

	Closing balance	6.04	5.56	4.14	2.72	1.30
Month 2	Opening balance	6.04	5.56	4.14	2.72	1.30
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.44	4.02	2.60	1.18
Month 3	Opening balance	6.04	5.44	4.02	2.60	1.18
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.33	3.91	2.49	1.07
Month 4	Opening balance	6.04	5.33	3.91	2.49	1.07
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.21	3.79	2.37	0.95
Month 5	Opening balance	6.04	5.21	3.79	2.37	0.95
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.03	0.02	0.01
	Closing balance	6.04	5.09	3.67	2.25	0.83
Month 6	Opening balance	6.04	5.09	3.67	2.25	0.83
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.01
	Closing balance	6.04	4.97	3.55	2.13	0.71
Month 7	Opening balance	6.04	4.97	3.55	2.13	0.71
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.85	3.43	2.01	0.59
Month 8	Opening balance	6.04	4.85	3.43	2.01	0.59
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.73	3.31	1.89	0.47
Month 9	Opening balance	6.04	4.73	3.31	1.89	0.47
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.62	3.20	1.78	0.36
Month 10	Opening balance	6.04	4.62	3.20	1.78	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.92	4.50	3.08	1.66	0.24
Month 11	Opening balance	5.92	4.50	3.08	1.66	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.80	4.38	2.96	1.54	0.12
Month 12	Opening balance	5.80	4.38	2.96	1.54	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.68	4.26	2.84	1.42	0.00
Principal Repayment		0.36	1.42	1.42	1.42	1.42
Interest		0.48	0.40	0.29	0.18	0.06

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.37	2.20	3.30	3.39	3.47	
Depreciation	0.35	0.35	0.35	0.35	0.35	
Interest	0.48	0.40	0.29	0.18	0.06	

Total	3.20	2.95	3.94	3.91	3.88	17.89
Interest	0.48	0.40	0.29	0.18	0.06	
Loan repayment	0.36	1.42	1.42	1.42	1.42	
Total	0.84	1.82	1.71	1.60	1.48	7.44
DSCR	3.83	1.62	2.31	2.45	2.62	

Average DSCR = 2.40

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales (Rs. lakh)	9.00	10.80	12.60
B. Variable cost			
Raw Materials & Consumables	3.56	4.27	4.98
Power	0.23	0.28	0.33
Selling Expenses	0.09	0.11	0.13
Miscellaneous Expenses	0.05	0.05	0.06
Total variable cost	3.93	4.71	5.50
C. Contribution (A-B)	5.07	6.09	7.10
D. Fixed & Semi-fixed Costs			
Salary	3.00	3.02	3.03
Repair & maintenance	0.11	0.12	0.13
Interest on Term Loan	0.48	0.40	0.29
Depreciation	0.35	0.35	0.35
Total fixed cost	3.94	3.89	3.80
E. BREAKEVEN POINT	77.68%	63.87%	53.52%
F. BEP at operating capacity	38.84%	38.32%	37.47%
G. Cash BEP	35.37%	34.86%	34.00%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

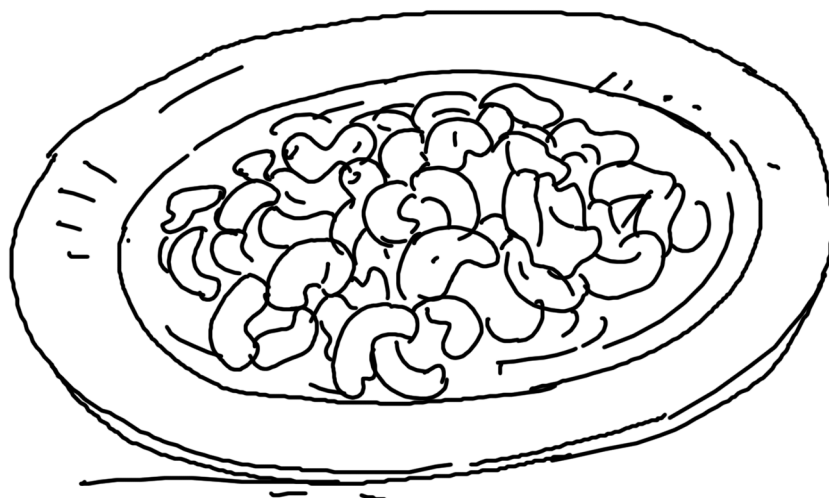
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	8.34	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.24	0.17	0.17	0.00	0.00
Total (A)	8.34	1.24	0.17	0.17	0.00	0.00
<b>CASH INFLOW</b>						
Profit After Tax		2.37	2.20	3.30	3.39	3.47
Add: Depreciation		0.35	0.35	0.35	0.35	0.35
Add: Interest		0.48	0.40	0.29	0.18	0.06
Add: Salvage Value						
Total (B)	0.00	3.20	2.95	3.94	3.91	3.88
NET FLOW (B-A)	-8.34	1.96	2.78	3.77	3.91	3.88

IRR = 24%

**MACHINERY SUPPLIERS**

- M. Son Industries  
H-158, Sector-63, , Noida, Uttar Pradesh -201307, India
- Kishore & Company, Gurgaon  
344, Udyog Vihar, Phase-Ii, , Gurgaon, Haryana -122001, India
- Royale Enterprises, Noida  
F-44, Sec 8, , Noida, Uttar Pradesh -201301, India

# MACARONI



## 1.0 INTRODUCTION

Macaroni or gold finger is a simple product made from maida and tapioca flour with shape like a hollow tube or pipe in different sizes ranging from 1" to 4" long. It is a mass consumption item especially amongst children and youngsters. The product comes under "Ready-to-Eat" category and has become very popular throughout the country. Macaroni means a product made from a blend of flours and is made for different cooking methods. Some are made for cooking whereas others for frying.

This project profile is for setting up of a Macaroni production unit of frying type with installed processing capacity of 100 MT of raw materials (Maida and Tapioca Flour) per annum.

## 2.0 MARKET POTENTIAL

Gold fingers are very popular throughout the country especially amongst children and youngsters. It is one of the cheapest eatables available in the market as compared to potato wafers, cheese balls or other such items in the same category. Its popularity in urban markets is limited but semi-urban and rural markets have witnessed substantial increase in demand. Since they enjoy considerable shelf-life, they are stored in

households in large quantities. It has become a very popular snack food or lunch-box item. Since it is not a very costly item, people from all walks of life can afford it.

## 3.0 PROCESS DETAILS

The process starts with dry mixing of maida, tapioca starch and soda bicarbonate in the vertical mixer. Then boiled water is added to this mix to prepare dough in the dough mixer. The time required is about 15 minutes. Kneaded dough is then taken to macaroni-making machine where extruded material of desired shape and length is obtained by using an appropriate die. At this stage, the moisture content is around 30%. The product is collected in wooden trays where surface drying takes place and it becomes hard enough to be handled without sticking or being crushed. Then the product is semi-dried by exposing to indirect sunrays or keeping in shade. This quality of macaroni does not have satisfactory cooking quality as there is heavy loss on cooking. Heat treatment can improve the quality but this imparts brown colour which may not be liked by the consumers. The product can be exposed to steam for about 15 minutes and then dried. This process increases the shelf life as the moisture content comes down to around 10%. Process loss is 8 to 10%.

**4.0 COST OF THE PROJECT**

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.62
Machinery & Equipment	7.72
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.95
Contingencies & Escalation @ 3%	0.43
Working Capital	1.34
<b>TOTAL</b>	<b>17.06</b>

**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 (Half Brick wall, CGI sheet roof, Concrete Floor)	60	4000	240000
Office & Store (Brick wall, CGI sheet roof, Concrete Floor)	40	4500	180000
<b>Sub total</b>			<b>420000</b>
Add: Electrification, Water Supply, etc @ 10%			42000
<b>TOTAL</b>			<b>462000</b>
<b>Say (Rs. in lacs)</b>			<b>4.62</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Vertical type powder mixer with accessories	6	20000	120000
Blade type dough mixer	25	500	12500
Macaroni making machine with die-head	1	25000	25000
Boiler of 30 ltrs. capacity	1	35000	35000
Galvanised water storage tanks	2	220000	440000
Wooden Trays	100	200	20000
Extra die-heads, cutters etc	LS	LS	10000
<b>Sub total</b>			<b>662500</b>
Add: Transportation, installation, etc @ 15%			99375
<b>TOTAL</b>			<b>771875</b>
<b>Say (Rs. in lacs)</b>			<b>7.72</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (25 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.20
Interest during implementation	0.25
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.95</b>



**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment and miscellaneous fixed assets.

**4.7 Working Capital:** Details of working capital are given below.

Particulars	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	30	1.13	1.36	1.59
Utilities	30	0.06	0.08	0.09
Salary	30	0.40	0.41	0.41
Finished Goods	15	0.82	0.95	1.07
Receivables	15	0.92	1.11	1.29
<b>TOTAL</b>		<b>3.35</b>	<b>3.90</b>	<b>4.46</b>
Working Capital Margin in Yr 1 (40%)	1.34			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	6.83
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	10.24
<b>TOTAL</b>	<b>100%</b>	<b>17.06</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Production capacity (MT)	90	90	90	90	90	90	90
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at CU (MT)	45	54	63	63	63	63	63
Price (Rs/tonne)	50000	50000	50000	50000	50000	50000	50000
Income from sale	22.50	27.00	31.50	31.50	31.50	31.50	31.50
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	13.80	16.56	19.32	19.32	19.32	19.32	19.32
Utilities	0.78	0.94	1.10	1.10	1.10	1.10	1.10
Salary	4.92	4.97	5.02	5.07	5.12	5.17	5.22
Repair & Maintenance	0.14	0.17	0.21	0.25	0.30	0.36	0.43
Selling Expenses	0.23	0.27	0.32	0.32	0.32	0.32	0.32
Miscellaneous Expenses	0.11	0.14	0.16	0.16	0.16	0.16	0.16
Total Operating Expenses	19.98	23.05	26.11	26.21	26.31	26.42	26.54
Less: Working expenses capitalised	1.34	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	3.86	3.95	5.39	5.29	5.19	5.08	4.96
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Interest on Term Loan	0.82	0.73	0.60	0.46	0.33	0.20	0.07
Interest on Working Capital Loan	0.32	0.37	0.43	0.43	0.43	0.43	0.43
Net Profit	1.89	2.03	3.54	3.58	3.61	3.63	3.64
Net cash accruals	2.72	2.85	4.36	4.40	4.43	4.45	4.46
Principal Repayment	0.41	1.64	1.64	1.64	1.64	1.64	1.64

**6.1 Estimation of Production Capacity:** Production of macaroni at installed capacity is estimated as below.

Rated processing capacity (tonnes/annum of maida & tapioca flour)	100
Process loss (%)	10%
Production/annum of macaroni at installed capacity (MT)	90

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

Particulars	Qty (MT)	Rate (Rs)	Amount (Rs)
Maida	50	21000	1050000
Tapioca Flour	50	25000	1250000
		Sub total	2300000
Add: Additives, packing material, etc @ 20%			460000
Expenses on raw materials & consumables at installed capacity (Rs)			2760000

**6.3 Utilities:** Expenses on utilities at installed capacity is estimated as below.Expenses on power

Connected Load (kw)	-	19
Avg. load factor		70%
Hrs/day		8
Days/annum		300
Annual power consumption (kwh)		31332
Rate per unit (Rs)		5
Expenses on power per annum at installed capacity (Rs)		156660

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

Particulars of Employee	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager (Self)	-	-	-
Skilled Workers/Machine Operators	3	7000	252000
Sales Staff	1	5000	60000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			492000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	4.62	1%	0.05
Machinery & Equipment	7.72	1%	0.08
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.14

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	4.62	3.34%	0.15
Machinery & Equipment	7.72	7.07%	0.55
Misc. Fixed Assets	2.00	6.23%	0.12
TOTAL			0.82

**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 7 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	6	7
Month 1	Opening balance	10.24	9.83	8.19	6.55	4.91	3.28	1.64
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest (8%)	0.07	0.07	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.69	8.05	6.42	4.78	3.14	1.50
Month 2	Opening balance	10.24	9.69	8.05	6.42	4.78	3.14	1.50
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.56	7.92	6.28	4.64	3.00	1.37
Month 3	Opening balance	10.24	9.56	7.92	6.28	4.64	3.00	1.37
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.42	7.78	6.14	4.50	2.87	1.23
Month 4	Opening balance	10.24	9.42	7.78	6.14	4.50	2.87	1.23
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.28	7.64	6.01	4.37	2.73	1.09
Month 5	Opening balance	10.24	9.28	7.64	6.01	4.37	2.73	1.09
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.15	7.51	5.87	4.23	2.59	0.96
Month 6	Opening balance	10.24	9.15	7.51	5.87	4.23	2.59	0.96
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	9.01	7.37	5.73	4.10	2.46	0.82
Month 7	Opening balance	10.24	9.01	7.37	5.73	4.10	2.46	0.82
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.24	8.87	7.23	5.60	3.96	2.32	0.68
Month 8	Opening balance	10.24	8.87	7.23	5.60	3.96	2.32	0.68
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	10.24	8.74	7.10	5.46	3.82	2.18	0.55
Month 9	Opening balance	10.24	8.74	7.10	5.46	3.82	2.18	0.55
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.24	8.60	6.96	5.32	3.69	2.05	0.41
Month 10	Opening balance	10.24	8.60	6.96	5.32	3.69	2.05	0.41
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.02	0.01	0.00
	Closing balance	10.10	8.46	6.83	5.19	3.55	1.91	0.27
Month 11	Opening balance	10.10	8.46	6.83	5.19	3.55	1.91	0.27
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.03	0.02	0.01	0.00
	Closing balance	9.96	8.33	6.69	5.05	3.41	1.77	0.14
Month 12	Opening balance	9.96	8.33	6.69	5.05	3.41	1.77	0.14
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.83	8.19	6.55	4.91	3.28	1.64	0.00
Principal Repayment		0.41	1.64	1.64	1.64	1.64	1.64	1.64
Interest		0.82	0.73	0.60	0.46	0.33	0.20	0.07

**6.10 Interest on Working Capital:** Interest rate on working capital loan has been assumed at 16%. The details of calculation are given below.

(Rs. in lacs)

Particulars	Year 1	Year 2	Year 3
Total current assets	3.35	3.90	4.46
Bank Loan (60%)	2.01	2.34	2.67
Interest @ 16%	0.32	0.37	0.43

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	1.89	2.03	3.54	3.58	3.61	3.63	3.64	
Depreciation	0.82	0.82	0.82	0.82	0.82	0.82	0.82	
Interest	0.82	0.73	0.60	0.46	0.33	0.20	0.07	
Total	3.53	3.58	4.96	4.87	4.77	4.66	4.53	30.89
Interest	0.82	0.73	0.60	0.46	0.33	0.20	0.07	
Loan repayment	0.41	1.64	1.64	1.64	1.64	1.64	1.64	
Total	1.23	2.36	2.23	2.10	1.97	1.84	1.71	13.45
DSCR	2.88	1.51	2.22	2.31	2.42	2.53	2.65	

Average DSCR = 2.30

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales (Rs. lakh)	22.50	27.00	31.50
B. Variable cost			
Raw Materials & Consumables	13.80	16.56	19.32
Utilities	0.78	0.94	1.10
Selling Expenses	0.23	0.27	0.32
Miscellaneous Expenses	0.11	0.14	0.16
Interest on Working Capital Loan	0.32	0.37	0.43
Total variable cost	15.24	18.28	21.32
C. Contribution (A-B)	7.26	8.72	10.18
D. Fixed & Semi-fixed Costs			
Salary	4.92	4.97	5.02
Repair & Maintenance	0.14	0.17	0.21
Interest on Term Loan	0.82	0.73	0.60
Depreciation	0.82	0.82	0.82
Total fixed cost	6.70	6.69	6.65
E. BREAK-EVEN POINT	92.38%	76.74%	65.26%
F. BEP at operating capacity	46.19%	46.05%	45.68%
G. Cash BEP	40.51%	40.37%	40.01%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

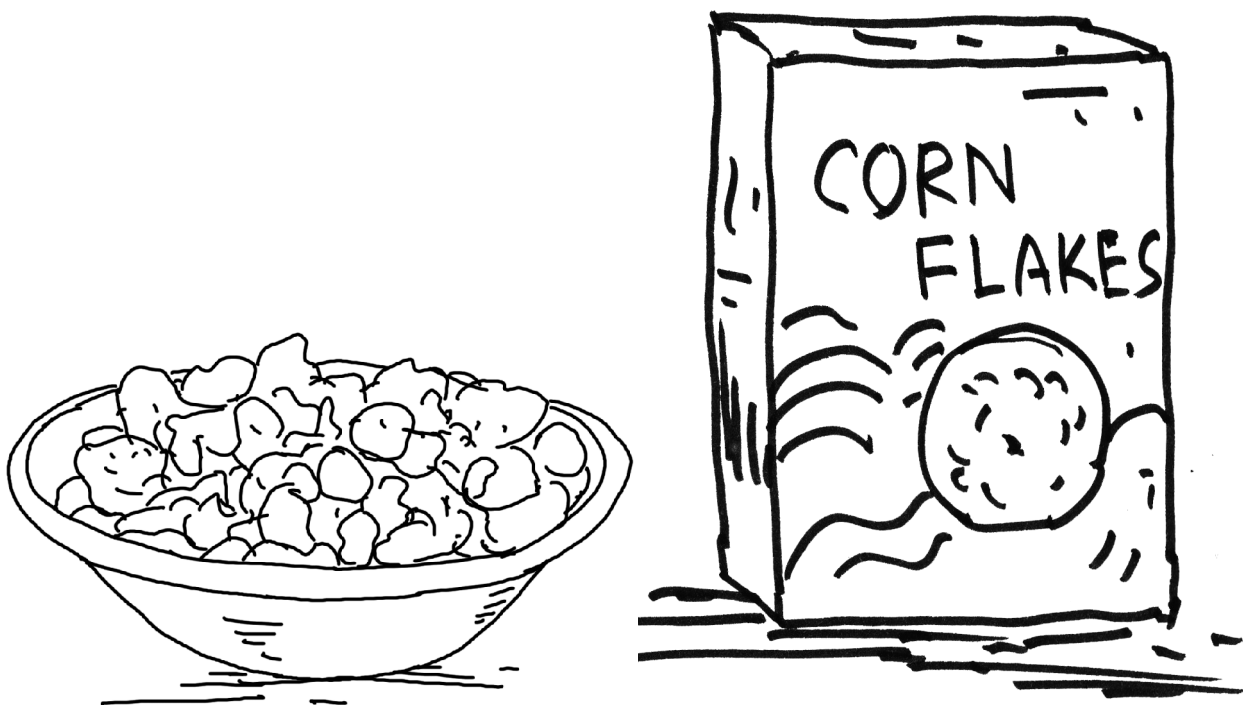
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	14.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.35	0.55	0.55	0.00	0.00	0.00	0.00
Total (A)	14.77	3.35	0.55	0.55	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		1.89	2.03	3.54	3.58	3.61	3.63	3.64
Add: Depreciation		0.82	0.82	0.82	0.82	0.82	0.82	0.82
Add: Interest		0.82	0.73	0.60	0.46	0.33	0.20	0.07
Add: Salvage Value (15%)								2.22
Total (B)	0.00	3.53	3.58	4.96	4.87	4.77	4.66	6.75
<b>NET FLOW (B-A)</b>	-14.77	0.18	3.02	4.40	4.87	4.77	4.66	6.75

IRR = 15%

**MACHINERY SUPPLIERS**

- (a) AKG Exim Private Limited  
411, Pearls Corporate, Near Deepali chowk, Manglam Place, Sector-3, Rohini, Delhi-110085 (India)
- (b) Chirag Electronics  
144, Type-A, sec-59, HSIDC, Industrial Area estate, Ballabgarh, Faridabad, Haryana, India
- (c) Khushi Engineering Works  
C-70, Sector-8, Noida, Uttar Pradesh, India

# CORN/MAIZE FLAKES



## 1.0 INTRODUCTION

Health awareness is increasing day-by-day and people are more conscious about their health. Maize has got many nutritional values. Maize flakes are a product which is being accepted by many as health food. Flakes can be deep fried and are used extensively while making "chevada" - a popular snack item in Maharashtra. Dry roasted maize flakes along with a small quantity of sugar are mixed in milk and it becomes a health food especially for growing children.

This project profile is for setting up of a Maize processing unit for production of flakes with installed processing capacity of 100 MT of maize nuts per annum.

## 2.0 MARKET POTENTIAL

With increasing health awareness, people are choosy about their eating habits and many health foods are becoming popular. Maize is considered to be good for

health. Maize flour is very popular in many regions and maize flakes are being accepted as health food. But people at large are still not familiar with maize flakes and therefore with proper publicity, there is scope for taking up maize flake making unit as successful business venture.

## 3.0 PROCESS DETAILS

Maize nuts are cleaned and graded to remove mud, stones etc and then soaked in hot water. After drying, they are roasted and then taken to flaker polisher wherein flakes are formed. Flakes are then passed through sieves to remove bran and broken maize and are then suitably packed in polythene bags. During this process, the net recovery of flakes is 80%. Of the balance 20%, process loss is 5% and remaining 15% is bran and broken flakes or maize which is sold to cattle-feed manufacturers.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land and Site Development	-
Building & Civil Works	3.96
Machinery & Equipment	2.44
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.86
Contingencies & Escalation @ 3%	0.25
Working Capital	2.36
<b>TOTAL</b>	<b>11.87</b>

**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 (Half Brick wall, CGI sheet roof, Concrete Floor)	45	4000	180000
Office & Store (Brick wall, CGI sheet roof, Concrete Floor)	40	4500	180000
<b>Sub total</b>			<b>360000</b>
Add: Electrification, Water Supply, etc @ 10%			36000
<b>TOTAL</b>			<b>396000</b>
<b>Say (Rs. in lacs)</b>			<b>3.96</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Electrically-operated Roaster	1	90000	90000
Flaker Polisher	1	60000	60000
Coal-fired Furnace	1	15000	15000
Sieves	2	5000	10000
Miscellaneous items	LS	LS	20000
<b>Sub total</b>			<b>195000</b>
Add: Transportation, installation, etc @ 15%			29250
<b>TOTAL</b>			<b>244250</b>
<b>Say (Rs. in lacs)</b>			<b>2.44</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (25 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>200000</b>
<b>Say (Rs. in lacs)</b>			<b>2.00</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.20
Interest during implementation	0.16
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.86</b>



**4.7 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipments and miscellaneous fixed assets.

**4.8 Working Capital:** Details of working capital are given below.

	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	30	1.13	1.36	1.58
Utilities	30	0.10	0.12	0.15
Salary	30	0.34	0.34	0.34
Finished Goods	15	0.79	0.91	1.04
Receivables	15	0.00	0.00	0.00
<b>TOTAL</b>		<b>2.36</b>	<b>2.73</b>	<b>3.11</b>
Working Capital Margin in Yr 1 (100%)	2.36			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.75
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	7.12
<b>TOTAL</b>	<b>100%</b>	<b>11.87</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production capacity (MT)					
(a) Maize Flakes	80	80	80	80	80
(b) Bran & broken flakes	15	15	15	15	15
Capacity utilisation	50%	60%	70%	70%	70%
Production/annum at capacity utilisation (MT)					
(a) Maize Flakes	40	48	56	56	56
(b) Bran & broken flakes	8	9	11	11	11
Price (Rs/tonne)					
(a) Maize Flakes	50000	50000	50000	50000	50000
(b) Bran & broken flakes	6000	6000	6000	6000	6000
Income from sales/annum					
(a) Maize Flakes	20.00	24.00	28.00	28.00	28.00
(b) Bran & broken flakes	0.45	0.54	0.63	0.63	0.63
Total income	20.45	24.54	28.63	28.63	28.63
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	13.75	16.50	19.25	19.25	19.25
Utilities	1.26	1.52	1.77	1.77	1.77
Salary	4.08	4.12	4.16	4.20	4.25
Repair & Maintenance	0.08	0.10	0.12	0.15	0.17
Selling Expenses	0.00	0.00	0.00	0.00	0.00
Miscellaneous Expenses	0.00	0.00	0.00	0.00	0.00
Total Operating Expenses	19.18	22.24	25.30	25.37	25.44
Less: Working expenses capitalised	2.36	0.00	0.00	0.00	0.00
Operating profit	3.63	2.30	3.33	3.26	3.19

C. FINANCIAL EXPENSES					
Depreciation	0.43	0.43	0.43	0.43	0.43
Interest on Term Loan	0.57	0.47	0.34	0.21	0.07
Net Profit	2.63	1.40	2.56	2.63	2.69
Net cash accruals	3.06	1.83	2.99	3.06	3.12
Principal Repayment	0.42	1.68	1.68	1.68	1.68

**6.1 Estimation of Production Capacity:** Production of Corn/maize flakes at installed capacity is estimated as below.

Rated processing capacity (tonnes/annum of maize nuts)	100
Yield of maize flakes from nuts (%)	80%
Yield of bran and broken flakes (%)	15%
Production/ annum of maize flakes at installed capacity (MT)	80
Production/ annum of bran & broken flakes at installed capacity (MT)	15

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

Particulars	Qty (MT)	Rate (Rs)	Amount (Rs)
Maize nuts	100	25000	2500000
Add: Expenses on packing material @ 10%			250000
Expenses on raw materials & consumables at installed capacity (Rs)			2750000

**6.3 Utilities:** Expenses on utilities at installed capacity is estimated as below.

Expenses on power

Connected Load (kw)	19
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	31332
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	156660
Add: Expenses on hard coke @ Rs 8,000/ month	96000
Expenses on utilities per annum at installed capacity (Rs)	252660

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

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager (Self)	0	0	0
Skilled Workers/Machine Operators	3	6000	216000
Sales Staff	1	4000	48000
Helpers	4	3000	144000
Expenses on salary in the 1st year (Rs)			408000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	3.96	1%	0.04
Machinery & Equipment	2.44	1%	0.02
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.08

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	3.96	3.34%	0.13
Machinery & Equipment	2.44	7.07%	0.17
Misc. Fixed Assets	2.00	6.23%	0.12
<b>TOTAL</b>			<b>0.43</b>

**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	7.12	6.71	5.03	3.35	1.68
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest (8%)	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	6.57	4.89	3.21	1.54
Month 2	Opening balance	7.12	6.57	4.89	3.21	1.54
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	6.43	4.75	3.07	1.40
Month 3	Opening balance	7.12	6.43	4.75	3.07	1.40
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	6.29	4.61	2.93	1.26
Month 4	Opening balance	7.12	6.29	4.61	2.93	1.26
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	6.15	4.47	2.79	1.12
Month 5	Opening balance	7.12	6.15	4.47	2.79	1.12
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	6.01	4.33	2.65	0.98
Month 6	Opening balance	7.12	6.01	4.33	2.65	0.98
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	5.87	4.19	2.51	0.84
Month 7	Opening balance	7.12	5.87	4.19	2.51	0.84
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.12	5.73	4.05	2.37	0.70
Month 8	Opening balance	7.12	5.73	4.05	2.37	0.70
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.02	0.00
	Closing balance	7.12	5.59	3.91	2.24	0.56
Month 9	Opening balance	7.12	5.59	3.91	2.24	0.56
	Repayment	0.00	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.01	0.00
	Closing balance	7.12	5.45	3.77	2.10	0.42
Month 10	Opening balance	7.12	5.45	3.77	2.10	0.42
	Repayment	0.14	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.03	0.01	0.00
	Closing balance	6.98	5.31	3.63	1.96	0.28
Month 11	Opening balance	6.98	5.31	3.63	1.96	0.28
	Repayment	0.14	0.14	0.14	0.14	0.14
	Interest	0.05	0.04	0.02	0.01	0.00
	Closing balance	6.85	5.17	3.49	1.82	0.14
Month 12	Opening balance	6.85	5.17	3.49	1.82	0.14
	Repayment	0.14	0.14	0.14	0.14	0.14

	Interest	0.05	0.03	0.02	0.01	0.00
	Closing balance	6.71	5.03	3.35	1.68	0.00
	Principal Repayment	0.42	1.68	1.68	1.68	1.68
	Interest	0.57	0.47	0.34	0.21	0.07

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.63	1.40	2.56	2.63	2.69	
Depreciation	0.43	0.43	0.43	0.43	0.43	
Interest	0.57	0.47	0.34	0.21	0.07	
Total	3.63	2.30	3.33	3.26	3.19	15.72
Interest	0.57	0.47	0.34	0.21	0.07	
Loan repayment	0.42	1.68	1.68	1.68	1.68	
Total	0.99	2.15	2.02	1.88	1.75	8.79
DSCR	3.68	1.07	1.65	1.73	1.82	

Average DSCR = 1.79

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	20.45	24.54	28.63
B. Variable cost			
Raw Materials & Consumables	13.75	16.50	19.25
Utilities	1.26	1.52	1.77
Selling Expenses	0.00	0.00	0.00
Miscellaneous Expenses	0.00	0.00	0.00
Total variable cost	15.01	18.02	21.02
C. Contribution (A-B)	5.44	6.52	7.61
D. Fixed & Semi-fixed Costs			
Salary	4.08	4.12	4.16
Repair & Maintenance	0.08	0.10	0.12
Interest on Term Loan	0.57	0.47	0.34
Depreciation	0.43	0.43	0.43
Total fixed cost	5.16	5.13	5.05
E. BREAK EVEN POINT	94.92%	78.57%	66.39%
F. BEP at operating capacity	47.46%	47.14%	46.47%
G. Cash BEP	43.51%	43.19%	42.52%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	8.65	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.36	0.38	0.38	0.00	0.00
<b>Total (A)</b>	<b>8.65</b>	<b>2.36</b>	<b>0.38</b>	<b>0.38</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		2.63	1.40	2.56	2.63	2.69
Add: Depreciation		0.43	0.43	0.43	0.43	0.43
Add: Interest		0.57	0.47	0.34	0.21	0.07
Add: Salvage Value						1.30
<b>Total (B)</b>	<b>0.00</b>	<b>3.63</b>	<b>2.30</b>	<b>3.33</b>	<b>3.26</b>	<b>4.49</b>
<b>NET FLOW (B-A)</b>	<b>-8.65</b>	<b>1.27</b>	<b>1.93</b>	<b>2.95</b>	<b>3.26</b>	<b>4.49</b>

IRR = 15%

**MACHINERY SUPPLIERS**

- (a) M. R. Engineering Works  
C - No. 23, Sector No. 10, Noida - 201301, Uttar Pradesh, India
- (b) G. L. Extrusion System Private Limited  
RZ-172/12, Street No. 4, Durga Park, Nasirpur, Dabri Road, New Delhi - 110 045, Delhi, India
- (c) Grain Tech International  
100 - Feet Road, Jeewan Nagar, Opposite Sector - 55, Near Sardar Patel International School, Faridabad - 121 004, Haryana, India

# PEANUT PROCESSING



## 1.0 INTRODUCTION

Peanut is a mass consumption item and is used for extraction of oil, for making butter, chikkies and chocolates, as an ingredient in making several food and snack preparations. This project profile deals with processing for munching purpose for which there is a vast demand. The market is primarily controlled by the small and unorganised sector.

Groundnut is an agriculture produce with 2 crops, with the winter crop contributing more than the summer crop. Groundnuts in shell (pods) are de-stoned and then de-shelled to obtain peanuts. After grading them as per different sizes (known as counts) they are sold in the market. The product discussed here is roasted and salted peanuts for direct consumption.

The project profile is for setting up of a Peanut Processing unit with installed capacity of 300 kg per day based on single shift of 8 hrs.

## 2.0 MARKET POTENTIAL

Large quantity of roasted and salted peanuts is sold round the year. The market is completely scattered and controlled by tiny or cottage units with few local established brands. In most of the cases, processing as well as handling is unhygienic and volumes are very small. There is competition from unorganised sector units and reasonable price, attractive packing, lucrative commission to retailers and consistent supply are the critical factors. Fast turnover is very important.

## 3.0 PROCESS DETAILS

Peanuts of medium size are roasted in electrically operated roaster. The roasting time is around 90 minutes. These roasted peanuts are then cooled and salt is mixed with it before packing them. The process loss is about 2-3%.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	3.96
Machinery & Equipment	1.38
Misc. Fixed Assets	0.70
Preliminary & Pre-operative Expenses	0.61
Contingencies & Escalation @ 3%	0.18
Working Capital	3.23
<b>TOTAL</b>	<b>10.06</b>

**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 (Brick wall, CGI sheet roofings, Concrete Floor)	80	4500	360000
Add: Electrification, water supply, etc @ 10%			36000
		TOTAL	396000
		Say (Rs. in lacs)	3.96

**4.3 Machinery & Equipments:** Details of machinery & equipments are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Electrically operated roaster	1	100000	100000
Weighing scale	1	10000	10000
Miscellaneous items	LS	LS	10000
		Sub total	120000
Add: Transportation, taxes, etc. @ 15%			18000
		TOTAL	138000
		Say (Rs. in lacs)	1.38

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
10 HP power connection	LS	LS	50000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
		TOTAL	70000
		Say (Rs. in lacs)	0.70

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other 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)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	15	0.88	1.05	1.23
Power	30	0.03	0.03	0.04
Salary	30	0.23	0.23	0.23
Finished Goods	15	1.02	1.21	1.39
Receivables	15	1.08	1.29	1.51
Total		3.23	3.81	4.39
Working Capital Margin in Yr 1 (100%)	3.23			



## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.02
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.04
<b>TOTAL</b>	<b>100%</b>	<b>10.06</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production at installed capacity (tonnes)	87	87	87	87	87
Capacity utilisation	50%	60%	70%	70%	70%
Production at CU (tonnes)	44	52	61	61	61
Price (Rs/tonne)	60000	60000	60000	60000	60000
Income from sales/annum	26.19	31.43	36.67	36.67	36.67
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	21.38	25.65	29.93	29.93	29.93
Power	0.31	0.38	0.44	0.44	0.44
Salary	2.76	2.79	2.82	2.84	2.87
Repair & Maintenance	0.06	0.07	0.08	0.09	0.11
Selling Expenses	0.26	0.31	0.37	0.37	0.37
Miscellaneous Expenses	0.13	0.16	0.18	0.18	0.18
Total Operating Expenses	24.90	29.35	33.81	33.85	33.89
Less: Working expenses capitalised	3.23	0.00	0.00	0.00	0.00
Operating profit	4.52	2.07	2.86	2.82	2.77
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.27	0.27	0.27	0.27	0.27
Interest on Term Loan	0.48	0.40	0.29	0.18	0.06
Net Profit	3.77	1.40	2.29	2.37	2.44
Net cash accruals	4.04	1.67	2.57	2.64	2.71
Principal Repayment	0.36	1.42	1.42	1.42	1.42

### 6.1 Estimation of Production Capacity: Production of roasted peanut at installed capacity is estimated as below.

Processing capacity (kg/day in single shift of 8 hrs)	300
Days/ annum	300
Quantity of raw materials processed/annum (kg)	90000
Less: Process loss	3%
Total production/annum at installed capacity (kg)	87300

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

Raw material (peanuts) required at installed capacity (MT)	90
Rate (Rs/MT)	38000
Expenses on raw materials (Rs)	3420000
Add: Additives, transportation charges, packing materials, etc @ 25%	855000
Expenses on raw materials & consumables at installed capacity (Rs)	4275000

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

Connected load ((kw)	7
Avg. load factor	70%
Total working days	300
Hrs/ day	8
Total power consumption (kwh)	12533
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	62664

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

Particulars of Employees	Numbers	Salary/Month (Rs)	No. of months	Cost/annum (Rs)
Manager	Self	-	-	-
Skilled workers/ Machine Operators	2	5000	12	120000
Salesperson	1	4000	12	48000
Helpers	3	3000	12	108000
Expenses on salary in the 1st year (Rs)				276000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 15% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount
Building & Civil Works	3.96	1%	0.04
Machinery & Equipment	1.38	1%	0.01
Misc. Fixed Assets	0.70	1%	0.01
Expenses on repair & maintenance in the 1st year (Rs)			0.06

(Rs. in lacs)

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	3.96	3.34%	0.13
Machinery & Equipment	1.38	7.07%	0.10
Misc. Fixed Assets	0.70	6.23%	0.04
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	6.04	5.68	4.26	2.84	1.42
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.56	4.14	2.72	1.30
Month 2	Opening balance	6.04	5.56	4.14	2.72	1.30
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.44	4.02	2.60	1.18
Month 3	Opening balance	6.04	5.44	4.02	2.60	1.18
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.33	3.91	2.49	1.07
Month 4	Opening balance	6.04	5.33	3.91	2.49	1.07

	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.04	5.21	3.79	2.37	0.95
Month 5	Opening balance	6.04	5.21	3.79	2.37	0.95
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.03	0.02	0.01
	Closing balance	6.04	5.09	3.67	2.25	0.83
Month 6	Opening balance	6.04	5.09	3.67	2.25	0.83
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.01
	Closing balance	6.04	4.97	3.55	2.13	0.71
Month 7	Opening balance	6.04	4.97	3.55	2.13	0.71
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.85	3.43	2.01	0.59
Month 8	Opening balance	6.04	4.85	3.43	2.01	0.59
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.73	3.31	1.89	0.47
Month 9	Opening balance	6.04	4.73	3.31	1.89	0.47
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.04	4.62	3.20	1.78	0.36
Month 10	Opening balance	6.04	4.62	3.20	1.78	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.92	4.50	3.08	1.66	0.24
Month 11	Opening balance	5.92	4.50	3.08	1.66	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.80	4.38	2.96	1.54	0.12
Month 12	Opening balance	5.80	4.38	2.96	1.54	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.68	4.26	2.84	1.42	0.00
Principal Repayment		0.36	1.42	1.42	1.42	1.42
Interest		0.48	0.40	0.29	0.18	0.06

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	3.77	1.40	2.29	2.37	2.44	
Depreciation	0.27	0.27	0.27	0.27	0.27	
Interest	0.48	0.40	0.29	0.18	0.06	
Total	4.52	2.07	2.86	2.82	2.77	15.04
Interest	0.48	0.40	0.29	0.18	0.06	
Loan repayment	0.36	1.42	1.42	1.42	1.42	
Total	0.84	1.82	1.71	1.60	1.48	7.44
DSCR	5.41	1.14	1.67	1.77	1.87	

Average DSCR = 2.02

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	26.19	31.43	36.67
B. Variable cost			
Raw Materials & Consumables	21.38	25.65	29.93
Power	0.31	0.38	0.44
Selling Expenses	0.26	0.31	0.37
Miscellaneous Expenses	0.13	0.16	0.18
Total variable cost	22.08	26.50	30.91
C. Contribution (A-B)	4.11	4.93	5.75
D. Fixed & Semi-fixed Costs			
Salary	2.76	2.79	2.82
Repair & Maintenance	0.06	0.07	0.08
Interest on Term Loan	0.48	0.40	0.29
Depreciation	0.27	0.27	0.27
Total fixed cost	3.57	3.53	3.46
E. BREAK EVEN POINT	86.99%	71.65%	60.11%
F. BEP at operating capacity	43.50%	42.99%	42.07%
G. Cash BEP	40.17%	39.66%	38.75%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	6.22	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.23	0.58	0.58	0.00	0.00
Total (A)	6.22	3.23	0.58	0.58	0.00	0.00
CASH INFLOW						
Profit After Tax		3.77	1.40	2.29	2.37	2.44
Add: Depreciation		0.27	0.27	0.27	0.27	0.27
Add: Interest		0.48	0.40	0.29	0.18	0.06
Add: Salvage Value						
Total (B)	0.00	4.52	2.07	2.86	2.82	2.77
NET FLOW (B-A)	-6.22	1.29	1.49	2.28	2.82	2.77

IRR = 18%

**MACHINERY SUPPLIERS**

- KINC Mineral Technologies Pvt. Ltd.  
No. 14, Haribhakti Industrial Estate, Dabhoi Road, Pratapnagar, Vadodara - 390004, Gujarat, India
- ABC Engineering  
52/2, Ranganayagi Nagar, S.R.K.V. Post, Periyanaickenpalayam, Coimbatore - 641 020, Tamil Nadu, India
- Shrijee Nut Company  
No. 15, Sardar Patel Udyog Nagar, Kalavad Road, Boriya, Dhoraji - 360405, Gujarat, India

# TAPIOCA CHIPS



## 1.0 INTRODUCTION

The growing demand for snacks has led to the introduction of new edible food items like tapioca chips. It has a rightful place in the household menu all over the country. This tasty delicacy makes a good titbit as a snack food item, not only in households but also in parties, gatherings, picnics etc. It is nutritious and very easy to make and thus has become a popular snack item within no time. It is generally made on regional basis and nearby markets are catered to. There are no complications in making tapioca chips and the capital cost of the project is also manageable.

Tapioca chips and tapioca grains are two major snack food items. Tapioca chips have gained popularity throughout India and there are many small-scale manufacturers primarily catering to the local demand. Demand for this product is scattered throughout the country and the project can be set up in the vicinity of the market.

This project profile is for setting up of a Tapioca Chips manufacturing unit with installed processing capacity of 200 tonnes per annum of tapioca tubers.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.51
Machinery & Equipment	5.92
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.83
Contingencies & Escalation @ 3%	0.37
Working Capital Margin	2.26
<b>TOTAL</b>	<b>15.89</b>

## 2.0 MARKET POTENTIAL

Convenience food is the demand of the day in the progressive modern world. Indians are fond of many table varieties since ages and tapioca chips are one such item. It is being used in bulk in the households of urban, semi-urban and rural areas. With changing food habits, it is no more considered as a table variety and has assumed acceptance as a snack food item. Tapioca chips are available in different shapes, colours and tastes primarily based on the imagination of the promoters as well as judgement about the consumer preferences. Keeping in mind, the local preferences about tastes and palatability, changes can be made by adding some spices or red chilly.

## 3.0 PROCESS DETAILS

Tapioca chips are manufactured from fresh roots, using semi automatic or fully automatic machineries. It involves following operations:

- Selection of tubers and washing;
- Peeling/ Trimming of tubers;
- Slicing, washing and sorting;
- De-watering;
- Frying, cooling and packing.

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 (Open shed, CGI roof, Concrete floor)	60	3500	210000
Store cum office (Brick wall, CGI roof, Concrete floor)	40	5000	200000
		Sub-total	410000
Add: Electrification, water supply, etc @ 10%			41000
		TOTAL	451000
		Say (Rs. in lacs)	4.51

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Tapioca Washing Machine	1	72000	72000
Tapioca Slicer	1	55000	55000
Blancher	1	120000	120000
De-waterer	1	55000	55000
Thermostat controlled frying pans	2	3000	6000
Sealing Machine	1	165000	165000
Miscellaneous items	LS	LS	20000
		Sub-total	493000
Add: Transportation, taxes, etc @ 20%			98600
		TOTAL	591600
		Say (Rs. in lacs)	5.92

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (25 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
		TOTAL	200000
		Say (Rs. in lacs)	2.00

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.30
Professional & other fees	0.20
Interest during implementation	0.23
Miscellaneous expenses	0.10
	TOTAL
	0.83

**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.

Particulars	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	30	0.62	0.74	0.86
Power	30	0.06	0.08	0.09
Salary	30	0.40	0.41	0.41
Finished Goods	15	0.56	0.63	0.70
Receivables	15	0.62	0.74	0.86
Total		2.26	2.59	2.93
Working Capital Margin in Year 1 (100%)	2.26			



## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	6.35
B. Subsidy from Central/ State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/ FIs	60%	9.53
<b>TOTAL</b>	<b>100%</b>	<b>15.89</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Installed capacity (MT)	50	50	50	50	50	50	50
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at capacity utilisation	25	30	35	35	35	35	35
Price (Rs/tonne)	60000	60000	60000	60000	60000	60000	60000
Income from sales	15.00	18.00	21.00	21.00	21.00	21.00	21.00
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	7.50	9.00	10.50	10.50	10.50	10.50	10.50
Power	0.78	0.94	1.10	1.10	1.10	1.10	1.10
Salary	4.92	4.94	4.97	4.99	5.02	5.04	5.07
Repair & Maintenance	0.12	0.15	0.18	0.21	0.26	0.31	0.37
Selling Expenses	0.15	0.18	0.21	0.21	0.21	0.21	0.21
Miscellaneous Expenses	0.08	0.09	0.11	0.11	0.11	0.11	0.11
Total Operating Expenses	13.55	15.30	17.06	17.12	17.19	17.27	17.35
Less: Working expenses capitalised	2.26	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	3.71	2.70	3.94	3.88	3.81	3.73	3.65
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Interest on Term Loan	0.76	0.68	0.55	0.43	0.31	0.19	0.07
Net Profit	2.36	1.43	2.80	2.86	2.91	2.96	2.99
Net cash accruals	2.95	2.02	3.39	3.45	3.50	3.55	3.58
Principal Repayment	0.38	1.53	1.53	1.53	1.53	1.53	1.53

**6.1 Production capacity:** Total production of Tapioca Chips at installed capacity is estimated as below.

Rated processing capacity/ annum (tonnes of raw materials)	200
Yield of chips from tapioca tubers	25%
Production of chips per annum at installed capacity (tonnes)	50

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

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Tapioca tubers	Tonnes	200	6000	1200000
Add: Additives, packing materials, etc @ 25%				300000
Expenses on raw materials & consumables at installed capacity (Rs)				1500000

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

Connected load (kw)	19
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	31332
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	156660



**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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	-	-
Machine operators/ skilled workers	3	7000	252000
Salesperson	2	4000	96000
Casual labour	4	3000	144000
Expenses on salary in the 1st year (Rs)			492000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil Works	4.51	1%	0.05
Machinery & Equipment	5.92	1%	0.06
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.12

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	4.51	3.34%	0.15
Machinery & Equipment	5.92	5.28%	0.31
Misc. Fixed Assets	2.00	6.33%	0.13
TOTAL			0.59

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 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	6	7
Month 1	Opening balance	9.53	9.15	7.63	6.10	4.58	3.05	1.53
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest (8%)	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	9.02	7.50	5.97	4.45	2.92	1.40
Month 2	Opening balance	9.53	9.02	7.50	5.97	4.45	2.92	1.40
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.90	7.37	5.85	4.32	2.80	1.27
Month 3	Opening balance	9.53	8.90	7.37	5.85	4.32	2.80	1.27
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.77	7.24	5.72	4.19	2.67	1.14
Month 4	Opening balance	9.53	8.77	7.24	5.72	4.19	2.67	1.14
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.64	7.12	5.59	4.07	2.54	1.02
Month 5	Opening balance	9.53	8.64	7.12	5.59	4.07	2.54	1.02
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.52	6.99	5.47	3.94	2.41	0.89
Month 6	Opening balance	9.53	8.52	6.99	5.47	3.94	2.41	0.89
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.39	6.86	5.34	3.81	2.29	0.76
Month 7	Opening balance	9.53	8.39	6.86	5.34	3.81	2.29	0.76
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13

	Interest	0.06	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	9.53	8.26	6.74	5.21	3.69	2.16	0.64
Month 8	Opening balance	9.53	8.26	6.74	5.21	3.69	2.16	0.64
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.06	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.53	8.13	6.61	5.08	3.56	2.03	0.51
Month 9	Opening balance	9.53	8.13	6.61	5.08	3.56	2.03	0.51
	Repayment	0.00	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.53	8.01	6.48	4.96	3.43	1.91	0.38
Month 10	Opening balance	9.53	8.01	6.48	4.96	3.43	1.91	0.38
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.41	7.88	6.35	4.83	3.30	1.78	0.25
Month 11	Opening balance	9.41	7.88	6.35	4.83	3.30	1.78	0.25
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.28	7.75	6.23	4.70	3.18	1.65	0.13
Month 12	Opening balance	9.28	7.75	6.23	4.70	3.18	1.65	0.13
	Repayment	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Interest	0.06	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.15	7.63	6.10	4.58	3.05	1.53	0.00
Principal Repayment		0.38	1.53	1.53	1.53	1.53	1.53	1.53
Interest		0.76	0.68	0.55	0.43	0.31	0.19	0.07

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	2.36	1.43	2.80	2.86	2.91	2.96	2.99	
Depreciation	0.59	0.59	0.59	0.59	0.59	0.59	0.59	
Interest	0.76	0.68	0.55	0.43	0.31	0.19	0.07	
Total	3.71	2.70	3.94	3.88	3.81	3.73	3.65	25.42
Interest	0.76	0.68	0.55	0.43	0.31	0.19	0.07	
Loan repayment	0.38	1.53	1.53	1.53	1.53	1.53	1.53	
Total	1.14	2.20	2.08	1.96	1.84	1.71	1.59	12.52
DSCR	3.25	1.22	1.89	1.98	2.08	2.18	2.29	

Average DSCR = 2.03

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	15.00	18.00	21.00
B. Variable cost			
Raw Materials & Consumables	7.50	9.00	10.50
Power	0.78	0.94	1.10
Selling Expenses	0.15	0.18	0.21
Miscellaneous Expenses	0.08	0.09	0.11
Total variable cost	8.51	10.21	11.91
C. Contribution (A-B)	6.49	7.79	9.09
D. Fixed & Semi-fixed Costs			
Salary	4.92	4.94	4.97
Repair & maintenance	0.12	0.15	0.18
Interest on Term Loan	0.76	0.68	0.55
Depreciation	0.59	0.59	0.59

Total fixed cost	6.39	6.36	6.29
E. BREAK EVEN POINT	98.50%	81.64%	69.23%
F. BEP at operating capacity	49.25%	48.98%	48.46%
G. Cash BEP	44.71%	44.44%	43.92%

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

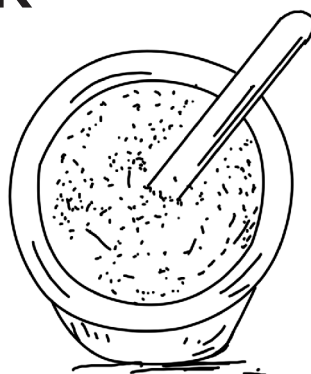
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	12.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.26	0.33	0.33	0.00	0.00	0.00	0.00
Total (A)	12.80	2.26	0.33	0.33	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		2.36	1.43	2.80	2.86	2.91	2.96	2.99
Add: Depreciation		0.59	0.59	0.59	0.59	0.59	0.59	0.59
Add: Interest		0.76	0.68	0.55	0.43	0.31	0.19	0.07
Add: Salvage Value (10%)								1.28
Total (B)	0.00	3.71	2.70	3.94	3.88	3.81	3.73	4.93
NET FLOW (B-A)	-12.80	1.45	2.36	3.61	3.88	3.81	3.73	4.93

IRR = 15%

## MACHINERY SUPPLIERS

- (a) Thomas International  
No. 306 Linghi Chetty Street, Chennai, India
- (b) Labh Projects Pvt Ltd  
4th Floor, Sarthik Square, Besides Info Tower, S. G. Road, Ahmedabad, India
- (c) Ambica Engineering Works, Bangalore  
No. 16 - A, 1st Main, Modi Hospital Road, West Of chord Road, 2nd Stage, Opposite To Bata showroom,  
Near Vijya Bank, Rajaji Nagar, Bengaluru - 560 086, Karnataka, India

# MUSTARD POWDER



## 1.0 INTRODUCTION

Mustard seeds are an important oilseed and India is one of the leading producers of these oilseeds. Bulk of the production goes for oil extraction but de-husked mustard is a popular table enricher on account of its flavour and pungency. A pasty product with mustard, salt and vinegar is very popular abroad whereas mustard powder is used as condiment in many food preparations like pickles and chutney, meat, salad dressings etc. The North-Eastern states of India produce substantial quantity of mustard seeds and mustard powder is also used extensively. Therefore, Mustard Powder production unit can be set up in the North-Eastern states.

This project profile is for setting up of a Mustard Powder processing unit with installed processing capacity of 200 MT mustard seeds per annum.

## 2.0 MARKET POTENTIAL

Mustard edible oil is one of the popular oils and mustard powder has also become very popular as condiment due

to its peculiar flavour and pungency. Mustard powder is used in many vegetarian and non-vegetarian food. They are also used as condiment in pickles, meat and salad dressings. As a matter of fact, Indian black mustard is known for its flavour & pungency and has very good export potential. There are very few large scale producers of this product and market is dominated by the small units.

## 3.0 PROCESS DETAILS

Graded and cleaned seeds are dried and subjected to splitting and de husking. Then the mixture of husk and splits are screened and separated. Mustard splits are ground to the desired fineness to obtain powder in a triple roller mill and finally powder is packed. Recovery is around 75%.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land and Site Development	-
Building & Civil Works	6.49
Plant & Machinery	6.37
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.98
Contingencies & Escalation @ 3%	0.45
Working Capital	2.11
<b>TOTAL</b>	<b>18.40</b>

- 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 (Half Brick wall, CGI sheet roof, Concrete Floor)	80	4000	320000
Office & Store (Brick wall, CGI sheet roof, Concrete Floor)	60	4500	270000
Sub total			590000
Add: Electrification, Water Supply, etc @ 10%			59000
TOTAL			649000
Say (Rs. in lacs)			6.49

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Triple Roller Mill	1	150000	150000
Grader	1	40000	40000
Classifier	1	30000	30000
Plate Mill	1	85000	85000
Mini Boiler	1	75000	75000
Steam Jacketed Kettle	1	20000	20000
Seed Cleaner	1	25000	25000
Sealing Machine	1	35000	35000
Weighing scales, utensils, etc.	LS	LS	50000
Sub total			510000
Add: Transportation, installation, etc @ 15%			76500
TOTAL			636500
Say (Rs. in lacs)			6.37

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (30 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
TOTAL			200000
Say (Rs. in lacs)			2.00

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.20
Interest during implementation	0.28
Miscellaneous expenses	0.10
TOTAL	0.98

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

	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	30	1.54	1.85	2.16
Utilities	30	0.11	0.14	0.16
Salary	30	0.92	0.93	0.94
Finished Goods	15	1.31	1.49	1.66
Receivables	15	1.39	1.66	1.94
TOTAL		5.27	6.07	6.86
Working Capital Margin in Yr 1 (40%)	2.11			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	7.36
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	11.04
<b>TOTAL</b>	<b>100%</b>	<b>18.40</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Production capacity (MT)	150	150	150	150	150	150	150
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at capacity utilisation	75	90	105	105	105	105	105
Price (Rs/MT)	45000	45000	45000	45000	45000	45000	45000
Income from sales	33.75	40.50	47.25	47.25	47.25	47.25	47.25
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	18.75	22.50	26.25	26.25	26.25	26.25	26.25
Utilities	1.39	1.67	1.95	1.95	1.95	1.95	1.95
Salary	11.16	11.27	11.38	11.50	11.61	11.73	11.85
Repair & Maintenance	0.15	0.18	0.21	0.26	0.31	0.37	0.44
Selling Expenses	0.34	0.41	0.47	0.47	0.47	0.47	0.47
Miscellaneous Expenses	0.17	0.20	0.24	0.24	0.24	0.24	0.24
Total Operating Expenses	31.95	36.23	40.50	40.66	40.83	41.00	41.19
Less: Working expenses capitalised	2.11	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	3.90	4.27	6.75	6.59	6.42	6.25	6.06
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Interest on Term Loan	0.88	0.78	0.64	0.50	0.36	0.22	0.08
Interest on Working Capital Loan	0.51	0.58	0.66	0.66	0.66	0.66	0.66
Net Profit	1.73	2.12	4.65	4.64	4.61	4.58	4.53
Net cash accruals	2.52	2.91	5.45	5.43	5.41	5.37	5.32
Principal Repayment	0.44	1.77	1.77	1.77	1.77	1.77	1.77

### 6.1 Estimation of Production Capacity: Production of Mustard Powder at installed capacity is estimated as below.

Rated processing capacity (tonnes/annum of mustard seeds)	200
Recovery of powder from seeds (%)	75%
Production/annum of mustard powder at installed capacity (tonnes)	150

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

Raw material required at installed capacity (tonnes)	200
Price of mustard seed (Rs/tonne)	15000
Expenses on raw materials at installed capacity (Rs)	3000000
Add: Expenses on packaging materials @ 25%	750000
Expenses on raw materials & consumables at installed capacity (Rs)	3750000

**6.3 Utilities:** Expenses on utilities at installed capacity is estimated as below.Expenses on power

Connected Load (kw)	22
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	37598
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	187992
Add: Expenses on coal for boiler @ Rs 300/day	90000
Expenses on utilities per annum at installed capacity (Rs)	277992

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

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	1	15000	180000
Skilled Workers/Machine Operators	5	10000	600000
Sales Staff	2	5000	120000
Helpers	6	3000	216000
Expenses on salary in the 1st year (Rs)			1116000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	6.49	1%	0.06
Plant & Machinery	6.37	1%	0.06
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.15

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Misc. expenses have been assumed at 0.5% 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	6.49	3.34%	0.22
Plant & Machinery	6.37	7.07%	0.45
Misc. Fixed Assets	2.00	6.23%	0.12
TOTAL			0.79

**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 7 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	6	7
Month 1	Opening balance	11.04	10.60	8.83	7.07	5.30	3.53	1.77
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest (8%)	0.07	0.07	0.06	0.05	0.04	0.02	0.01
	Closing balance	11.04	10.45	8.68	6.92	5.15	3.39	1.62
Month 2	Opening balance	11.04	10.45	8.68	6.92	5.15	3.39	1.62
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.07	0.06	0.05	0.03	0.02	0.01
	Closing balance	11.04	10.30	8.54	6.77	5.00	3.24	1.47
Month 3	Opening balance	11.04	10.30	8.54	6.77	5.00	3.24	1.47
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.07	0.06	0.05	0.03	0.02	0.01
	Closing balance	11.04	10.16	8.39	6.62	4.86	3.09	1.32
Month 4	Opening balance	11.04	10.16	8.39	6.62	4.86	3.09	1.32



	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.07	0.06	0.04	0.03	0.02	0.01
	Closing balance	11.04	10.01	8.24	6.48	4.71	2.94	1.18
Month 5	Opening balance	11.04	10.01	8.24	6.48	4.71	2.94	1.18
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.07	0.05	0.04	0.03	0.02	0.01
	Closing balance	11.04	9.86	8.10	6.33	4.56	2.80	1.03
Month 6	Opening balance	11.04	9.86	8.10	6.33	4.56	2.80	1.03
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.07	0.05	0.04	0.03	0.02	0.01
	Closing balance	11.04	9.71	7.95	6.18	4.42	2.65	0.88
Month 7	Opening balance	11.04	9.71	7.95	6.18	4.42	2.65	0.88
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	11.04	9.57	7.80	6.04	4.27	2.50	0.74
Month 8	Opening balance	11.04	9.57	7.80	6.04	4.27	2.50	0.74
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	11.04	9.42	7.65	5.89	4.12	2.36	0.59
Month 9	Opening balance	11.04	9.42	7.65	5.89	4.12	2.36	0.59
	Repayment	0.00	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	11.04	9.27	7.51	5.74	3.97	2.21	0.44
Month 10	Opening balance	11.04	9.27	7.51	5.74	3.97	2.21	0.44
	Repayment	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.89	9.13	7.36	5.59	3.83	2.06	0.29
Month 11	Opening balance	10.89	9.13	7.36	5.59	3.83	2.06	0.29
	Repayment	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.75	8.98	7.21	5.45	3.68	1.91	0.15
Month 12	Opening balance	10.75	8.98	7.21	5.45	3.68	1.91	0.15
	Repayment	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Interest	0.07	0.06	0.05	0.04	0.02	0.01	0.00
	Closing balance	10.60	8.83	7.07	5.30	3.53	1.77	0.00
	Principal Repayment	0.44	1.77	1.77	1.77	1.77	1.77	1.77
	Interest	0.88	0.78	0.64	0.50	0.36	0.22	0.08

**6.10 Interest on Working Capital:** Interest rate on working capital loan has been assumed at 16%. The details of calculation are given below.

(Rs. in lacs)

Particulars	Year 1	Year 2	Year 3
Total current assets	5.27	6.07	6.86
Bank Loan (60%)	3.16	3.64	4.12
Interest @ 16%	0.51	0.58	0.66

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	1.73	2.12	4.65	4.64	4.61	4.58	4.53	
Depreciation	0.79	0.79	0.79	0.79	0.79	0.79	0.79	
Interest	0.88	0.78	0.64	0.50	0.36	0.22	0.08	
Total	3.40	3.69	6.09	5.93	5.77	5.59	5.40	35.86
Interest	0.88	0.78	0.64	0.50	0.36	0.22	0.08	

Loan repayment	0.44	1.77	1.77	1.77	1.77	1.77	1.77	
Total	1.32	2.55	2.41	2.27	2.13	1.98	1.84	14.50
DSCR	2.57	1.45	2.53	2.62	2.71	2.82	2.93	

Average DSCR = 2.47

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	33.75	40.50	47.25
B. Variable cost			
Raw Materials & Consumables	18.75	22.50	26.25
Utilities	1.39	1.67	1.95
Selling Expenses	0.34	0.41	0.47
Miscellaneous Expenses	0.17	0.20	0.24
Interest on Working Capital Loan	0.51	0.58	0.66
Total variable cost	21.15	25.36	29.56
C. Contribution (A-B)	12.60	15.14	17.69
D. Fixed & Semi-fixed Costs			
Salary	11.16	11.27	11.38
Repair & Maintenance	0.15	0.18	0.21
Interest on Term Loan	0.88	0.78	0.64
Depreciation	0.79	0.79	0.79
Total fixed cost	12.98	13.02	13.03
E. BREAK EVEN POINT	103.04%	86.02%	73.68%
F. BEP at operating capacity	51.52%	51.61%	51.58%
G. Cash BEP	48.38%	48.47%	48.44%

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

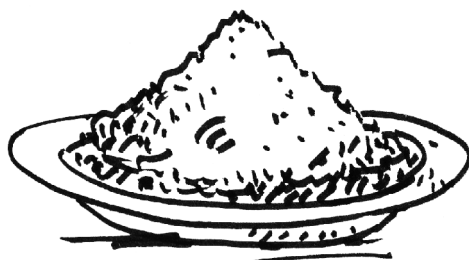
Year	0	1	2	3	4	5	6	7
CASH OUTFLOW								
Capital Expenditure	15.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	5.27	0.79	0.79	0.00	0.00	0.00	0.00
Total (A)	15.31	5.27	0.79	0.79	0.00	0.00	0.00	0.00
CASH INFLOW								
Profit After Tax		1.73	2.12	4.65	4.64	4.61	4.58	4.53
Add: Depreciation		0.79	0.79	0.79	0.79	0.79	0.79	0.79
Add: Interest		0.88	0.78	0.64	0.50	0.36	0.22	0.08
Add: Salvage Value								2.30
Total (B)	0.00	3.40	3.69	6.09	5.93	5.77	5.59	7.69
NET FLOW (B-A)	-15.31	-1.87	2.90	5.29	5.93	5.77	5.59	7.69

IRR = 15%

## MACHINERY SUPPLIERS

- Bharat Engineering Co.  
202, Vanijya Bhavan, Off. D. B. Road, Kankaria, Ahmedabad, Gujarat - 380022, India
- Akhandjot Agro Industries  
Gt-road, Near: Railway Station, Distt: Patiala, Patiala, Punjab - 140401, India
- Dev Raj Hi Tech Machines Limited  
Industrial Area, Ferozpur, Punjab - 152002, India

# TAMARIND POWDER



## 1.0 INTRODUCTION

Tamarind trees are grown in almost all parts of the country and India is a leading producer of tamarind fruits. Tamarind is a commonly used condiment in daily culinary practices. It is used in the preparation of sambar, rasams, soups, gravies, modified rice preparations, sweet sour sauce etc. Tamarind fruits are rarely used directly. Instead, they are soaked in water for some time and then juice is extracted manually. This process is not only clumsy but unhygienic as well. With the increasing use of tamarind in food preparations, ready to use tamarind powder has found a market place. This is because it has lesser fibre content and ready for use directly in preparations and is not cumbersome or messy to use. It is for this reason that the product finds acceptance among house wives.

This project profile is for setting up of a Tamarind Powder making unit with installed processing capacity of 200 tonnes per annum of dry tamarind fruits.

## 2.0 MARKET POTENTIAL

Dried tamarind fruits are an integral part of Indian cuisine and are extensively used in many food and snack preparations. It is a mass consumption item used round the year. Apart from individual households, it is used in large quantities in restaurants, dhabas, road-side eateries, hotels and canteens and many such places. Tamarind in powder form is easily soluble, is in compact form and very convenient to transport. With increasing health awareness and improved standards of living, tamarind powder has good market potential.

## 3.0 PROCESS DETAILS

Dried tamarind fruits are cleaned and after soaking them in water they are boiled in steam jacketed kettle for about 40-45 minutes. Then pulp is extracted in pulper and dried in drum type drier and on cooling, the final product is packed. Recovery or yield is around 45%.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	3.58
Machinery & Equipment	5.34
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.79
Contingencies & Escalation @ 3%	0.33
Working Capital	1.51
<b>TOTAL</b>	<b>13.55</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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 (Open shed, CGI roof, Concrete floor)	50	3500	175000
Store cum office (Brick wall, CGI roof, Concrete floor)	30	5000	150000
		Sub-total	325000
Add: Electrification, water supply, etc @ 10%			32500
		TOTAL	357500
		Say (Rs. in lacs)	3.58

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
SS Jacketed Kettle	1	120000	120000
Pulper	1	60000	60000
Baby Boiler	1	60000	60000
Drum Type Dryer	1	150000	150000
Bag Sealing Machine	1	35000	35000
Miscellaneous items	LS	LS	20000
		Sub-total	445000
Add: Transportation, taxes, etc @ 20%			89000
		TOTAL	534000
		Say (Rs. in lacs)	5.34

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (30 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
		TOTAL	200000
		Say (Rs. in lacs)	2.00

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.30
Professional & other fees	0.20
Interest during implementation	0.19
Miscellaneous expenses	0.10
TOTAL	0.79

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

Particulars	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	30	1.36	1.63	1.90
Power	30	0.08	0.09	0.11
Salary	30	0.39	0.40	0.40
Finished Goods	15	0.93	1.08	1.23
Receivables	15	1.02	1.22	1.42
Total		3.78	4.42	5.06
Working Capital Margin in Year 1 (40%)	1.51			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	5.42
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	8.13
<b>TOTAL</b>	<b>100%</b>	<b>13.55</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Installed capacity (MT)	90	90	90	90	90	90	90
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at capacity utilisation	45	54	63	63	63	63	63
Price (Rs/MT)	55000	55000	55000	55000	55000	55000	55000
Income from sales	24.75	29.70	34.65	34.65	34.65	34.65	34.65
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	16.50	19.80	23.10	23.10	23.10	23.10	23.10
Power	0.94	1.13	1.32	1.32	1.32	1.32	1.32
Salary	4.80	4.82	4.85	4.87	4.90	4.92	4.95
Repair & Maintenance	0.11	0.13	0.16	0.19	0.23	0.27	0.33
Selling Expenses	0.25	0.30	0.35	0.35	0.35	0.35	0.35
Miscellaneous Expenses	0.12	0.15	0.17	0.17	0.17	0.17	0.17
Total Operating Expenses	22.72	26.33	29.94	30.00	30.06	30.13	30.21
Less: Working expenses capitalised	1.51	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	3.54	3.37	4.71	4.65	4.59	4.52	4.44
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Interest on Term Loan	0.65	0.58	0.47	0.37	0.26	0.16	0.06
Interest on Working Capital Loan	0.36	0.42	0.49	0.49	0.49	0.49	0.49
Net Profit	2.00	1.84	3.22	3.27	3.31	3.35	3.37
Net cash accruals	2.53	2.37	3.75	3.80	3.84	3.88	3.90
Principal Repayment	0.33	1.30	1.30	1.30	1.30	1.30	1.30

**6.1 Production capacity:** Production of Tamarind Powder at installed capacity is estimated as below.

Rated processing capacity/annum (tonnes of dry tamarind fruits)	200
Yield of tamarind powder from fruits	45%
Production of chips per annum at installed capacity (tonnes)	90

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

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Dry tamarind fruits	Tonnes	200	15000	3000000
Add: Packing materials, etc @ 10%				300000
Expenses on raw materials & consumables at installed capacity (Rs)				3300000

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

Connected load (kw)	22
Avg. load factor	70%

Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	37598
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	187992

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

Particulars of Employee	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	Self	-	-
Machine operators/ skilled workers	3	7000	252000
Salesperson	1	4000	48000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			480000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	3.58	1%	0.04
Machinery & Equipment	5.34	1%	0.05
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.11

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Misc. expenses have been assumed at 0.5% 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	3.58	3.34%	0.12
Machinery & Equipment	5.34	5.28%	0.28
Misc. Fixed Assets	2.00	6.33%	0.13
TOTAL			0.53

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 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	6	7
Month 1	Opening balance	8.13	7.80	6.50	5.20	3.90	2.60	1.30
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest (8%)	0.05	0.05	0.04	0.03	0.03	0.02	0.01
	Closing balance	8.13	7.69	6.39	5.09	3.79	2.49	1.19
Month 2	Opening balance	8.13	7.69	6.39	5.09	3.79	2.49	1.19
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.03	0.02	0.01
	Closing balance	8.13	7.59	6.29	4.99	3.68	2.38	1.08
Month 3	Opening balance	8.13	7.59	6.29	4.99	3.68	2.38	1.08
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.02	0.01
	Closing balance	8.13	7.48	6.18	4.88	3.58	2.28	0.98
Month 4	Opening balance	8.13	7.48	6.18	4.88	3.58	2.28	0.98
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11



	Interest	0.05	0.05	0.04	0.03	0.02	0.02	0.01
	Closing balance	8.13	7.37	6.07	4.77	3.47	2.17	0.87
Month 5	Opening balance	8.13	7.37	6.07	4.77	3.47	2.17	0.87
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.01
	Closing balance	8.13	7.26	5.96	4.66	3.36	2.06	0.76
Month 6	Opening balance	8.13	7.26	5.96	4.66	3.36	2.06	0.76
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.01
	Closing balance	8.13	7.15	5.85	4.55	3.25	1.95	0.65
Month 7	Opening balance	8.13	7.15	5.85	4.55	3.25	1.95	0.65
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.13	7.04	5.74	4.44	3.14	1.84	0.54
Month 8	Opening balance	8.13	7.04	5.74	4.44	3.14	1.84	0.54
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.13	6.94	5.64	4.34	3.03	1.73	0.43
Month 9	Opening balance	8.13	6.94	5.64	4.34	3.03	1.73	0.43
	Repayment	0.00	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.13	6.83	5.53	4.23	2.93	1.63	0.33
Month 10	Opening balance	8.13	6.83	5.53	4.23	2.93	1.63	0.33
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.05	0.04	0.03	0.02	0.01	0.00
	Closing balance	8.02	6.72	5.42	4.12	2.82	1.52	0.22
Month 11	Opening balance	8.02	6.72	5.42	4.12	2.82	1.52	0.22
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.04	0.04	0.03	0.02	0.01	0.00
	Closing balance	7.91	6.61	5.31	4.01	2.71	1.41	0.11
Month 12	Opening balance	7.91	6.61	5.31	4.01	2.71	1.41	0.11
	Repayment	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Interest	0.05	0.04	0.04	0.03	0.02	0.01	0.00
	Closing balance	7.80	6.50	5.20	3.90	2.60	1.30	0.00
Principal Repayment		0.33	1.30	1.30	1.30	1.30	1.30	1.30
Interest		0.65	0.58	0.47	0.37	0.26	0.16	0.06

**6.10 Interest on Working Capital Loan:** Interest rate on working capital loan has been assumed at 16%. The details of calculation are given below.

(Rs. in lacs)			
Particulars	Year 1	Year 2	Year 3
Total current assets	3.78	4.42	5.06
Bank Loan (60%)	2.27	2.65	3.04
Interest @ 16%	0.36	0.42	0.49

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)									
Year	1	2	3	4	5	6	7	Total	
Profit After Tax (Net Profit)	2.00	1.84	3.22	3.27	3.31	3.35	3.37		
Depreciation	0.53	0.53	0.53	0.53	0.53	0.53	0.53		
Interest	0.65	0.58	0.47	0.37	0.26	0.16	0.06		
Total	3.18	2.95	4.22	4.17	4.11	4.04	3.96	26.61	
Interest	0.65	0.58	0.47	0.37	0.26	0.16	0.06		



Loan repayment	0.33	1.30	1.30	1.30	1.30	1.30	1.30	
Total	0.97	1.88	1.77	1.67	1.56	1.46	1.36	10.68
DSCR	3.27	1.57	2.38	2.50	2.62	2.76	2.92	

Average DSCR = 2.49

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	24.75	29.70	34.65
B. Variable cost			
Raw Materials & Consumables	16.50	19.80	23.10
Power	0.94	1.13	1.32
Selling Expenses	0.25	0.30	0.35
Miscellaneous Expenses	0.12	0.15	0.17
Interest on Working Capital Loan	0.36	0.42	0.49
Total variable cost	18.17	21.80	25.42
C. Contribution (A-B)	6.58	7.90	9.23
D. Fixed & Semi-fixed Costs			
Salary	4.80	4.82	4.85
Repair & maintenance	0.11	0.13	0.16
Interest on Term Loan	0.65	0.58	0.47
Depreciation	0.53	0.53	0.53
Total fixed cost	6.09	6.06	6.01
E. BREAK EVEN POINT	92.54%	76.68%	65.08%
F. BEP at operating capacity	46.27%	46.01%	45.55%
G. Cash BEP	42.25%	42.00%	41.55%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	11.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.78	0.64	0.64	0.00	0.00	0.00	0.00
Total (A)	11.24	3.78	0.64	0.64	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		2.00	1.84	3.22	3.27	3.31	3.35	3.37
Add: Depreciation		0.53	0.53	0.53	0.53	0.53	0.53	0.53
Add: Interest		0.65	0.58	0.47	0.37	0.26	0.16	0.06
Add: Salvage Value								1.69
Total (B)	0.00	3.18	2.95	4.22	4.17	4.11	4.04	5.64
NET FLOW (B-A)	-11.24	-0.60	2.31	3.58	4.17	4.11	4.04	5.64

IRR = 16%

**MACHINERY SUPPLIERS**

- Shree Laxminarayan Industries  
Plot No. 2/1, Opposite Jalaram Estate, Near Narol Post Office, Narol Vatva Road, Ahmedabad - 380 050, Gujarat, India
- Pugos Technologies  
#11, Valluvar Nagar, Kamarajar road, Peelamedu, Coimbatore, Tamil Nadu, India
- TH Enterprises  
Shop no.13-6-825/1, moghalnagar ring road hyderabad, hyderabad, hyderabad, Andhra Pradesh, 500008, India

# MUSHROOM PROCESSING



## 1.0 INTRODUCTION

Mushroom is a nutritious vegetarian delicacy and has many varieties. It contains many vitamins and minerals but is low on sugar and fat. It can be grown in artificially created and controlled environment. It can be ideally grown in hilly areas or in in artificially controlled sheds in plains. Fresh mushrooms can be readily sold in market or processed and dried. There are two main varieties of mushroom Button type or the oysters' variety. Oyster mushrooms are easy to cultivate and do not require huge investment. Fresh mushroom have very limited shelf life, but processed and dried mushrooms if properly packed can be stored over a long period.

This project profile on Mushroom Processing is for production of processed and canned mushroom with installed processing capacity of 500 kg of fresh mushroom/ day. Considering 150 working days per annum due to seasonal cultivation of mushroom, the unit will have processing capacity of 75 tonnes per annum. The yield of finished product depend on different factors like quality of dryer, moisture content in fresh mushroom, etc. It is assumed that recovery of finished product from fresh mushroom is at 25% and the finished product will be packaged in 1/2 kg capacity tin cans. Based on these assumptions, the unit will have production capacity of 37,500 nos of canned mushroom per annum.

While it is advisable to grow captive mushroom for processing, this project profile has not considered the

cost of cultivating mushroom. Instead, the cost of fresh mushroom has been assumed at market rates.

## 2.0 PROCESS DETAILS

### 2.1 Process of Cultivation

Three aspects are to be taken care of for a successful cultivation of mushroom. These are good compost, reliable spawn and right temperature during growing period. Natural compost is prepared from horse dung and wheat or barley straw. Some quantity of chicken manure may be added. Compost preparation is very crucial. Mushrooms are grown in wooden trays or boxes. These are filled with compost and pressed firmly, leaving a small space on top. The spawn is scattered on the surface and covered with a thin layer of compost. The trays are then covered with old newspaper and water is sprayed to provide humidity. The trays are then stacked vertically. At a temperature 24-25°C, white cottony mycelium spreads and permeates through the compost. It takes around 12 to 15 days for the complete spawn running. Ultimately, the surface of the compost is covered with half to one inch level of casing soil. It is sterilized to kill insects. The casing soil is spread over plastic sheet and treated with formalin and stirred frequently for a week to remove formation of fumes. After casing, the temperature has to be maintained at 24-25°C for three days after which, it must be lowered to 18°C. Thus, batches of trays must be arranged in such a way that there is regular daily production.

## 2.2 Mushroom Processing

Fresh mushrooms have very limited life hence processing is recommended to enhance the shelf life. Initially, mushrooms are washed in cold water then blanched in boiling water for 3-4 minutes. They are then dehydrated in drier and packed. It is advisable to pre treat mushroom in brine solution to prevent discoloration. Packing is very crucial as formation of moisture contaminates mushroom very quickly. The yield depends on many factors as moisture content in fresh mushroom, type of drier , process employed, moisture content require in the finished product etc. Average yield is 25%. Plain cans and brine of 2% salt and 0.2% citric acid are used for packing. The cans are vacuumed before sealing at 19°C for 7-8 minutes, sealed and processed under pressure for 20-25 minutes.

## 3.0 MARKET POTENTIAL

Mushroom is a vegetarian delicacy and is a suitable substitute for meat or eggs. It is easily digestible. It is very popular in most of the developed countries and is being accepted in many developing countries. Market for mushroom is growing rapidly because of its rich nutritional

value and special taste aroma, flavour etc. Many exotic preparations are made from them like soup, pickles, etc. It can also be cooked in traditional way as standard vegetable. It is used as stuffing for various food preparations and for garnishing.

Mushrooms have very short life after being harvested and are sold in fresh form. Their shelf life is enhanced if processed and packed properly. This can then be stored and transported for selling in far off markets.

Mushrooms are very popular item in most of the star hotels and in urban households. Thus, there is a good market for the processed mushroom. Processed and preserved mushrooms will ensure the availability throughout the year. The major limitation with the bulk of green vegetables is that they are grown in a limited period lasting only for 3-4 months and thus their availability is restricted to this period. Properly preserved and canned mushrooms also helps in exporting the product to other countries.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.57
Machinery & Equipment	2.63
Misc. Fixed Assets	1.15
Preliminary & Pre-operative Expenses	0.58
Contingencies & Escalation @ 3%	0.25
Working Capital	0.93
<b>TOTAL</b>	<b>10.11</b>

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

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

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Work shed (Half brick wall, CGI sheet roof, Concrete Floor)	80	3500	280000
Store Room (Brick wall, CGI sheet roof, Concrete Floor)	30	4500	135000
<b>Sub total</b>			<b>415000</b>
Add: Electrification, etc @ 10%			<b>41500</b>
<b>TOTAL</b>			<b>456500</b>
<b>Say (Rs. in lacs)</b>			<b>4.57</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Baby Boiler	1	60000	60000
Tray-type Dehydrator	1	70000	70000
Can Seamer	1	20000	20000
Can Reforming with Rollers, Flanger, etc	1	25000	25000
Exhaust Box with motor	1	15000	15000
Steam Jacketted Kettle	1	30000	30000
Miscellaneous items	LS	LS	10000
Sub total			230000
Add: Installation, transportation, etc @ 10%			23000
TOTAL			263000
Say (Rs. in lacs)			2.63

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water supply system (STW boring, 3 HP motor, storage, pipes & fittings)	1	100000	100000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	5000
TOTAL			115000
Say (Rs. in lacs)			1.15

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.13
Miscellaneous expenses	0.05
TOTAL	58

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

Particulars	Period (Days)	Amount (Rs lacs)		
		Year 1	Year 2	Year 3
Raw Materials & Consumables	30	0.71	0.83	0.95
Power	30	0.02	0.03	0.03
Salary	30	0.20	0.20	0.20
Total		0.93	1.06	1.18
Working Capital Margin in Year 1 (100%)		0.93		

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.05
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.07
TOTAL	100%	10.11

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production at installed capacity (Nos)	37500	37500	37500	37500	37500
Capacity utilisation	60%	70%	80%	80%	80%
Production at capacity utilisation	22500	26250	30000	30000	30000
Price of canned mushroom (Rs/can)	60	60	60	60	60
Income per annum	13.50	15.75	18.00	18.00	18.00
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	8.66	10.11	11.55	11.55	11.55
Power	0.28	0.33	0.38	0.38	0.38
Salary	2.42	2.43	2.44	2.46	2.47
Repair & Maintenance	0.12	0.13	0.14	0.15	0.17
Selling expenses	0.14	0.16	0.18	0.18	0.18
Miscellaneous Expenses	0.07	0.08	0.09	0.09	0.09
Total Operating Expenses	11.68	13.23	14.78	14.81	14.83
Less: Working expenses capitalised	0.93	0.00	0.00	0.00	0.00
Operating profit	2.75	2.52	3.22	3.19	3.17
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.36	0.36	0.36	0.36	0.36
Interest on Term Loan	0.48	0.40	0.29	0.18	0.06
Net Profit	1.90	1.75	2.57	2.65	2.74
Net cash accruals	2.27	2.11	2.93	3.02	3.10
Principal Repayment	0.36	1.43	1.43	1.43	1.43

**6.1 Production Capacity:** Total Nos. of canned mushroom per annum at 100% capacity utilisation is estimated as below.

Rated capacity of machinery (kg/day of mushroom)	500
No. of days/annum (Seasonal Production)	150
Total quantity per annum (kg)	75000
Recovery rate of processed mushroom (%)	25%
Total quantity of finished mushroom (kg)	18750
Capacity of packing cans (kg)	0.50
Total nos. of canned mushroom per annum at installed capacity	37500

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

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Fresh mushrooms	kg	75000	16	1200000
Cans	Nos	37500	3	112500
Sub total				1312500
Add: consumables like salt, citric acid, cartons, etc @ 10%				131250
Total expenses on raw materials & consumables @ 100% capacity				1443750

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

Particulars	Power (Kw)	hrs/day	kwh
Connected load (30 HP)	22.38	4	89.52
Total power requirement/ day (Kw)			89.52
Days/annum	150		
Rate per unit (Rs)	3.50		
Expenses on power per annum at 100% capacity (Rs)	46998		

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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)
Technicians/skilled workers	2	5000	120000
Salesman	2	3000	72000
Helpers	4	2500	50000
Expenses on salary in the 1st year (Rs)			242000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> 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 (Rs lacs)
Building & Civil Works	4.57	1%	0.05
Machinery & Equipment	2.63	2%	0.05
Misc. Fixed Assets	1.15	2%	0.02
Expenses on repair & maintenance in year 1			0.12

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of income

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% of income.

**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	4.57	3.34%	0.15
Machinery & Equipment	2.63	5.28%	0.14
Misc. Fixed Assets	1.15	6.33%	0.07
TOTAL			0.36

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 1 year with equal monthly instalments. The details of calculation are given below.

		(Rs in lacs)				
	Year	1	2	3	4	5
Month 1	Opening balance	6.07	5.71	4.28	2.86	1.43
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.07	5.59	4.16	2.74	1.31
Month 2	Opening balance	6.07	5.59	4.16	2.74	1.31
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.07	5.47	4.05	2.62	1.19
Month 3	Opening balance	6.07	5.47	4.05	2.62	1.19
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.07	5.35	3.93	2.50	1.07
Month 4	Opening balance	6.07	5.35	3.93	2.50	1.07
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.07	5.24	3.81	2.38	0.95
Month 5	Opening balance	6.07	5.24	3.81	2.38	0.95
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.03	0.02	0.01
	Closing balance	6.07	5.12	3.69	2.26	0.83
Month 6	Opening balance	6.07	5.12	3.69	2.26	0.83



	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.02	0.01
	Closing balance	6.07	5.00	3.57	2.14	0.71
Month 7	Opening balance	6.07	5.00	3.57	2.14	0.71
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.07	4.88	3.45	2.02	0.59
Month 8	Opening balance	6.07	4.88	3.45	2.02	0.59
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.07	4.76	3.33	1.90	0.48
Month 9	Opening balance	6.07	4.76	3.33	1.90	0.48
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.07	4.64	3.21	1.78	0.36
Month 10	Opening balance	6.07	4.64	3.21	1.78	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.95	4.52	3.09	1.67	0.24
Month 11	Opening balance	5.95	4.52	3.09	1.67	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.83	4.40	2.97	1.55	0.12
Month 12	Opening balance	5.83	4.40	2.97	1.55	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.71	4.28	2.86	1.43	0.00
Principal Repayment		0.36	1.43	1.43	1.43	1.43
Interest		0.48	0.40	0.29	0.18	0.06

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	TOTAL
Profit After Tax (Net Profit)	1.90	1.75	2.57	2.65	2.74	
Depreciation	0.36	0.36	0.36	0.36	0.36	
Interest	0.48	0.40	0.29	0.18	0.06	
Total	2.75	2.52	3.22	3.19	3.17	14.85
Interest	0.48	0.40	0.29	0.18	0.06	
Loan repayment	0.36	1.43	1.43	1.43	1.43	
Total	0.84	1.83	1.72	1.60	1.49	7.48
DSCR	3.28	1.37	1.87	1.99	2.13	

Average DSCR = 1.98



**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	13.50	15.75	18.00
B. Variable cost			
Raw Materials & Consumables	8.66	10.11	11.55
Power	0.28	0.33	0.38
Selling expenses	0.14	0.16	0.18
Miscellaneous expenses	0.07	0.08	0.09
Total variable cost	9.15	10.67	12.20
C. Contribution (A-B)	4.35	5.08	5.80
D. Fixed & Semi-fixed Costs			
Salary	2.42	2.43	2.44
Repair & maintenance	0.12	0.13	0.14
Interest on Term Loan	0.48	0.40	0.29
Depreciation	0.36	0.36	0.36
Total fixed cost	3.38	3.33	3.24
E. BREAK EVEN POINT	77.71%	65.53%	55.80%
F. BEP at operating capacity	46.63%	45.87%	44.64%
G. Cash BEP	41.61%	40.85%	39.62%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	8.35	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	0.93	0.12	0.12	0.00	0.00
Total (A)	8.35	0.93	0.12	0.12	0.00	0.00
CASH INFLOW						
Profit After Tax		1.90	1.75	2.57	2.65	2.74
Add: Depreciation		0.36	0.36	0.36	0.36	0.36
Add: Interest		0.48	0.40	0.29	0.18	0.06
Add: Salvage Value						
Total (B)	0.00	2.75	2.52	3.22	3.19	3.17
NET FLOW (B-A)	-8.35	1.82	2.40	3.10	3.19	3.17

IRR = 17%

**MACHINERY SUPPLIERS**

- Shiva Engineers  
Patel Avenue, Plot No.165, Flat No.1, Right Bhusari Colony, Nr. Kothrud Bus Depot, Paud Road, Pune - 411038, Maharashtra, India
- Jwala Engineering Company  
A-21, Laghu Udyog Kendra, I. B. Patel Road, Goregaon East, Mumbai -400063, Maharashtra, India
- Veenu Hitech  
F-6, 1st Floor, St. Soldier Tower, PVR Complex, Vikas Puri, New Delhi - 110 018 (Delhi) India

# FISH MEAL



## 1.0 INTRODUCTION

Fish meal is a valuable feeding material with high contents of digestible vitamins, minerals and proteins. Fish meal is given as supplementary food to increase production of meat or eggs. By mixing in the correct proportion in compound feeds, fish meal is considered as an important poultry feed. Since the diet of domestic and poultry animals is often deficient in proteins and vitamins, fish meal has become very popular as it provides important nutrients and fills the gap.

Fish meal is made from fish which cannot be economically utilised, or fish wastes like trimmings, heads and so on.

This project profile is for setting up of a Fish Meal production unit with installed processing capacity of 150 tonnes per annum of Fish & Fish Wastes.

## 2.0 MARKET POTENTIAL

Demand for fish meal is increasing since it is an important animal feed. Many govt. and other agencies are promoting eggs as a vegetarian food and special incentives are offered to poultry farming. Changing lifestyles and increase in disposable incomes have

witnessed constant increase in consumption of eggs and chicken. This has in turn, given boost to poultry farming. This augurs well for the fish meal industry. There are some organised sector units producing fish meal but there is a good scope for small scale units as they can offer the product at competitive prices. It is necessary that the factory is located at a place where raw materials are easily available round the year e.g. near coastal area or nearer to a large fish canning and freezing factory.

## 3.0 PROCESS DETAILS

There are two types of fish viz. fatty and non-fatty fish. In case of non-fatty fish and fish wastes, the material is fed to the drier wherein the process of cooking and drying is carried out. Drying takes around 6 to 8 hours as the moisture content has to be 10%. This dried material is then pulverised and sieved to segregate large particles and then packed in jute bags with plastic liner. As regards fatty fish, the material is cooked in open pan cooker and then it is pressed under screwed press to remove water. Cakes thus obtained are dried as per the process adopted for non-fatty fish. The yield is around 40%.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	5.54
Machinery & Equipment	7.13
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	1.17
Contingencies & Escalation @ 3%	0.44
Working Capital	0.93
<b>TOTAL</b>	<b>17.21</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the project 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)
Workshed (Open shed, CGI sheet roof, Concrete floor)	80	3500	280000
Store Room (Brick wall, CGI sheet roof, Concrete floor)	45	5500	247500
		Sub-total	527500
Add: Electrification, water supply, etc @ 5%			26375
		<b>TOTAL</b>	<b>553875</b>
		Say (Rs. in lacs)	5.54

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Rotary drum dryer with accessories	1	350000	350000
Electric Mini Boiler	1	75000	75000
Hammer type pulveriser with electric motor	1	80000	80000
Steam-jacketted cooking vessel	1	25000	25000
Screwed Press	1	20000	20000
Water tanks	LS	LS	50000
Miscellaneous items	LS	LS	20000
		Sub-total	620000
Add: Transportation, taxes, etc @ 15%			93000
		<b>TOTAL</b>	<b>713000</b>
		Say (Rs. in lacs)	7.13

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (60 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
		<b>TOTAL</b>	<b>200000</b>
		Say (Rs. in lacs)	2.00

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.40
Interest during implementation	0.27
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>1.17</b>

**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	15	0.37	0.47	0.56
Power	30	0.12	0.15	0.19
Salary	30	0.42	0.43	0.43
Finished Goods	15	0.67	0.78	0.89
Receivables	15	0.74	0.92	1.11
<b>Total</b>		<b>2.33</b>	<b>2.75</b>	<b>3.18</b>
Working Capital Margin in Year 1 (40%)	0.93			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	6.88
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	10.33
<b>TOTAL</b>	<b>100%</b>	<b>17.21</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Installed capacity (MT)	60	60	60	60	60	60	60
Capacity utilisation	40%	50%	60%	60%	60%	60%	60%
Production at capacity utilisation	24	30	36	36	36	36	36
Price (Rs/MT)	75000	75000	75000	75000	75000	75000	75000
Income from sales/annum	18.00	22.50	27.00	27.00	27.00	27.00	27.00
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	9.12	11.40	13.68	13.68	13.68	13.68	13.68
Power	1.50	1.88	2.26	2.26	2.26	2.26	2.26
Salary	5.16	5.19	5.21	5.24	5.26	5.29	5.32
Repair & Maintenance	0.15	0.18	0.21	0.25	0.30	0.37	0.44
Selling Expenses	0.18	0.23	0.27	0.27	0.27	0.27	0.27

Miscellaneous Expenses	0.09	0.11	0.14	0.14	0.14	0.14	0.14
Total Operating Expenses	16.20	18.98	21.76	21.83	21.91	22.00	22.10
Less: Working expenses capitalised	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	2.73	3.52	5.24	5.17	5.09	5.00	4.90
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Interest on Term Loan	0.82	0.73	0.60	0.47	0.34	0.20	0.07
Interest on Working Capital Loan	0.22	0.26	0.31	0.31	0.31	0.31	0.31
Net Profit	1.00	1.84	3.64	3.71	3.76	3.81	3.84
Net cash accruals	1.68	2.52	4.33	4.39	4.45	4.49	4.53
Principal Repayment	0.41	1.65	1.65	1.65	1.65	1.65	1.65

**6.1 Production Capacity:** Production of fishmeal at installed capacity is estimated as below.

Rated processing capacity/annum (MT of Fish & Fish Waste)	150
Yield of Fish Meal	40%
Total production per annum at installed capacity (MT)	60

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

Particulars	Unit	Quantity	Rate (Rs)	Amount (Rs)
Fish & fish waste	Tonnes	150	15000	2250000
Packing material (50 kg jute bags)	Nos	1200	25	30000
Expenses on raw materials & consumables at installed capacity (Rs)				2280000

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

Connected load (kw)	45
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	75197
Rate per unit (Rs)	5.00
Expenses on power at installed capacity (Rs)	375984

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> 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)	-	-	-
Machine operators/skilled workers	4	6000	288000
Sales Staff	1	4000	48000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			516000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	5.54	1%	0.06
Machinery & Equipment	7.13	1%	0.07
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in year 1			0.15

**6.6 Selling Expenses:** Selling expenses has been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	5.54	3.34%	0.18
Machinery & Equipment	7.13	5.28%	0.38
Misc. Fixed Assets	2.00	6.33%	0.13
<b>TOTAL</b>			<b>0.69</b>

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 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	6	7
Month 1	Opening balance	10.33	9.91	8.26	6.61	4.96	3.30	1.65
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest (8%)	0.07	0.07	0.06	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.77	8.12	6.47	4.82	3.17	1.51
Month 2	Opening balance	10.33	9.77	8.12	6.47	4.82	3.17	1.51
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.07	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.64	7.99	6.33	4.68	3.03	1.38
Month 3	Opening balance	10.33	9.64	7.99	6.33	4.68	3.03	1.38
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.50	7.85	6.20	4.54	2.89	1.24
Month 4	Opening balance	10.33	9.50	7.85	6.20	4.54	2.89	1.24
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.36	7.71	6.06	4.41	2.75	1.10
Month 5	Opening balance	10.33	9.36	7.71	6.06	4.41	2.75	1.10
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.22	7.57	5.92	4.27	2.62	0.96
Month 6	Opening balance	10.33	9.22	7.57	5.92	4.27	2.62	0.96
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	9.09	7.43	5.78	4.13	2.48	0.83
Month 7	Opening balance	10.33	9.09	7.43	5.78	4.13	2.48	0.83
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.01
	Closing balance	10.33	8.95	7.30	5.64	3.99	2.34	0.69
Month 8	Opening balance	10.33	8.95	7.30	5.64	3.99	2.34	0.69
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.02	0.00
	Closing balance	10.33	8.81	7.16	5.51	3.85	2.20	0.55
Month 9	Opening balance	10.33	8.81	7.16	5.51	3.85	2.20	0.55
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.03	0.01	0.00
	Closing balance	10.33	8.67	7.02	5.37	3.72	2.07	0.41
Month 10	Opening balance	10.33	8.67	7.02	5.37	3.72	2.07	0.41

	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.04	0.02	0.01	0.00
	Closing balance	10.19	8.54	6.88	5.23	3.58	1.93	0.28
Month 11	Opening balance	10.19	8.54	6.88	5.23	3.58	1.93	0.28
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.05	0.03	0.02	0.01	0.00
	Closing balance	10.05	8.40	6.75	5.09	3.44	1.79	0.14
Month 12	Opening balance	10.05	8.40	6.75	5.09	3.44	1.79	0.14
	Repayment	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Interest	0.07	0.06	0.04	0.03	0.02	0.01	0.00
	Closing balance	9.91	8.26	6.61	4.96	3.30	1.65	0.00
Principal Repayment		0.41	1.65	1.65	1.65	1.65	1.65	1.65
Interest		0.82	0.73	0.60	0.47	0.34	0.20	0.07

**6.10 Interest on Working Capital Loan:** Interest rate on working capital loan has been assumed at 16%. Details of calculation are given below.

(Rs in lacs)

Description	Yr 1	Yr 2	Yr 3
Total Current Assets	2.33	2.75	3.18
Bank Loan (60%)	1.40	1.65	1.91
Interest (16%)	0.22	0.26	0.31

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	Total
Profit After Tax (Net Profit)	1.00	1.84	3.64	3.71	3.76	3.81	3.84	
Depreciation	0.69	0.69	0.69	0.69	0.69	0.69	0.69	
Interest	0.82	0.73	0.60	0.47	0.34	0.20	0.07	
Total	2.51	3.26	4.93	4.86	4.79	4.70	4.60	29.64
Interest	0.82	0.73	0.60	0.47	0.34	0.20	0.07	
Loan repayment	0.41	1.65	1.65	1.65	1.65	1.65	1.65	
Total	1.24	2.38	2.25	2.12	1.99	1.86	1.72	13.56
DSCR	2.03	1.37	2.19	2.29	2.41	2.53	2.67	

Average DSCR = 2.19

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	18.00	22.50	27.00
B. Variable cost			
Raw Materials & Consumables	9.12	11.40	13.68
Power	1.50	1.88	2.26
Selling Expenses	0.18	0.23	0.27
Miscellaneous Expenses	0.09	0.11	0.14
Total variable cost	10.89	13.62	16.34
C. Contribution (A-B)	7.11	8.88	10.66



D. Fixed & Semi-fixed Costs			
Salary	5.16	5.19	5.21
Repair & maintenance	0.15	0.18	0.21
Interest on Term Loan	0.82	0.73	0.60
Interest on Working Capital Loan	0.22	0.26	0.31
Depreciation	0.69	0.69	0.69
Total fixed cost	7.04	7.05	7.02
E. BREAK EVEN POINT	99.09%	79.33%	65.83%
F. BEP at operating capacity	39.64%	39.67%	39.50%
G. Cash BEP	35.76%	35.79%	35.62%

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)								
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	15.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.33	0.43	0.43	0.00	0.00	0.00	0.00
Total (A)	15.11	2.33	0.43	0.43	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		1.00	1.84	3.64	3.71	3.76	3.81	3.84
Add: Depreciation		0.69	0.69	0.69	0.69	0.69	0.69	0.69
Add: Interest		0.82	0.73	0.60	0.47	0.34	0.20	0.07
Add: Salvage Value (15%)								2.27
Total (B)	0.00	2.51	3.26	4.93	4.86	4.79	4.70	6.87
NET FLOW (B-A)	-15.11	0.18	2.83	4.50	4.86	4.79	4.70	6.87

IRR = 15%

## MACHINERY SUPPLIERS

- Shiva Engineers  
Patel Avenue, Plot No.165, Flat No.1, Right Bhusari Colony, Nr. Kothrud Bus Depot, Paud Road, , Pune, Maharashtra -411038, India
- Giri Plast  
123, Damji Shamji Ind. Complex Off Mahakali Caves Road, Opp. Nelco, Andheri (E), , Mumbai, Maharashtra -400093, India
- Shiva Subramaniya Industries  
No. 55/B, 1st Cross, Manjunatha Nagar, New Guddahalli, Mysore Road, , Bengaluru, Karnataka -560026, India

# SOYA SAUCE



## 1.0 INTRODUCTION

Soya bean is a leguminous crop and is rich in proteins. Soya products are increasingly becoming popular especially amongst health-conscious people. Soya sauce is used as taste and flavour enhancer with certain non-vegetarian, Chinese and western food varieties. It is prepared from de-fatted soya bean flour by hydrolysis process.

This project profile is for setting up of a Soya Sauce making with installed processing capacity of 15 MT of defatted soya flour per annum.

## 2.0 MARKET POTENTIAL

Market for soya-based products including soya sauce is in urban and semi-urban areas. Domestic use of soya sauce is limited to very few Indian households but restaurants, clubs, caterers, star hotels are major consumers. Since

regular use of soya sauce is still limited to the higher end of the society, the product has to be sold through departmental stores, shopping malls and super markets. Thrust has to be given on bulk packing rather than consumer packs so that institutional market can be captured.

## 3.0 PROCESS DETAILS

De-fatted soya flour is processed by using hydrolysis process. Flour and water along with other ingredients like salt, baking soda, vinegar, preservatives etc. are mixed homogenously to form a semi-liquid or paste-type mixture and it is passed through filter sieves to remove impurities. This mixture is then taken to SS neutralisation tanks and kept for about 2 hours before packing.

## 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	3.44
Machinery & Equipment	2.06
Misc. Fixed Assets	2.00
Preliminary & Pre-operative Expenses	0.85
Contingencies & Escalation @ 3%	0.22
Working Capital	1.71
<b>TOTAL</b>	<b>10.28</b>

**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 (Half Brick wall, CGI sheet roof, Concrete Floor)	50	4000	200000
Office & Store (Brick wall, CGI sheet roof, Concrete Floor)	25	4500	112500
Sub total			312500
Add: Electrification, Water Supply, etc @ 10%			31250
TOTAL			343750
Say (Rs. in lacs)			3.44

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
SS tanks with filter sieves	2	20000	40000
SS Collection and neutralisation tanks	4	13000	52000
Bottle Washing and Filling Machine	1	50000	50000
Miscellaneous items	LS	LS	20000
Sub total			162000
Add: Transportation, installation, etc @ 15%			24300
TOTAL			206300
Say (Rs. in lacs)			2.06

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (30 HP)	1	100000	100000
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	80000	80000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
TOTAL			200000
Say (Rs. in lacs)			2.00

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.40
Professional & other fees	0.20
Interest during implementation	0.15
Miscellaneous expenses	0.10
TOTAL	0.85

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment and miscellaneous fixed assets.

**4.7 Working Capital:** Details of working capital are given below.

	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	30	0.35	0.43	0.50
Utilities	30	0.08	0.09	0.11
Salary	30	0.39	0.40	0.40
Finished Goods	15	0.42	0.47	0.52
Receivables	15	0.46	0.55	0.65
TOTAL		1.71	1.94	2.17
Working Capital Margin in Yr 1 (100%)	1.71			

## 5.0 MEANS OF FINANCE

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

(Rs. in lacs)

Particulars	Percent	Amount
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.11
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.17
<b>TOTAL</b>	<b>100%</b>	<b>10.28</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production capacity (MT)	30	30	30	30	30
Capacity utilisation	50%	60%	70%	70%	70%
Production at capacity utilisation (MT)	15	18	21	21	21
Price (Rs/kg)	75	75	75	75	75
Income from sales/annum	11.25	13.50	15.75	15.75	15.75
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	4.31	5.18	6.04	6.04	6.04
Utilities	0.94	1.13	1.32	1.32	1.32
Salary	4.80	4.85	4.90	4.95	4.99
Repair & Maintenance	0.07	0.09	0.11	0.13	0.16
Selling Expenses	0.11	0.14	0.16	0.16	0.16
Miscellaneous Expenses	0.06	0.07	0.08	0.08	0.08
Total Operating Expenses	10.30	11.44	12.59	12.66	12.74
Less: Working expenses capitalised	1.71	0.00	0.00	0.00	0.00
Operating profit	2.67	2.06	3.16	3.09	3.01
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.39	0.39	0.39	0.39	0.39
Interest on Term Loan	0.49	0.41	0.30	0.18	0.06
Net Profit	1.79	1.26	2.48	2.52	2.56
Net cash accruals	2.17	1.65	2.86	2.91	2.95
Principal Repayment	0.36	1.45	1.45	1.45	1.45

**6.1 Estimation of Production Capacity:** Production of soya sauce at installed capacity is estimated as below.

Rated processing capacity (tonnes/ annum of defatted soya flour)	15
Yield of soya sauce after additives and water @ 1:1 (%)	200%
Production/ annum of soya sauce at installed capacity (MT)	30

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

Particulars	Unit	Qty	Rate (Rs)	Amount (Rs)
Defatted soya flour	MT	15	25000	375000
Packing bottles (Avg. 0.5 kg capacity)	Nos	60000	5	300000
Add: Expenses on additives, etc @ 50% of soya flour				187500
Expenses on raw materials & consumables at installed capacity (Rs)				862500

**6.3 Utilities:** Expenses on utilities at installed capacity is estimated as below.Expenses on power

Connected Load (kw)	22
Avg. load factor	70%
Hrs/day	8
Days/annum	300
Annual power consumption (kwh)	37598
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	187992

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

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager (Self)	Self	-	-
Skilled Workers/Machine Operators	4	6000	288000
Sales Staff	1	4000	48000
Helpers	4	3000	144000
Expenses on salary in the 1st year (Rs)			480000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 20% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount
Building & Civil Works	3.44	1%	0.03
Machinery & Equipment	2.06	1%	0.02
Misc. Fixed Assets	2.00	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.07

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% of sales.**6.8 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & Civil Works	3.44	3.34%	0.11
Machinery & Equipment	2.06	7.07%	0.15
Misc. Fixed Assets	2.00	6.23%	0.12
TOTAL			0.39

**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	6.17	5.81	4.35	2.90	1.45
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.17	5.68	4.23	2.78	1.33
Month 2	Opening balance	6.17	5.68	4.23	2.78	1.33
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.17	5.56	4.11	2.66	1.21

Month 3	Opening balance	6.17	5.56	4.11	2.66	1.21
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.17	5.44	3.99	2.54	1.09
Month 4	Opening balance	6.17	5.44	3.99	2.54	1.09
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.17	5.32	3.87	2.42	0.97
Month 5	Opening balance	6.17	5.32	3.87	2.42	0.97
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.17	5.20	3.75	2.30	0.85
Month 6	Opening balance	6.17	5.20	3.75	2.30	0.85
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.02	0.01
	Closing balance	6.17	5.08	3.63	2.18	0.73
Month 7	Opening balance	6.17	5.08	3.63	2.18	0.73
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.17	4.96	3.51	2.06	0.60
Month 8	Opening balance	6.17	4.96	3.51	2.06	0.60
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.17	4.84	3.39	1.94	0.48
Month 9	Opening balance	6.17	4.84	3.39	1.94	0.48
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.17	4.72	3.27	1.81	0.36
Month 10	Opening balance	6.17	4.72	3.27	1.81	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.05	4.60	3.14	1.69	0.24
Month 11	Opening balance	6.05	4.60	3.14	1.69	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.93	4.47	3.02	1.57	0.12
Month 12	Opening balance	5.93	4.47	3.02	1.57	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.81	4.35	2.90	1.45	0.00
Principal Repayment		0.36	1.45	1.45	1.45	1.45
Interest		0.49	0.41	0.30	0.18	0.06

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	1.79	1.26	2.48	2.52	2.56	
Depreciation	0.39	0.39	0.39	0.39	0.39	
Interest	0.49	0.41	0.30	0.18	0.06	
Total	2.67	2.06	3.16	3.09	3.01	13.97
Interest	0.49	0.41	0.30	0.18	0.06	
Loan repayment	0.36	1.45	1.45	1.45	1.45	
Total	0.85	1.86	1.75	1.63	1.51	7.61
DSCR	3.12	1.10	1.81	1.89	1.99	

Average DSCR = 1.84

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	11.25	13.50	15.75
B. Variable cost			
Raw Materials & Consumables	4.31	5.18	6.04
Utilities	0.94	1.13	1.32
Selling Expenses	0.11	0.14	0.16
Miscellaneous Expenses	0.06	0.07	0.08
Total variable cost	5.42	6.51	7.59
C. Contribution (A-B)	5.83	6.99	8.16
D. Fixed & Semi-fixed Costs			
Salary	4.80	4.85	4.90
Repair & Maintenance	0.07	0.09	0.11
Interest on Term Loan	0.49	0.41	0.30
Depreciation	0.39	0.39	0.39
Total fixed cost	5.75	5.73	5.68
E. BREAK EVEN POINT	98.67%	81.98%	69.66%
F. BEP at operating capacity	49.33%	49.19%	48.76%
G. Cash BEP	46.03%	45.89%	45.46%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	7.72	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.71	0.23	0.23	0.00	0.00
Total (A)	7.72	1.71	0.23	0.23	0.00	0.00
CASH INFLOW						
Profit After Tax		1.79	1.26	2.48	2.52	2.56
Add: Depreciation		0.39	0.39	0.39	0.39	0.39
Add: Interest		0.49	0.41	0.30	0.18	0.06
Add: Salvage Value (15%)						1.16
Total (B)	0.00	2.67	2.06	3.16	3.09	4.17
NET FLOW (B-A)	-7.72	0.95	1.83	2.93	3.09	4.17

IRR = 16%

**MACHINERY SUPPLIERS**

- a) Blenzor (India)  
1,A, 1st Floor Sharda Mansion Dr Babasaheb Ambedkar Road, Mumbai, Maharashtra, India
- b) Sol Pack Systems  
546, Upstair Saluja Plasticgill Road, Ludhiana, Punjab, India
- c) Shiv Traders  
5 Rajputpara, 2 Trambakalaya complex, Opp Khodiyar Complex, Rajkot, Gujarat, India



# TOMATO KETCHUP



## 1.0 INTRODUCTION

Tomato Ketchup is a table product used in households, restaurants, canteens etc. It is used with sandwiches, snack food items and while cooking many vegetarian and non-vegetarian dishes. Tomatoes are not available throughout the year and their prices shoot-up during lean season. Further, tomatoes cannot be conveniently utilised on or with certain products whereas tomato sauce, ketchup and puree can. Tomatoes are perishable but ketchup has shelf life of 10-12 months. Hence, this product has become very popular and is used in large quantity.

This project profile is for setting up of a Tomato Ketchup producing unit with installed capacity of 20 MT per annum of Tomato Ketchup.

## 2.0 MARKET POTENTIAL

Tomatoes are extensively used for making fresh soup, as additives with many prepared vegetables and making salads. But they cannot be used as table enrichers due to their availability only during season, transportation bottlenecks and perishable nature. Tomato ketchup has become extremely popular and is extensively used for making many fastfood items, as additive in many

vegetarian and non-vegetarian food preparations. It has already made in-roads in urban, semi-urban and in rural areas as well.

Many established national and international brands are eyeing this huge Indian market. Their presence is still limited to urban and elite markets. Semi-urban and rural markets still provide an opportunity especially to a small scale entrepreneur as it can offer a low cost good product due to its distinct edge over large units. Apart from a growing household market, there are many bulk buyers like canteens, restaurants, roadside eateries, fast food joints, caterers etc. Proper marketing strategy has to be planned before launching the product.

## 3.0 PROCESS DETAILS

Matured and ripe tomatoes are thoroughly washed and then they are boiled in a steamjacketed kettle for smooth pulping. Pulping enables extraction of juice and separation of juice and seeds, fibres and other solid materials. Many ingredients like ginger, garlic, clove, pepper, salt, sugar, vinegar and preservatives are added to the juice and this mixture is once again cooked to make it thicker and then packed. Recovery of juice varies from 40% to 45% depending upon quality of tomatoes.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	5.94
Machinery & Equipment	3.26
Misc. Fixed Assets	1.70
Preliminary & Pre-operative Expenses	0.68
Contingencies & Escalation @ 3%	0.33
Working Capital	1.24
<b>TOTAL</b>	<b>13.15</b>

**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 (Brick wall, CGI sheet roofings, Concrete Floor)	120	4500	540000
Add: Electrification, water supply, etc @ 10%			54000
<b>TOTAL</b>			<b>594000</b>
Say (Rs. in lacs)			<b>5.94</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Baby Boiler	1	60000	60000
Steam Jacketed Kettle	1	40000	40000
Pulper	1	30000	30000
Stirrer	1	20000	20000
Bottle Washing & Filling Machine	1	75000	75000
Concentration Tank	1	20000	20000
Washing Tank	1	10000	10000
Weighing scale	1	10000	10000
Miscellaneous items	LS	LS	10000
Sub total			275000
Add: Transportation, taxes, etc. @ 15%			41250
<b>TOTAL</b>			<b>326250</b>
Say (Rs. in lacs)			<b>3.26</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	100000	100000
40 HP power connection	LS	LS	50000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>170000</b>
Say (Rs. in lacs)			<b>1.70</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.18
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.68</b>

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

Particulars	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	7	0.08	0.09	0.10
Power	30	0.03	0.04	0.05
Salary	30	0.33	0.33	0.33
Finished Goods	15	0.36	0.39	0.43
Receivables	15	0.44	0.52	0.59
<b>Total</b>		<b>1.24</b>	<b>1.37</b>	<b>1.50</b>
Working Capital Margin in Yr 1 (100%)	1.24			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	5.26
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/FIs	60%	7.89
<b>TOTAL</b>	<b>100%</b>	<b>13.15</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Sales at installed capacity	18	18	18	18	18
Capacity utilisation	60%	70%	80%	80%	80%
Income from sales/annum	10.80	12.60	14.40	14.40	14.40
<b><u>B. OPERATING EXPENSES</u></b>					
Raw Materials & Consumables	4.07	4.74	5.42	5.42	5.42
Power	0.42	0.49	0.56	0.56	0.56
Salary	3.98	4.02	4.06	4.10	4.14
Repair & Maintenance	0.11	0.13	0.14	0.17	0.19
Selling Expenses	0.11	0.13	0.14	0.14	0.14
Miscellaneous Expenses	0.05	0.06	0.07	0.07	0.07
Total Operating Expenses	8.74	9.57	10.40	10.47	10.53
Less: Working expenses capitalised	1.24	0.00	0.00	0.00	0.00
Operating profit	3.30	3.03	4.00	3.93	3.87

<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.53	0.53	0.53	0.53	0.53
Interest on Term Loan	0.63	0.53	0.38	0.23	0.08
Net Profit	2.14	1.97	3.08	3.17	3.25
Net cash accruals	2.68	2.50	3.62	3.70	3.79
Principal Repayment	0.46	1.86	1.86	1.86	1.86

**6.1 Estimation of Production Capacity:** Production of tomato ketchup at installed capacity is estimated as below.

Processing capacity (kg/day in single shift of 8 hrs)	400
No. of months/annum (seasonal production)	5
No. of days/month	25
Total working days	125
Quantity of raw materials processed/annum (kg)	50000
Recovery of tomato sauce from fresh tomato (%)	40%
Total production/annum at installed capacity (MT)	20.00

**6.2 Sales:** Income from sales at installed capacity is estimated as below.

Particulars	%	Quantity (Nos.)	Rate (Rs)	Amount (Rs)
Sale of tomato sauce bottles				
(a) 1 kg	50%	10000	80	800000
(b) 500 gm	50%	20000	50	1000000
Total sales at installed capacity				1800000

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

<b>A: Raw Materials &amp; Additives</b>			
Raw material (fresh tomato) required at installed capacity (kg)	50000		
Total quantity of raw material required (MT)	50		
Price of fresh tomato (Rs/MT)	8000		
Expenses on raw materials & additives at installed capacity (Rs)	400000		
Add: Additives, transportation charges, etc @ 20%	80000		
<b>B: Packing Materials</b>			
Particulars	Quantity required	Rate (Rs)	Amount (Rs)
1 kg bottles	10000	5	50000
500 gms bottles	20000	3	60000
Corrugated boxes	2500	35	87500
Expenses on packing materials (Rs)			197500
Expenses on raw materials & consumables at installed capacity (Rs)			677500

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

Connected load ((kw)	20
Avg. load factor	70%
Total working days	125
Hrs/day	8
Total power consumption (kwh)	14099
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	70497

**6.5 Salary:** Expenses on salary in the 1<sup>st</sup> year is estimated as given below. It is assumed that salary expenses will increase @ 1% every subsequent year.

Particulars of Employee	Numbers	Salary/Month (Rs)	No. of months	Cost/annum (Rs)
Manager	Self	-	-	-
Skilled workers/Machine Operators	3	5000	12	180000
Salesperson	2	4000	12	96000
Helpers	2	3000	12	72000
Casual workers	4	2500	5	50000
Expenses on salary in the 1st year (Rs)				398000

**6.6 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 15% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	5.94	1%	0.06
Machinery & Equipments	3.26	1%	0.03
Misc. Fixed Assets	1.70	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.11

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

**6.8 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% of sales.

**6.9 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	5.94	3.34%	0.20
Machinery & Equipments	3.26	7.07%	0.23
Misc. Fixed Assets	1.70	6.23%	0.11
TOTAL			0.53

**6.10 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	7.89	7.43	5.57	3.71	1.86
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest (8%)	0.05	0.05	0.04	0.02	0.01
	Closing balance	7.89	7.27	5.42	3.56	1.70
Month 2	Opening balance	7.89	7.27	5.42	3.56	1.70
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.05	0.04	0.02	0.01
	Closing balance	7.89	7.12	5.26	3.40	1.55
Month 3	Opening balance	7.89	7.12	5.26	3.40	1.55
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.05	0.04	0.02	0.01
	Closing balance	7.89	6.96	5.11	3.25	1.39
Month 4	Opening balance	7.89	6.96	5.11	3.25	1.39
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.05	0.03	0.02	0.01
	Closing balance	7.89	6.81	4.95	3.10	1.24
Month 5	Opening balance	7.89	6.81	4.95	3.10	1.24
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.05	0.03	0.02	0.01

	Closing balance	7.89	6.65	4.80	2.94	1.08
Month 6	Opening balance	7.89	6.65	4.80	2.94	1.08
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.89	6.50	4.64	2.79	0.93
Month 7	Opening balance	7.89	6.50	4.64	2.79	0.93
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.89	6.35	4.49	2.63	0.77
Month 8	Opening balance	7.89	6.35	4.49	2.63	0.77
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.02	0.01
	Closing balance	7.89	6.19	4.33	2.48	0.62
Month 9	Opening balance	7.89	6.19	4.33	2.48	0.62
	Repayment	0.00	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.02	0.00
	Closing balance	7.89	6.04	4.18	2.32	0.46
Month 10	Opening balance	7.89	6.04	4.18	2.32	0.46
	Repayment	0.15	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.02	0.00
	Closing balance	7.74	5.88	4.02	2.17	0.31
Month 11	Opening balance	7.74	5.88	4.02	2.17	0.31
	Repayment	0.15	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.01	0.00
	Closing balance	7.58	5.73	3.87	2.01	0.15
Month 12	Opening balance	7.58	5.73	3.87	2.01	0.15
	Repayment	0.15	0.15	0.15	0.15	0.15
	Interest	0.05	0.04	0.03	0.01	0.00
	Closing balance	7.43	5.57	3.71	1.86	0.00
Principal Repayment		0.46	1.86	1.86	1.86	1.86
Interest		0.63	0.53	0.38	0.23	0.08

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.14	1.97	3.08	3.17	3.25	
Depreciation	0.53	0.53	0.53	0.53	0.53	
Interest	0.63	0.53	0.38	0.23	0.08	
Total	3.30	3.03	4.00	3.93	3.87	18.13
Interest	0.63	0.53	0.38	0.23	0.08	
Loan repayment	0.46	1.86	1.86	1.86	1.86	
Total	1.09	2.38	2.23	2.09	1.94	9.73
DSCR	3.02	1.27	1.79	1.89	2.00	

Average DSCR = 1.86

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	10.80	12.60	14.40
B. Variable cost			
Raw Materials & Consumables	4.07	4.74	5.42
Power	0.42	0.49	0.56
Selling Expenses	0.11	0.13	0.14
Miscellaneous Expenses	0.05	0.06	0.07
Total variable cost	4.65	5.42	6.20
C. Contribution (A-B)	6.15	7.18	8.20
D. Fixed & Semi-fixed Costs			
Salary	3.98	4.02	4.06
Repair & Maintenance	0.11	0.13	0.14
Interest on Term Loan	0.63	0.53	0.38
Depreciation	0.53	0.53	0.53
Total fixed cost	5.25	5.21	5.12
E. BREAK EVEN POINT	85.40%	72.56%	62.40%
F. BEP at operating capacity	51.24%	50.79%	49.92%
G. Cash BEP	46.02%	45.57%	44.70%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	11.23	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.24	0.13	0.13	0.00	0.00
Total (A)	11.23	1.24	0.13	0.13	0.00	0.00
CASH INFLOW						
Profit After Tax		2.14	1.97	3.08	3.17	3.25
Add: Depreciation		0.53	0.53	0.53	0.53	0.53
Add: Interest		0.63	0.53	0.38	0.23	0.08
Add: Salvage Value (15%)						1.68
Total (B)	0.00	3.30	3.03	4.00	3.93	5.55
NET FLOW (B-A)	-11.23	2.06	2.90	3.87	3.93	5.55

IRR = 16%

**10.0 MACHINERY SUPPLIERS**

- Ok Engineering Work  
C- 311, Sector- 10, Noida - 201 301, Uttar Pradesh, India
- Cosmos International Limited  
B 313-315, Somdutt Chamber-I, Bhikaji Cama Place, New Delhi - 110001, Delhi, India
- YSM Biotech International  
B- 96, Ground Floor, Part-2, Asoka Enclave, Sector- 37, Faridabad - 121 003, Haryana, India



# PACKAGED DRINKING WATER



## 1.0 INTRODUCTION

The water available from untreated sources such as Well, Boreholes and Spring is generally not hygienic and safe for drinking. Thus it is desirable and necessary to purify the water and supply under hygienic conditions for human drinking purpose.

As the name implies, mineral water is the purified water fortified with requisite amounts of minerals such as Barium, Iron, Manganese, etc. which can be absorbed by human body. It is either obtained from natural resources like spring and drilled wells or it is fortified artificially by blending and treating with mineral salts. The mineral water is manufactured and packed under hygienic conditions in properly washed and cleaned bottles in sterilised conditions. These are then sold to consumers as packaged water.

This project profile is for production of packaged drinking water with Reverse Osmosis water treatment system and having integrated PET Blowing system for manufacturing of pet bottles and jars. The processing capacity of the plant is 5000 litres per hour.

## 2.0 MARKET POTENTIAL

The Indian market for packaged drinking water is estimated at about Rs 1,000 Crore and is growing at a whopping rate of 40 per cent. According to a national-level study, there are more than

200 bottled water brands in India and among them, nearly 80 per cent are local brands. In fact, making bottled water is today a cottage industry in the country. Leave alone the metros, where a bottled-water manufacturer can be found even in a one-room shop, in every medium and small city and even in some prosperous rural areas there are bottled water manufacturers.

While India ranks in the top 10 largest bottled water consumers in the world, its per capita per annum consumption of bottled water is estimated to be five litres, which is comparatively lower than the global average of 24 litres. Today it is one of India's fastest growing industrial sectors. Between 1999 and 2004, the Indian bottled water market grew at a compound annual growth rate (CAGR) of 25 per cent - the highest in the world. The total annual bottled water consumption in India had tripled to 5 billion liters in 2004 from 1.5 billion liters in 1999. Global consumption of bottled water was nearing 200 billion liters in 2006.

## 3.0 PROCESS DETAILS

Raw water stored in Storage Tanks is treated through the following process.

- (i) Multi graded sand filter: To remove suspended matter.
- (ii) Activated carbon filter: To remove suspended matter from the water.

(iii) Antiscalant Dosing System: To prevent scale deposition from desalting element, by means of Antiscalant Dosing in raw water.

(iv) Ultraviolet Disinfection System: To remove biological impurities from the raw water.

(v) Micron Filtration: To remove micron particles from the raw water.

(vi) Osmotic pressure System (High Pressure Pump): To create osmotic pressure in raw water.

(vii) Desalination System by Reverse Osmosis Membrane Element: To desalt the raw water i.e. to reduce total dissolve solids.

(viii) Ion Controlling System: To adjust the minerals contains in the Process water by means of mixing of raw water in the desalted treated water.

(ix) Storage of Treated Water: To remove back pressure in R. O. Membrane elements.

(x) Fine Polishing Filtration: To filter water from 2 micron to

0.2 micron rating & achieve the crystal clear filtered mineral water.

(xi) UV system: To kill the bacteria from fine water.

(xii) Ozonization: To Prevent the biological & micro organism growth in the stagnant water.

(xiii) Rinsing Filling & Capping: To rinse, fill & capping of the bottle of mineral water.

(xiv) Bottle Manufacturing Machine: To manufacture the PET bottle from Pet granules.

(xv) Reverse Osmosis Membrane Cleaning System: To clean the membrane when it comes in maintenance stage.

(xvi) Packing of mineral water in Bottles, container or polypack: To pack the final production in the selected packing and sell it in the market.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below.

		(Rs. in lacs)
Particulars	Amount (Rs)	
Land & Site Development	4.00	
Building & Civil works	25.14	
Plant & Machinery	111.48	
Misc. Fixed Assets	21.37	
Preliminary & Pre-operative Expenses	15.90	
Contingencies & Escalation @ 3%	4.86	
Working Capital	13.98	
<b>TOTAL</b>	<b>196.72</b>	

#### 4.1 Land & Site Development: Details of land & site development are given below.

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Site levelling, approach road, fencing, etc.	4000	100	400000
Say (Rs. in lacs)			4.00

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

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Factory Building including laboratory, store room, etc (Single storied RCC building)	250	8500	2125000
Genset Room (Brick wall, CGI sheet roof, Concrete Floor)	30	4000	120000
Sub total			2245000
Add: Electrification, water supply and sanitation @ 12%			269400
TOTAL			2514400
Say (Rs. in lacs)			25.14

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water Treatment Plant with R.O system UV sterilization system, capacity 5000 ltr/hr, with all accessories	1	2275000	2275000
Other equipments (Ozone Generator, Storage Tanks, Pump, Pipe Fittings, Batch Coding Machine & laboratory equipments)	1	1860000	1860000
Automatic Filling Machine complete with accessories	1	4450000	4450000
Pet Blowing System complete with accessories	1	1359000	1359000
Miscellaneous items	LS	LS	100000
Sub total			10044000
Add: Installation, transportation, etc @ 10%			1004400
TOTAL			11148400
Say (Rs. in lacs)			111.48

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Installation of deep bore tubewell	1	1500000	1500000
62.5 KVA DG Set	1	385000	385000
Furniture & fixtures	LS	LS	100000
Miscellaneous items	LS	LS	50000
Sub total			2035000
Add: Installation, transportation, etc @ 5%			101750
TOTAL			2136750
Say (Rs. in lacs)			21.37

**4.5 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

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

(Rs. In lacs)

Particulars	Amount (Rs)
Travelling expenses	0.50
Professional & other fees	0.50
Interest during implementation	14.40
Miscellaneous expenses	0.50
<b>TOTAL</b>	<b>15.90</b>

**4.7 Working Capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Amount (Rs)		
		Year 1	Year 2	Year 3
Consumables	30	12.94	15.53	18.11
Power & fuel	30	0.38	0.45	0.53
Salary	30	1.68	1.69	1.69
Finished Goods	15	9.17	10.81	12.45
Receivables	15	10.78	12.94	15.09
<b>Total</b>		<b>34.94</b>	<b>41.41</b>	<b>47.88</b>
Working Capital Margin in Year 1 (40%)	13.98			

**5.0 MEANS OF FINANCE**

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

(Rs. in lacs)

Particulars	Percent	Amount (Rs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	78.69
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	118.03
<b>TOTAL</b>	<b>100%</b>	<b>196.72</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b>A. INCOME</b>							
Production capacity (litres/annum)	102.89	102.89	102.89	102.89	102.89	102.89	102.89
Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Income from sales/annum	262.36	314.83	367.30	367.30	367.30	367.30	367.30
<b>B. OPERATING EXPENSES</b>							
Raw Materials & Consumables	157.41	188.90	220.38	220.38	220.38	220.38	220.38
Power & Fuel	4.59	5.51	6.42	6.42	6.42	6.42	6.42
Salary	20.40	20.50	20.60	20.71	20.81	20.92	21.02
Repair & Maintenance	3.92	4.03	4.15	4.28	4.41	4.54	4.68
Franchise Fee	26.24	31.48	36.73	36.73	36.73	36.73	36.73
Selling & Administrative Expenses	7.87	9.44	11.02	11.02	11.02	11.02	11.02
Miscellaneous Expenses	2.62	3.15	3.67	3.67	3.67	3.67	3.67
Total Operating Expenses	223.05	263.02	302.99	303.21	303.44	303.68	303.92
Less: Working expenses capitalised	13.98	0.00	0.00	0.00	0.00	0.00	0.00

Operating profit	53.28	51.81	64.31	64.09	63.85	63.62	63.38
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	8.08	8.08	8.08	8.08	8.08	8.08	8.08
Interest on Term Loan	16.23	14.99	12.28	9.58	6.88	4.17	1.47
Interest on Working Capital Loan	3.35	3.98	4.60	4.60	4.60	4.60	4.60
Net Profit	25.62	24.77	39.35	41.83	44.30	46.77	49.24
Net cash accruals	33.70	32.85	47.43	49.91	52.38	54.85	57.32
Principal Repayment	0.00	19.67	19.67	19.67	19.67	19.67	19.67

**6.1 Production capacity:** Total production of packaged water at 100% capacity utilization is estimated as below.

Rated plant capacity (litres/hr of treated water)	5000
No. of hrs/day	8
No. of days/annum	300
Total quantity (litres)	12000000
Less: 5% towards forced outage	600000
Less: 5% towards auxiliary consumption	570000
Less: Loss during transit @ 5%	541500
Total production per annum at 100% capacity (litres)	10288500

**6.2 Income from sales:** Total income from sales at 100% capacity utilization is estimated as below.

Product	Proportion	ltrs/ annum	Qty/ year	Rate (Rs)	Amount (Rs)
<b>A. Pet Bottles</b>	50%	5144250			
i. 500 ml	40%	2057700	4115400	5	20577000
ii. 1 litre	40%	2057700	2057700	8	16461600
iii. 2 litres	20%	1028850	514425	10	5144250
<b>B. Water Jars (20 litres)</b>	50%	5144250	257213	40	10288500
Income from sales at 100% capacity (Rs)					52471350

**6.3 Raw materials & consumables:** Total expenses on raw materials & consumables at 100% capacity utilization are estimated as below.

Particulars	Qty/ year	Rate (Rs)	Amount (Rs)
<b>Cost of pre-form</b>			
i. 500 ml	4115400	3.15	12963510
ii. 1 litre	2057700	3.65	7510605
iii. 2 litres	514425	4.35	2237749
iv. Water jars (Refill stock)	10289	140.00	1440390
Caps (Water jars)	10289	2.50	25721
Caps (Pet bottles)	6687525	0.50	3343763
Label print for pet bottles	6687525	0.35	2340634
Heat shrink seal for pet bottles	6687525	0.15	1003129
<b>Total</b>			30865500
Add: Packing materials, chemicals, etc @ 2%			617310
Expenses on consumables at 100% capacity (Rs)			31482810

**6.4 Power & fuel:** Total expenses on power & fuel at 100% capacity utilization is estimated as below.

**A. Expenses on power**

Particulars	Quantity	Power (Kw)	Total (Kw)	Hrs/ day	kwh
Plant & machinery	1	85.00	85.00	8	680
General Lighting	14	0.10	1.40	8	11
Total power requirement/ day (Kwh)					691
No. of days/annum	300				
Average load factor	70%				
Proportion running on power	80%				
Rate per unit (Rs)	5.00				
Expenses on power (Rs)	725760				

**B: Estimate of Diesel required for Generator**

Hours/day	8
Diesel consumption (litres per hours)	8
No. of days/annum	300
Proportion running on diesel	20%
Diesel Price per liter	50
Expenses on diesel (Rs)	192000
Expenses on power & fuel at installed capacity (Rs)	917760

**6.5 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	15000	180000
Technicians/machine operators	5	10000	600000
Sales staff	5	8000	480000
Administrative staff/Assistants	5	5000	300000
Unskilled workers/helpers	10	4000	480000
Expenses on salary in the 1st year (Rs)			2040000

**6.6 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 3% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil Works	25.14	1%	0.25
Plant & Machinery	111.48	3%	3.34
Misc. Fixed assets	21.37	2%	0.32
Expenses on repair & maintenance in year 1			3.92

**6.7 Franchisee Fee:** Franchisee fee has been assumed at 10% of sales realisation.

**6.8 Selling & Administrative Expenses:** Selling & administrative expenses have been assumed at 3% of sales.

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

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

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & Civil Works	25.14	3.34%	0.84
Plant & Machinery	111.48	5.28%	5.89
Misc. Fixed Assets	21.37	6.33%	1.35
TOTAL			8.08



**6.11 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 13.75%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 1 year with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	118.03	118.03	98.36	78.69	59.02	39.34	19.67
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest (13.75%)	1.35	1.35	1.13	0.90	0.68	0.45	0.23
	Closing balance	118.03	116.39	96.72	77.05	57.38	37.71	18.03
Month 2	Opening balance	118.03	116.39	96.72	77.05	57.38	37.71	18.03
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.33	1.11	0.88	0.66	0.43	0.21
	Closing balance	118.03	114.75	95.08	75.41	55.74	36.07	16.39
Month 3	Opening balance	118.03	114.75	95.08	75.41	55.74	36.07	16.39
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.31	1.09	0.86	0.64	0.41	0.19
	Closing balance	118.03	113.12	93.44	73.77	54.10	34.43	14.75
Month 4	Opening balance	118.03	113.12	93.44	73.77	54.10	34.43	14.75
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.30	1.07	0.85	0.62	0.39	0.17
	Closing balance	118.03	111.48	91.80	72.13	52.46	32.79	13.11
Month 5	Opening balance	118.03	111.48	91.80	72.13	52.46	32.79	13.11
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.28	1.05	0.83	0.60	0.38	0.15
	Closing balance	118.03	109.84	90.16	70.49	50.82	31.15	11.48
Month 6	Opening balance	118.03	109.84	90.16	70.49	50.82	31.15	11.48
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.26	1.03	0.81	0.58	0.36	0.13
	Closing balance	118.03	108.20	88.53	68.85	49.18	29.51	9.84
Month 7	Opening balance	118.03	108.20	88.53	68.85	49.18	29.51	9.84
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.24	1.01	0.79	0.56	0.34	0.11
	Closing balance	118.03	106.56	86.89	67.21	47.54	27.87	8.20
Month 8	Opening balance	118.03	106.56	86.89	67.21	47.54	27.87	8.20
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.22	1.00	0.77	0.54	0.32	0.09
	Closing balance	118.03	104.92	85.25	65.57	45.90	26.23	6.56
Month 9	Opening balance	118.03	104.92	85.25	65.57	45.90	26.23	6.56
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.20	0.98	0.75	0.53	0.30	0.08
	Closing balance	118.03	103.28	83.61	63.93	44.26	24.59	4.92
Month 10	Opening balance	118.03	103.28	83.61	63.93	44.26	24.59	4.92
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.18	0.96	0.73	0.51	0.28	0.06
	Closing balance	118.03	101.64	81.97	62.30	42.62	22.95	3.28
Month 11	Opening balance	118.03	101.64	81.97	62.30	42.62	22.95	3.28
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.16	0.94	0.71	0.49	0.26	0.04
	Closing balance	118.03	100.00	80.33	60.66	40.98	21.31	1.64
Month 12	Opening balance	118.03	100.00	80.33	60.66	40.98	21.31	1.64
	Repayment	0.00	1.64	1.64	1.64	1.64	1.64	1.64
	Interest	1.35	1.15	0.92	0.70	0.47	0.24	0.02
	Closing balance	118.03	98.36	78.69	59.02	39.34	19.67	0.00



Principal Repayment	0.00	19.67	19.67	19.67	19.67	19.67	19.67
Interest	16.23	14.99	12.28	9.58	6.88	4.17	1.47

**6.12 Interest on Working Capital Loan:** Interest rate on working capital loan has been assumed at 16%. Details of calculation are given below.

(Rs. in lacs)

Particulars	Year 1	Year 2	Year 3
Total current assets	34.94	41.41	47.88
Bank Loan (60%)	20.96	24.85	28.73
Interest @ 16%	3.35	3.98	4.60

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	TOTAL
Profit After Tax (Net Profit)	25.62	24.77	39.35	41.83	44.30	46.77	49.24	
Depreciation	8.08	8.08	8.08	8.08	8.08	8.08	8.08	
Interest	16.23	14.99	12.28	9.58	6.88	4.17	1.47	
Total	49.93	47.84	59.72	59.49	59.26	59.02	58.78	394.04
Interest	16.23	14.99	12.28	9.58	6.88	4.17	1.47	
Loan repayment	0.00	19.67	19.67	19.67	19.67	19.67	19.67	
Total	16.23	34.66	31.96	29.25	26.55	23.84	21.14	183.63
DSCR	3.08	1.38	1.87	2.03	2.23	2.48	2.78	

Average DSCR = 2.15

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	262.36	314.83	367.30
B. Variable cost			
Raw Materials & Consumables	157.41	188.90	220.38
Power & Fuel	4.59	5.51	6.42
Franchise Fee @ 10% of income	26.24	31.48	36.73
Selling & Administrative Expenses @ 3% of income	7.87	9.44	11.02
Other expenses	2.62	3.15	3.67
Interest on Working Capital Loan	3.35	3.98	4.60
Total variable cost	202.09	242.45	282.82
C. Contribution (A-B)	60.27	72.37	84.48
D. Fixed & Semi-fixed Costs			
Salary	20.40	20.50	20.60
Repair & maintenance	3.92	4.03	4.15
Interest on Term Loan	16.23	14.99	12.28
Depreciation	8.08	8.08	8.08
Total fixed cost	48.62	47.60	45.12
E. BREAK EVEN POINT	80.68%	65.78%	53.41%
F. BEP at operating capacity	40.34%	39.47%	37.39%
G. Cash BEP	33.64%	32.77%	30.70%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

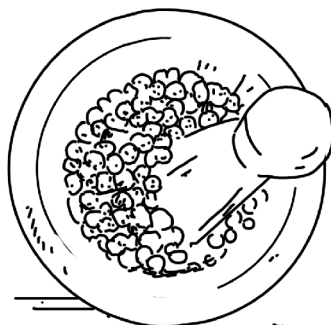
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	161.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	34.94	6.47	6.47	0.00	0.00	0.00	0.00
Total (A)	161.99	34.94	6.47	6.47	0.00	0.00	0.00	0.00
<b>CASH INFLOW</b>								
Profit After Tax		25.62	24.77	39.35	41.83	44.30	46.77	49.24
Add: Depreciation		8.08	8.08	8.08	8.08	8.08	8.08	8.08
Add: Interest		16.23	14.99	12.28	9.58	6.88	4.17	1.47
Add: Salvage Value								
Total (B)	0.00	49.93	47.84	59.72	59.49	59.26	59.02	58.78
<b>NET FLOW (B-A)</b>	-161.99	14.99	41.37	53.25	59.49	59.26	59.02	58.78

IRR = 20%

**MACHINERY SUPPLIERS**

- (a) MacLean Equipments  
B- 39, Sector- 57, Noida - 201 301, Uttar Pradesh, India
- (b) Aguapuro Equipments Pvt. Ltd.  
416 & 417, Building No 9, Jogani Industrial Complex, V N Purav Marg, Near ATI, Sion Chunabhatti, Mum bai - 400022, Maharashtra, India
- (c) Sunman Engineering Inc.  
C - 3163, 2nd Floor, Greenfield Colony, Shopping Complex, Faridabad - 121 003, Haryana, India

# SPICE GRINDING



## 1.0 INTRODUCTION

Spices play an important role in enhancing the flavour and taste of the processed foods. On account of their ability to impart flavour and aroma, spices have been used in the preparation of a wide variety of processed foods. Spices are required in preparing appetising digested beverages confectionary, soup powders, sauces, instant curries, canned meat and poultry products etc. Spices are also used in the medicines because of their carminative, stimulating and digestive properties.

Ground spices are extensively used in all types of curry dishes in India and abroad. Although spices are traded chiefly in an unprocessed form, a small yet significant quantity enters international trade as spice powders. Curry powder is the foremost of those blends or mixes and sometimes consists of 20 or more spices designed to add the characteristic flavour of an Indian curry, which is appreciated all over the world. Apart from the overseas market, processed curry powder is becoming popular in the domestic market also. Hence the demand for unadulterated spices and curry powder in attractive packaging is fast emerging.

This project profile is for setting up of a Spice Grinding Unit based on 300 working days per annum and 8 working hours per day. The installed production capacity of the unit per annum is as follows;

Turmeric Powder	-	20 Ton
Chilli Powder	-	10 Ton
Pepper Powder	-	10 Ton
Jeera Powder	-	5 Ton
Dhania Powder	-	5 Ton

## 2.0 MARKET POTENTIAL

India is the world's biggest exporter of spices. There is good scope for domestic market for this commodity in

processed form. The market for export of spices is encouraged in processed form as it will bring more value addition to the unit price of whole spices. The demand for spice powder is increasing day by day with the changing attitude as well as improvement in purchasing power of the people. The products find good market in urban areas of the country particularly within the state itself.

## 3.0 PROCESS DETAILS

The process of Spice Powder making comprises of the following different process.

- (i) Washing: First of all, the spices are washed with water under high pressure to remove impurities.
- (ii) Peeling & Cutting to Small Pieces: Some spices require peeling and cutting to small pieces. Such spices are peeled with hand knives.
- (iii) Drying: Spices are spread on the floor to provide sun drying. At times, mechanical dryers are also used. Tray type dryer is most suitable.
- (iv) Grinding/ Pulverising: Spices are grinded in dry form.
- (v) Mixing: After all the above operations, various spices for different purposes are mixed together.
- (vi) Packaging: At the end, spices powder are packaged in automatic form, fill and sealing machine.

Transportation and Marketing: Thereafter, the products are transported and supplied to the bulk purchasers

**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

		(Rs. in lacs)
Particulars	Amount (Rs)	
Land & site development	Own Land/ On Lease	
Building & civil works	2.31	
Plant & Machinery	3.20	
Misc. Fixed assets	0.77	
Preliminary & pre-operative expenses	0.63	
Contingencies & escalation @ 3%	0.19	
Working capital	1.40	
<b>TOTAL</b>	<b>8.50</b>	

**4.1 Land & Site Development:** Nil. Covered Area: 700 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Factory Shed	400	275	110000
Office/Store for Raw Material/Finished Goods)	300	275	82500
<b>Sub total</b>			<b>192500</b>
Add: Electrification, water supply and sanitation @ 20%			38500
<b>TOTAL</b>			<b>231000</b>
<b>Say (Rs. in lacs)</b>			<b>2.31</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Pulveriser with 7 HP Motor and accessories	1	30000	30000
Disintegrator with 7 HP Motor	1	25000	25000
Hot air dryer with temperature control device	1	33000	33000
Seiving Machine	1	7500	7500
Automatic Form Fill and Sealing Machine	1	140000	140000
Packaging Machine (Manual)	2	10000	20000
Testing equipments	1	35000	35000
<b>Sub total</b>			<b>290500</b>
Add: Installation, transportation etc @ 10%			29050
<b>TOTAL</b>			<b>319550</b>
<b>Say (Rs. in lacs)</b>			<b>3.20</b>

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

Particulars	Qty	Amount (Rs)
Furniture's including Working Tables & Fixtures	LS	30000
Tools and equipment	LS	25000
Miscellaneous items	LS	15000
<b>Sub total</b>		<b>70000</b>
Add: Installation, transportation, etc @ 10%		7000
<b>TOTAL</b>		<b>77000</b>
<b>Say (Rs. in lacs)</b>		<b>0.77</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

(Rs. In lacs)	
Particulars	Amount (Rs)
Travelling expenses	5000
Professional & other fees	21000
Interest during implementation	17171
Miscellaneous expenses	20000
<b>TOTAL</b>	<b>63171</b>
<b>Say (Rs. in lacs)</b>	<b>0.63</b>

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)				
	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	0.76	0.89	1.01
Power & Utility	30	0.06	0.07	0.08
Salary	30	0.49	0.50	0.50
Finished Goods	15	1.06	1.20	1.34
Receivables	15	1.14	1.33	1.52
<b>Total</b>		<b>3.51</b>	<b>3.98</b>	<b>4.44</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.40</b>			

## 5.0 MEANS OF FINANCE

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

(Rs. in lacs)		
Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	3.40
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	5.10
<b>TOTAL</b>	<b>100%</b>	<b>8.50</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Production capacity (Ton/annum)	50	50	50	50	50
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	30	35	40	40	40
Total income/annum	27.75	32.38	37.00	37.00	37.00
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	18.50	21.58	24.67	24.67	24.67
Power & Utility	0.69	0.80	0.92	0.92	0.92
Salary	6.00	6.03	6.06	6.09	6.12
Repair &	0.10	0.10	0.10	0.10	0.11

Other Expenses	0.56	0.65	0.74	0.74	0.74
<b>Total Operating Expenses</b>	<b>25.84</b>	<b>29.16</b>	<b>32.49</b>	<b>32.52</b>	<b>32.55</b>
<b>Operating profit</b>	<b>1.91</b>	<b>3.21</b>	<b>4.51</b>	<b>4.48</b>	<b>4.45</b>
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.29	0.29	0.29	0.29	0.29
Interest on Term Loan	0.40	0.32	0.23	0.14	0.05
Interest on Working Capital Loan	0.17	0.19	0.21	0.21	0.21
<b>Net Profit</b>	<b>1.05</b>	<b>2.41</b>	<b>3.78</b>	<b>3.83</b>	<b>3.89</b>
Net cash accruals	<b>1.34</b>	<b>2.70</b>	<b>4.07</b>	<b>4.13</b>	<b>4.19</b>
Principal Repayment	0.57	1.13	1.13	1.13	1.13

**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Turmeric Powder	20 Ton
Chilly Powder	10 Ton
Pepper Powder	10 Ton
Jeera (Camin Seed)	5 Ton
Dhania (Coriander)	5 Ton
<b>Total production per annum at 100% capacity</b>	<b>50 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Turmeric Powder	20 Ton	75000	1500000
Chilly Powder	10 Ton	95000	950000
Pepper Powder	10 Ton	120000	1200000
Jeera (Camin Seed)	5 Ton	120000	600000
Dhania (Coriander)	5 Ton	75000	375000
<b>Total Sale Turnover per annum at 100% capacity</b>			<b>4625000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Turmeric Powder	20.1 Ton	40000	804000
Chilly Powder	10.05 Ton	60000	603000
Pepper Powder	10.05 Ton	80000	804000
Jeera (Camin Seed)	5.02 Ton	80000	401600
Dhania (Coriander)	5.02 Ton	40000	200800
Packaging Material (Poly Packets of Different Sizes)	LS	150000	150000
Secondary Packaging (Cartons)	LS	120000	120000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>3083400</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total 15 HP)	--	11.19	11.19
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			12.19
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	29256		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	102396		
Expenses on Water/Other Utility (Rs)	12000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>114396</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	7000	84000
Store In charge cum Accountant	1	6000	72000
Sales Personnel	3	6000	216000
Machine Operator/Skilled Workers	2	5000	120000
Unskilled workers	3	3000	108000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>600000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	2.31	1.00%	0.02
Plant & Machinery	3.2	2.00%	0.06
Misc. Fixed assets	0.77	1.50%	0.01
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.10</b>

**6.6 Other Expenses:** Other expenses have been assumed at 2% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & civil works	2.31	3.34%	0.08
Plant & Machinery	3.20	5.28%	0.17
Misc. Fixed assets	0.77	6.33%	0.05
<b>TOTAL</b>			<b>0.29</b>



**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 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	5.10	4.54	3.40	2.27	1.13
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest (8.00%)	0.03	0.03	0.02	0.02	0.01
	<b>Closing balance</b>	<b>5.10</b>	<b>4.44</b>	<b>3.31</b>	<b>2.17</b>	<b>1.04</b>
Month 2	Opening balance	5.10	4.44	3.31	2.17	1.04
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.10</b>	<b>4.35</b>	<b>3.21</b>	<b>2.08</b>	<b>0.94</b>
Month 3	Opening balance	5.10	4.35	3.21	2.08	0.94
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.10</b>	<b>4.25</b>	<b>3.12</b>	<b>1.98</b>	<b>0.85</b>
Month 4	Opening balance	5.10	4.25	3.12	1.98	0.85
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.10</b>	<b>4.16</b>	<b>3.02</b>	<b>1.89</b>	<b>0.76</b>
Month 5	Opening balance	5.10	4.16	3.02	1.89	0.76
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.10</b>	<b>4.06</b>	<b>2.93</b>	<b>1.80</b>	<b>0.66</b>
Month 6	Opening balance	5.10	4.06	2.93	1.80	0.66
	Repayment	0.00	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>5.10</b>	<b>3.97</b>	<b>2.83</b>	<b>1.70</b>	<b>0.57</b>
Month 7	Opening balance	5.10	3.97	2.83	1.70	0.57
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>5.01</b>	<b>3.87</b>	<b>2.74</b>	<b>1.61</b>	<b>0.47</b>
Month 8	Opening balance	5.01	3.87	2.74	1.61	0.47
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.91</b>	<b>3.78</b>	<b>2.65</b>	<b>1.51</b>	<b>0.38</b>
Month 9	Opening balance	4.91	3.78	2.65	1.51	0.38
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.82</b>	<b>3.69</b>	<b>2.55</b>	<b>1.42</b>	<b>0.28</b>
Month 10	Opening balance	4.82	3.69	2.55	1.42	0.28
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.72</b>	<b>3.59</b>	<b>2.46</b>	<b>1.32</b>	<b>0.19</b>
Month 11	Opening balance	4.72	3.59	2.46	1.32	0.19
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.63</b>	<b>3.50</b>	<b>2.36</b>	<b>1.23</b>	<b>0.09</b>
Month 12	Opening balance	4.63	3.50	2.36	1.23	0.09
	Repayment	0.09	0.09	0.09	0.09	0.09
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.54</b>	<b>3.40</b>	<b>2.27</b>	<b>1.13</b>	<b>0.00</b>

<b>Principal Repayment</b>	<b>0.57</b>	<b>1.13</b>	<b>1.13</b>	<b>1.13</b>	<b>1.13</b>
<b>Interest</b>	<b>0.40</b>	<b>0.32</b>	<b>0.23</b>	<b>0.14</b>	<b>0.05</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	1.05	2.41	3.78	3.83	3.89
Depreciation	0.29	0.29	0.29	0.29	0.29
Interest	0.40	0.32	0.23	0.14	0.05
<b>Total</b>	<b>1.74</b>	<b>3.02</b>	<b>4.30</b>	<b>4.27</b>	<b>4.24</b>
Interest	0.40	0.32	0.23	0.14	0.05
Loan repayment	0.57	1.13	1.13	1.13	1.13
<b>Total</b>	<b>0.97</b>	<b>1.46</b>	<b>1.36</b>	<b>1.27</b>	<b>1.18</b>
<b>DSCR</b>	<b>1.80</b>	<b>2.08</b>	<b>3.15</b>	<b>3.35</b>	<b>3.58</b>

Average DSCR = 2.81

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>27.75</b>	<b>32.38</b>	<b>37.00</b>
<b>B. Variable cost</b>			
Raw materials	18.50	21.58	24.67
Power & Utility	0.69	0.80	0.92
Other expenses	0.56	0.65	0.74
Interest on Working Capital Loan	0.17	0.19	0.21
<b>Total variable cost</b>	<b>19.91</b>	<b>23.22</b>	<b>26.54</b>
<b>C. Contribution (A-B)</b>	<b>7.84</b>	<b>9.15</b>	<b>10.46</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	6.00	6.03	6.06
Repair & maintenance	0.10	0.10	0.10
Interest on Term Loan	0.40	0.32	0.23
Depreciation	0.29	0.29	0.29
<b>Total fixed cost</b>	<b>6.79</b>	<b>6.75</b>	<b>6.69</b>
<b>E. BREAK EVEN POINT</b>	<b>86.64%</b>	<b>73.72%</b>	<b>63.91%</b>
<b>F. BEP at operating capacity</b>	<b>51.98%</b>	<b>51.60%</b>	<b>51.13%</b>
<b>G. Cash BEP</b>	<b>49.73%</b>	<b>49.35%</b>	<b>48.88%</b>

**9.0 INTERNAL RATE OF RETURN (IRR)****(Rs. in lacs)**

<b>Year</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>CASH OUTFLOW</b>						
Capital Expenditure	6.47	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.51	0.47	0.47	0.00	0.00
<b>Total (A)</b>	<b>6.47</b>	<b>3.51</b>	<b>0.47</b>	<b>0.47</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		1.05	2.41	3.78	3.83	3.89
Add: Depreciation		0.29	0.29	0.29	0.29	0.29
Add: Interest		0.40	0.32	0.23	0.14	0.05
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>1.74</b>	<b>3.02</b>	<b>4.30</b>	<b>4.27</b>	<b>4.24</b>
<b>NET FLOW (B-A)</b>	<b>-6.47</b>	<b>-1.77</b>	<b>2.56</b>	<b>3.84</b>	<b>4.27</b>	<b>4.24</b>

IRR = 27%

<b>Sl. No.</b>	<b>Name of the Machinery Suppliers</b>	<b>Communication Address</b>
1.	M/s Archana Machinery Stores	M.S. Road, Fancy Bazaar, Guwahati Pin-781 001.
2.	M/s Shew Machinery Store	A. T. Road, Guwahati, Pin-781 001
3.	M/s Bengal Metal Works	69 A, Sepentine Lane, Kolkata, Pin- 700 014.

# JAM, JELLY AND PICKLE



## 1.0 INTRODUCTION

The food processing industry offers a great potential for development in our country. Though India is the third largest producer of fruits and vegetables in the world annually only one to two percent produce is processed. This is more or less the case with many foods also. By setting up of small scale food processing industries, the result would be doubly beneficial: utilizing available produce thereby avoiding wastage and running a viable unit. Fruits are an important source of energy for human-beings but they are perishable items. Hence since many years various products are made from juice of fruits so that they can be consumed during off season as well. Products like jam, jelly, pickles etc. are made from fruits since long. With the advent of technology and preservatives, shelf life of such products has gone up and they can be preserved for many months with proper packing.

This project profile is for setting up of a Jam, Jelly and Pickles making unit based on 300 working days per annum and 8 working hours per day. The installed production capacity of the unit per annum is as follows;

Jam	-	15 Tons
Jelly	-	15 Tons
Pickles	-	15 Tons

## 2.0 MARKET POTENTIAL

Jam, Jelly and Pickles are important food products as they enhance palatability of food due to its taste and flavour. They are prepared from fruits, contains rich vitamins and minerals. There are many types of pickles

available in India. These products have very good market potential as they are consumed in most of the households, restaurants, other eateries, clubs, hostels etc. They are sold through many outlets like grocery shops, departmental stores etc. But these products are very popular in the North-East region of India and the consumption is increasing year after year. Presently, there are limited numbers of small units producing these products in the region and there is a wide gap between demand and supply which is met by the manufacturers from outside the region.

## 3.0 PROCESS DETAILS

The major raw materials required for Jam and Jelly are fresh fruits. Pineapple, orange and jackfruit are known fruits but there are many other fruits grown in this region like carambola, rozelle, narabogori, guava and so on. Other materials like sugar, pectin, citric acid, food grade colours, flavours etc. are available locally without any difficulty.

The exact product-mix for pickle is difficult to suggest as number of imaginative combinations palatable to local population can be made. But it is assumed that pickles shall be produced from mango, ginger, jack-fruit, mushroom, bamboo shoot, Assam lemon, olive, chilly and carambola. Depending upon the availability of these products (season - off-season) the product mix needs to be determined. Other raw materials required are edible oil, free flowing salt, spices, preservatives etc. are available locally. Glass/food grade plastic bottles shall be required for packing:

Jam- Fresh fruits are washed in water and after removing

their skin, they are cut or sliced in small pieces. These pieces are boiled with water. Appropriate quantity of sugar is mixed with the pulp. When the temperature is around 60 C; citric acid, colour, essence etc. are added. This mixture is then stirred for a while, cooled and then packed in bottles. The process flow chart is as under:

- Washing, peeling and slicing of fruits
- Boiling
- Mixing of sugar with pulp
- Cooling
- Packing

**Jelly-** Washed and peeled fruits are fed to the hopper of a juice extractor and the juice so obtained is filtered. Certain fruits like rosella or guava need to be boiled in water before extracting juice. Sugar is added to juice and then this mixture is boiled to convert it in jelly form and pectin, citric acid, colour etc. are added in the required quantity. Boiling is done till jelly-like formation is obtained. Packing is done on cooling. The process flow chart is as under:

- Washing and peeling of fruits
- Addition of sugar in juice
- Boiling
- Cooling and packing

**Pickles-** Unripe fruits or vegetables are thoroughly washed and then are cut into small pieces. Then these

pieces are cured with salt, mixed with oil & spices and are finally packed. The process more or less remains the same in case of all pickles. In case of chutney, fruits or vegetables are washed, cleaned and peeled. After slicing them, they are boiled wherever required. Then this boiled mass is mixed with onion, garlic, ginger, sugar, salt, some other spices etc. and finally chutney is packed. The process flow chart is as under:

- Washing and slicing of unripe fruits and vegetables
- Curing in salt
- Mixing of ingredients
- Packing

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)	
Particulars	Amount (Rs)
Land & site development	Own Land/On Lease
Building & civil works	2.64
Plant & Machinery	3.03
Misc. Fixed assets	0.89
Preliminary & pre-operative expenses	0.64
Contingencies & escalation @ 3%	0.20
Working capital	1.24
<b>TOTAL</b>	<b>8.64</b>

**4.1 Land & Site Development:** Nil. Total Land: 3,000 Sq. Ft.: Covered Area: 800 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Factory Shed, Store cum Office	800	275	220000
<b>Sub total</b>			<b>220000</b>
Add: Electrification, water supply and sanitation @ 20%			44000
<b>TOTAL</b>			<b>264000</b>
<b>Say (Rs. in lacs)</b>			<b>2.64</b>

#### 4.3 Plant & Machinery: Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Pulper- 30 Kg per hour	1	212000
Juice Extractor- 50 Lites	2	
Steam Jacketed Kettle- 60 Litrs	1	
Slicer	4	
Mixer/Grinder	2	
Stirrer		
Baby Boiler- 100 Kg per hour	1	
Bottle Washing and Filling Machine	1	63000
Cap Sealing Machine	1	
S S Utensils, Weighing Scales, Glassware, Burner, Hand Gloves, Cutter and Graters and Testing equipments	LS	
<b>Sub total</b>		<b>275000</b>
Add: Installation, transportation, etc @ 10%		27500
<b>TOTAL</b>		<b>302500</b>
<b>Say (Rs. in lacs)</b>		<b>3.03</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture's including Working Tables & Fixtures	LS	--	36000
Tools and equipment	LS	--	30000
Miscellaneous items	LS	--	15000
<b>Sub total</b>			<b>81000</b>
Add: Installation, transportation, etc @ 10%			8100
<b>TOTAL</b>			<b>89100</b>
<b>Say (Rs. in lacs)</b>			<b>0.89</b>

#### 4.5 Contingencies & escalation: Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

#### 4.6 Preliminary & pre-operative expenses: Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs)
Travelling expenses	10000
Professional & other fees	16000
Interest during implementation	18392
Miscellaneous expenses	20000
<b>TOTAL</b>	<b>64392</b>
<b>Say (Rs. in lacs)</b>	<b>0.64</b>

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	10	0.47	0.54	0.62
Power & utility	30	0.06	0.07	0.08
Salary	30	0.49	0.50	0.50
Finished Goods	15	1.00	1.13	1.25
Receivables	15	1.07	1.25	1.43
<b>Total</b>		<b>3.09</b>	<b>3.49</b>	<b>3.89</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.24</b>			

**5.0 MEANS OF FINANCE**

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

(Rs. in lacs)

Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	3.46
B. Subsidy from Central/ State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/ Financial Institutions	60%	5.18
<b>TOTAL</b>	<b>100%</b>	<b>8.64</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Production capacity (Ton/annum)	45	45	45	45	45
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	27	32	36	36	36
Total income/annum	26.10	30.45	34.80	34.80	34.80
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	16.98	19.81	22.64	22.64	22.64
Power & Utility	0.76	0.88	1.01	1.01	1.01
Salary	6.00	6.03	6.06	6.09	6.12
Repair & Maintenance	0.10	0.10	0.10	0.11	0.11
Other Expenses	0.52	0.61	0.70	0.70	0.70
Total Operating Expenses	24.36	27.44	30.51	30.54	30.58
Operating profit	1.74	3.01	4.29	4.26	4.22
<b><u>C. FINANCIAL EXPENSES</u></b>					
Depreciation	0.30	0.30	0.30	0.30	0.30
Interest on Term Loan	0.41	0.33	0.23	0.14	0.05
Interest on Working Capital Loan	0.15	0.17	0.19	0.19	0.19
Net Profit	0.88	2.22	3.56	3.62	3.68
Net cash accruals	1.19	2.52	3.87	3.93	3.99
Principal Repayment	0.58	1.15	1.15	1.15	1.15



**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Jam	15 Ton
Jelly	15 Ton
Pickles	15 Ton
<b>Total production per annum at 100% capacity</b>	<b>45 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Jam	15 Ton	105000	1575000
Jelly	15 Ton	105000	1575000
Pickles	15 Ton	80000	1200000
<b>Total Sales per annum at 100% capacity</b>			<b>4350000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Fruits	160 Ton	10000	1600000
Sugar	15 Ton	26000	390000
Edible Oil	2 Ton	75000	150000
Pectin, Citirc Acid and other Preservatives	LS	LS	60000
Salt and Spices	LS	LS	60000
Packaging Materials	90000 Nos.	5	450000
Secondary Packaging (Cartons)	8000 Nos.	15	120000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>2830000</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total 15 HP)	--	11.19	11.19
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			12.19
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	29256		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	102396		
Expenses on Water/Gas Cylinder/Other Utility (Rs)	24000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>126396</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	7000	84000
Store In charge cum Accountant	1	6000	72000
Sales Personnel	3	6000	216000
Machine Operator/Skilled Workers	2	5000	120000
Unskilled workers	3	3000	108000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>600000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	2.64	1.00%	0.03
Plant & Machinery	3.03	2.00%	0.06
Misc. Fixed assets	0.89	1.50%	0.01
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.10</b>

**6.6 Other Expenses:** Other expenses have been assumed at 2% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	2.64	3.34%	0.09
Plant & Machinery	3.03	5.28%	0.16
Misc. Fixed assets	0.89	6.33%	0.06
<b>TOTAL</b>			<b>0.30</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 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	5.18	4.61	3.46	2.30	1.15
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest (8.00%)	0.03	0.03	0.02	0.02	0.01
	<b>Closing balance</b>	<b>5.18</b>	<b>4.51</b>	<b>3.36</b>	<b>2.21</b>	<b>1.06</b>
Month 2	Opening balance	5.18	4.51	3.36	2.21	1.06
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.18</b>	<b>4.42</b>	<b>3.26</b>	<b>2.11</b>	<b>0.96</b>
Month 3	Opening balance	5.18	4.42	3.26	2.11	0.96
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.18</b>	<b>4.32</b>	<b>3.17</b>	<b>2.02</b>	<b>0.86</b>
Month 4	Opening balance	5.18	4.32	3.17	2.02	0.86
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.18</b>	<b>4.22</b>	<b>3.07</b>	<b>1.92</b>	<b>0.77</b>
Month 5	Opening balance	5.18	4.22	3.07	1.92	0.77
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>5.18</b>	<b>4.13</b>	<b>2.98</b>	<b>1.82</b>	<b>0.67</b>
Month 6	Opening balance	5.18	4.13	2.98	1.82	0.67
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>5.18</b>	<b>4.03</b>	<b>2.88</b>	<b>1.73</b>	<b>0.58</b>
Month 7	Opening balance	5.18	4.03	2.88	1.73	0.58
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>5.09</b>	<b>3.94</b>	<b>2.78</b>	<b>1.63</b>	<b>0.48</b>

Month 8	Opening balance	5.09	3.94	2.78	1.63	0.48
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.99</b>	<b>3.84</b>	<b>2.69</b>	<b>1.54</b>	<b>0.38</b>
Month 9	Opening balance	4.99	3.84	2.69	1.54	0.38
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.90</b>	<b>3.74</b>	<b>2.59</b>	<b>1.44</b>	<b>0.29</b>
Month 10	Opening balance	4.90	3.74	2.59	1.44	0.29
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.80</b>	<b>3.65</b>	<b>2.50</b>	<b>1.34</b>	<b>0.19</b>
Month 11	Opening balance	4.80	3.65	2.50	1.34	0.19
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.70</b>	<b>3.55</b>	<b>2.40</b>	<b>1.25</b>	<b>0.10</b>
Month 12	Opening balance	4.70	3.55	2.40	1.25	0.10
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.61</b>	<b>3.46</b>	<b>2.30</b>	<b>1.15</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.58</b>	<b>1.15</b>	<b>1.15</b>	<b>1.15</b>	<b>1.15</b>
<b>Interest</b>		<b>0.41</b>	<b>0.33</b>	<b>0.23</b>	<b>0.14</b>	<b>0.05</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	0.88	2.22	3.56	3.62	3.68
Depreciation	0.30	0.30	0.30	0.30	0.30
Interest	0.41	0.33	0.23	0.14	0.05
<b>Total</b>	<b>1.59</b>	<b>2.85</b>	<b>4.10</b>	<b>4.07</b>	<b>4.04</b>
Interest	0.41	0.33	0.23	0.14	0.05
Loan repayment	0.58	1.15	1.15	1.15	1.15
<b>Total</b>	<b>0.98</b>	<b>1.48</b>	<b>1.39</b>	<b>1.29</b>	<b>1.20</b>
<b>DSCR</b>	<b>1.62</b>	<b>1.93</b>	<b>2.96</b>	<b>3.14</b>	<b>3.36</b>

Average DSCR = 2.46

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>26.10</b>	<b>30.45</b>	<b>34.80</b>
<b>B. Variable cost</b>			
Raw materials	16.98	19.81	22.64
Power & utility	0.76	0.88	1.01
Other expenses	0.52	0.61	0.70
Interest on Working Capital Loan	0.15	0.17	0.19
<b>Total variable cost</b>	<b>18.41</b>	<b>21.47</b>	<b>24.53</b>
<b>C. Contribution (A-B)</b>	<b>7.69</b>	<b>8.98</b>	<b>10.27</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	6.00	6.03	6.06
Repair & maintenance	0.10	0.10	0.10

Interest on Term Loan	0.41	0.33	0.23
Depreciation	0.30	0.30	0.30
<b>Total fixed cost</b>	<b>6.81</b>	<b>6.76</b>	<b>6.70</b>
<b>E. BREAK EVEN POINT</b>	<b>88.54%</b>	<b>75.33%</b>	<b>65.29%</b>
<b>F. BEP at operating capacity</b>	<b>53.13%</b>	<b>52.73%</b>	<b>52.24%</b>
<b>G. Cash BEP</b>	<b>50.75%</b>	<b>50.35%</b>	<b>49.86%</b>

## 9.0 INTERNAL RATE OF RETURN (IRR)

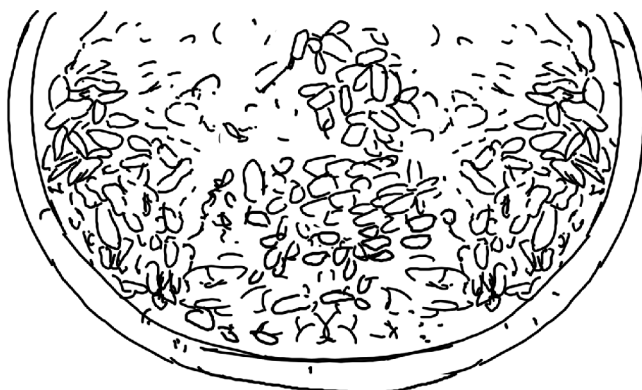
(Rs. in lacs)

Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	6.76	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.09	0.40	0.40	0.00	0.00
<b>Total (A)</b>	<b>6.76</b>	<b>3.09</b>	<b>0.40</b>	<b>0.40</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		0.88	2.22	3.56	3.62	3.68
Add: Depreciation		0.30	0.30	0.30	0.30	0.30
Add: Interest		0.41	0.33	0.23	0.14	0.05
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>1.59</b>	<b>2.85</b>	<b>4.10</b>	<b>4.07</b>	<b>4.04</b>
<b>NET FLOW (B-A)</b>	<b>-6.76</b>	<b>-1.50</b>	<b>2.45</b>	<b>3.71</b>	<b>4.07</b>	<b>4.04</b>

IRR = 25%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s B. Sen Barry & Co	65/11, Rohtak Road, Karol Bagh, New Delhi, Pin-110 005.
2.	M/s J C Das & Brothers	33/8, Ananth Nath Dev Lane, Belgachia, Kolkata, Pin- 700 003.
3.	M/s Suan Scientific Instruments and Equipments	P-814, Ground Floor, Block-A Lake Town Kolkata,

# BEATEN RICE (CHIRA)



## 1.0 INTRODUCTION

Beaten rice popularly known as “Chira” in Assam and other States in the north-eastern region is a staple breakfast diet of the rural population. It is a low cost wholesome food and has good nutritional value. Chira can be taken in different forms viz. raw, fried, with curd and therefore has mass appeal.

This project profile is for setting up of a Chira Making Unit with installed processing capacity of 240 Ton per annum, based on 300 working days per annum and 8 working hours per day.

## 2.0 MARKET POTENTIAL

In the north-eastern region, Chira is popular mainly in Assam and Manipur. Of the total estimated population of 400 lakhs in the north-eastern region about 80% i.e. 320

lakhs reside in rural areas. Assuming an average per capita consumption of 2 Kg, the total demand for Chira is estimated at 64,000 tonne per year. There are few units making Chira and their production is not adequate to meet the demand of the local population. Bulk of the requirement of Chira is being met from Bihar and West Bengal.

## 3.0 PROCESS DETAILS

The main process steps are:

- i) Soaking of paddy in water for 2 to 3 days.
- ii) Drying of soaked paddy in heated “Iron Pan”
- iii) Milling and shelling of dried paddy to rice flakes (Chira)
- iv) Cleaning.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
Land & site development	Own Land/On Lease
Building & civil works	2.64
Plant & Machinery	2.04
Misc. Fixed assets	0.55
Preliminary & pre-operative expenses	0.61
Contingencies & escalation @ 3%	0.16
Working capital	1.50
<b>TOTAL</b>	<b>7.50</b>

**4.1 Land & Site Development:** Nil. Covered Area: 800 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Factory Shed, Store cum Office	800	275	220000
<b>Sub total</b>			<b>220000</b>
Add: Electrification, water supply and sanitation @ 20%			44000
<b>TOTAL</b>			<b>264000</b>
<b>Say (Rs. in lacs)</b>			<b>2.64</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Complete set of Chira Making Machine	1	150000	150000
Boiler	1	20000	20000
Containers, Weighing Scale etc.	1	15000	15000
<b>Sub total</b>			<b>185000</b>
Add: Installation, transportation, etc @ 10%			18500
<b>TOTAL</b>			<b>203500</b>
<b>Say (Rs. in lacs)</b>			<b>2.04</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture's & Fixtures	1	15000	15000
Tools and equipment	1	20000	20000
Miscellaneous items	LS	--	15000
<b>Sub total</b>			<b>50000</b>
Add: Installation, transportation, etc @ 10%			5000
<b>TOTAL</b>			<b>55000</b>
<b>Say (Rs. in lacs)</b>			<b>0.55</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

		(Rs. in lacs)
Particulars		Amount (Rs)
Travelling expenses		10000
Professional & other fees		15000
Interest during implementation		15730
Miscellaneous expenses		20000
<b>TOTAL</b>		<b>60730</b>
<b>Say (Rs. in lacs)</b>		<b>0.61</b>

**4.7 Working capital:** Details of working capital are given below.

		(Rs. in lacs)		
	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	10	0.64	0.74	0.85
Power & Utility	30	0.07	0.08	0.10
Salary	30	0.49	0.50	0.50
Finished Goods	15	1.26	1.42	1.59
Receivables	15	1.30	1.52	1.74
<b>Total</b>		<b>3.76</b>	<b>4.27</b>	<b>4.77</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.50</b>			

## 5.0 MEANS OF FINANCE

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

		(Rs. in lacs)	
Particulars	Percent	Amount	
<b><u>EQUITY</u></b>			
<b>A. Equity from Promoters</b>	<b>40%</b>	<b>3.00</b>	
<b>B. Subsidy from Central/State Govt.</b>	<b>-</b>		
<b><u>DEBT</u></b>			
<b>Term Loan from Banks/Financial Institutions</b>	<b>60%</b>	<b>4.50</b>	
<b>TOTAL</b>	<b>100%</b>	<b>7.50</b>	

## 6.0 PROFITABILITY STATEMENT

3.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
<b>Production capacity (Ton/annum)</b>	240	240	240	240	240
Capacity utilisation	60%	70%	80%	80%	80%
<b>Production/ annum at capacity utilisation</b>	<b>144</b>	<b>168</b>	<b>192</b>	<b>192</b>	<b>192</b>
<b>Total income/annum</b>	<b>31.68</b>	<b>36.96</b>	<b>42.24</b>	<b>42.24</b>	<b>42.24</b>
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	23.28	27.16	31.04	31.04	31.04
Power & Utility	0.87	1.02	1.17	1.17	1.17
Salary	6.00	6.03	6.06	6.09	6.12



Repair & Maintenance	0.08	0.08	0.08	0.08	0.08
Other Expenses	0.32	0.37	0.42	0.42	0.42
<b>Total Operating Expenses</b>	<b>30.55</b>	<b>34.66</b>	<b>38.77</b>	<b>38.80</b>	<b>38.83</b>
<b>Operating profit</b>	<b>1.13</b>	<b>2.30</b>	<b>3.47</b>	<b>3.44</b>	<b>3.41</b>
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.23	0.23	0.23	0.23	0.23
Interest on Term Loan	0.35	0.28	0.20	0.12	0.04
Interest on Working Capital Loan	0.18	0.20	0.23	0.23	0.23
<b>Net Profit</b>	<b>0.37</b>	<b>1.58</b>	<b>2.81</b>	<b>2.86</b>	<b>2.91</b>
Net cash accruals	<b>0.60</b>	<b>1.82</b>	<b>3.04</b>	<b>3.09</b>	<b>3.14</b>
Principal Repayment	0.50	1.00	1.00	1.00	1.00

**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Beaten Rice (Chira)	240 Ton
<b>Total production per annum at 100% capacity</b>	<b>240 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Beaten Rice (Chira)	240 Ton	22000 Per Ton	5280000
<b>Total Sales per annum at 100% capacity</b>			<b>5280000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Paddy	400	9500	3800000
Packaging Materials	400	200	80000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>3880000</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total 20)	—	14.92	14.92
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			15.92
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	38208		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	133728		
Expenses on Water/Other Utility (Rs)	12000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>145728</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	7000	84000
Store In charge cum Accountant	1	6000	72000
Sales Personnel	3	6000	216000
Machine Operator/Skilled Workers	2	5000	120000
Unskilled workers	3	3000	108000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>600000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	2.64	1.00%	0.03
Plant & Machinery	2.04	2.00%	0.04
Misc. Fixed assets	0.55	1.50%	0.01
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.08</b>

**6.6 Other Expenses:** Other expenses have been assumed at 1% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	2.64	3.34%	0.09
Plant & Machinery	2.04	5.28%	0.11
Misc. Fixed assets	0.55	6.33%	0.03
<b>TOTAL</b>			<b>0.23</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 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	4.50	4.00	3.00	2.00	1.00
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest (8.00%)	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>4.50</b>	<b>3.92</b>	<b>2.92</b>	<b>1.92</b>	<b>0.92</b>
Month 2	Opening balance	4.50	3.92	2.92	1.92	0.92
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>4.50</b>	<b>3.83</b>	<b>2.83</b>	<b>1.83</b>	<b>0.83</b>
Month 3	Opening balance	4.50	3.83	2.83	1.83	0.83
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.03	0.02	0.01	0.01
	<b>Closing balance</b>	<b>4.50</b>	<b>3.75</b>	<b>2.75</b>	<b>1.75</b>	<b>0.75</b>
Month 4	Opening balance	4.50	3.75	2.75	1.75	0.75
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00

	<b>Closing balance</b>	<b>4.50</b>	<b>3.67</b>	<b>2.67</b>	<b>1.67</b>	<b>0.67</b>
Month 5	Opening balance	4.50	3.67	2.67	1.67	0.67
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.50</b>	<b>3.58</b>	<b>2.58</b>	<b>1.58</b>	<b>0.58</b>
Month 6	Opening balance	4.50	3.58	2.58	1.58	0.58
	Repayment	0.00	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.50</b>	<b>3.50</b>	<b>2.50</b>	<b>1.50</b>	<b>0.50</b>
Month 7	Opening balance	4.50	3.50	2.50	1.50	0.50
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.42</b>	<b>3.42</b>	<b>2.42</b>	<b>1.42</b>	<b>0.42</b>
Month 8	Opening balance	4.42	3.42	2.42	1.42	0.42
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.33</b>	<b>3.33</b>	<b>2.33</b>	<b>1.33</b>	<b>0.33</b>
Month 9	Opening balance	4.33	3.33	2.33	1.33	0.33
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.02	0.01	0.00
	<b>Closing balance</b>	<b>4.25</b>	<b>3.25</b>	<b>2.25</b>	<b>1.25</b>	<b>0.25</b>
Month 10	Opening balance	4.25	3.25	2.25	1.25	0.25
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	<b>Closing balance</b>	<b>4.17</b>	<b>3.17</b>	<b>2.17</b>	<b>1.17</b>	<b>0.17</b>
Month 11	Opening balance	4.17	3.17	2.17	1.17	0.17
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	<b>Closing balance</b>	<b>4.08</b>	<b>3.08</b>	<b>2.08</b>	<b>1.08</b>	<b>0.08</b>
Month 12	Opening balance	4.08	3.08	2.08	1.08	0.08
	Repayment	0.08	0.08	0.08	0.08	0.08
	Interest	0.03	0.02	0.01	0.01	0.00
	<b>Closing balance</b>	<b>4.00</b>	<b>3.00</b>	<b>2.00</b>	<b>1.00</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.50</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>
<b>Interest</b>		<b>0.35</b>	<b>0.28</b>	<b>0.20</b>	<b>0.12</b>	<b>0.04</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)					
Year	1	2	3	4	5
Profit After Tax (Net Profit)	0.37	1.58	2.81	2.86	2.91
Depreciation	0.23	0.23	0.23	0.23	0.23
Interest	0.35	0.28	0.20	0.12	0.04
<b>Total</b>	<b>0.95</b>	<b>2.10</b>	<b>3.24</b>	<b>3.21</b>	<b>3.18</b>
Interest	0.35	0.28	0.20	0.12	0.04
Loan repayment	0.50	1.00	1.00	1.00	1.00
<b>Total</b>	<b>0.85</b>	<b>1.28</b>	<b>1.20</b>	<b>1.12</b>	<b>1.04</b>
<b>DSCR</b>	<b>1.12</b>	<b>1.64</b>	<b>2.70</b>	<b>2.86</b>	<b>3.05</b>

Average DSCR= 2:31

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)			
Year	1	2	3
<b>A. Net sales</b>	<b>31.68</b>	<b>36.96</b>	<b>42.24</b>
<b>B. Variable cost</b>			
Raw materials	23.28	27.16	31.04
Power & Utility	0.87	1.02	1.17
Other expenses	0.32	0.37	0.42
Interest on Working Capital Loan	0.18	0.20	0.23
<b>Total variable cost</b>	<b>24.65</b>	<b>28.75</b>	<b>32.86</b>
<b>C. Contribution (A-B)</b>	<b>7.03</b>	<b>8.21</b>	<b>9.38</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	6.00	6.03	6.06
Repair & maintenance	0.08	0.08	0.08
Interest on Term Loan	0.35	0.28	0.20
Depreciation	0.23	0.23	0.23
<b>Total fixed cost</b>	<b>6.66</b>	<b>6.62</b>	<b>6.57</b>
<b>E. BREAKEVEN POINT</b>	<b>94.73%</b>	<b>80.69%</b>	<b>70.05%</b>
<b>F. BEP at operating capacity</b>	<b>56.84%</b>	<b>56.48%</b>	<b>56.04%</b>
<b>G. Cash BEP</b>	<b>54.87%</b>	<b>54.51%</b>	<b>54.07%</b>

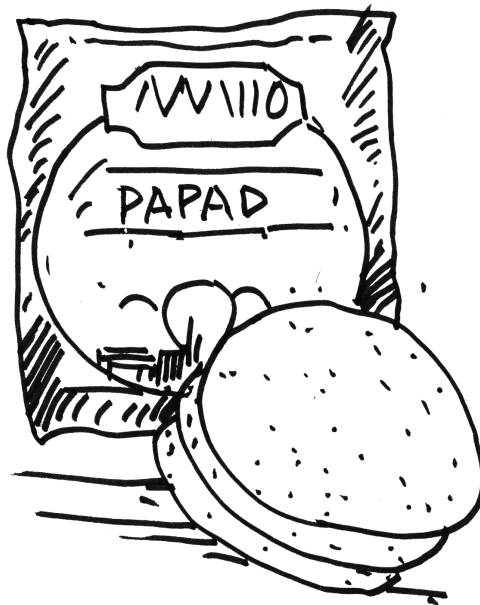
**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)						
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	5.39	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.76	0.51	0.51	0.00	0.00
<b>Total (A)</b>	<b>5.39</b>	<b>3.76</b>	<b>0.51</b>	<b>0.51</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		0.37	1.58	2.81	2.86	2.91
Add: Depreciation		0.23	0.23	0.23	0.23	0.23
Add: Interest		0.35	0.28	0.20	0.12	0.04
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>0.95</b>	<b>2.10</b>	<b>3.24</b>	<b>3.21</b>	<b>3.18</b>
<b>NET FLOW (B-A)</b>	<b>-5.39</b>	<b>-2.81</b>	<b>1.59</b>	<b>2.74</b>	<b>3.21</b>	<b>3.18</b>

IRR = 19%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Suan Scientific Instruments and Equipments	P-814, Ground Floor, Block-A Lake Town Kolkata,
2.	M/s Gee Gee Co. (P) Ltd.	B-188/2, Savitri Nagar (Malviya Nagar), New Delhi, Pin- 110 017
3.	M/s Archana Machinery Stores	M.S. Road, Fancy Bazaar, Guwahati, Pin-781 001.

# PAPAD MAKING



## 1.0 INTRODUCTION

Papad is a popular and tasty food item in the Indian diet since many centuries. It is a wafer like product, round in shape, made from dough of powdered pulses, spices, powdered chilly and salt. Traditionally this activity was confined to household papad making but in view of increasing demand and availability of machinery it has now been developed in cottage and small scale sector.

This project profile is for setting up of a Papad making unit with installed processing capacity of 45 Ton per annum, based on 300 working days per annum and 8 working hours per day.

## 2.0 MARKET POTENTIAL

Market for papad is steadily growing across the country. This activity is yet to be picked up much in the region and thus prospect for a new entrant are bright, provided quality is good and prices are competitive. It can be sold through many outlets of provisional and departmental stores. Before, launching the product, a quick assessment of consumer preferences is advisable. Women entrepreneurs can gainfully take up this papad unit in their houses but proper packing and distribution network is necessary to sell in bulk quantities.

## 3.0 PROCESS DETAILS

Papad can be made using variety of pulses or there could be a combination of pulses as well. Generally weighed quantity of floor is taken in a mixer. Thereafter adequate quantity of water along with pulses, common salt, spices and sodium bicarbonate are added. The mixture content is kneaded at maximum speed to get a homogeneous lump of the dough. After about 30 minutes, small balls weighing around 7-8 grams of dough are made. These balls are then placed in papad making machine or papad press wherein these balls are pressed and circular papad are made as per the size of mould. These papads are then sun-dried or dried using dryer machine. Papads are then packed in polythene bags.

The main process steps are;

- i) Mixing of various raw materials in required proportion.
- ii) Dough making after addition of water in measured quantities to mixture.
- iii) Pressing of Dough in papad making machine.
- iv) Sun Drying/Machine Drying of pressed Papads.
- v) Packing in poletene wrappers.

**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

		(Rs. in lacs)
Particulars	Amount (Rs)	
Land & site development	Rented	
Building & civil works	Rented	
Plant & Machinery	1.65	
Misc. Fixed assets	0.77	
Preliminary & pre-operative expenses	0.51	
Contingencies & escalation @ 3%	0.07	
Working capital	0.68	
<b>TOTAL</b>	<b>3.68</b>	

**4.1 Land & Site Development:** Nil. Covered Area: 500 Sq. Ft.

**4.2 Building & Civil Works:** Nil.

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Grinder with electric motor	1	150000
Mixer with electric motor	1	
Pedal operated Papad Press	1	
Dryer with trolley	1	
Aluminium Trays	30	
Weighing Scale	1	
<b>Sub total</b>		<b>150000</b>
Add: Installation transportation, etc @ 10%		15000
<b>TOTAL</b>		<b>165000</b>
<b>Say (Rs. in lacs)</b>		<b>1.65</b>

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

Particulars	Qty	Amount (Rs)
Furniture's including Working Tables & Fixtures	LS	30000
Tools and equipment	LS	25000
Miscellaneous items	LS	15000
<b>Sub total</b>		<b>70000</b>
Add: Installation, transportation, etc @ 10%		7000
<b>TOTAL</b>		<b>77000</b>
<b>Say (Rs. in lacs)</b>		<b>0.77</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

		(Rs. In lacs)
Particulars	Amount (Rs)	
Travelling expenses	10000	
Professional & other fees	15000	
Interest during implementation	6380	
Miscellaneous expenses	20000	
<b>TOTAL</b>	<b>51380</b>	
<b>Say (Rs. in lacs)</b>	<b>0.51</b>	

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	30	0.40	0.46	0.53
Power & Utility	30	0.06	0.07	0.08
Salary	30	0.37	0.38	0.38
Finished Goods	15	0.42	0.46	0.50
Receivables	15	0.44	0.52	0.59
<b>Total</b>		<b>1.69</b>	<b>1.89</b>	<b>2.08</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>0.68</b>			

**5.0 MEANS OF FINANCE**

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

(Rs. in lacs)

Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	1.47
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	2.21
<b>TOTAL</b>	<b>100%</b>	<b>3.68</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Production capacity (Ton/annum)	45	45	45	45	45
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	27	32	36	36	36
Total income/annum	10.80	12.60	14.40	14.40	14.40
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	4.81	5.61	6.41	6.41	6.41
Power & Utility	0.69	0.80	0.92	0.92	0.92
Salary	4.56	4.58	4.61	4.63	4.65
Repair & Maintenance	0.04	0.05	0.05	0.05	0.05
Other Expenses	0.22	0.25	0.29	0.29	0.29
Total Operating Expenses	10.31	11.29	12.26	12.29	12.31
Operating profit	0.49	1.31	2.14	2.11	2.09
<b><u>C. FINANCIAL EXPENSES</u></b>					
Depreciation	0.14	0.14	0.14	0.14	0.14
Interest on Term Loan	0.17	0.14	0.10	0.06	0.02
Interest on Working Capital Loan	0.08	0.09	0.10	0.10	0.10
Net Profit	0.10	0.95	1.80	1.82	1.83
Net cash accruals	0.23	1.08	1.94	1.95	1.97
Principal Repayment	0.25	0.49	0.49	0.49	0.49



**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Papad	45 Ton
<b>Total production per annum at 100% capacity (in Ton)</b>	<b>45 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Papad	45	40000	1800000
<b>Total Sale Turnover per annum at 100% capacity</b>			<b>1800000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Flour of Pulses	44 Ton	14800 Per Ton	651200
Edible Oil, Salt, Spices, Sodium Carbonate, preservatives etc.	LS	Rs. 7,500 Per Month	90000
Packaging Material	LS	Rs. 5,000 Per Month	60000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>801200</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total 15 HP)	—	11.19	11.19
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			12.19
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	29256		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	102396		
Expenses on Water/Other Utility (Rs)	12000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>		<b>114396</b>	

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	7000	84000
Store In charge cum Accountant	1	5000	60000
Sales Personnel	2	5000	120000
Machine Operator/Skilled Workers	2	5000	120000
Unskilled workers	2	3000	72000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>456000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	0.00	1.00%	0.00
Plant & Machinery	1.65	2.00%	0.03
Misc. Fixed assets	0.77	1.50%	0.01
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.04</b>

**6.6 Other Expenses:** Other expenses have been assumed at 2% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & civil works	0.00	3.34%	0.00
Plant & Machinery	1.65	5.28%	0.09
Misc. Fixed assets	0.77	6.33%	0.05
<b>TOTAL</b>			<b>0.14</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 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	2.21	1.96	1.47	0.98	0.49
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest (8.00%)	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.92</b>	<b>1.43</b>	<b>0.94</b>	<b>0.45</b>
Month 2	Opening balance	2.21	1.92	1.43	0.94	0.45
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.88</b>	<b>1.39</b>	<b>0.90</b>	<b>0.41</b>
Month 3	Opening balance	2.21	1.88	1.39	0.90	0.41
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.84</b>	<b>1.35</b>	<b>0.86</b>	<b>0.37</b>
Month 4	Opening balance	2.21	1.84	1.35	0.86	0.37
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.80</b>	<b>1.31</b>	<b>0.82</b>	<b>0.33</b>
Month 5	Opening balance	2.21	1.80	1.31	0.82	0.33
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.76</b>	<b>1.27</b>	<b>0.78</b>	<b>0.29</b>
Month 6	Opening balance	2.21	1.76	1.27	0.78	0.29
	Repayment	0.00	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.01	0.00
	<b>Closing balance</b>	<b>2.21</b>	<b>1.72</b>	<b>1.23</b>	<b>0.74</b>	<b>0.25</b>
Month 7	Opening balance	2.21	1.72	1.23	0.74	0.25
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00

	<b>Closing balance</b>	<b>2.17</b>	<b>1.68</b>	<b>1.19</b>	<b>0.70</b>	<b>0.20</b>
Month 8	Opening balance	2.17	1.68	1.19	0.70	0.20
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00
	<b>Closing balance</b>	<b>2.13</b>	<b>1.64</b>	<b>1.15</b>	<b>0.65</b>	<b>0.16</b>
Month 9	Opening balance	2.13	1.64	1.15	0.65	0.16
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00
	<b>Closing balance</b>	<b>2.09</b>	<b>1.60</b>	<b>1.11</b>	<b>0.61</b>	<b>0.12</b>
Month 10	Opening balance	2.09	1.60	1.11	0.61	0.12
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00
	<b>Closing balance</b>	<b>2.05</b>	<b>1.56</b>	<b>1.06</b>	<b>0.57</b>	<b>0.08</b>
Month 11	Opening balance	2.05	1.56	1.06	0.57	0.08
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00
	<b>Closing balance</b>	<b>2.01</b>	<b>1.51</b>	<b>1.02</b>	<b>0.53</b>	<b>0.04</b>
Month 12	Opening balance	2.01	1.51	1.02	0.53	0.04
	Repayment	0.04	0.04	0.04	0.04	0.04
	Interest	0.01	0.01	0.01	0.00	0.00
	<b>Closing balance</b>	<b>1.96</b>	<b>1.47</b>	<b>0.98</b>	<b>0.49</b>	<b>0.00</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	0.10	0.95	1.80	1.82	1.83
Depreciation	0.14	0.14	0.14	0.14	0.14
Interest	0.17	0.14	0.10	0.06	0.02
<b>Total</b>	<b>0.40</b>	<b>1.22</b>	<b>2.04</b>	<b>2.01</b>	<b>1.99</b>
Interest	0.17	0.14	0.10	0.06	0.02
Loan repayment	0.25	0.49	0.49	0.49	0.49
<b>Total</b>	<b>0.42</b>	<b>0.63</b>	<b>0.59</b>	<b>0.55</b>	<b>0.51</b>
<b>DSCR</b>	<b>0.97</b>	<b>1.94</b>	<b>3.44</b>	<b>3.65</b>	<b>3.88</b>

Average DSCR = 2.83

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>10.80</b>	<b>12.60</b>	<b>14.40</b>
<b>B. Variable cost</b>			
Raw materials	4.81	5.61	6.41
Power & Utility	0.69	0.80	0.92
Other expenses	0.22	0.25	0.29
Interest on Working Capital Loan	0.08	0.09	0.10
<b>Total variable cost</b>	<b>5.79</b>	<b>6.75</b>	<b>7.71</b>
<b>C. Contribution (A-B)</b>	<b>5.01</b>	<b>5.85</b>	<b>6.69</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	4.56	4.58	4.61
Repair & maintenance	0.04	0.05	0.05
Interest on Term Loan	0.17	0.14	0.10
Depreciation	0.14	0.14	0.14
<b>Total fixed cost</b>	<b>4.91</b>	<b>4.90</b>	<b>4.89</b>
<b>E. BREAK EVEN POINT</b>	<b>98.08%</b>	<b>83.84%</b>	<b>73.09%</b>

<b>F. BEP at operating capacity</b>	<b>58.85%</b>	<b>58.69%</b>	<b>58.47%</b>
<b>G. Cash BEP</b>	<b>57.22%</b>	<b>57.06%</b>	<b>56.85%</b>

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)						
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	2.49	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.69	0.19	0.19	0.00	0.00
<b>Total (A)</b>	<b>2.49</b>	<b>1.69</b>	<b>0.19</b>	<b>0.19</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		0.10	0.95	1.80	1.82	1.83
Add: Depreciation		0.14	0.14	0.14	0.14	0.14
Add: Interest		0.17	0.14	0.10	0.06	0.02
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>0.40</b>	<b>1.22</b>	<b>2.04</b>	<b>2.01</b>	<b>1.99</b>
<b>NET FLOW (B-A)</b>	<b>-2.49</b>	<b>-1.29</b>	<b>1.03</b>	<b>1.84</b>	<b>2.01</b>	<b>1.99</b>

IRR = 28%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Pushkar Energy Systems	Patel Spun Factory Compound, Near Char Rasta, P.O. Uttarsanda, Dist. Kheda, Nadiad, Gujarat, Pin-387370.
2.	M/s Aster Techno Pack Systems Pvt. Ltd	Plot No. F-14, Part - A, Phase - 1, Pipeline Road, Ida Jeedimetla, , Hyderabad, Andhra Pradesh, Pin-500055.
3.	M/s Suan Scientific Instruments & Equipment	P-814, Ground Floor, Block-A, Lake Town, Kolkata, West Bengal, Pin-700089.
4.	M/s Master Enterprises	896, Atur Terrace Building, Opp. Pudumji Corner, Quarter Gate/Nana Peth, , Pune, Maharashtra, Pin-425001.

# BAMBOO SHOOT PROCESSING



## 1.0 INTRODUCTION

Bamboo shoots find an important place in the South-east Asian cuisine. In north-east India, it is consumed either raw or processed because of its exotic taste and flavour. Bamboo shoots are low in fat and calories but rich in fibre with about 90% water. Shoots are used as raw material in the manufacture of steroidal drugs. They are used as extenders because they take on the flavour of the ingredients they are cooked with. Fresh shoots have a crisp and sweet flavour with limited shelf-life and have to be sold immediately. The peak availability period is June to October. To cater to the metro markets, the shoots need to be processed and preserved properly. Being a lesser known food product, bamboo shoot processing has potential to be developed as an innovative and promising enterprise. Annually, over two million tonnes of edible shoots are consumed all over the world, mostly in Asia.

This project profile is for setting up of a Bamboo Shoot processing unit with installed processing capacity of 180 Ton per annum, based on 300 working days per annum and 8 working hours per day.

## 2.0 MARKET POTENTIAL

In India, bamboo shoots, either processed or raw, have a high demand. There is a ready market as there are very

few processing units whereas demand is increasing. Apart from individual households, processed bamboo shoots have very good demand from restaurants, caterers, other caterers etc. Product can be sold through provisional stores and super markets in consumer packs and to bulk buyers in large packing. Placement of the product at strategic outlets and publicity in local media would boost sales.

## 3.0 PROCESS DETAILS

The process flow chart is as under:

Cutting, Chopping and Slicing

Grading

Bringing and draining

Canning

Sealing, labelling and packing

**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
<b>Land &amp; Site Development</b>	<b>Own Land/On Lease</b>
<b>Building &amp; Civil works</b>	<b>4.54</b>
<b>Plant &amp; Machinery</b>	<b>6.04</b>
<b>Misc. Fixed assets</b>	<b>0.83</b>
<b>Preliminary &amp; pre-operative expenses</b>	<b>0.78</b>
<b>Contingencies &amp; escalation @ 3%</b>	<b>0.34</b>
<b>Working capital</b>	<b>1.62</b>
<b>TOTAL</b>	<b>14.15</b>

**4.1 Land & Site Development:** Nil.

Covered Area: 1,500 Sq. Ft.

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

Particulars	Area (Sq ft)	Rate (Rs)	Amount (Rs)
Work-shed, store house cum Office	1500	275	412500
<b>Sub total</b>			<b>412500</b>
Add: Electrification, water supply and sanitation @ 10%			41250
<b>TOTAL</b>			<b>453750</b>
<b>Say (Rs. in lacs)</b>			<b>4.54</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Heat furnace with burners	1	473000
Boiler with accessories	1	
Slicing Machine	1	
SS Vessels	1	
Automatic Form, Fill and Sealing machine	1	
Weighing Scales	1	
Cutter grinder machine with accessories	1	
Miscellaneous Tools and Equipment	LS	40000
<b>Sub total</b>		<b>513000</b>
Add: Installation, transportation, etc @ 10%		51300
<b>TOTAL</b>		<b>604300</b>
<b>Say (Rs. in lacs)</b>		<b>6.04</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture & fixtures	LS	--	25000
Miscellaneous items	LS	--	50000
<b>Sub total</b>			<b>75000</b>
Add: Installation, transportation, etc @ 10%			7500
<b>TOTAL</b>			<b>82500</b>
<b>Say (Rs. in lacs)</b>			<b>0.83</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

		(Rs. In lacs)
Particulars		Amount (Rs)
Travelling expenses		10000
Professional & other fees		16000
Interest during implementation		31886
Miscellaneous expenses		20000
<b>TOTAL</b>		<b>77886</b>
<b>Say (Rs. in lacs)</b>		<b>0.78</b>

**4.7 Working capital:** Details of working capital are given below.

		(Rs. in lacs)		
	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	0.90	1.05	1.20
Power & Utility	30	0.06	0.07	0.08
Salary	30	0.55	0.56	0.56
Finished Goods	15	1.22	1.38	1.54
Receivables	15	1.33	1.55	1.78
<b>Total</b>		<b>4.06</b>	<b>4.60</b>	<b>5.14</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.62</b>			

## 5.0 MEANS OF FINANCE

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

		(Rs. in lacs)
Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	5.66
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	8.49
<b>TOTAL</b>	<b>100%</b>	<b>14.15</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
<b><u>A. INCOME</u></b>						
Production Capacity (Ton/annum)	180	180	180	180	180	180
Capacity utilisation	60%	70%	80%	80%	80%	80%
Production/annum at capacity utilisation	<b>108</b>	<b>126</b>	<b>144</b>	<b>144</b>	<b>144</b>	<b>144</b>
Total income/annum	<b>32.40</b>	<b>37.80</b>	<b>43.20</b>	<b>43.20</b>	<b>43.20</b>	<b>43.20</b>
<b><u>B. OPERATING EXPENSES</u></b>						
Raw Materials	21.83	25.46	29.10	29.10	29.10	29.10
Power & Utility	0.69	0.80	0.92	0.92	0.92	0.92
Salary	6.72	6.75	6.79	6.82	6.86	6.89
Repair & Maintenance	0.18	0.18	0.19	0.19	0.19	0.20
Other Expenses	0.32	0.38	0.43	0.43	0.43	0.43
Total Operating Expenses	<b>29.73</b>	<b>33.58</b>	<b>37.42</b>	<b>37.46</b>	<b>37.50</b>	<b>37.53</b>
Operating profit	<b>2.67</b>	<b>4.22</b>	<b>5.78</b>	<b>5.74</b>	<b>5.70</b>	<b>5.67</b>
<b><u>C. FINANCIAL EXPENSES</u></b>						
Depreciation	0.52	0.52	0.52	0.52	0.52	0.52



Interest on Term Loan	0.68	0.62	0.48	0.35	0.21	0.07
Interest on Working Capital Loan	0.19	0.22	0.25	0.25	0.25	0.25
<b>Net Profit</b>	<b>1.27</b>	<b>2.86</b>	<b>4.53</b>	<b>4.63</b>	<b>4.73</b>	<b>4.82</b>
Net cash accruals	<b>1.79</b>	<b>3.39</b>	<b>5.05</b>	<b>5.15</b>	<b>5.25</b>	<b>5.35</b>
Principal Repayment	0.00	1.70	1.70	1.70	1.70	1.70

**6.1 Production capacity and Sales Realisation:** Total production of Processed Bamboo Shoot at 100% capacity utilization is estimated as below.

Processed Bamboo Shoot	180 Ton
<b>Total production per annum at 100% capacity</b>	<b>180 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Processed Bamboo Shoot	180	30000	5400000
<b>Total Sales per annum at 100% capacity</b>			<b>5400000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Raw Bamboo Shoot	200 Ton	7000	1400000
Salt	35 Ton	12500	437500
Packaging Materials like Plastic Jar, Poly Bags, Card Board Boxes, Labels etc	LS	10000 per ton of processed Bamboo Shoot	1800000

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & Machinery (Total HP of 15)	--	11.19	11.19
General Lighting	10	0.10	1.00
Total power requirement/day (Kw)			12.19
No. of hrs/day	8		
No. of days/annum	300		
Annual power requirement (kwh)	29256		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	102396		
Expenses on other Utility (Rs)	12000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>114396</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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	1	10000	120000
Sales Persons	2	6000	144000
Machine operators	2	5000	120000
Semi skilled workers	3	4000	144000
Unskilled workers	4	3000	144000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>672000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil works	4.54	1.00%	0.05
Plant & Machinery	6.04	2.00%	0.12
Misc. Fixed assets	0.83	1.50%	0.01
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.18</b>

**6.6 Other Expenses:** Other expenses have been assumed at 1% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & Civil works	4.54	3.34%	0.15
Plant & Machinery	6.04	5.28%	0.32
Misc. Fixed assets	0.83	6.33%	0.05
<b>TOTAL</b>			<b>0.52</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 6 years including moratorium period of 12 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)							
Month	Year	1	2	3	4	5	6
Month 1	Opening balance	8.49	8.49	6.79	5.09	3.40	1.70
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest (8%)	0.06	0.06	0.05	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>8.35</b>	<b>6.65</b>	<b>4.95</b>	<b>3.25</b>	<b>1.56</b>
Month 2	Opening balance	8.49	8.35	6.65	4.95	3.25	1.56
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.06	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>8.21</b>	<b>6.51</b>	<b>4.81</b>	<b>3.11</b>	<b>1.41</b>
Month 3	Opening balance	8.49	8.21	6.51	4.81	3.11	1.41
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>8.06</b>	<b>6.37</b>	<b>4.67</b>	<b>2.97</b>	<b>1.27</b>

Month 4	Opening balance	8.49	8.06	6.37	4.67	2.97	1.27
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>7.92</b>	<b>6.22</b>	<b>4.53</b>	<b>2.83</b>	<b>1.13</b>
Month 5	Opening balance	8.49	7.92	6.22	4.53	2.83	1.13
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>7.78</b>	<b>6.08</b>	<b>4.39</b>	<b>2.69</b>	<b>0.99</b>
Month 6	Opening balance	8.49	7.78	6.08	4.39	2.69	0.99
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>7.64</b>	<b>5.94</b>	<b>4.24</b>	<b>2.55</b>	<b>0.85</b>
Month 7	Opening balance	8.49	7.64	5.94	4.24	2.55	0.85
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.01
	<b>Closing balance</b>	<b>8.49</b>	<b>7.50</b>	<b>5.80</b>	<b>4.10</b>	<b>2.41</b>	<b>0.71</b>
Month 8	Opening balance	8.49	7.50	5.80	4.10	2.41	0.71
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.00
	<b>Closing balance</b>	<b>8.49</b>	<b>7.36</b>	<b>5.66</b>	<b>3.96</b>	<b>2.26</b>	<b>0.57</b>
Month 9	Opening balance	8.49	7.36	5.66	3.96	2.26	0.57
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.02	0.00
	<b>Closing balance</b>	<b>8.49</b>	<b>7.22</b>	<b>5.52</b>	<b>3.82</b>	<b>2.12</b>	<b>0.42</b>
Month 10	Opening balance	8.49	7.22	5.52	3.82	2.12	0.42
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.03	0.01	0.00
	<b>Closing balance</b>	<b>8.49</b>	<b>7.07</b>	<b>5.38</b>	<b>3.68</b>	<b>1.98</b>	<b>0.28</b>
Month 11	Opening balance	8.49	7.07	5.38	3.68	1.98	0.28
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.04	0.02	0.01	0.00
	<b>Closing balance</b>	<b>8.49</b>	<b>6.93</b>	<b>5.23</b>	<b>3.54</b>	<b>1.84</b>	<b>0.14</b>
Month 12	Opening balance	8.49	6.93	5.23	3.54	1.84	0.14
	Repayment	0.00	0.14	0.14	0.14	0.14	0.14
	Interest	0.06	0.05	0.03	0.02	0.01	0.00
	<b>Closing balance</b>	<b>8.49</b>	<b>6.79</b>	<b>5.09</b>	<b>3.40</b>	<b>1.70</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.00</b>	<b>1.70</b>	<b>1.70</b>	<b>1.70</b>	<b>1.70</b>	<b>1.70</b>
<b>Interest</b>		<b>0.68</b>	<b>0.62</b>	<b>0.48</b>	<b>0.35</b>	<b>0.21</b>	<b>0.07</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6
Profit After Tax (Net Profit)	1.27	2.86	4.53	4.63	4.73	4.82
Depreciation	0.52	0.52	0.52	0.52	0.52	0.52
Interest	0.68	0.62	0.48	0.35	0.21	0.07
<b>Total</b>	<b>2.47</b>	<b>4.00</b>	<b>5.53</b>	<b>5.50</b>	<b>5.46</b>	<b>5.42</b>
Interest	0.68	0.62	0.48	0.35	0.21	0.07
Loan repayment	0.00	1.70	1.70	1.70	1.70	1.70
<b>Total</b>	<b>0.68</b>	<b>2.31</b>	<b>2.18</b>	<b>2.04</b>	<b>1.91</b>	<b>1.77</b>
<b>DSCR</b>	<b>3.64</b>	<b>1.73</b>	<b>2.54</b>	<b>2.69</b>	<b>2.86</b>	<b>3.06</b>

Average DSCR = 2.61

## 8.0 BREAK EVEN POINT (BEP)

	(Rs. in lacs)		
Year	1	2	3
<b>A. Net sales</b>	<b>32.40</b>	<b>37.80</b>	<b>43.20</b>
<b>B. Variable cost</b>			
Raw Materials	21.83	25.46	29.10
Power & Utility	0.69	0.80	0.92
Other expenses	0.32	0.38	0.43
Interest on Working Capital Loan	0.19	0.22	0.25
<b>Total variable cost</b>	<b>23.03</b>	<b>26.86</b>	<b>30.69</b>
<b>C. Contribution (A-B)</b>	<b>9.37</b>	<b>10.94</b>	<b>12.51</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	6.72	6.75	6.79
Repair & maintenance	0.18	0.18	0.19
Interest on Term Loan	0.68	0.62	0.48
Depreciation	0.52	0.52	0.52
<b>Total fixed cost</b>	<b>8.10</b>	<b>8.08</b>	<b>7.98</b>
<b>E. BREAK EVEN POINT</b>	<b>86.45%</b>	<b>73.83%</b>	<b>63.78%</b>
<b>F. BEP at operating capacity</b>	<b>51.87%</b>	<b>51.68%</b>	<b>51.03%</b>
<b>G. Cash BEP</b>	<b>48.52%</b>	<b>48.33%</b>	<b>47.68%</b>

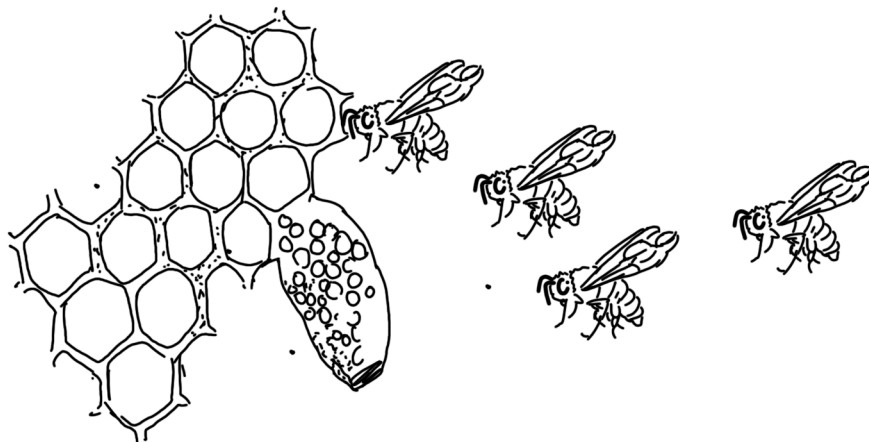
## 9.0 INTERNAL RATE OF RETURN (IRR)

	(Rs. in lacs)						
Year	0	1	2	3	4	5	6
<b>CASH OUTFLOW</b>							
Capital Expenditure	11.74	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	4.06	0.54	0.54	0.00	0.00	0.00
<b>Total (A)</b>	<b>11.74</b>	<b>4.06</b>	<b>0.54</b>	<b>0.54</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>							
Profit After Tax		1.27	2.86	4.53	4.63	4.73	4.82
Add: Depreciation		0.52	0.52	0.52	0.52	0.52	0.52
Add: Interest		0.68	0.62	0.48	0.35	0.21	0.07
Add: Salvage Value							
<b>Total (B)</b>	<b>0.00</b>	<b>2.47</b>	<b>4.00</b>	<b>5.53</b>	<b>5.50</b>	<b>5.46</b>	<b>5.42</b>
<b>NET FLOW (B-A)</b>	<b>-11.74</b>	<b>-1.59</b>	<b>3.46</b>	<b>4.99</b>	<b>5.50</b>	<b>5.46</b>	<b>5.42</b>

IRR = 26%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Chatariya Food Pvt. Ltd.	Mahuva, Dist- Bhavnagar, Gujarat, Pin- 364 290.
2.	M/s Shriram Temp & Changers (India)	991/2/A, GIDC, Opp Makarpura Bus Depot, Vadodora, Pin-390010.
3.	M/s Bajaj Maschinen Pvt. Ltd.	C-582, New Friends Colony, New Delhi, Pin-110 065.

# BEE-KEEPING AND HONEY PROCESSING



## 1.0 INTRODUCTION

Beekeeping is emerging as a very successful practice for local people in rural areas of less developed countries. Not only does the practice of beekeeping have intrinsic health benefits through providing a food source of great nutritional value which is lacking in rural areas, but beekeeping requires few inputs and capitalises on a ready supply of pollen. In rural areas there is almost an unlimited source of pollen and bees aid greatly in the natural cross pollination of local crops. Health benefits for local people reliant on small agriculture to provide food are centred around the qualities of honey in a diet which is usually dependent upon staple foods such as bananas and maize. Apiculture is a powerful way of tackling poverty at the grassroots level. Beekeeping is a decentralized industry and does not displace persons from their villages. This activity has potential to provide regular income especially in rural areas. The investment required is low and the economic returns are comparatively very high.

This project profile is for Beekeeping and Honey Processing unit with installed processing capacity of 10 Ton per annum, based on 300 working days per annum and 8 working hours per day.

## 2.0 MARKET POTENTIAL

Honey is a consumable product. Honey has substantial medicinal properties and is used in India since long. From

centuries, honey has been used as a natural sweetening agent and in the preparation of confectionaries. It also has vast application in the pharmaceutical industry and is a preferred consumable for people on dieting. Procurement of natural or pure honey is becoming difficult due to urbanisation and de-forestation. Simultaneously, its demand is steadily increasing as Ayurvedic medicines are becoming more and more popular. Natural honey is always in demand round the year. Another bee product, bee wax is high value commodity with application in the cosmetics, candles and paint industries.

## 3.0 PROCESS DETAILS

Bee-keeping activity should ideally be located where there are minimum movements of human-beings with very little noise. Forest area is, therefore, suited with many flowering plants naturally grown. Movable wooden frames with boxes are placed at such locations and these boxes are spread with honey spice to attract more and more honey-bees. These bees leave fresh honey sucked from flowers in the cells of honey-comb provided in the boxes to eat bee feed. When these cells are full of honey, they are hermetically sealed by capping with wax and then honey is extracted from these cells. Freshly extracted honey is warm and easy to bottle. It is essential to undertake proper training of extraction and bottling.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
Land & site development	0.99
Building & civil works	0.00
Plant & Machinery	0.99
Misc. Fixed assets	0.28
Preliminary & pre-operative expenses	0.23
Contingencies & escalation @ 3%	0.04
Working capital	0.33
<b>TOTAL</b>	<b>1.86</b>

**4.1 Land & Site Development:** Nil. Total Land Area: 250 Sq. Ft.

**4.2 Building & Civil Works:** Nil.

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Wooden Box for Beekeeping	40	2000	80000
Misc. equipments (LS)	LS	10000	10000
<b>Sub total</b>			<b>90000</b>
Add: Installation, transportation, etc @ 10%			9000
<b>TOTAL</b>			<b>99000</b>
<b>Say (Rs. in lacs)</b>			<b>0.99</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture's & Fixtures	LS	--	10000
Miscellaneous items	LS	--	15000
<b>Sub total</b>			<b>25000</b>
Add: Installation, transportation etc @ 10%			2500
<b>TOTAL</b>			<b>27500</b>
<b>Say (Rs. in lacs)</b>			<b>0.28</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

(Rs. In lacs)

Particulars	Amount (Rs)
Travelling expenses	5000
Professional & other fees	5000
Interest during implementation	3080
Miscellaneous expenses	10000
<b>TOTAL</b>	<b>23080</b>
<b>Say (Rs. in lacs)</b>	<b>0.23</b>

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	0.07	0.08	0.09
Power & utility	30	0.01	0.01	0.01
Salary	30	0.29	0.29	0.29
Finished Goods	15	0.23	0.24	0.25
Receivables	15	0.23	0.26	0.30
<b>Total</b>		<b>0.82</b>	<b>0.88</b>	<b>0.95</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>0.33</b>			

**5.0 MEANS OF FINANCE**

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

(Rs. in lacs)

Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	0.74
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	1.12
<b>TOTAL</b>	<b>100%</b>	<b>1.86</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Production capacity (Ton/annum)	10	10	10	10	10
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	6	7	8	8	8
Total income/annum	5.52	6.44	7.36	7.36	7.36
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	1.72	2.01	2.30	2.30	2.30
Power & utility	0.09	0.10	0.12	0.12	0.12
Salary	3.48	3.50	3.51	3.53	3.55
Repair & Maintenance	0.02	0.02	0.02	0.03	0.03
Other Expenses	0.17	0.19	0.22	0.22	0.22
Total Operating Expenses	5.48	5.82	6.17	6.19	6.21
Operating profit	0.04	0.62	1.19	1.17	1.15
<b><u>C. FINANCIAL EXPENSES</u></b>					
Depreciation	0.07	0.07	0.07	0.07	0.07
Interest on Term Loan	0.09	0.07	0.05	0.03	0.01
Interest on Working Capital Loan	0.04	0.04	0.05	0.05	0.05
Net Profit	-0.15	0.43	1.02	1.02	1.03
Net cash accruals	-0.08	0.50	1.09	1.09	1.10
Principal Repayment	0.12	0.25	0.25	0.25	0.25



**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Natural Honey	10 Ton
<b>Total production per annum at 100% capacity</b>	<b>10 Ton</b>

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Natural Honey	10	92000	920000
<b>Total Sale Turnover per annum at 100% capacity</b>			<b>920000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Honey Feed	40Ton	3800	152000
Packaging Material (Plastic Jars of Different Sizes)	20000 Plastic Jars	6	120000
Secondary Packaging (Cartons)	1000 Nos.	15	15000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>287000</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & Machinery	--	0.00	0.00
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			1.00
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	2400		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	8400		
Expenses on Water/Other Utility (Rs)	6000		
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>14400</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employee	Numbers	Salary/ Month (Rs)	Cost/ annum (Rs)
Supervisor	1	6000	72000
Sales Personnel	2	5000	120000
Skilled Workers	2	5000	120000
Unskilled workers	1	3000	36000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>348000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	0.00	1.00%	0.00
Plant & Machinery	0.99	2.00%	0.02
Misc. Fixed assets	0.28	1.50%	0.00
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.02</b>

**6.6 Other Expenses:** Other expenses have been assumed at 3% of sales realisation.

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

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & civil works	0.00	3.34%	0.00
Plant & Machinery	0.99	5.28%	0.05
Misc. Fixed assets	0.28	6.33%	0.02
<b>TOTAL</b>			<b>0.07</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 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	1.12	0.99	0.74	0.50	0.25
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest (8.00%)	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.97</b>	<b>0.72</b>	<b>0.48</b>	<b>0.23</b>
Month 2	Opening balance	1.12	0.97	0.72	0.48	0.23
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.95</b>	<b>0.70</b>	<b>0.45</b>	<b>0.21</b>
Month 3	Opening balance	1.12	0.95	0.70	0.45	0.21
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.93</b>	<b>0.68</b>	<b>0.43</b>	<b>0.19</b>
Month 4	Opening balance	1.12	0.93	0.68	0.43	0.19
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.91</b>	<b>0.66</b>	<b>0.41</b>	<b>0.17</b>
Month 5	Opening balance	1.12	0.91	0.66	0.41	0.17
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.89</b>	<b>0.64</b>	<b>0.39</b>	<b>0.14</b>
Month 6	Opening balance	1.12	0.89	0.64	0.39	0.14
	Repayment	0.00	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.12</b>	<b>0.87</b>	<b>0.62</b>	<b>0.37</b>	<b>0.12</b>
Month 7	Opening balance	1.12	0.87	0.62	0.37	0.12
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00

	<b>Closing balance</b>	<b>1.10</b>	<b>0.85</b>	<b>0.60</b>	<b>0.35</b>	<b>0.10</b>
Month 8	Opening balance	1.10	0.85	0.60	0.35	0.10
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.07</b>	<b>0.83</b>	<b>0.58</b>	<b>0.33</b>	<b>0.08</b>
Month 9	Opening balance	1.07	0.83	0.58	0.33	0.08
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.05</b>	<b>0.81</b>	<b>0.56</b>	<b>0.31</b>	<b>0.06</b>
Month 10	Opening balance	1.05	0.81	0.56	0.31	0.06
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.03</b>	<b>0.79</b>	<b>0.54</b>	<b>0.29</b>	<b>0.04</b>
Month 11	Opening balance	1.03	0.79	0.54	0.29	0.04
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>1.01</b>	<b>0.76</b>	<b>0.52</b>	<b>0.27</b>	<b>0.02</b>
Month 12	Opening balance	1.01	0.76	0.52	0.27	0.02
	Repayment	0.02	0.02	0.02	0.02	0.02
	Interest	0.01	0.01	0.00	0.00	0.00
	<b>Closing balance</b>	<b>0.99</b>	<b>0.74</b>	<b>0.50</b>	<b>0.25</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.12</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>
<b>Interest</b>		<b>0.09</b>	<b>0.07</b>	<b>0.05</b>	<b>0.03</b>	<b>0.01</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	-0.15	0.43	1.02	1.02	1.03
Depreciation	0.07	0.07	0.07	0.07	0.07
Interest	0.09	0.07	0.05	0.03	0.01
<b>Total</b>	<b>0.00</b>	<b>0.57</b>	<b>1.14</b>	<b>1.12</b>	<b>1.11</b>
Interest	0.09	0.07	0.05	0.03	0.01
Loan repayment	0.12	0.25	0.25	0.25	0.25
<b>Total</b>	<b>0.21</b>	<b>0.32</b>	<b>0.30</b>	<b>0.28</b>	<b>0.26</b>
<b>DSCR</b>	<b>0.01</b>	<b>1.80</b>	<b>3.83</b>	<b>4.04</b>	<b>4.28</b>

Average DSCR = 2.89

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>5.52</b>	<b>6.44</b>	<b>7.36</b>
<b>B. Variable cost</b>			
Raw materials	1.72	2.01	2.30
Power & utility	0.09	0.10	0.12
Other expenses	0.17	0.19	0.22
Interest on Working Capital Loan	0.04	0.04	0.05
<b>Total variable cost</b>	<b>2.01</b>	<b>2.35</b>	<b>2.68</b>
<b>C. Contribution (A-B)</b>	<b>3.51</b>	<b>4.09</b>	<b>4.68</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	3.48	3.50	3.51

Repair & maintenance	0.02	0.02	0.02
Interest on Term Loan	0.09	0.07	0.05
Depreciation	0.07	0.07	0.07
<b>Total fixed cost</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>
<b>E. BREAK EVEN POINT</b>	<b>104.39%</b>	<b>89.43%</b>	<b>78.16%</b>
<b>F. BEP at operating capacity</b>	<b>62.63%</b>	<b>62.60%</b>	<b>62.53%</b>
<b>G. Cash BEP</b>	<b>61.44%</b>	<b>61.41%</b>	<b>61.34%</b>

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	1.30	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	0.82	0.07	0.07	0.00	0.00
<b>Total (A)</b>	<b>1.30</b>	<b>0.82</b>	<b>0.07</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		-0.15	0.43	1.02	1.02	1.03
Add: Depreciation		0.07	0.07	0.07	0.07	0.07
Add: Interest		0.09	0.07	0.05	0.03	0.01
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.57</b>	<b>1.14</b>	<b>1.12</b>	<b>1.11</b>
<b>NET FLOW (B-A)</b>	<b>-1.30</b>	<b>-0.81</b>	<b>0.51</b>	<b>1.08</b>	<b>1.12</b>	<b>1.11</b>

IRR = 27%

# DEHYDRATED VEGETABLE



## 1.0 INTRODUCTION

Many vegetables are seasonal in nature and due to their low shelf life after harvest they are sold in the markets at very low prices. There is a considerable surplus of these vegetables which can be processed (dehydrated) for consumption during lean months. Dehydration technique has been developed by which vegetables in dehydrated form are preserved for a longer period and are made available during off-season. With this technology, certain high value and popular vegetables can be profitably sold.

This project profile is for production of Dehydrated Vegetables with installed processing capacity of 400 Ton per annum, based on 300 working days per annum and 8 working hours per day.

## 2.0 MARKET POTENTIAL

Food habits of Indians are such that most of the households prepare vegetables every day. Due to climatic conditions and types of soil, many vegetables are cultivated throughout the year. The major limitation of bulk of the green vegetables is that they are grown only during pre-determined season which lasts for 3-4 months and thus their availability during rest of the months is a major problem. Hence, if they are made available during this period, then they command premium. Green house method enables cultivation of any vegetable during any season but calls for huge investment which affects the

economic viability. Dehydration technique is, therefore, preferred.

## 3.0 PROCESS DETAILS

The all-important raw material for the project would be fresh vegetables. Depending upon the availability of vegetables during different seasons, the product-mix may change. Likewise the prices of raw materials would also change depending upon the exact product mix and crop pattern. The all important packing materials will be plastic bags made from suitable grade plastic, corrugated boxes, box strapping, labels etc.

This project profile primarily considers dehydration of cabbage, cauliflower, spinach and carrots. Other suitable vegetables can also be thought of. In case of cauliflowers; they are chopped to make small pieces and washed. Then they are blanched and dried in cold air. Spinach leaves are separated from the stalk, washed and dried in the drier. As regards carrots, they are washed, scrapped and cubed after washing. Cubes are then blanched and dried. These dehydrated vegetables are then packed and stored carefully. Packing is very critical as any fungal growth would damage the product. Process and weight loss varies from vegetable to vegetable but on an average it is 25% as the vegetables are dehydrated. In other words, the input-output ratio is 4:1.

**4.0 COST OF THE PROJECT**

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
<b>Land &amp; site development</b>	<b>Own Land/On Lease</b>
<b>Building &amp; civil works</b>	<b>6.60</b>
<b>Plant &amp; Machinery</b>	<b>20.08</b>
<b>Misc. Fixed assets</b>	<b>1.16</b>
<b>Preliminary &amp; pre-operative expenses</b>	<b>2.10</b>
<b>Contingencies &amp; escalation @ 3%</b>	<b>0.84</b>
<b>Working capital</b>	<b>2.63</b>
<b>TOTAL</b>	<b>33.40</b>

**4.1 Land & Site Development:** Nil. Total Land: 5,000 Sq. Ft. Covered Area: 2,000 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Work Shed cum Office	2000	275	550000
<b>Sub total</b>			<b>550000</b>
Add: Electrification, water supply and sanitation @20%			110000
<b>TOTAL</b>			<b>660000</b>
<b>Say (Rs. in lacs)</b>			<b>6.60</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Washing Tanks with sets of Cubers, Slicers etc	1	1650000
Blanching Tank with thermostat Control	1	
Stacking trays for vegetables	40	
pre-cooling facility for vegetables	1	
Vibratory Shakers	1	
Fluidized bed dryer to dehydrate vegetables complete with all accessories	1	
Hot-water boiler with accessories	1	
Automatic form fill and sealing machine	1	
Pin Mil with accessories of 50 Kgs/hr capacity	1	
Misc. Tools and Testing Equipments	LS	175000
<b>Sub total</b>		<b>1825000</b>
Add: Installation, transportation etc @ 10%		182500
<b>TOTAL</b>		<b>2007500</b>
<b>Say (Rs. in lacs)</b>		<b>20.08</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Transformer	1	200000	200000
Fixtures and Fittings	1	40000	40000
Furniture's including Working Tables	LS	--	15000
Miscellaneous items	LS	--	50000
<b>Sub total</b>			<b>105000</b>
Add: Installation, transportation etc @ 10%			10500
<b>TOTAL</b>			<b>115500</b>
<b>Say (Rs. in lacs)</b>			<b>1.16</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

(Rs. in lacs)

Particulars	Amount (Rs)
Travelling expenses	10000
Professional & other fees	41000
Interest during implementation	109010
Miscellaneous expenses	50000
<b>TOTAL</b>	<b>210010</b>
<b>Say (Rs. in lacs)</b>	<b>2.10</b>

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	10	0.38	1.42	1.62
Power & Utility	30	0.18	0.21	0.24
Salary	30	0.92	0.92	0.93
Finished Goods	15	2.42	2.75	3.07
Receivables	15	2.66	3.11	3.55
<b>Total</b>		<b>6.56</b>	<b>8.40</b>	<b>9.41</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>2.63</b>			

**5.0 MEANS OF FINANCE:** The means of finance for the project is estimated as below.

(Rs. in lacs)

Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	13.36
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	20.04
<b>TOTAL</b>	<b>100%</b>	<b>33.40</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b><u>A. INCOME</u></b>							
Production capacity (Ton/annum)	400	400	400	400	400	400	400
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%
Production/annum at capacity utilisation	240	280	320	320	320	320	320
Total income/annum	64.80	75.60	86.40	86.40	86.40	86.40	86.40
<b><u>B. OPERATING EXPENSES</u></b>							
Raw materials	44.40	51.80	59.20	59.20	59.20	59.20	59.20
Power & Utility	2.20	2.56	2.93	2.93	2.93	2.93	2.93
Salary	11.16	11.22	11.27	11.33	11.38	11.44	11.50
Repair & Maintenance	0.48	0.49	0.50	0.51	0.52	0.54	0.55
Other Expenses	0.65	0.76	0.86	0.86	0.86	0.86	0.86
Total Operating Expenses	58.89	66.83	74.77	74.84	74.90	74.97	75.04
Operating profit	5.91	8.77	11.63	11.56	11.50	11.43	11.36
<b><u>C. FINANCIAL EXPENSES</u></b>							
Depreciation	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Interest on Term Loan	1.60	1.48	1.21	0.95	0.68	0.41	0.14
Interest on Working Capital Loan	0.32	0.40	0.45	0.45	0.45	0.45	0.45
Net Profit	2.64	5.53	8.61	8.81	9.01	9.21	9.41
Net cash accruals	3.99	6.89	9.97	10.17	10.37	10.57	10.77
Principal Repayment	0.00	3.34	3.34	3.34	3.34	3.34	3.34



**6.1 Production capacity and Sales Realisation:** Total production of spice powder at 100% capacity utilization is estimated as below.

Dehydrated Vegetables	400 Ton
<b>Total production per annum at 100% capacity</b>	<b>400 Ton</b>

Particulars	Qty	Price per Unit (Rs.)	Amount (Rs.)
Dehydrated Vegetables	400 Ton	27000	10800000
<b>Total Annual Sales at 100% capacity (Rs)</b>			<b>10800000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Price per Unit (Rs.)	Amount (Rs.)
Vegetables	1200 Ton	5000	6000000
Packing Material	-LS-	Rs. 3500 Per Ton of Finished Goods	1400000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>7400000</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total HP of 50)	--	37.30	37.30
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			39.30
No. of hrs/day	8		
Nos. of days/annum	300		
Annual power requirement (kwh)	94320		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	330120		
Expenses on Water/Other Utilities (Rs)	36000		
<b>Expenses on power &amp; Utility at 100% capacity (Rs)</b>	<b>366120</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are 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)
Production Manager	1	12000	144000
Sales Person	4	8000	384000
Skilled workers	4	5000	240000
Semi-skilled workers	5	4000	240000
Unskilled workers	3	3000	108000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>1116000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	6.60	1.00%	0.07
Plant & Machinery	20.08	2.00%	0.40
Misc. Fixed assets	1.16	1.50%	0.02
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.48</b>

**6.6 Other Expenses:** Other expenses have been assumed at 1% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	6.60	3.34%	0.22
Plant & Machinery	20.08	5.28%	1.06
Misc. Fixed assets	1.16	6.33%	0.07
<b>TOTAL</b>			<b>1.35</b>

**6.8. Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 12 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)								
Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	20.04	20.04	16.70	13.36	10.02	6.68	3.34
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest (8%)	0.13	0.13	0.11	0.09	0.07	0.04	0.02
	<b>Closing balance</b>	<b>20.04</b>	<b>19.76</b>	<b>16.42</b>	<b>13.08</b>	<b>9.74</b>	<b>6.40</b>	<b>3.06</b>
Month 2	Opening balance	20.04	19.76	16.42	13.08	9.74	6.40	3.06
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.09	0.06	0.04	0.02
	<b>Closing balance</b>	<b>20.04</b>	<b>19.48</b>	<b>16.14</b>	<b>12.80</b>	<b>9.46</b>	<b>6.12</b>	<b>2.78</b>
Month 3	Opening balance	20.04	19.48	16.14	12.80	9.46	6.12	2.78
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.09	0.06	0.04	0.02
	<b>Closing balance</b>	<b>20.04</b>	<b>19.20</b>	<b>15.86</b>	<b>12.52</b>	<b>9.18</b>	<b>5.84</b>	<b>2.50</b>
Month 4	Opening balance	20.04	19.20	15.86	12.52	9.18	5.84	2.50
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.08	0.06	0.04	0.02
	<b>Closing balance</b>	<b>20.04</b>	<b>18.92</b>	<b>15.58</b>	<b>12.25</b>	<b>8.91</b>	<b>5.57</b>	<b>2.23</b>
Month 5	Opening balance	20.04	18.92	15.58	12.25	8.91	5.57	2.23
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.10	0.08	0.06	0.04	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>18.65</b>	<b>15.31</b>	<b>11.97</b>	<b>8.63</b>	<b>5.29</b>	<b>1.95</b>
Month 6	Opening balance	20.04	18.65	15.31	11.97	8.63	5.29	1.95
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.06	0.04	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>18.37</b>	<b>15.03</b>	<b>11.69</b>	<b>8.35</b>	<b>5.01</b>	<b>1.67</b>
Month 7	Opening balance	20.04	18.37	15.03	11.69	8.35	5.01	1.67

	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.06	0.03	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>18.09</b>	<b>14.75</b>	<b>11.41</b>	<b>8.07</b>	<b>4.73</b>	<b>1.39</b>
Month 8	Opening balance	20.04	18.09	14.75	11.41	8.07	4.73	1.39
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.05	0.03	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>17.81</b>	<b>14.47</b>	<b>11.13</b>	<b>7.79</b>	<b>4.45</b>	<b>1.11</b>
Month 9	Opening balance	20.04	17.81	14.47	11.13	7.79	4.45	1.11
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.07	0.05	0.03	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>17.53</b>	<b>14.19</b>	<b>10.85</b>	<b>7.51</b>	<b>4.17</b>	<b>0.83</b>
Month 10	Opening balance	20.04	17.53	14.19	10.85	7.51	4.17	0.83
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.09	0.07	0.05	0.03	0.01
	<b>Closing balance</b>	<b>20.04</b>	<b>17.25</b>	<b>13.91</b>	<b>10.58</b>	<b>7.24</b>	<b>3.90</b>	<b>0.56</b>
Month 11	Opening balance	20.04	17.25	13.91	10.58	7.24	3.90	0.56
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.09	0.07	0.05	0.03	0.00
	<b>Closing balance</b>	<b>20.04</b>	<b>16.98</b>	<b>13.64</b>	<b>10.30</b>	<b>6.96</b>	<b>3.62</b>	<b>0.28</b>
Month 12	Opening balance	20.04	16.98	13.64	10.30	6.96	3.62	0.28
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.11	0.09	0.07	0.05	0.02	0.00
	<b>Closing balance</b>	<b>20.04</b>	<b>16.70</b>	<b>13.36</b>	<b>10.02</b>	<b>6.68</b>	<b>3.34</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.00</b>	<b>3.34</b>	<b>3.34</b>	<b>3.34</b>	<b>3.34</b>	<b>3.34</b>	<b>3.34</b>
<b>Interest</b>		<b>1.60</b>	<b>1.48</b>	<b>1.21</b>	<b>0.95</b>	<b>0.68</b>	<b>0.41</b>	<b>0.14</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7
Profit After Tax (Net Profit)	2.64	5.53	8.61	8.81	9.01	9.21	9.41
Depreciation	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Interest	1.60	1.48	1.21	0.95	0.68	0.41	0.14
<b>Total</b>	<b>5.60</b>	<b>8.37</b>	<b>11.18</b>	<b>11.11</b>	<b>11.05</b>	<b>10.98</b>	<b>10.91</b>
Interest	1.60	1.48	1.21	0.95	0.68	0.41	0.14
Loan repayment	0.00	3.34	3.34	3.34	3.34	3.34	3.34
<b>Total</b>	<b>1.60</b>	<b>4.82</b>	<b>4.55</b>	<b>4.29</b>	<b>4.02</b>	<b>3.75</b>	<b>3.48</b>
<b>DSCR</b>	<b>3.49</b>	<b>1.74</b>	<b>2.46</b>	<b>2.59</b>	<b>2.75</b>	<b>2.93</b>	<b>3.13</b>

Average DSCR = 2.61

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>64.80</b>	<b>75.60</b>	<b>86.40</b>
<b>B. Variable cost</b>			
Raw materials	44.40	51.80	59.20
Power & Utility	2.20	2.56	2.93
Other expenses	0.65	0.76	0.86
Interest on Working Capital Loan	0.32	0.40	0.45
<b>Total variable cost</b>	<b>47.56</b>	<b>55.52</b>	<b>63.44</b>
<b>C. Contribution (A-B)</b>	<b>17.24</b>	<b>20.08</b>	<b>22.96</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	11.16	11.22	11.27
Repair & maintenance	0.48	0.49	0.50

Interest on Term Loan	1.60	1.48	1.21
Depreciation	1.35	1.35	1.35
<b>Total fixed cost</b>	<b>14.60</b>	<b>14.54</b>	<b>14.34</b>
<b>E. BREAK EVEN POINT</b>	<b>84.70%</b>	<b>72.44%</b>	<b>62.48%</b>
<b>F. BEP at operating capacity</b>	<b>50.82%</b>	<b>50.71%</b>	<b>49.99%</b>
<b>G. Cash BEP</b>	<b>46.11%</b>	<b>45.99%</b>	<b>45.27%</b>

#### 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)								
Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	28.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	6.56	1.84	1.01	0.00	0.00	0.00	0.00
<b>Total (A)</b>	<b>28.67</b>	<b>6.56</b>	<b>1.84</b>	<b>1.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>								
Profit After Tax		2.64	5.53	8.61	8.81	9.01	9.21	9.41
Add: Depreciation		1.35	1.35	1.35	1.35	1.35	1.35	1.35
Add: Interest		1.60	1.48	1.21	0.95	0.68	0.41	0.14
Add: Salvage Value								
<b>Total (B)</b>	<b>0.00</b>	<b>5.60</b>	<b>8.37</b>	<b>11.18</b>	<b>11.11</b>	<b>11.05</b>	<b>10.98</b>	<b>10.91</b>
<b>NET FLOW (B-A)</b>	<b>-28.67</b>	<b>-0.97</b>	<b>6.53</b>	<b>10.17</b>	<b>11.11</b>	<b>11.05</b>	<b>10.98</b>	<b>10.91</b>

IRR = 23%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s G.R. Engg. Works Pvt Ltd	Worli, Mumbai, Maharashtra, Pin-400 018
2.	M/s Raylon Metal Works	J B Nagar, Andheri (E), Mumbai , Pin-400 059
3.	M/s Laxicon Engg	Sita Bardi, Nagpur, Maharashtra, Pin-440 012

# DEHYDRATED GINGER



## 1.0 INTRODUCTION

Ginger is a seasonal product but it is used extensively in many food preparations. Hence, dried ginger or ginger powder is used in large quantity during off-season. Fresh/dried ginger, ginger oil and ginger powder are used in large quantities in many vegetarian and non-vegetarian food preparations in Indian, Continental and Chinese cuisine. Ginger also has medicinal attributes and is used by households as well as by pharmaceutical companies. But fresh ginger is available only for about 5-6 months and hence the demand for bleached and dehydrated ginger is increasing.

This project profile is for setting up of a Dehydrated Ginger (Dried Ginger) producing unit with installed processing capacity of 500 kg per day of fresh ginger.

## 2.0 MARKET POTENTIAL

India is a leading ginger producer in the world with more than 50% of total ginger production taking place in North

East States and Uttarakhand. In North Eastern states Gingers are produced under organic conditions. Dry Ginger has huge export potential in addition to its existing demand in India. Ginger is used almost daily in our diet. Export of ginger increased from 8,332.91 tons in 2007-08 to 35,616.35 tons in 2011-12 in Quantum and increased from Rs 3,296.08 Lakh to Rs 26,626.77 Lakhs in value term.

## 3.0 PROCESS DETAILS

Ginger is washed and cleaned in water and then skin of ginger is peeled partially with the help of peeling machine. It is then dried in electrically operated tray drier at a temperature of about 60° C. Drying time is 24 hours in crossflow type drier and 14 hours in through-flow drier. Dried ginger slices are packed in polythene bags and sealed.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.03
Machinery & Equipment	2.04
Misc. Fixed Assets	1.20
Preliminary & Pre-operative Expenses	0.62
Contingencies & Escalation @ 3%	0.22
Working Capital	2.14
<b>TOTAL</b>	<b>10.26</b>

**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 (Sqft)	Rate (Rs)	Amount (Rs)
Work Shed cum Store (30x20 sqft, Brick wall, CGI sheet roofings, Concrete Floor)	600	600	360000
Add: Electrification, water supply, etc @ 12%			43200
<b>TOTAL</b>			<b>403200</b>
<b>Say (Rs. in lacs)</b>			<b>4.03</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Ginger peeling machine	1	40000	40000
Tray drier (electrically operated)	50	1600	80000
Washing tank	1	20000	20000
Weighing scales, sealing machine, etc.	LS	LS	20000
<b>Sub total</b>			<b>160000</b>
Add: Transportation, taxes, etc. @ 15%			24000
<b>TOTAL</b>			<b>204000</b>
<b>Say (Rs. in lacs)</b>			<b>2.04</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	100000	100000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>120000</b>
<b>Say (Rs. in lacs)</b>			<b>1.20</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.12
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.62</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment and miscellaneous fixed assets.

**4.7 Working capital:** Details of working capital are given below.

Particulars	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw materials & consumables	15	0.45	0.52	0.60
Power	30	0.00	0.00	0.01
Salary	30	0.36	0.36	0.36
Finished Goods	15	0.64	0.72	0.80
Receivables	15	0.69	0.81	0.92
Total		2.14	2.42	2.69
Working Capital Margin in Yr 1 (100%)	2.14			

## 5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	4.10
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	6.15
TOTAL	100%	10.26

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production capacity (kg/annum)	18750	18750	18750	18750	18750
Capacity utilisation	60%	70%	80%	80%	80%
Total production/annum at capacity utilisation	11250	13125	15000	15000	15000
Price/kg (Rs)	150	150	150	150	150
Income from sales/annum	16.88	19.69	22.50	22.50	22.50
<b>B. OPERATING EXPENSES</b>					
Raw materials & consumables	10.90	12.72	14.53	14.53	14.53
Power	0.05	0.06	0.06	0.06	0.06
Salary	4.32	4.36	4.41	4.45	4.50
Repair & Maintenance	0.11	0.12	0.14	0.16	0.18
Selling Expenses	0.17	0.20	0.23	0.23	0.23
Other Expenses	0.08	0.10	0.11	0.11	0.11
Total Operating Expenses	15.63	17.55	19.48	19.55	19.62
Less: Working expenses capitalised	2.14	0.00	0.00	0.00	0.00
Operating profit	3.39	2.13	3.02	2.95	2.88
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.35	0.35	0.35	0.35	0.35
Interest on Term Loan	0.49	0.41	0.29	0.18	0.06
Net Profit	2.55	1.37	2.37	2.42	2.47
Net cash accruals	2.90	1.72	2.72	2.77	2.82
Principal Repayment	0.36	1.45	1.45	1.45	1.45



**6.1 Estimation of Production Capacity:** Production of Dried Ginger per annum at installed capacity is estimated as below.

Capacity of plant (kg/day) - processing of fresh ginger	500
No. of months/annum (seasonal production)	6
No. of days/month	25
Total working days per annum	150
Quantity of raw materials processed/annum (kg)	75000
Recovery of dry ginger from fresh ginger (%)	25%
Total production/annum at 100% capacity (kg)	18750

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

Raw material required at 100% capacity (kg)	75000
Add: Provision for spoilage at 0.1%	75
Total quantity of raw material required (kg)	75075
Price of fresh ginger (Rs/kg)	22
Expenses on raw materials at 100% capacity (Rs)	1651650
Add: Consumables, transportation charges, etc @ 10%	165165
Expenses on raw materials & consumables at 100% capacity (Rs)	1816815

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

Particulars	Quantity	Power (Kw)	Total (Kw)	Total (Kw)	Kwh/day
Ginger peeling machine	1	3.00	3.00	5	15.00
Tray drier	50	0.15	7.50	8	60.00
General Lighting	3	0.10	0.30	8	2.40
Total power requirement/ day (Kw)				10.80	
No. of days/year (Plant operation is seasonal)			150		
Rate per unit (Rs)			5.00		
Expenses on power per annum at 100% capacity (Rs)			8100		

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

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	1	8000	96000
Skilled workers	1	5000	60000
Semi skilled workers	2	4000	96000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			432000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 15% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	4.03	1%	0.04
Machinery & Equipment	2.04	2%	0.04
Misc. Fixed assets	1.20	2%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.11

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% 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	4.03	3.34%	0.13
Machinery & Equipment	2.04	7.07%	0.14
Misc. Fixed assets	1.20	6.23%	0.07
<b>TOTAL</b>	<b>6.44</b>		<b>0.35</b>

**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	6.15	5.79	4.34	2.90	1.45
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.67	4.22	2.78	1.33
Month 2	Opening balance	6.15	5.67	4.22	2.78	1.33
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.55	4.10	2.65	1.21
Month 3	Opening balance	6.15	5.55	4.10	2.65	1.21
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.43	3.98	2.53	1.09
Month 4	Opening balance	6.15	5.43	3.98	2.53	1.09
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.31	3.86	2.41	0.97
Month 5	Opening balance	6.15	5.31	3.86	2.41	0.97
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.19	3.74	2.29	0.84
Month 6	Opening balance	6.15	5.19	3.74	2.29	0.84
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.02	0.01
	Closing balance	6.15	5.07	3.62	2.17	0.72
Month 7	Opening balance	6.15	5.07	3.62	2.17	0.72
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.95	3.50	2.05	0.60
Month 8	Opening balance	6.15	4.95	3.50	2.05	0.60
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.83	3.38	1.93	0.48
Month 9	Opening balance	6.15	4.83	3.38	1.93	0.48
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.71	3.26	1.81	0.36
Month 10	Opening balance	6.15	4.71	3.26	1.81	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.03	4.59	3.14	1.69	0.24
Month 11	Opening balance	6.03	4.59	3.14	1.69	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12

	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.91	4.46	3.02	1.57	0.12
Month 12	Opening balance	5.91	4.46	3.02	1.57	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.79	4.34	2.90	1.45	0.00
	Principal Repayment	0.36	1.45	1.45	1.45	1.45
	Interest	0.49	0.41	0.29	0.18	0.06

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.55	1.37	2.37	2.42	2.47	
Depreciation	0.35	0.35	0.35	0.35	0.35	
Interest	0.49	0.41	0.29	0.18	0.06	
Total	3.39	2.13	3.02	2.95	2.88	14.38
Interest	0.49	0.41	0.29	0.18	0.06	
Loan repayment	0.36	1.45	1.45	1.45	1.45	
Total	0.85	1.86	1.74	1.63	1.51	7.59
DSCR	3.98	1.15	1.73	1.82	1.91	

Average DSCR = 1.89

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	16.88	19.69	22.50
B. Variable cost			
Raw materials & consumables	10.90	12.72	14.53
Power	0.05	0.06	0.06
Other expenses	0.08	0.10	0.11
Total variable cost	11.03	12.87	14.71
C. Contribution (A-B)	5.84	6.81	7.79
D. Fixed & Semi-fixed Costs			
Salary	4.32	4.36	4.41
Repair & maintenance	0.11	0.12	0.14
Interest on Term Loan	0.49	0.41	0.29
Depreciation	0.35	0.35	0.35
Total fixed cost	5.27	5.25	5.19
E. BREAK EVEN POINT	90.20%	77.01%	66.69%
F. BEP at operating capacity	54.12%	53.91%	53.35%
G. Cash BEP	50.49%	50.27%	49.72%

**9.0 INTERNAL RATE OF RETURN (IRR)**

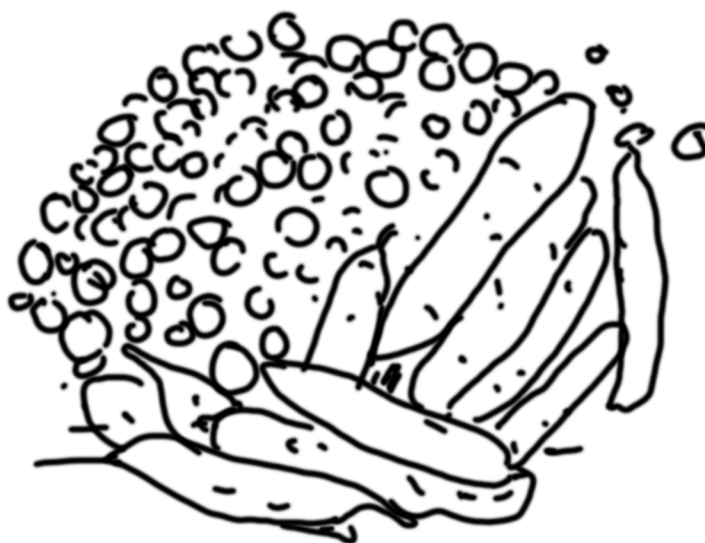
Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	7.49	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.14	-2.14	0.00	0.00	0.00
Total (A)	7.49	2.14	-2.14	0.00	0.00	0.00
<b>CASH INFLOW</b>						
Profit After Tax		2.55	1.37	2.37	2.42	2.47
Add: Depreciation		0.35	0.35	0.35	0.35	0.35
Add: Interest		0.49	0.41	0.29	0.18	0.06
Add: Salvage Value						
Total (B)	0.00	3.39	2.13	3.02	2.95	2.88
<b>NET FLOW (B-A)</b>	-7.49	1.25	4.28	3.02	2.95	2.88

IRR = 25%

**MACHINERY SUPPLIERS**

- (a) Suan Scientific Instruments & Equipments , Enterprises  
P-814, Ground Floor, Block-A, Lake Town, , Kolkata, West Bengal -700089, India
- (b) Banjosh  
2352, Overseas Apartment, F-9, Sector 50, Noida, Uttar Pradesh -201305, India
- (c) D. K. Barry & Co. (P) Ltd., New Delhi  
11/35, West Punjabi Bagh, New Delhi, Delhi -110026, India

# DEHYDRATED GREEN PEAS



## 1.0 INTRODUCTION

Green peas are available for around 5 months during winter season only. They are used for making vegetables, as additives in certain vegetables and for making several snack preparations. Hence, if they are made available even during off-season, there is a good market for them. There is a fairly large market for dehydrated peas in urban and semi-urban areas if the prices are reasonable. A small scale unit with lower overheads can offer competitive prices. Marketing would play a critical role. Likewise, the promoters should have adequate financial resources as the finished good stock of around 5-6 months shall have to be stored.

Like any other green vegetable, green peas are available for around 4-5 months only. In view of their demand round the year, they can be preserved with the help of dehydration process and sold during off-season. It is also possible to produce powder which has got good market prospects. But this note considers only dehydration of green peas.

This project profile is for setting up of a Dehydrated Pea production unit with installed capacity of 37.50 MT per annum of dehydrated pea.

## 2.0 MARKET POTENTIAL

Indians generally prefer green and fresh vegetables but they are available only during seasons. Dehydration technique preserves them for few months and the original taste, flavour and colour is also retained. Green peas are very popular and they are used along with other vegetables in many vegetarian and continental dishes. Many fast food and snack items also include green peas. Thus apart from household demand, there is a continuous demand from restaurants, dhabas, caterers and canteens.

## 3.0 PROCESS DETAILS

Fresh, sound and green pea pods are thoroughly washed in water and then pea seeds are separated and cleaned with the help of pea powder. Then they are pricked as pricking facilitates quick and uniform drying of peas. Then they are blanched and sulphited to retain colour, taste and texture in the final product. Blanched peas are then dried in a drier wherein moisture is reduced to 7-8%. Drying time is around 3 hours. Finally dried peas are graded and packed. On an average, the process and weight loss is 75%.

**4.0 COST OF THE PROJECT**

The estimated project cost is given below.

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	7.43
Machinery & Equipment	7.68
Misc. Fixed Assets	1.70
Preliminary & Pre-operative Expenses	0.77
Contingencies & Escalation @ 3%	0.50
Working Capital	1.56
<b>TOTAL</b>	<b>19.64</b>

**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 (Brick wall, CGI sheet roofings, Concrete Floor)	150	4500	675000
Add: Electrification, water supply, etc @ 10%			67500
<b>TOTAL</b>			<b>742500</b>
<b>Say (Rs. in lacs)</b>			<b>7.43</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Pea Podder	1	75000	75000
Peas Pricking Machine	1	80000	80000
Blanching Tank with Thermostat Control	1	100000	100000
Fluidized Bed Dryer with accessories	1	175000	175000
Hot Water Boiler	1	60000	60000
Washing Tanks	2	20000	40000
Automatic Form, Fill and Seal Machine	1	100000	100000
Weighing scales, sealing machine, etc.	LS	LS	20000
<b>Sub total</b>			<b>650000</b>
Add: Transportation, taxes, etc. @ 15%			97500
<b>TOTAL</b>			<b>767500</b>
<b>Say (Rs. in lacs)</b>			<b>7.68</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	100000	100000
40 HP power connection	LS	LS	50000
Furniture & Fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>170000</b>
<b>Say (Rs. in lacs)</b>			<b>1.70</b>

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

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.27
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.77</b>

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

	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw Materials & Consumables	7	0.11	0.13	0.15
Power	30	0.05	0.06	0.07
Salary	30	0.34	0.34	0.34
Finished Goods	15	0.45	0.50	0.55
Receivables	15	0.60	0.70	0.80
<b>Total</b>		<b>1.56</b>	<b>1.74</b>	<b>1.92</b>
Working Capital Margin in Yr 1 (100%)	1.56			

**5.0 MEANS OF FINANCE**

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

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	7.86
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	11.78
<b>TOTAL</b>	<b>100%</b>	<b>19.64</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production capacity (MT)	38	38	38	38	38
Capacity utilisation	60%	70%	80%	80%	80%
Production at capacity utilisation (MT)	23	26	30	30	30
Price/MT (Rs)	65000	65000	65000	65000	65000
Income from sales/annum (Rs lakh)	14.63	17.06	19.50	19.50	19.50
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	5.94	6.93	7.92	7.92	7.92
Power	0.63	0.73	0.84	0.84	0.84
Salary	4.11	4.15	4.19	4.23	4.27
Repair & Maintenance	0.17	0.19	0.22	0.26	0.29
Selling Expenses	0.15	0.17	0.20	0.20	0.20
Miscellaneous Expenses	0.07	0.09	0.10	0.10	0.10
Total Operating Expenses	11.06	12.26	13.46	13.53	13.61
Less: Working expenses capitalised	1.56	0.00	0.00	0.00	0.00
Operating profit	5.12	4.81	6.04	5.97	5.89
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.90	0.90	0.90	0.90	0.90



Interest on Term Loan	0.94	0.79	0.56	0.34	0.12
Net Profit	3.29	3.12	4.58	4.73	4.87
Net cash accruals	4.19	4.02	5.48	5.63	5.77
Principal Repayment	0.69	2.77	2.77	2.77	2.77

**6.1 Estimation of Production Capacity:** Production of Dehydrated Pea per annum at installed capacity is estimated as below.

Rated plant capacity (kg/day) - processing of raw material	1200
No. of months/annum (seasonal production)	5
No. of days/month	25
Total working days	125
Quantity of raw materials processed/annum (kg)	150000
Recovery of dehydrated pea from fresh pea (%)	25%
Total production/annum at installed capacity (MT)	37.50

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

Raw material (fresh pea) required at installed capacity (kg)	150000
Total quantity of raw material required (MT)	150
Price of fresh pea (Rs/MT)	5500
Expenses on raw materials at installed capacity (Rs)	825000
Add: Consumables, transportation charges, etc @ 20%	165000
Expenses on raw materials & consumables at installed capacity (Rs)	990000

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

Connected load ((kw)	30
Avg. load factor	70%
Total working days	125
Hrs/day	8
Total power consumption (kwh)	20888
Rate per unit (Rs)	5
Expenses on power per annum at installed capacity (Rs)	104440

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

Particulars of Employees	Numbers	Salary/Month (Rs)	No. of months	Cost/annum (Rs)
Manager	Self	0	0	0
Machine Operators	3	5000	12	180000
Salesperson	2	4000	12	96000
Helpers	2	3000	12	72000
Casual workers	5	2500	5	62500
Expenses on salary in the 1st year (Rs)				410500

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 15% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	7.43	1%	0.07
Machinery & Equipment	7.68	1%	0.08
Misc. Fixed Assets	1.70	1%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.17

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Misc. expenses have been assumed at 0.5% 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	7.43	3.34%	0.25
Machinery & Equipment	7.68	7.07%	0.54
Misc. Fixed Assets	1.70	6.23%	0.11
TOTAL			0.90

**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	11.78	11.09	8.32	5.55	2.77
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest (8%)	0.08	0.07	0.06	0.04	0.02
	Closing balance	11.78	10.86	8.09	5.31	2.54
Month 2	Opening balance	11.78	10.86	8.09	5.31	2.54
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.07	0.05	0.04	0.02
	Closing balance	11.78	10.63	7.86	5.08	2.31
Month 3	Opening balance	11.78	10.63	7.86	5.08	2.31
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.07	0.05	0.03	0.02
	Closing balance	11.78	10.40	7.63	4.85	2.08
Month 4	Opening balance	11.78	10.40	7.63	4.85	2.08
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.07	0.05	0.03	0.01
	Closing balance	11.78	10.17	7.39	4.62	1.85
Month 5	Opening balance	11.78	10.17	7.39	4.62	1.85
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.07	0.05	0.03	0.01
	Closing balance	11.78	9.94	7.16	4.39	1.62
Month 6	Opening balance	11.78	9.94	7.16	4.39	1.62
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.07	0.05	0.03	0.01
	Closing balance	11.78	9.70	6.93	4.16	1.39
Month 7	Opening balance	11.78	9.70	6.93	4.16	1.39
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.05	0.03	0.01
	Closing balance	11.78	9.47	6.70	3.93	1.16

Month 8	Opening balance	11.78	9.47	6.70	3.93	1.16
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.04	0.03	0.01
	Closing balance	11.78	9.24	6.47	3.70	0.92
Month 9	Opening balance	11.78	9.24	6.47	3.70	0.92
	Repayment	0.00	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.04	0.02	0.01
	Closing balance	11.78	9.01	6.24	3.47	0.69
Month 10	Opening balance	11.78	9.01	6.24	3.47	0.69
	Repayment	0.23	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.04	0.02	0.00
	Closing balance	11.55	8.78	6.01	3.23	0.46
Month 11	Opening balance	11.55	8.78	6.01	3.23	0.46
	Repayment	0.23	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.04	0.02	0.00
	Closing balance	11.32	8.55	5.78	3.00	0.23
Month 12	Opening balance	11.32	8.55	5.78	3.00	0.23
	Repayment	0.23	0.23	0.23	0.23	0.23
	Interest	0.08	0.06	0.04	0.02	0.00
	Closing balance	11.09	8.32	5.55	2.77	0.00
Principal Repayment		0.69	2.77	2.77	2.77	2.77
Interest		0.94	0.79	0.56	0.34	0.12

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	3.29	3.12	4.58	4.73	4.87	
Depreciation	0.90	0.90	0.90	0.90	0.90	
Interest	0.94	0.79	0.56	0.34	0.12	
Total	5.12	4.81	6.04	5.97	5.89	27.83
Interest	0.94	0.79	0.56	0.34	0.12	
Loan repayment	0.69	2.77	2.77	2.77	2.77	
Total	1.63	3.56	3.34	3.11	2.89	14.53
DSCR	3.14	1.35	1.81	1.92	2.03	

Average DSCR = 1.91



**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	14.63	17.06	19.50
B. Variable cost			
Raw Materials & Consumables	5.94	6.93	7.92
Power	0.63	0.73	0.84
Selling Expenses	0.15	0.17	0.20
Miscellaneous Expenses	0.07	0.09	0.10
Total variable cost	6.79	7.92	9.05
C. Contribution (A-B)	7.84	9.15	10.45
D. Fixed & Semi-fixed Costs			
Salary	4.11	4.15	4.19
Repair & Maintenance	0.17	0.19	0.22
Interest on Term Loan	0.94	0.79	0.56
Depreciation	0.90	0.90	0.90
Total fixed cost	6.11	6.02	5.87
E. BREAK EVEN POINT	77.92%	65.84%	56.17%
F. BEP at operating capacity	46.75%	46.09%	44.93%
G. Cash BEP	39.89%	39.23%	38.07%

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	17.31	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.56	0.18	0.18	0.00	0.00
Total (A)	17.31	1.56	0.18	0.18	0.00	0.00
CASH INFLOW						
Profit After Tax		3.29	3.12	4.58	4.73	4.87
Add: Depreciation		0.90	0.90	0.90	0.90	0.90
Add: Interest		0.94	0.79	0.56	0.34	0.12
Add: Salvage Value (15%)						2.60
Total (B)	0.00	5.12	4.81	6.04	5.97	8.48
NET FLOW (B-A)	-17.31	3.57	4.63	5.86	5.97	8.48

IRR = 17%

## MACHINERY SUPPLIERS

- (a) Lithotech Engineers  
No. 105, Merchant Industrial Estate, No. 7, Waliv Road, Vasai Road East, Thane - 401 208, Maharashtra, India
- (b) Associated Technocrats  
R-423, TTC Rabale, Navi Mumbai - 400701, Maharashtra, India



# BRANCH OFFICES

## **Agartala**

Palace Compound, L.N.B. Road and B.K. Road  
Opp. Women's College,  
Agartala-799001, Tripura  
Telefax: 0381- 2310848

## **Aizawl**

2nd Floor, A-50, Zarkawt,  
Above Bank of Baroda,  
Aizawl-796001, Mizoram  
Ph: 0389-2347782, Fax: 0389-2347783

## **Dharmanagar**

M B Unit Complex, Rajbari,  
Dharmanagar, North Tripura-799250  
Mob: 096121-55421

## **Dimapur**

2nd Floor, 'Kuknalim', Circular Road,  
Dimapur-797112, Nagaland  
Telefax: 03862- 235030

## **Gangtok**

Near Super Market Complex Development Area,  
Gangtok-737101, Sikkim  
Telefax: 03592 208269

## **Imphal**

Babupara, Opp. Telephone Bhawan  
Imphal- 795001, Manipur  
Ph: 0385-2443385, Telefax: 0385-2445927

## **Itanagar**

NH-52A, Main Road, E-Sector,  
Itanagar-791111, Arunachal Pradesh  
Telefax: 0360-2217694

## **Kohima**

4th floor, MATO Complex  
PR Hills (Opp. Police HQ)  
Kohima-797001, Nagaland  
Ph.: 0370 2243046

## **Lunglei**

C-1/236, First Floor, Chanmari-1  
Lunglei-796701, Mizoram.  
Ph: 0372-2324274

## **Namchi**

Agam Singh Marg, Bhanyang Road, Namchi,  
South Sikkim-737126  
Mob: 095939-72217

## **Shillong**

Cresens Buildings, 1st Floor,  
Opp Main Secretariat,  
M. G. Road, Shillong-793001, Meghalaya  
Ph: 0364-2504814/ 2504815 (Telefax)

## **Silchar**

Silchar Cachar Market, 3rd Floor,  
Netaji Subhas Avenue,  
P.S. Rangirkhari, Silchar-788005  
Telefax: 03842-226707, 03842-220157

## **Tinsukia**

Satyam Trade & Tower-1,  
First Floor, S. R. Lohia Road,  
Tinsukia-786125, Assam  
Ph: 0374-2330225, Mob: 9854057430

## **Udaipur**

C/O Shanti Mohan Rakkhit,  
Ramesh Chowmuhani, Jagannath Dighi Road,  
Near Tripura Rubber Board, Udaipur,  
South Tripura-799120  
Mob: 9856034495

# REPRESENTATIVE OFFICES

## **Agia, Goalpara, Assam**

Ajagar Social Circle,  
Vill & P.O. Agai, Goalpara,  
District- Goalpara, Assam,  
Pin-783120  
Mobile- 9435725238

## **Churachandpur, Manipur**

Rural Aid Services (RAS),  
Happy Valley, Tuibuong, Opp. Oil Pump,  
Near KBC Church, Churachandpur,  
Manipur, Pin-795128.  
Mobile- 9862000469

## **Kokrajhar, Assam**

Discovery Club,  
Above BSNL Office, RNB Road,  
Ward No. 8, Kokrajhar, District- Kokrajhar BTC,  
Assam, Pin-783370  
Mobile- 9954897742/ 9954393369

## **Sivasagar, Assam**

Willforce Technology & Consultancy Pvt. Ltd.  
New KMP, A T Road,  
Sivasagar, Assam. Pin-785640  
Mobile- 9954342380/ 94350-57549

## **Tura, Meghalaya**

A-Chik Evangelical Association,  
Ringrey, Tura,  
District- West Garo Hills,  
Meghalaya, Pin-794001  
Mobile- 9436306138.  
Ph: 03651 224031

# NEDFi's Scheme's at a glance

Sl. No	Name of the scheme	Eligibility	Nature and Extent of Assistance (Max.)	Promoter's Contribution (Min.)	Interest Rate	Upfront Fees
1	PROJECT FINANCE (PF)	Project promoted by Private & Public Ltd. Company/Proprietorship or Partnership firms	Rupee Term Loan (RTL)	35-40% of the project cost	*PLR + 1-3% p.a.	1% of RTL
2	NORTH EAST ENTREPRENEURS DEVELOPMENT SCHEME (NEEDS)	Project promoted by First Generation entrepreneurs. Maximum Project cost upto Rs. 50.00 lakhs	RTL- 75% of Project Cost	25% of the total project cost	8% p.a.	1% of RTL
3	NEDFi OPPURTUNITY SCHEME FOR SMALL ENTERPRISE (NOSSE)	Project promoted by Private & Public Ltd. Company/Proprietorship or Partnership firms. Project Cost from 50.00 lakhs to 200 lakhs with or without working capital	RTL-67% of Project Cost upto a ceiling of Rs. 100 lakhs	Minimum Debt Equity Ratio= 2:1	8% p.a.	1% of RTL
4	EQUIPMENT FINANCE (EF)	Company shall be in operation profitably for last three years and of good track record	70% of the cost of equipment including taxes, transport, insurance etc.	30%	*PLR + 3% p.a.	1% of RTL
5	MICRO FINANCE (MF)	Well managed NGOs/VOs in operation for last three years with good track record	RTL	Depends on the option of the Implementing Agency	*PLR + 0.5% p.a. for served areas and 8% for un-served areas	0.75% for RTL from 10 lacs to 50 lacs & 1% for RTL 50 lacs and above
6	JUTE ENTERPRISE DEVELOPMENT SCHEME (JEDS)	Small enterprises where investment is not more than Rs. 10.00 lakhs and NGOs VOs Co-operatives	RTL- 75% of Project Cost	25% of the total project cost	8% p.a.	1% of RTL
7	WOMEN ENTERPRISE DEVELOPMENT SCHEME (WEDS)	Any viable income generating activity promoted by women within the age group of 18-50 years. Maximum Project Cost upto Rs. 15.00 lakhs	RTL- 75% of Project Cost	25% of the total project cost	8% p.a.	1% of RTL
8	SCHEME FOR NORTH EAST HANDLOOM AND HANDICRAFTS (SNEHH)	For Manufacturers/Designers/Exporters of handloom and handicrafts on proprietorship/partnership/company basis. Maximum project cost upto Rs. 25.00 lakhs	RTL- 75% of Project Cost	25% of the total project cost	8% p.a.	1% of RTL

\*PLR- 11.75% p.a. (as on 1/12/2012, subject to change at the discretion of the management)

- NEDFi financed units are given special preference to participate in fairs/exhibitions etc.
- NEDFi extends marketing support to NEDFi financed units wherever possible.
- Provides skill upgradation and trainings time to time.
- Lots of other packages/facilities available for the clients.

**North Eastern Development Finance Corporation Limited.**

"NEDFi House"

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