

RICE MILL



1.0 INTRODUCTION

Rice is the staple food for 65% of the population in India. It is the largest consumed calorie source among the food grains. With a per capita availability of 73.8 kg it meets 31% of the total calorie requirement of the population. India is the second largest producer of rice in the world next to China. The all India area, production and yield of rice in the year 2010-11 was 36.95 million hectares, 80.41 million tonnes and 2177 kg/ha respectively. In India paddy occupies the first place in both area and production.

India is also one of the leading exporters of rice in the world market. Indian Basmati Rice has been favorite among international rice buyers. This provides us with ample opportunity for development of rice based value-added products for earning more foreign exchange. Apart from rice milling, processing of rice bran for oil extraction is also an important agro processing activity for value addition, income and employment generation.

This project profile is for setting up of a 800 MT capacity Mini Rice Mill with the objective of buying paddy directly from the farmers during the production season and sale them throughout the year to bulk buyers.

2.0 MARKET POTENTIAL

The mini rice mill gives the same yield as a modern rice mill. Rice being the staple food for the majority population, no problem is envisaged in marketing. Besides, the mill can be utilised as a service unit for custom milling. Rice

bran, which is a by-product, is a source of valuable edible oil. The compactness of the unit, its low cost and above advantages enable installation of a number of units in all the paddy growing areas and should result in significant cost advantage to mini rice mill owners.

The demand for any food product is always there particularly if it is a regular diet item like Rice or wheat. It is an essential for survival. It is consumed by all the members of the population may be either in fine costly variety by rich or the coarse cheap variety by the poor. The demand for rice will always be there so long the humanity survives.

3.0 PROCESS DETAILS

Paddy in its raw form cannot be consumed by human beings. It needs to be suitably processed for obtaining rice. Rice milling is the process, which helps in removal of hulls and barns from paddy grains to produce polished rice. Rice forms the basic primary processed product obtained from paddy and this is further processed for obtaining various secondary and tertiary products.

The basic rice milling processes consist of:

- a. Pre Cleaning: Removing all impurities and unfilled grains from paddy.
- b. De-stoning: Separating small stones from paddy.
- c. Parboiling (Optional): Helps in improving the

nutritional quality by gelatinization of starch inside the rice grain. It improves the milling recovery percent during deshelling and polishing/whitening operation.

d. Husking: Removing husk from paddy.

e. Husk Aspiration: Separating the husk from brown rice/unhusked paddy.

f. Paddy Separation: Separating the unhusked paddy from brown rice.

g. Whitening: Removing all or part of the bran layer and germ from brown rice.

h. Polishing: Improving the appearance of milled rice by removing the remaining bran particles and by polishing the exterior of the milled kernel.

i. Length Grading: Separating small and large brokens from head rice.

j. Blending: Mixing head rice with predetermined amount of brokens, as required by the customer.

k. Weighing and bagging: Preparing the milled rice for transport to the customer.

Particulars	Amount (Rs lacs)
Land and Site Development	-
Building & Civil Works	8.25
Machinery & Equipment	3.57
Misc. Fixed Assets	2.70
Preliminary & Pre-operative Expenses	0.75
Contingencies & Escalation @ 3%	0.44
Working Capital	7.35
TOTAL	23.05

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 and Go-down (Brick wall, CGI sheet roof, Concrete Floor)	150	5000	750000
Add: Electrification, etc @ 10%			75000
TOTAL			825000
Say (Rs. in lacs)			8.25

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Mini rice mill consisting of Cleaner, Sheller, Separator & Polisher with accessories	1	300000	300000
Miscellaneous items like weighing scales, etc.	LS	LS	10000
Sub total			310000
Add: Transportation, installation, taxes, etc. @ 15%			46500
TOTAL			356500
Say (Rs. in lacs)			3.57

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 pump set, storage, pipes & fittings)	1	75000	75000
20 kva transformer including installation	1	150000	150000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
Sub total			245000
Add: Transportation, installation, taxes, etc. @ 10%			24500
TOTAL			269500
Say (Rs. in lacs)			2.70

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	0.25
Miscellaneous expenses	0.10
TOTAL	0.75

4.6 Contingencies & Escalation: Contingencies & escalation has been assumed at 3% of the cost of land & site development, 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	30	5.43	6.52	7.60
Power	30	0.05	0.06	0.06
Salary	30	0.42	0.43	0.43
Finished Goods	30	5.96	7.07	8.18
Receivables	30	6.51	7.81	9.11
Total		18.37	21.88	25.40
Working capital margin in Yr 1 (40%)	7.35			

5.0 MEANS OF FINANCE

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

Particulars	Percent	Amount (Rs lacs)
EQUITY		
A. Equity from Promoters	40%	9.22
B. Subsidy from Central/State Govt.	-	
DEBT		
Term Loan from Banks/Fis	60%	13.83
TOTAL	100%	23.05

6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
A. INCOME							
Production capacity (MT)							
(i) Rice	640	640	640	640	640	640	640
(ii) Husk/bran	120	120	120	120	120	120	120

Capacity utilisation	50%	60%	70%	70%	70%	70%	70%
Production at CU							
(i) Rice	320	384	448	448	448	448	448
(ii) Husk/bran	60	72	84	84	84	84	84
Price of rice (Rs/MT)	24000	24000	24000	24000	24000	24000	24000
Price of husk/bran (Rs/MT)	4000	4000	4000	4000	4000	4000	4000
Income from sale of rice	76.80	92.16	107.52	107.52	107.52	107.52	107.52
Income from sale of husk/bran	2.40	2.88	3.36	3.36	3.36	3.36	3.36
Total income/annum	79.20	95.04	110.88	110.88	110.88	110.88	110.88
B. OPERATING EXPENSES							
Raw materials & consumables	66.07	79.28	92.49	92.49	92.49	92.49	92.49
Power	0.56	0.67	0.78	0.78	0.78	0.78	0.78
Salary	5.16	5.21	5.26	5.32	5.37	5.42	5.48
Repair & Maintenance	0.21	0.23	0.25	0.28	0.30	0.33	0.37
Selling Expenses	0.40	0.48	0.55	0.55	0.55	0.55	0.55
Miscellaneous Expenses	0.15	0.18	0.22	0.22	0.22	0.22	0.22
Total Operating Expenses	72.54	86.05	99.56	99.64	99.72	99.80	99.89
Less: Working expenses capitalised	7.35	0.00	0.00	0.00	0.00	0.00	0.00
Operating profit	14.01	8.99	11.32	11.24	11.16	11.08	10.99
C. FINANCIAL EXPENSES							
Depreciation	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Interest on Term Loan	1.10	0.98	0.80	0.63	0.45	0.27	0.10
Interest on WC Loan	1.76	2.10	2.44	2.44	2.44	2.44	2.44
Net Profit	10.44	5.21	7.38	7.48	7.58	7.67	7.76
Net cash accruals	11.14	5.91	8.08	8.18	8.27	8.37	8.45
Principal Repayment	0.55	2.21	2.21	2.21	2.21	2.21	2.21

6.1 Estimation of Production Capacity: Production of Rice and Husk/ Bran per annum at installed capacity is estimated as below.

Plant Capacity (kg/hr of paddy)	500
No. of working hrs/ day	8
No. of days/annum (seasonal)	200
Quantity of raw materials processed/annum (MT)	800
Recovery of rice from paddy (%)	80%
Recovery of husk/bran from paddy (%)	15%
Total production/annum of rice at 100% capacity (MT)	640
Total production/annum of husk/bran at 100% capacity (MT)	120

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

Raw material (paddy) required at 100% capacity (MT)	800
Add: Provision for spoilage at 0.1%	0.80
Total quantity of raw material required (MT)	801
Price of paddy (Rs/MT)	15000
Expenses on paddy at 100% capacity (Rs)	12012000
Add: Consumables, packing materials, etc @ 10%	1201200
Expenses on raw materials & consumables at 100% capacity (Rs)	13213200

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

Connected load (kw)	20
Avg load factor	70%
Hrs/day	8
Days/annum	200
Annual power consumption (kwh)	22400
Rate per unit (Rs)	5
Expenses on power per annum at 100% capacity (Rs)	112000

6.4 Salary: Expenses on salary in the 1st 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	10000	120000
Skilled workers/machine operators	2	5000	120000
Sales Staff	2	4000	96000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			516000

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

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	8.25	1%	0.08
Machinery & Equipment	3.57	2%	0.07
Misc. Fixed Assets	2.70	2%	0.05
Expenses on repair & maintenance in the 1st year (Rs)			0.21

6.6 Selling Expenses: Selling expenses have been assumed at 0.5% of sales.**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.2% 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	8.25	3.34%	0.28
Machinery & Equipment	3.57	7.07%	0.25
Misc. Fixed Assets	2.70	6.23%	0.17
TOTAL			0.70

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

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	13.83	13.28	11.06	8.85	6.64	4.43	2.21
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest (8%)	0.09	0.09	0.07	0.06	0.04	0.03	0.01
	Closing balance	13.83	13.09	10.88	8.67	6.45	4.24	2.03
Month 2	Opening balance	13.83	13.09	10.88	8.67	6.45	4.24	2.03
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.09	0.07	0.06	0.04	0.03	0.01
	Closing balance	13.83	12.91	10.69	8.48	6.27	4.06	1.84
Month 3	Opening balance	13.83	12.91	10.69	8.48	6.27	4.06	1.84
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.09	0.07	0.06	0.04	0.03	0.01
	Closing balance	13.83	12.72	10.51	8.30	6.08	3.87	1.66

Month 4	Opening balance	13.83	12.72	10.51	8.30	6.08	3.87	1.66
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.06	0.04	0.03	0.01
	Closing balance	13.83	12.54	10.33	8.11	5.90	3.69	1.48
Month 5	Opening balance	13.83	12.54	10.33	8.11	5.90	3.69	1.48
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	Closing balance	13.83	12.35	10.14	7.93	5.72	3.50	1.29
Month 6	Opening balance	13.83	12.35	10.14	7.93	5.72	3.50	1.29
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	Closing balance	13.83	12.17	9.96	7.74	5.53	3.32	1.11
Month 7	Opening balance	13.83	12.17	9.96	7.74	5.53	3.32	1.11
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	Closing balance	13.83	11.98	9.77	7.56	5.35	3.13	0.92
Month 8	Opening balance	13.83	11.98	9.77	7.56	5.35	3.13	0.92
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	Closing balance	13.83	11.80	9.59	7.38	5.16	2.95	0.74
Month 9	Opening balance	13.83	11.80	9.59	7.38	5.16	2.95	0.74
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	Closing balance	13.83	11.62	9.40	7.19	4.98	2.77	0.55
Month 10	Opening balance	13.83	11.62	9.40	7.19	4.98	2.77	0.55
	Repayment	0.18	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	Closing balance	13.64	11.43	9.22	7.01	4.79	2.58	0.37
Month 11	Opening balance	13.64	11.43	9.22	7.01	4.79	2.58	0.37
	Repayment	0.18	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	Closing balance	13.46	11.25	9.03	6.82	4.61	2.40	0.18
Month 12	Opening balance	13.46	11.25	9.03	6.82	4.61	2.40	0.18
	Repayment	0.18	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.07	0.06	0.05	0.03	0.02	0.00
	Closing balance	13.28	11.06	8.85	6.64	4.43	2.21	0.00
Principal Repayment		0.55	2.21	2.21	2.21	2.21	2.21	2.21
Interest		1.10	0.98	0.80	0.63	0.45	0.27	0.10

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)

Particulars	Year 1	Year 2	Year 3
Total current assets	18.37	21.88	25.40
Bank Loan (60%)	11.02	13.13	15.24
Interest @ 16%	1.76	2.10	2.44

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7	TOTAL
Profit After Tax (Net Profit)	10.44	5.21	7.38	7.48	7.58	7.67	7.76	
Depreciation	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Interest	1.10	0.98	0.80	0.63	0.45	0.27	0.10	
Total	12.24	6.89	8.88	8.80	8.72	8.64	8.55	62.73
Interest	1.10	0.98	0.80	0.63	0.45	0.27	0.10	
Loan repayment	0.55	2.21	2.21	2.21	2.21	2.21	2.21	
Total	1.66	3.19	3.02	2.84	2.66	2.49	2.31	18.16
DSCR	7.39	2.16	2.94	3.10	3.28	3.48	3.70	

Average DSCR = 3.45

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales (Rs. lakh)	79.20	95.04	110.88
B. Variable cost			
Raw materials & consumables	66.07	79.28	92.49
Power	0.56	0.67	0.78
Other expenses	0.15	0.18	0.22
Total variable cost	66.78	80.14	93.49
C. Contribution (A-B)	12.42	14.90	17.39
D. Fixed & Semi-fixed Costs			
Salary	5.16	5.21	5.26
Repair & maintenance	0.21	0.23	0.25
Interest on Term Loan	1.10	0.98	0.80
Depreciation	0.70	0.70	0.70
Total fixed cost	7.17	7.12	7.01
E. BREAK EVEN POINT	57.70%	47.75%	40.34%
F. BEP at operating capacity	28.85%	28.65%	28.24%
G. Cash BEP	26.05%	25.85%	25.44%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5	6	7
CASH OUTFLOW								
Capital Expenditure	14.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital		21.88	3.51	3.51	0.00	0.00	0.00	0.00
Total (A)	14.95	21.88	3.51	3.51	0.00	0.00	0.00	0.00
CASH INFLOW								
Profit After Tax		10.44	5.21	7.38	7.48	7.58	7.67	7.76
Add: Depreciation		0.70	0.70	0.70	0.70	0.70	0.70	0.70
Add: Interest		1.10	0.98	0.80	0.63	0.45	0.27	0.10
Add: Salvage Value (10%)								1.50
Total (B)	0.00	12.24	6.89	8.88	8.80	8.72	8.64	10.05
NET FLOW (B-A)	-14.95	-9.64	3.38	5.37	8.80	8.72	8.64	10.05

IRR = 15%

MACHINERY SUPPLIERS

- (a) Rising Industries
Teghoria Loknath Mandir, Jhowtala, Ghosh Dutta Para, Near Honda Service Center,
Tanushree Apartment, Kolkata - 700157, West Bengal, India
- (b) Durga Bhawani Enterprises
Vikram Vihar, D-Block, Shop No. 6, Opposite Jain Hospital, No. 493B/18, G. T. Road South,
Shibpur, Howrah - 711102, West Bengal, India
- (c) Technocraft
5- B, Kundu Lane, Belgachia, Kolkata - 700 037, West Bengal, India

