

# **PROJECT REPORT**

## **Of**

### **RICE HUSK PARTICLE BOARD MANUFACTURING UNIT**

#### **PURPOSE OF THE DOCUMENT**

This particular pre-feasibility is regarding Rice Husk Particle Board Manufacturing Unit.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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## PROJECT AT GLANCE

<b>1 Name of Proprietor/Director</b>	XXXXXXXXXX
<b>2 Firm Name</b>	XXXXXXXXXX
<b>3 Registered Address</b>	XXXXXXXXXX
<b>4 Nature of Activity</b>	XXXXXXXXXX
<b>5 Category of Applicant</b>	XXXXXXXXXX
<b>6 Location of Unit</b>	XXXXXXXXXX
<b>7 Cost of Project</b>	36.94 Rs. In Lakhs
<b>8 Means of Finance</b>	
<b>i) Own Contribution</b>	3.69 Rs. In Lakhs
<b>ii) Term Loan</b>	29.25 Rs. In Lakhs
<b>iii) Working Capital</b>	4.00 Rs. In Lakhs
<b>9 Debt Service Coverage Ratio</b>	2.12
<b>10 Break Even Point</b>	0.25
<b>11 Power Requirement</b>	30 KW
<b>12 Employment</b>	13 Persons
<b>13 Major Raw Materials</b>	Rice husk, Adhesive Resins etc .
<b>14 Details of Cost of Project &amp; Means of Finance</b>	

<b>Cost of Project</b>		<b>Amount in Lacs</b>
<b>Particulars</b>		<b>Amount</b>
Land	Owned/Rented	
Building & Civil Work	Owned/Rented	
Plant & Machinery		30.00
Furniture & Fixture		1.00
Other Misc Assets		1.50
Working Capital Requirement		4.44
<b>Total</b>		<b>36.94</b>

<b>Means of Finance</b>		
<b>Particulars</b>		<b>Amount</b>
Own Contribution 10%		3.69
Term Loan 90%		29.25
Working capital Loan		4.00
<b>Total</b>		<b>36.94</b>

# **RICE HUSK PARTICLE BOARD**

## **MANUFACTURING UNIT**

### **1. INTRODUCTION**

Rice husk is an agricultural residue. The outer layer of the paddy grain is the rice husk. It is also called rice hull. It is separated from the brown rice in rice mills. Rice husk is produced in the first step in the milling process when the husk is removed from the grain. Around 20% of the paddy weight is husk.

India being an agricultural country, produces tons of rice husk as a by-product every year. This is generally discarded or used as cattle feed. Rice husk is taken as a waste product from rice mills and its properties are determined and checked according to the requirements of the particle board. Rice husk board has a distinct edge over wood-based boards because rice husk is in itself decay resistant. This board has emerged as a versatile substitute for wood in a wide range of applications. Moreover, these boards can also be made decorative. Rice husk particle boards can be manufactured in various densities, thickness and grades to suit wide range of applications. Various different properties of rice husk particle board are:

- Fire Resistance
- Water Resistance
- Termite Resistance
- Decay Resistance
- Borer Resistance



## **2. MARKET POTENTIAL**

The rice husk board is a new product and requires considerable efforts in introducing it into the market. The boards, first introduced in the form of finished product, were later converted into doors, windows and used wherever possible. The boards were also used in partitioning, false ceiling, etc. Also a number of new products were developed to suit the varied applications. The acceptance of the product is increasing day by day. Presently, the boards are marketed through converters who directly use the boards to manufacture finish product. There is a huge demand of particle board in India and all over the world. Particle board market growing very fast. Due to growing deforestation there is bright future of particle board.

### **3. PRODUCT DESCRIPTION**

#### **3.1 PRODUCT USES**

Some of the uses of rice husk particle board are:

- Wall Paneling: Medium density boards, both plain and overlaid decorative in any thickness, can be used as wall panels in any situation without fear of decay, insect or termite attack.
- Doors, furniture, windows and table tops: Plain and overlaid decorative medium density boards can be used instead of wood-based boards.
- Insulation: Low density boards can be used as thermal insulation material in refrigeration and containers.
- General Purpose: These boards are ideally suited for high technological applications such as audio-speakers, air-conditioner decks, auditorium, etc.

#### **3.2 RAW MATERIAL REQUIREMENT**

The major raw materials are as follows:

3.2.1 Rice husk

3.2.2 Adhesive Resins

### **3.3 MANUFACTURING PROCESS**

The process of manufacture of rice husk board includes, cleaning of husk as received from the rice mills, wind shifting to remove dirt and stones. The cleaned rice husk is coated with adhesive in a specially designed resin blender. The coated rice husk is spread on mild steel cauls sheets as an even mat. The process is called mat forming. These mats are transferred to hot hydraulic press. The platen of the hydraulic press is heated to desired temperatures and specific pressure is applied for a predetermined period. The boards are taken out from the press and the edges are trimmed to the desired dimensions. The boards may be sanded to obtain smooth finish.

#### **Flow Chart:**

- Procurement of Rice Husk
- Cleaning/Winnowing
- Mixer (Resin)
- Mat Formation
- Hot Pressing
- Edge Trimming, sanding, finishing, etc.
- Staking
- Dispatch

## **4. PROJECT COMPONENTS**

### **4.1 Plant & Machinery**

<b>S.N.</b>	<b>Description</b>
1	Sieve Separator
2	Paddle Mixer
3	Mat Forming Machine
4	Hot Press
5	Edge Trimming Machine
6	Cut-off Machine
7	Boards staking Machine
8	Material handling & other equipment's (Silos, storage tanks, weighing machine, water pump, bins, trolleys, etc.)

<b>PROJECTED PROFITABILITY STATEMENT</b>						<b>(in Lacs)</b>
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>	
Capacity Utilisation %	<b>30%</b>	<b>35%</b>	<b>40%</b>	<b>45%</b>	<b>50%</b>	
<b><u>SALES</u></b>						
<b>Gross Sale</b>						
RICE HUSK PARTICLE BOARD	73.08	91.96	109.94	129.12	149.50	
<b>Total</b>	<b>73.08</b>	<b>91.96</b>	<b>109.94</b>	<b>129.12</b>	<b>149.50</b>	
<b><u>COST OF SALES</u></b>						
Raw Material Consumed	34.20	42.00	50.40	59.40	69.00	
Electricity Expenses	1.89	2.65	3.02	3.40	3.78	
Depreciation	4.83	4.11	3.49	2.97	2.53	
Wages & labour	12.96	14.26	15.68	17.25	19.84	
Repair & maintenance	1.53	2.76	3.30	3.62	4.19	
Consumables	1.46	2.57	3.63	4.26	4.93	
Packaging	1.61	2.57	3.52	5.16	5.98	
<b>Cost of Production</b>	<b>58.48</b>	<b>70.92</b>	<b>83.04</b>	<b>96.07</b>	<b>110.25</b>	
<b>Add: Opening Stock</b>	<b>-</b>	<b>1.95</b>	<b>2.36</b>	<b>2.77</b>	<b>3.20</b>	
<b>Less: Closing Stock</b>	<b>1.95</b>	<b>2.36</b>	<b>2.77</b>	<b>3.20</b>	<b>3.67</b>	
Cost of Sales	56.53	70.50	82.64	95.63	109.78	
<b>GROSS PROFIT</b>	<b>16.55</b>	<b>21.46</b>	<b>27.30</b>	<b>33.49</b>	<b>39.72</b>	
<b>Gross Profit Ratio</b>	<b>22.65%</b>	<b>23.33%</b>	<b>24.83%</b>	<b>25.93%</b>	<b>26.57%</b>	
Salary to Staff	6.36	7.63	8.78	10.09	11.61	
Interest on Term Loan	2.87	2.53	1.82	1.10	0.39	
Interest on working Capital	0.44	0.44	0.44	0.44	0.44	
Rent	2.40	2.76	3.17	3.65	4.20	
Selling & Administrative Exp.	0.73	1.10	1.65	2.32	2.69	
<b>TOTAL</b>	<b>12.81</b>	<b>14.47</b>	<b>15.86</b>	<b>17.61</b>	<b>19.32</b>	
NET PROFIT	3.74	6.99	11.44	15.88	20.40	
Taxation	0.06	0.22	0.77	1.21	2.31	
PROFIT (After Tax)	3.68	6.77	10.67	14.66	18.09	
<b>Net Profit Ratio</b>	<b>5.04%</b>	<b>7.36%</b>	<b>9.71%</b>	<b>11.36%</b>	<b>12.10%</b>	

**PROJECTED BALANCE SHEET****(in Lacs)**

<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
<b><u>Liabilities</u></b>					
<b>Capital</b>					
Opening balance		4.58	7.84	14.02	22.38
Add: - Own Capital	3.69				
Add: - Retained Profit	3.68	6.77	10.67	14.66	18.09
Less: - Drawings	2.80	3.50	4.50	6.30	8.00
<b>Closing Balance</b>	<b>4.58</b>	<b>7.84</b>	<b>14.02</b>	<b>22.38</b>	<b>32.47</b>
Term Loan	26.00	19.50	13.00	6.50	-
Working Capital Limit	4.00	4.00	4.00	4.00	4.00
Sundry Creditors	1.71	2.10	2.52	2.97	3.45
Provisions & Other Liability	1.00	1.30	1.56	1.87	2.25
<b>TOTAL:</b>	<b>37.29</b>	<b>34.74</b>	<b>35.10</b>	<b>37.72</b>	<b>42.17</b>
<b><u>Assets</u></b>					
<b>Fixed Assets (Gross)</b>					
Gross Dep.	4.83	8.93	12.43	15.40	17.93
<b>Net Fixed Assets</b>	<b>27.68</b>	<b>23.57</b>	<b>20.07</b>	<b>17.10</b>	<b>14.57</b>
<b>Current Assets</b>					
Sundry Debtors	3.65	4.60	5.50	6.46	7.48
Stock in Hand	3.09	3.76	4.45	5.18	5.97
Cash and Bank	2.07	1.81	3.58	6.98	11.85
Loans & Advances	0.80	1.00	1.50	2.00	2.30
<b>TOTAL:</b>	<b>37.29</b>	<b>34.74</b>	<b>35.10</b>	<b>37.72</b>	<b>42.17</b>

<b>PROJECTED CASH FLOW STATEMENT</b>					<b>(in Lacs)</b>
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
<b><u>SOURCES OF FUND</u></b>					
Own Margin	3.69				
Net Profit	3.74	6.99	11.44	15.88	20.40
Depreciation & Exp. W/off	4.83	4.11	3.49	2.97	2.53
Increase in Cash Credit	4.00	-	-	-	-
Increase In Term Loan	29.25	-	-	-	-
Increase in Creditors	1.71	0.39	0.42	0.45	0.48
Increase in Provisions & Oth liabilities	1.00	0.30	0.26	0.31	0.37
	-				
<b>TOTAL:</b>	<b>48.22</b>	<b>11.79</b>	<b>15.62</b>	<b>19.61</b>	<b>23.79</b>
<b><u>APPLICATION OF FUND</u></b>					
Increase in Fixed Assets	32.50				
Increase in Stock	3.09	0.67	0.68	0.73	0.79
Increase in Debtors	3.65	0.94	0.90	0.96	1.02
Repayment of Term Loan	3.25	6.50	6.50	6.50	6.50
Loans & Advances	0.80	0.20	0.50	0.50	0.30
Drawings	2.80	3.50	4.50	6.30	8.00
Taxation	0.06	0.22	0.77	1.21	2.31
<b>TOTAL:</b>	<b>46.16</b>	<b>12.04</b>	<b>13.85</b>	<b>16.21</b>	<b>18.92</b>
Opening Cash & Bank Balance	-	2.07	1.81	3.58	6.98
Add : Surplus	2.07	-0.26	1.76	3.41	4.87
Closing Cash & Bank Balance	<b>2.07</b>	<b>1.81</b>	<b>3.58</b>	<b>6.98</b>	<b>11.85</b>

<b>CALCULATION OF D.S.C.R.</b>					
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
CASH ACCRUALS	8.51	10.87	14.17	17.64	20.62
Interest on Term Loan	2.87	2.53	1.82	1.10	0.39
<b>Total</b>	<b>11.38</b>	<b>13.40</b>	<b>15.99</b>	<b>18.74</b>	<b>21.01</b>
<b>REPAYMENT</b>					
Instalment of Term Loan	3.25	6.50	6.50	6.50	6.50
Interest on Term Loan	2.87	2.53	1.82	1.10	0.39
<b>Total</b>	<b>6.12</b>	<b>9.03</b>	<b>8.32</b>	<b>7.60</b>	<b>6.89</b>
<b>DEBT SERVICE COVERAGE RATIO</b>	<b>1.86</b>	<b>1.48</b>	<b>1.92</b>	<b>2.47</b>	<b>3.05</b>
<b>AVERAGE D.S.C.R.</b>					<b>2.12</b>

**REPAYMENT SCHEDULE OF TERM LOAN**

Interest 11.00%

<b>Year</b>	<b>Particulars</b>	<b>Amount</b>	<b>Addition</b>	<b>Total</b>	<b>Interest</b>	<b>Repayment</b>	<b>Closing Balance</b>
<b>1st</b>	Opening Balance						
	1st month	-	29.25	29.25	-	-	29.25
	2nd month	29.25	-	29.25	0.27	-	29.25
	3rd month	29.25	-	29.25	0.27	-	29.25
	4th month	29.25	-	29.25	0.27		29.25
	5th month	29.25	-	29.25	0.27		29.25
	6th month	29.25	-	29.25	0.27		29.25
	7th month	29.25	-	29.25	0.27	0.54	28.71
	8th month	28.71	-	28.71	0.26	0.54	28.17
	9th month	28.17	-	28.17	0.26	0.54	27.63
	10th month	27.63	-	27.63	0.25	0.54	27.08
	11th month	27.08	-	27.08	0.25	0.54	26.54
	12th month	26.54	-	26.54	0.24	0.54	26.00
					<b>2.87</b>	<b>3.25</b>	
<b>2nd</b>	Opening Balance						
	1st month	26.00	-	26.00	0.24	0.54	25.46
	2nd month	25.46	-	25.46	0.23	0.54	24.92
	3rd month	24.92	-	24.92	0.23	0.54	24.38
	4th month	24.38	-	24.38	0.22	0.54	23.83
	5th month	23.83	-	23.83	0.22	0.54	23.29
	6th month	23.29	-	23.29	0.21	0.54	22.75
	7th month	22.75	-	22.75	0.21	0.54	22.21
	8th month	22.21	-	22.21	0.20	0.54	21.67
	9th month	21.67	-	21.67	0.20	0.54	21.13
	10th month	21.13	-	21.13	0.19	0.54	20.58
	11th month	20.58	-	20.58	0.19	0.54	20.04
	12th month	20.04	-	20.04	0.18	0.54	19.50
					<b>2.53</b>	<b>6.50</b>	
<b>3rd</b>	Opening Balance						
	1st month	19.50	-	19.50	0.18	0.54	18.96
	2nd month	18.96	-	18.96	0.17	0.54	18.42
	3rd month	18.42	-	18.42	0.17	0.54	17.88
	4th month	17.88	-	17.88	0.16	0.54	17.33
	5th month	17.33	-	17.33	0.16	0.54	16.79
	6th month	16.79	-	16.79	0.15	0.54	16.25
	7th month	16.25	-	16.25	0.15	0.54	15.71
	8th month	15.71	-	15.71	0.14	0.54	15.17
	9th month	15.17	-	15.17	0.14	0.54	14.63
	10th month	14.63	-	14.63	0.13	0.54	14.08
	11th month	14.08	-	14.08	0.13	0.54	13.54
	12th month	13.54	-	13.54	0.12	0.54	13.00
					<b>1.82</b>	<b>6.50</b>	

<b>4th</b>	Opening Balance						
	1st month	13.00	-	13.00	0.12	0.54	12.46
	2nd month	12.46	-	12.46	0.11	0.54	11.92
	3rd month	11.92	-	11.92	0.11	0.54	11.38
	4th month	11.38	-	11.38	0.10	0.54	10.83
	5th month	10.83	-	10.83	0.10	0.54	10.29
	6th month	10.29	-	10.29	0.09	0.54	9.75
	7th month	9.75	-	9.75	0.09	0.54	9.21
	8th month	9.21	-	9.21	0.08	0.54	8.67
	9th month	8.67	-	8.67	0.08	0.54	8.12
	10th month	8.12	-	8.12	0.07	0.54	7.58
	11th month	7.58	-	7.58	0.07	0.54	7.04
	12th month	7.04	-	7.04	0.06	0.54	6.50
					<b>1.10</b>	<b>6.50</b>	
<b>5th</b>	Opening Balance						
	1st month	6.50	-	6.50	0.06	0.54	5.96
	2nd month	5.96	-	5.96	0.05	0.54	5.42
	3rd month	5.42	-	5.42	0.05	0.54	4.87
	4th month	4.87	-	4.87	0.04	0.54	4.33
	5th month	4.33	-	4.33	0.04	0.54	3.79
	6th month	3.79	-	3.79	0.03	0.54	3.25
	7th month	3.25	-	3.25	0.03	0.54	2.71
	8th month	2.71	-	2.71	0.02	0.54	2.17
	9th month	2.17	-	2.17	0.02	0.54	1.62
	10th month	1.62	-	1.62	0.01	0.54	1.08
	11th month	1.08	-	1.08	0.01	0.54	0.54
	12th month	0.54	-	0.54	0.00	0.54	-
					<b>0.39</b>	<b>6.50</b>	
	DOOR TO DOOR	60	MONTHS				
	MORATORIUM PERIOD	6	MONTHS				
	REPAYMENT PERIOD	54	MONTHS				



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