



**Pre-feasibility Study**

# **RICE BRAN OIL EXTRACTION UNIT**

**December 2023**

“The figures and financial projections are approximate due to fluctuations in exchange rates, energy costs, and fuel prices etc. Users are advised to focus on understanding essential elements such as production processes and capacities, space, machinery, human resources, and raw material etc. requirements. Project investment, operating costs, and revenues can change daily. For accurate financial calculations, utilize financial calculators on SMEDA’s website and consult financial experts to stay current with market conditions”

**Small and Medium Enterprises Development  
Authority**

Ministry of Industries and  
Production  
Government of Pakistan

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## 1 DISCLAIMER

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## 2 EXECUTIVE SUMMARY

Pakistan is the world's 10<sup>th</sup> largest producer of rice. It is grown in irrigated areas across Pakistan and widely consumed as staple food locally as well as exported. There is an immense potential for investment in value added products of rice in the country. Rice Bran Oil, which is extracted from the inner husk and germ of the whole brown rice is recommended as one of the best and healthy frying and cooking oil. In recent years, the use of Rice Bran Oil is immensely increasing, especially for frying, BBQs, salad dressing and baking.

This particular pre-feasibility study is about setting up a 'Rice Bran Oil Extraction Unit' in any nearby city to rice growing areas in Pakistan. The unit would be using solvent extraction techniques to produce refined quality rice bran oil. According to the proposed business model, the unit will procure the rice bran from rice husking and polishing mills and extracted oil will be sold in local market. Additionally, de-oiled rice bran obtained as byproduct after the extraction process will be sold animal feed manufacturers.

The proposed unit will have the capacity to process 36,000 tons of rice bran to produce 3,240,000 liters of oil annually based on 360 operational days with 24 hour working per day (3 shift basis). However, unit will operate at 50% of the installed capacity during first year of operation with a gradual increase of 5% in subsequent years to achieve the maximum capacity utilization of 90%. This production capacity is estimated to be economically viable and justifies the capital as well as operational cost of the project. Entrepreneur's knowledge of the rice sector, complete adherence to best agronomic practices and easy access to market is critical to the success of this project.

The total project cost is estimated at Rs. 856.458 million out of which Rs. 814.982 million is capital cost and Rs. 41.477 million is working capital. Based on an equity finance model, the project NPV is around Rs. 28.254 million, with an IRR of 21% and a Payback Period of 4.91 years. The project will provide employment opportunities to 224 people. The legal business status of this project is assumed to be 'Sole Proprietorship'.

## 3 INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral

research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of prefeasibility studies in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

## 4 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in **Rice Bran Oil Extraction Unit** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and it's successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

## 5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Rice bran is an important source of edible oil among the unconventional sources. It is extracted from the hard outer brown layer of rice called chaff (rice husk) and contains very low fat and balanced fatty acid profile in comparison to other vegetable oils. The increasing concern on food safety, adopting healthy lifestyles and high nutritional value characterizes Rice Bran Oil as an appropriate choice for healthy cooking and frying oil. Therefore, its demand in both local and international market is continually rising. Rice bran oil is most commonly used in both household and commercial frying and cooking purposes. The smoky flavor make it an excellent choice for BBQs and salad dressings.

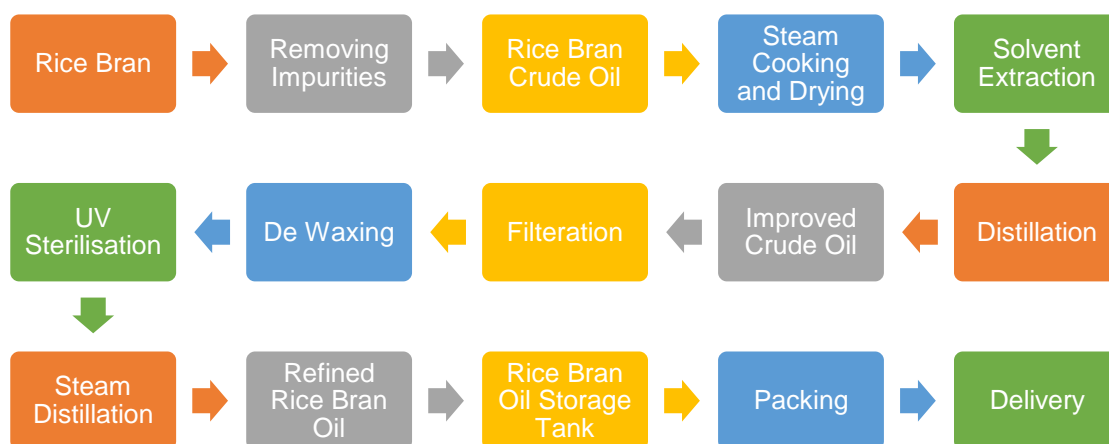
Rice Bran Oil Extraction Unit suggested in this study is based on '100TPD Oil Solvent Extraction Plant', which will be imported from China. The rice bran will be procured bran directly from rice mills operating in the vicinity. The proposed extraction plant will process 100 tons of rice bran per day on 24 hours operational basis. Normally, raw rice bran contains only 9% of oil whereas 87% residue of de-oiled bran is consumed for animal feed and remaining 4% is wastage. The by-product of de-oiled bran will be directly sold to animal feed mills.

The project is proposed to be set up in any of the rice planting areas and big cities of Punjab and Sindh and some parts of Baluchistan and Khyber Pakhtunkhwa. The legal status of the proposed project can either be sole proprietorship or partnership. However, this pre-feasibility assumes the legal status to be 'Sole Proprietorship'.

### 5.1 Production Process Flow

Rice bran is first screened and fully stabilized. Then it is sent to an extraction region where oil is extracted resulting in two products i.e. high-quality crude rice bran oil and defatted rice bran. Crude rice bran oil is further processed through refining, which removes the majority of free fatty acids. The refined oil is passed through the de waxing chamber. Steam distillation is the final step in which any inedible flavors and residual free fatty acids left in the oil are removed. Once the Rice bran oil has been fully processed, it is ready for packaging.

**Figure1: Production Process Flow Diagram**



### 5.2 Installed and Operational Capacities

The proposed extraction unit will have the capacity to process 36,000 tons of rice bran in a year. However, the initial operating capacity of the project will be 50% with an annual increase of 5% and it will achieve a maximum operational capacity of 90% in 9<sup>th</sup> year. The unit would operate for 24 hours per day, working in 3 shifts of 8 hours each.

**Table 1: Installed and Operational Capacity**

<b>Description</b>	<b>Total Installed Capacity</b>	<b>Operational Capacity 50 % (Year 1)</b>	<b>Maximum Capacity 90% (Year 9)</b>
Rice Bran Oil (Litters)	3,240,000	1,620,000	2,916,000
De-oiled Bran (By-product for Animal Feed)	31,320,000	15,660,000	28,188,000

## 6 CRITICAL FACTORS

Following are the factors critical for the success of this business venture;

- ⇒ Technical skills are vital for effectively operating the business, as skilled workers can reduce wastage; ensure lower machine maintenance cost, in-time delivery and quality finish of the product.
- ⇒ Effective and timely marketing campaign for the business through different media like local newspapers, cable networks, billboards, transit posters and social media.
- ⇒ Exceed customer expectations by offering high quality oil.
- ⇒ Trained staff should be engaged and comprehensive staff training programs to be adopted for capacity building and quality standards.
- ⇒ Careful selection of good location and purchase of land at competitive price
- ⇒ Complete adherence to best agronomic practices is critical to the success of this project.
- ⇒ Selection of quality rice bran on the basis of the best analysis of cost and revenues for a given season.
- ⇒ Appropriate logistics and transportation of rice bran to the processing unit.
- ⇒ Brand positioning and enhancement of the production of rice bran oil may widen the market for the product.

## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

As per current agricultural practices, rice cultivation is mainly concentrated in upper Punjab and Sindh and in some parts of South Punjab, Baluchistan and Khyber Pakhtunkhwa. Keeping in view the varying geographical locations for rice cultivation, it is recommended that the project may be preferably located in the

vicinity of urban areas of Punjab and Sindh for easy access and availability of the high-quality rice bran.

Following areas could be the most appropriate locations for the proposed unit; Sialkot, Gujrat, Jhang, Mandi Bahhaudain, Hafizabad, Gujranwala, Narowal, Sheikhupura, Okara, Kasur, Bahawalnagar, Kashmore, Larkana, Dadu, Jacobabad, Jafferabad, Naseerabad, Mardan, etc.

## 8 POTENTIAL TARGET CUSTOMERS / MARKETS

For refined edible rice bran oil, the potential target market will be the general public of upper-middle-income groups of urban cities, who generally prefer to buy edible oils from supermarkets and big departmental stores. Taking that into consideration, all the major metropolitan cities, as well as urban and semi-urban cities across Pakistan, would be the potential target markets for the proposed business.

Besides that, the following segments of clients in all the major cities of Pakistan will also be the potential target customers for the proposed business venture:

- ⇒ Departmental / Super Stores and Retail Chains
- ⇒ Traders, Suppliers, and Exporters of Rice Bran Oil
- ⇒ Manufacturers of Other Edible Oils Requiring Rice Bran Oil for Blending

## 9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Rice Bran Oil Extraction Unit. Various costs and revenue related assumptions along with results of the analysis are outlined in this section.

The projected Income Statement, Cash Flow Statement and Balance Sheet are also attached as annexure.

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs. 1,082,198,438 in the year one. The capacity utilization during year one is worked out at 50%.

The following table shows internal rate of return, payback period and net present value of the proposed venture.

**Table 2: Project Economics**

Description	Details
Internal Rate of Return (IRR)	21%

Payback Period (Yrs.)	4.91
Net Present Value (Rs.)	28,253,767

Calculation of break-even analysis is as follows:

**Table 3: Breakeven (100% Equity Based)**

	Breakeven Revenue (Rs. Million)	Breakeven (Processing Tons)	Margin of Safety (%)
Year 1	429.15	15,193	58%
Year 2	449.75	13,785	62%
Year 3	477.19	12,769	65%
Year 4	510.37	12,006	67%
Year 5	549.32	11,428	68%
Year 6	604.16	11,172	69%
Year 7	662.51	10,939	70%
Year 8	733.40	10,854	70%
Year 9	822.28	10,946	70%
Year 10	936.77	11,876	67%

However, for the purposes of further explanation the Project Economics based on Debt:Equity (i.e. 50: 50) Model has also been computed. On the basis of Debt:Equity model the Internal Rate of Return, Payback Period and Net Present Value of the proposed project are provide in the table below.

**Table 4: Project Economics Based on Debt (50%):Equity (50%)**

Description	Details
Internal Rate of Return (IRR)	22%
Payback Period (Yrs.)	4.57
Net Present Value (Rs.)	- 45,135,277

The financial assumptions for Debt:Equity are as follows:

**Table 5: Financial Assumptions for Debt:Equity Model**

Description	Details
Debt (50%)	Rs. 431,144,278
Equity (50%)	Rs. 431,144,278
Interest Rate on Debt	26%

Debt Tenure (Years)	5
Debt Payment / Year	2

The projected Income Statement, Cash Flow Statement and Balance Sheet are attached as annexures based on 100% Equity Based Business Model.

## 9.2 Project Cost

Following fixed and working capital requirements have been identified for operations of the proposed business.

**Table 6: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Land	96,000,000
Building / Infrastructure	235,756,546
Machinery and Equipment	455,819,229
Office Vehicles	12,810,000
Furniture and Fixture	4,792,650
Pre-operating costs	9,175,265
Wapda Security	3,216,000
Office Equipment	2,722,300
Licensing and Legal fee	520,000
<b>Total Capital Cost</b>	<b>820,811,989</b>
Cash	20,395,678
Upfront Insurance Payment	16,402,023
Raw Material Inventory	4,467,015
Equipment Spare Part Inventory	211,852
<b>Total Working Capital</b>	<b>41,476,568</b>
<b>Total Project Cost</b>	<b>862,288,557</b>

## 9.3 Space Requirement

Approximately 16 Kanals of land would be required for establishment of proposed unit. It is recommended that required land should be procured in the industrial

estates of identified city / area. The cost of land is estimated at the rate of Rs. 6 million per kanal.

The infrastructural requirements of the project mainly comprise the construction of various facilities including management office, production, storage, open space, etc. The cost of construction of building for the proposed unit is provided in the table below.

**Table 7: Space Requirement**

Description	Estimated Area (Sq ft)	Cost per Sq ft (Rs.)	Total Cost (Rs.)
Production	27,000	3,500	94,500,000
Raw Material Storage	9,000	3,500	31,500,000
Finished Goods Storage	6,750	3,000	20,250,000
Management Building	5,000	4,500	22,500,000
Guest House, Mess and Kitchen	9,000	3,500	31,500,000
Coal Storage Area	4,500	3,000	13,500,000
Electric Room	1,500	3,500	5,250,000
Boiling Area	750	3,200	2,400,000
Washrooms	540	3,500	1,890,000
Boundary Wall With Gate			2,550,000
Networking And Server Room	400	3,500	1,400,000
Laboratory	144	4,000	576,000
Miscellaneous Open Area	5,627	50	281,350
Security Guard Room	120	3,000	360,000
Time And Gate Office	64	3,500	224,000
Garden	1,125	100	112,500
Car Parking	480	200	96,000
Layout Design Fee			6,866,696
<b>Total Construction Cost</b>			<b>235,756,546</b>
Cost of Land			96,000,000

<b>Total Cost of Land &amp; Construction</b>			<b>262,243,906</b>
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#### 9.4 Machinery & Equipment Requirement

Plant, machinery and equipment for the proposed project are stated below.

**Table 8: Machinery & Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Rice Bran Oil Production Line	1	432,540,729	432,540,729
Generator	1	7,800,000	7,800,000
Supervision, Training And Other			9,030,000
Plant Erection And Installation Labour		2,700,000	2,700,000
Transformer	1	2,398,500	2,398,500
Electric Room	1	800,000	800,000
Packing And Sealing Machine	1	300,000	300,000
Security Equipment's	1	250,000	250,000
<b>Total</b>			<b>455,819,229</b>

#### 9.5 Furniture & Fixtures Requirement

Details of the furniture and fixture required for the project are given below.

**Table 9: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
<b>Owner office</b>			
Table & Chairs	1	120,000	120,000
Visitor Chairs	4	35,000	140,000
Sofas	4	45,000	180,000
Cupboard	1	25,000	25,000
<b>Management and Staff Office</b>			
Table & Chairs	10	35,000	350,000
Visitor Chairs	20	8,000	160,000
Cupboard	10	15,000	150,000

Miscellaneous Furniture	1	150,000	150,000
Ceiling Fans	53	3,800	201,400
Exhaust Fans	6	8,400	50,400
LED Bulbs (18 Watts)	113	450	50,850
Air conditioner (1 ton Split)	21	115,000	2,415,000
Interior/Renovation	1	800,000	800,000
<b>Total</b>			<b>4,792,650</b>

## 9.6 Office Equipment Requirement

Following office computers will be required for the project are given below.

**Table 10: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computer server and networking	1	800,000	800,000
Computer	17	65,000	1,105,000
Computer printer (s)	5	40,000	200,000
Scanner	2	15,000	30,000
LED for Office	2	72,400	144,800
Fridge	2	115,000	230,000
Water Dispenser	5	35,000	175,000
Telephones	15	2,500	37,500
<b>Total</b>			<b>2,722,300</b>

## 9.7 Office Vehicles Requirements

Vehicles are required for transportation and smooth movement of raw material and finished goods. Details of the vehicles required for the project are given below.

**Table 11: Office Vehicle Requirements**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Pool Car 1.3 CC	1	4,800,000	4,800,000
Fork Lifter 3 Ton	1	1,300,000	1,300,000

Mini Truck	2	3,200,000	6,400,000
Motorcycle CD 70	2	155,000	310,000
<b>Total</b>			<b>12,810,000</b>

## 9.8 Raw Material requirements

Rice Bran is the main raw material for the proposed facility, which will be procured directly from rice mills operating in the vicinity. Rice bran shall be procured fresh on daily basis as per the production requirements of the plant. Agreements with rice processing mills for daily supply of rice bran will be preferred to ensue uninterrupted supply of the main raw material. Raw material inventory for one day will be maintained. The raw material required by the unit for first year of operations is provided in the following.

**Table 12: Major Raw Material Required**

Description	Unit	Quantity Required Year 1	Unit Cost (Rs.)	Total Raw Material Cost (Rs.)
Rice Bran	Kg.	18,000,000	25	450,000,000
Coal	Kg.	1,440,000	31.92	45,964,800
Hexane	Kg.	27,000	285	7,695,000
50% Caustic Soda	Kg.	27,000	110	2,970,000
Other RM (Citric Acid, Phosphoric Acid and Bleaching Earth etc.)	Kg.	18,000,000	0.05	900,000
Packing Material	Ltrs.	1,620,000	17.60	28,512,000
<b>Total</b>				<b>536,041,800</b>

## 9.9 Human Resource Requirement

In order to run operations of Rice Bran Oil Extraction unit smoothly, details of human resources required along with number of employees and monthly salaries are recommended as under.

**Table 13: Human Resource Requirement**

Description	No. of Employees	Monthly Salary per Person (Rs.)	Total Monthly Salary (Rs.)
CEO	1	250,000	250,000

Chief Accountant	1	150,000	150,000
Production Manager	1	200,000	200,000
Engineer (Boiler)	1	150,000	150,000
Assistant Manager accounts	2	50,000	100,000
Accounts Officer	2	35,000	70,000
Internal Auditor	1	45,000	45,000
Admin Officer	1	45,000	45,000
Purchase Manager	1	55,000	55,000
Rice Receiving and Handling	6	40,000	240,000
Helper	29	35,000	1,015,000
Foreman Preparation	3	55,000	165,000
Operator	6	35,000	210,000
Asst. Operator	6	22,000	132,000
Helper	21	20,000	420,000
Foreman Extraction	3	55,000	165,000
supervisor	6	52,500	315,000
Operator	9	32,000	288,000
Asst. Operator	3	22,000	66,000
Meal House Helper	3	35,000	105,000
Foreman Chemical Refinery	3	55,000	165,000
Operator	3	40,000	120,000
Asst. Operator	9	35,000	315,000
Daily Wages	3	35,000	105,000
Shift In-charge	3	47,000	141,000
Operator	3	35,000	105,000
Asst. Operator	9	35,000	315,000
Foreman Mechanical	3	55,000	165,000
Fitter	6	35,000	210,000
Turner	6	35,000	210,000
Welder	1	35,000	35,000
Foreman	1	55,000	55,000
Electrician	1	35,000	35,000
Asst. Electrician	2	35,000	70,000
PLC Tech	1	45,000	45,000
Foreman (Boiler)	3	55,000	165,000
Operator	3	35,000	105,000
Daily Wages	3	35,000	105,000
Foreman Electric Room	3	55,000	165,000

Operator	3	35,000	105,000
Manager Sales	1	70,000	70,000
Assistant manager sales	1	40,000	40,000
Executive sales officer	3	40,000	120,000
Store In-charge	2	35,000	70,000
Store Keeper	8	25,000	200,000
Assistant Manager IT	1	60,000	60,000
Technician (Mechanical)	1	55,000	55,000
Assistant Technician	1	35,000	35,000
Laboratory In-charge	1	55,000	55,000
Shift Chemist	1	35,000	35,000
Dispatch/Loading Rice Bran Oil	3	40,000	120,000
W.Bridge Operator	2	35,000	70,000
Gardener	1	35,000	35,000
Gate clerk	1	35,000	35,000
Security Guard	6	20,000	120,000
Office Boys	3	35,000	105,000
Sweeper	3	35,000	105,000
Fork lifter operator	3	35,000	105,000
Packing and Filling Operator	6	35,000	210,000
HR Manager	1	55,000	55,000
	<b>224</b>		<b>8,622,000</b>

### 9.10 Utilities and Other Costs

An essential cost to be borne by the project is the cost of electricity. The electricity expenses are estimated to be around Rs. 13.61 million per month in year 1. Furthermore, promotional expense being essential for marketing of this unit is estimated as 0.8% of revenue.

### 9.11 Revenue Generation

Based on the capacity utilization of 50%, sales revenue during the first year of operations is provided in the table below.

**Table 14: Revenue Generation – Year 1**

Description	Quantity Produced	Finished Goods Inventory	Quantity Available for Sale	Sale Price / Unit (Rs.)	Sales Revenue (Rs.)
Rice Bran Oil (Liters)	1,620,000	67,500	1,552,500	365	566,662,500
De-oiled Bran (By-product for Animal Feed)	15,660,000	652,500	15,007,500	30	450,225,000
<b>Total</b>	<b>17,280,000</b>				<b>1,016,887,500</b>

## 10 CONTACT DETAILS

In order to facilitate potential investors, the contact details of machinery supplier is provided below.

**Table 15: Machinery Supplier**

Name of Supplier	Address	Website
Henan Ocean Intelligent Technology Co. Ltd.	No. 52 Of Lianhua Street, Hi-Tech Development Zone, Zhengzhou City, Henan Province, P.R.China	<a href="http://www.oceanhn.com">www.oceanhn.com</a>

## 11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
Government of Pakistan	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
Ministry of Industries & Production	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
Ministry of Education, Training & Standards in Higher Education	<a href="http://moptt.gov.pk">http://moptt.gov.pk</a>
Government of Punjab	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
Government of Sindh	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
Government of Khyber Pakhtunkhwa	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
Government of Balochistan	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
Government of Gilgit Baltistan	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>

Government of Azad Jamu Kashmir	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Security and Exchange Commission of Pakistan (SECP)	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
State Bank of Pakistan (SBP)	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
Ministry of National Food Security and Research (MNFSR)	<a href="http://www.mnsfr.gov.pk">www.mnsfr.gov.pk</a>
Pakistan Agriculture Research Council (PARC)	<a href="http://www.parc.gov.pk">www.parc.gov.pk</a>
National Agriculture Research Council (NARC)	<a href="http://www.narc.gov.pk">www.narc.gov.pk</a>
Rice Exporters Association of Pakistan	<a href="http://www.reap.com.pk">www.reap.com.pk</a>
Agriculture Department Government of Punjab	<a href="http://www.agripunjab.gov.pk">www.agripunjab.gov.pk</a>
Agriculture Department -Government of KPK	<a href="http://www.agriculture.kp.gov.pk">www.agriculture.kp.gov.pk</a>
Ayyub Agricultural Research Institute	<a href="http://www.aari.punjab.gov.pk">www.aari.punjab.gov.pk</a>
University of Agriculture Faisalabad	<a href="http://www.uaf.edu.pk">www.uaf.edu.pk</a>
The University of Agriculture, Peshawar	<a href="http://www.aup.edu.pk">www.aup.edu.pk</a>
Sindh Agriculture University, Tandojam	<a href="http://www.sau.edu.pk">www.sau.edu.pk</a>
Balochistan Agriculture College, Quetta.	<a href="http://www.bac.edu.pk">www.bac.edu.pk</a>
All Pakistan Solvent Extractor's Association	<a href="http://www.apsea.com.pk">www.apsea.com.pk</a>

## 12 ANNEXURES

### 12.1 Income Statement

Calculations	SMEDA									
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	1,016,887,500	1,174,505,063	1,345,342,163	1,530,326,710	1,730,446,357	1,946,752,151	2,180,362,409	2,432,466,813	2,704,330,751	2,839,547,288
<i>Cost of sales</i>										
Raw Material Cost	536,041,800	619,128,279	709,183,301	806,696,005	912,187,021	1,026,210,399	1,149,355,647	1,282,249,894	1,425,560,176	1,496,838,185
Operation costs 1 (direct labor)	37,188,240	44,997,770	53,997,324	64,346,812	76,226,223	89,838,049	105,409,977	123,197,911	143,489,331	157,838,264
Operating costs 2 (machinery maintenance)	5,084,438	6,459,778	8,139,320	10,184,324	12,667,733	15,676,319	19,313,225	23,700,948	28,984,866	33,477,520
Operating costs 3 (direct electricity)	159,627,802	193,149,640	231,779,568	276,203,985	327,195,490	385,623,256	452,464,621	528,818,025	615,917,465	677,509,211
Total cost of sales	737,942,279	863,735,467	1,003,099,514	1,157,431,126	1,328,276,467	1,517,348,023	1,726,543,470	1,957,966,778	2,213,951,838	2,365,663,180
Gross Profit	278,945,221	310,769,595	342,242,649	372,895,583	402,169,889	429,404,128	453,818,940	474,500,035	490,378,913	473,884,108
<i>General administration &amp; selling expenses</i>										
Administration expense	22,620,000	24,882,000	27,370,200	30,107,220	33,117,942	36,429,736	40,072,710	44,079,981	48,487,979	53,336,777
Administration benefits expense	1,131,000	1,244,100	1,368,510	1,505,361	1,655,897	1,821,487	2,003,635	2,203,999	2,424,399	2,666,839
Electricity expense	4,035,174	4,438,692	4,882,561	5,370,817	5,907,899	6,498,689	7,148,557	7,863,413	8,649,754	9,514,730
Water expense	557,824	674,967	809,960	965,202	1,143,393	1,347,571	1,581,150	1,847,969	2,152,340	2,367,574
Travelling expense	1,131,000	1,244,100	1,368,510	1,505,361	1,655,897	1,821,487	2,003,635	2,203,999	2,424,399	2,666,839
Communications expense (phone, fax, mail, internet, etc.)	278,912	337,483	404,980	482,601	571,697	673,785	790,575	923,984	1,076,170	1,183,787
Office vehicles running expense	3,843,000	4,227,300	4,650,030	5,115,033	5,626,536	6,189,190	6,808,109	7,488,920	8,237,812	9,061,593
Office expenses (stationary, entertainment, janitorial services, etc)	1,115,647	1,349,933	1,619,920	1,930,404	2,286,787	2,695,141	3,162,299	3,695,937	4,304,680	4,735,148
Promotional expense	8,135,100	7,516,832	8,610,190	9,794,091	11,074,857	12,459,214	13,954,319	15,567,788	17,307,717	18,173,103
Insurance expense	16,402,023	14,716,986	13,031,948	11,346,911	9,661,874	8,698,909	6,959,127	5,219,345	3,479,563	1,739,782
Professional fees (legal, audit, consultants, etc.)	1,016,888	1,174,505	1,345,342	1,530,327	1,730,446	1,946,752	2,180,362	2,432,467	2,704,331	2,839,547
Depreciation expense	61,174,295	61,174,295	61,174,295	61,306,700	61,285,350	62,849,476	63,002,751	62,978,036	62,978,036	63,155,471
Amortization of pre-operating costs	669,000	669,000	669,000	669,000	669,000	-	-	-	-	-
Amortization of legal, licensing, and training costs	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000
Bad debt expense	2,542,219	2,936,263	3,363,355	3,825,817	4,326,116	4,866,880	5,450,906	6,081,167	6,760,827	7,098,868
Miscellaneous expense 1	904,800	995,280	1,094,808	1,204,289	1,324,718	1,457,189	1,602,908	1,763,199	1,939,519	2,133,471
Subtotal	125,608,881	127,633,736	131,815,609	136,711,134	142,090,408	149,807,507	156,773,046	164,402,204	172,979,526	180,725,528
Operating Income	153,336,340	183,135,860	210,427,039	236,184,450	260,079,481	279,596,621	297,045,894	310,097,831	317,399,387	293,158,580
Other income (interest on cash)	1,415,937	4,015,579	7,315,603	10,522,939	13,443,901	16,220,787	19,084,975	21,798,977	24,275,066	26,886,176
Gain / (loss) on sale of computer equipment	-	-	533,750	-	-	1,151,632	-	-	1,866,908	1,490,439
Gain / (loss) on sale of office vehicles	-	-	-	-	5,124,000	-	-	-	-	-
Earnings Before Interest & Taxes	154,752,276	187,151,438	218,276,392	246,707,388	278,647,383	296,969,041	316,130,869	331,896,808	343,541,361	321,535,195
Earnings Before Tax	154,752,276	187,151,438	218,276,392	246,707,388	278,647,383	296,969,041	316,130,869	331,896,808	343,541,361	321,535,195
Tax	53,528,296	64,868,003	75,761,736	85,712,585	96,891,583	103,304,164	110,010,803	115,528,882	119,604,476	111,902,317
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>101,223,980</b>	<b>122,283,436</b>	<b>142,514,655</b>	<b>160,994,803</b>	<b>181,755,799</b>	<b>193,664,877</b>	<b>206,120,066</b>	<b>216,367,926</b>	<b>223,936,885</b>	<b>209,632,877</b>

## 12.2 Balance Sheet

Calculations											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	20,395,678	92,879,258	228,367,037	356,881,185	484,953,907	590,558,193	707,104,784	819,693,211	924,224,949	1,017,780,304	1,133,113,791
Accounts receivable		41,789,897	45,028,614	51,777,683	59,089,086	67,002,186	75,558,873	84,803,724	94,784,162	105,550,635	113,915,302
Finished goods inventory		32,084,447	37,553,716	43,613,022	50,323,092	57,751,151	65,971,653	75,067,107	85,128,990	96,258,776	102,854,921
Equipment spare part inventory	211,852	282,615	373,900	491,235	641,571	833,642	1,078,399	1,389,567	1,784,327	2,163,943	-
Raw material inventory	4,467,015	5,675,343	7,150,932	8,947,603	11,129,442	13,772,684	16,967,947	20,822,852	25,465,124	29,412,218	-
Pre-paid insurance	16,402,023	14,716,986	13,031,948	11,346,911	9,661,874	8,698,909	6,959,127	5,219,345	3,479,563	1,739,782	-
<b>Total Current Assets</b>	<b>41,476,568</b>	<b>187,428,546</b>	<b>331,506,147</b>	<b>473,057,639</b>	<b>615,798,972</b>	<b>738,616,764</b>	<b>873,640,783</b>	<b>1,006,995,808</b>	<b>1,134,867,115</b>	<b>1,252,905,656</b>	<b>1,349,884,014</b>
<i>Fixed assets</i>											
Land	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000	96,000,000
Building/Infrastructure	235,756,546	223,968,718	212,180,891	200,393,064	188,605,236	176,817,409	165,029,582	153,241,755	141,453,927	129,666,100	117,878,273
Wapda Security		3,216,000	3,216,000	3,216,000	3,216,000	3,216,000	3,216,000	3,216,000	3,216,000	3,216,000	3,216,000
Machinery & equipment	455,819,229	410,237,306	364,655,383	319,073,460	273,491,537	227,909,615	182,327,692	136,745,769	91,163,846	45,581,923	-
Furniture & fixtures	4,792,650	4,313,385	3,834,120	3,354,855	2,875,590	2,396,325	1,917,060	1,437,795	958,530	479,265	-
Office vehicles	12,810,000	10,248,000	7,686,000	5,124,000	2,562,000	20,630,633	16,504,506	12,378,380	8,252,253	4,126,127	-
Computer equipment	2,135,000	1,430,450	725,900	2,492,879	1,655,925	840,320	2,885,819	1,916,940	972,775	3,340,697	2,219,097
Office equipment	587,300	528,570	469,840	411,110	352,380	293,650	234,920	176,190	117,460	58,730	-
<b>Total Fixed Assets</b>	<b>811,116,725</b>	<b>749,942,429</b>	<b>688,768,134</b>	<b>630,065,368</b>	<b>568,758,669</b>	<b>528,103,952</b>	<b>468,115,579</b>	<b>405,112,828</b>	<b>342,134,792</b>	<b>282,468,841</b>	<b>219,313,370</b>
<i>Intangible assets</i>											
Pre-operation costs	3,345,000	2,676,000	2,007,000	1,338,000	669,000	-	-	-	-	-	-
Legal, licensing, & training costs	520,000	468,000	416,000	364,000	312,000	260,000	208,000	156,000	104,000	52,000	-
<b>Total Intangible Assets</b>	<b>3,865,000</b>	<b>3,144,000</b>	<b>2,423,000</b>	<b>1,702,000</b>	<b>981,000</b>	<b>260,000</b>	<b>208,000</b>	<b>156,000</b>	<b>104,000</b>	<b>52,000</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>856,458,292</b>	<b>940,514,975</b>	<b>1,022,697,281</b>	<b>1,104,825,007</b>	<b>1,185,538,641</b>	<b>1,266,980,716</b>	<b>1,341,964,362</b>	<b>1,412,264,635</b>	<b>1,477,105,907</b>	<b>1,535,426,498</b>	<b>1,569,197,384</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		3,077,499	3,628,893	4,266,914	5,004,665	5,857,238	6,842,019	7,979,050	9,291,440	10,733,757	10,445,231
<b>Total Current Liabilities</b>	<b>-</b>	<b>3,077,499</b>	<b>3,628,893</b>	<b>4,266,914</b>	<b>5,004,665</b>	<b>5,857,238</b>	<b>6,842,019</b>	<b>7,979,050</b>	<b>9,291,440</b>	<b>10,733,757</b>	<b>10,445,231</b>
<i>Other liabilities</i>											
<b>Total Long Term Liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292	856,458,292
Retained earnings		80,979,184	162,610,096	244,099,801	324,075,683	404,665,186	478,664,051	547,827,293	611,356,175	668,234,448	702,293,860
<b>Total Equity</b>	<b>856,458,292</b>	<b>937,437,476</b>	<b>1,019,068,388</b>	<b>1,100,558,093</b>	<b>1,180,533,976</b>	<b>1,261,123,478</b>	<b>1,335,122,343</b>	<b>1,404,285,585</b>	<b>1,467,814,467</b>	<b>1,524,692,741</b>	<b>1,558,752,153</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>856,458,292</b>	<b>940,514,975</b>	<b>1,022,697,281</b>	<b>1,104,825,007</b>	<b>1,185,538,641</b>	<b>1,266,980,716</b>	<b>1,341,964,362</b>	<b>1,412,264,635</b>	<b>1,477,105,907</b>	<b>1,535,426,498</b>	<b>1,569,197,384</b>

## 12.3 Cash Flow Statement

Calculations											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		101,223,980	122,283,436	142,514,655	160,994,803	181,755,799	193,664,877	206,120,066	216,367,926	223,936,885	209,632,877
Add: depreciation expense		61,174,295	61,174,295	61,174,295	61,306,700	61,285,350	62,849,476	63,002,751	62,978,036	62,978,036	63,155,471
amortization of pre-operating costs		669,000	669,000	669,000	669,000	669,000	-	-	-	-	-
amortization of training costs		52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000
Accounts receivable		(41,789,897)	(3,238,717)	(6,749,068)	(7,311,404)	(7,913,100)	(8,556,687)	(9,244,850)	(9,980,438)	(10,766,473)	(8,364,667)
Finished goods inventory		(32,084,447)	(5,469,269)	(6,059,306)	(6,710,070)	(7,428,058)	(8,220,502)	(9,095,454)	(10,061,883)	(11,129,785)	(6,596,145)
Equipment inventory	(211,852)	(70,764)	(91,285)	(117,334)	(150,337)	(192,070)	(244,757)	(311,169)	(394,760)	(379,616)	2,163,943
Raw material inventory	(4,467,015)	(1,208,328)	(1,475,589)	(1,796,672)	(2,181,839)	(2,643,242)	(3,195,263)	(3,854,905)	(4,642,271)	(3,947,094)	29,412,218
Advance insurance premium	(16,402,023)	1,685,037	1,685,037	1,685,037	1,685,037	962,965	1,739,782	1,739,782	1,739,782	1,739,782	1,739,782
Accounts payable		3,077,499	551,394	638,021	737,751	852,573	984,781	1,137,031	1,312,390	1,442,317	(288,526)
Other liabilities		-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(21,080,890)	92,728,376	176,140,303	192,010,628	209,091,642	227,401,216	239,073,708	249,545,251	257,370,781	263,926,053	290,906,952
<i>Financing activities</i>											
Issuance of shares	856,458,292	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	856,458,292	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(814,981,725)	-	-	(2,471,529)	-	(20,630,633)	(2,861,104)	-	-	(3,312,086)	-
Acquisitions											
Cash (used for) / provided by investing activities	(814,981,725)	-	-	(2,471,529)	-	(20,630,633)	(2,861,104)	-	-	(3,312,086)	-
NET CASH	20,395,678	92,728,376	176,140,303	189,539,098	209,091,642	206,770,583	236,212,603	249,545,251	257,370,781	260,613,967	290,906,952

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Travelling expense	5% of Administration expenses
Promotional Expenses	0.8% of Revenue
Depreciation Method	Straight Line
Depreciation Rate	5% on Building / Infrastructure 10% on Machinery 33% on Office Equipment 10% on Furniture & Fixture
Inflation Growth Rate	10%
Electricity Price Growth Rate	10%
Salaries Growth Rate	10%

### 13.2 Production Cost Assumptions

Description	Details
Cost of Goods Sold Growth Rate	5.0%
Rice Bran Cost (Rs. Per Ton)	Rs. 25,000
Coal Cost (Rs. Per Ton)	Rs. 31,920
Machinery Maintenance Cost	0.5% of Revenue
Packing Cost	Rs. 17.60 per Liter
Total Production Capacity (Input Tons)	36,000
Operational Capacity First Year Tons	18,000

### 13.3 Revenue Assumptions

Description	Details
Rice Bran Oil (Liters) Year 1	1,620,000

De-oiled Bran (By-product for Animal Feed) Year 1	15,660,000
Rice Bran Oil Price Per Litre	Rs. 365
Meal Price Per Kg.	Rs. 30
Sale Price Growth Rate	5%

## Small and Medium Enterprises Development Authority

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