Pre-Feasibility Study

CLAY BRICKS MANUFACTURING KILN

Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

www.smeda.org.pk

HEAD OFFICE

4th Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road,
Lahore
Tel: (92 42) 111 111 456, Fax: (92 42) 36304926-7
helpdesk@smeda.org.pk

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3rd Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road Lahore, Tel: (042) 111-111-456 Fax: (042) 36304926-7 helpdesk.punjab@smeda.org.pk	5TH Floor, Bahria Complex II, M.T. Khan Road, Karachi. Tel: (021) 111-111-456 Fax: (021) 5610572 helpdesk-khi@smeda.org.pk	Ground Floor State Life Building The Mall, Peshawar. Tel: (091) 9213046-47 Fax: (091) 286908 helpdesk-pew@smeda.org.pk	Bungalow No. 15-A Chaman Housing Scheme Airport Road, Quetta. Tel: (081) 831623, 831702 Fax: (081) 831922 helpdesk-qta@smeda.org.pk

June 2015

Contents

1 DISCLAIMER

This information memorandum is to introduce the subject matter and provide a general idea and information on the said matter. Although, the material included in this document is based on data/information gathered from various reliable sources; however, it is based upon certain assumptions, which may differ from case to case. The information has been provided on as is where is basis without any warranties or assertions as to the correctness or soundness thereof. Although, due care and diligence has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, and the actual results may differ substantially from the presented information. SMEDA, its employees or agents do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The contained information does not preclude any further professional advice. The prospective user of this memorandum is encouraged to carry out additional diligence and gather any information which is necessary for making an informed decision; including taking professional advice from a qualified consultant/technical expert before taking any decision to act upon the information.

For more information on services offered by SMEDA, please contact our website: ***www.smeda.org.pk***

Document Control

Document No.	PREF-NO 125
Revision	No. 1
Prepared by	SMEDA-Sindh
Revision Date	June, 2015
For information	Provincial Chief (Sindh) mraza@smeda.org.pk

2 EXECUTIVE SUMMARY

Clay Bricks Manufacturing Kiln is proposed to be located at any densely populated city such as Hyderabad, Larkana, Sukkur, Lahore, Rawalpindi, Peshawar, Multan, Faisalabad etc where good quality of clay or mud and water is available abundantly along with easy availability of trained and semi trained workers. This business can also be undertaken in all small second tier towns, in addition to suburban towns of large cities.

The proposed product line will consist of brick size of 9" x 4", which is commonly used in construction of houses in some urban and almost all rural areas of the country.

This proposed Pre-Feasibility study presents an investment opportunity for establishing a Clay Bricks Manufacturing Kiln unit with a capacity of 10 cycles per year initially and in each cycle, 0.5 million bricks of 9" x 4" will be prepared. Initially the project is proposed to utilize 80% of production capacity.

The total project cost for setting up a Clay Bricks Manufacturing Kiln Unit is estimated at **Rs. 5.56** million out of which **Rs. 4.84** million is capital cost and **Rs. 0.72** million is working capital. The project is proposed to be financed through **50%** debt and **50%** equity. The NPV is projected around **Rs. 7.15** million, with an IRR of **45%** and a Payback Period of **2.22** years. The legal business status of this project is proposed as a 'Sole Proprietorship'.

The most critical considerations or factors for success of the project are:

- Most Significant Considerations:
  - Accessibility of good quality of Mud / Clay to produce high quality bricks.
  - Availability of burning material is also a very important factor.
  - Availability of well experienced clay bricks makers, Kiln burner and operators.

- Equally important Factors:

  - This project is not suitable in hilly regions where clay / mud are not available easily.
  - This business is unsuitable in frequent rainy areas.

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 **Clay Bricks Manufacturing Kiln 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

Clay bricks are used in a wide range of buildings from housing to factories, and in the construction of tunnels, waterways, bridges etc. Their properties vary according to the purpose for which they are intended, but clays have provided the basic material of construction for centuries. The industry developed on traditional lines, using hand-making processes for the most part.

Following key parameters must be addressed as per Pre-Feasibility study under preparation:

- **Technology:** This proposed unit use manual bricks making technique which includes preparation of clay, moulding, drying and burning to produce bricks of different sizes according to the demand.

- **Location:** Processing unit can be set-up in any major city such as Hyderabad, Larkana, Sukkur, Lahore, Multan, Rawalpindi, Peshawar, Faisalabad, and Taxila where good quality of clay or mud, water and trained or semi trained labours are easily available. This business can also be done in all small second tier towns in addition to suburban towns of large cities.

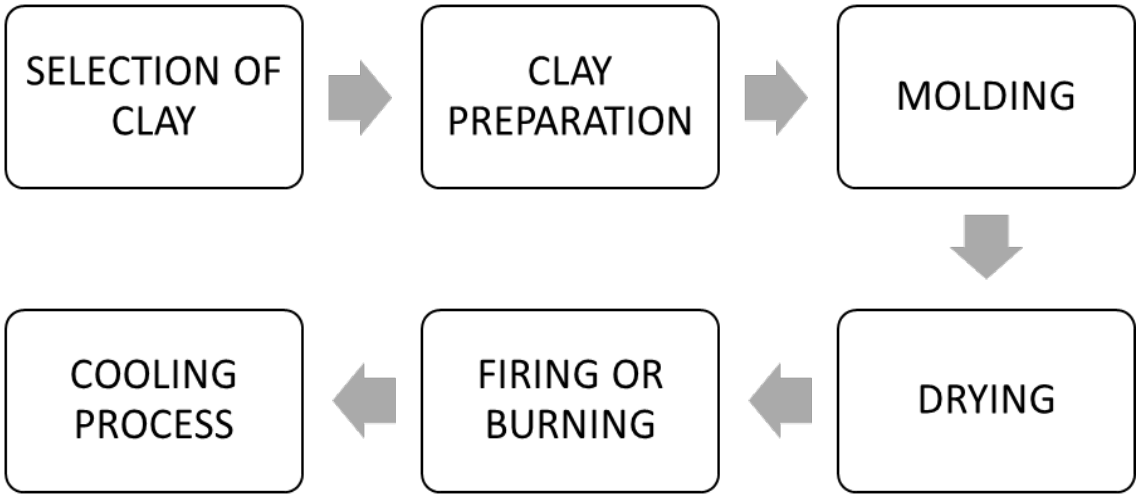
- **Product:** The unit would initially produce a brick size of 9” X 4”, which is commonly used in construction. But this kiln can also produce other brick sizes like 12” X 6” along with roof and floor bricks of different sizes according to the need and demands.

- **Target Market:** Clay bricks are cheap and ideal building material which is commonly used in construction, civil engineering works as well as for constructions of sidewalls, footpaths, floors etc. This building material is equally important for constructions in rural as well as in urban and semi-urban areas.

- **Employment Generation:** The proposed project will provide direct employment to 86 people (contractual + salaried). Financial analysis shows that the unit will be profitable from the very first year of operations.

5.1 Production Process Flow

In Pakistan, manufacturing of clay brick is done manually. There are six major steps involved in clay brick manufacturing Process. Production flow of its process is given below:



5.1.1 Selection of Clay

The first and most important step in Clay Bricks Manufacturing Process is the selection of good quality of clay. High quality of clay will produce good quality of bricks. Low quality of clay may create different defects in the final product.

5.1.2 Clay Preparation

In clay preparation, there are three steps involved:

- **Tempering**
  Tempering is the addition of water in clay to make it soft and workable.
- **Crushing**
  After water is added, workers crush clay to make it homogeneous.
- **Sand Mixing**
  Before placing the clay into molds, the clay is coated with dry sand which reduces crack effects in the bricks.

5.1.3 Molding

Placing of clay in a specific hollow container, to produce a particular size of bricks is called molding. There may be different sizes of molds to produce different brick products according to the demand of buyers.

5.1.4 Drying

Drying is necessary to remove water which was added during the process of clay preparation; otherwise this water content or moisture may create cracks in bricks during burning process. Water is removed by using sun drying technique. In hot summer days, drying is done in 4 to 5 days and in winter season it may take 9-10 days.

5.1.5 Firing or Burning

After the particular stacking of raw bricks in the kiln as per the capacity, the process of firing takes place. At this stage the temperature must remain constant in particular kiln area to get best quality produce. Proper and efficient burning techniques results in good quality of bricks and reduces breakage.

5.1.6. Cooling Process

After the completion of burning stage for a specific time and as well as for a specific number of bricks or rows, the temperature must be slow down steadily and the burning operator moves the fire to the next raw bricks. After cooling, the prepared bricks will be ready to remove from Kiln for selling purpose.

5.2 Installed and Operational Capacities

The installed capacity of the proposed Clay Bricks Manufacturing kiln Unit is 0.5 million / cycle. The proposed brick size for this unit will be 9” x 4”, which is commonly used in construction. One may produce bricks of other sizes according to the demand but profit margin is almost same. The project may produce roof tiles or other bricks of different sizes as well as per the demand.

At initial stage, the production are 10 cycles / year and it will reach to 15 cycles / year at the rate of 2% per year increase and in each cycle there will be production of 0.5 million bricks. The capacity utilization during year one is worked out at 80% with 2% increase in subsequent years up to the maximum capacity utilization of 90%.

6 CRITICAL FACTORS

Following critical factors should keep in mind, before making investment in this business.

- The land area for kiln construction and office should be purchased, whereas for preparation of raw bricks land can be acquired on rent basis.
- Availability of high quality clay to produce good quality bricks.
- Selection of good land for soil.
- Availability of trained labor to produce high quality bricks.
- Availability of cheap burning material to make this business profitable.
- This project should not establish in heavy rainy areas.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Construction activities and its output is an integral part of a country's economy and industrial development. The construction industry is often seen as a driver of economic growth especially in developing countries. This industry can mobilize and effectively utilize local human and material resources in the development and maintenance of housing and infrastructure to promote local employment and improve economic efficiency.

There are different types of construction options including reinforced concrete structure, clay bricks, metal roof etc. Due to the soaring construction costs, low cost construction options are in high demand in most of the rural and urban areas of the country. The clay bricks are used in a large number of construction projects including non-traditional / traditional housing, community centers, warehouses and factories etc. It is also suitable for schools and other public buildings especially in the rural areas.

Demand for such type mainly exists for housing projects in villages, towns, urban, semi-urban and smaller cities. Additionally, in larger cities the low cost construction materials are used in suburban housing schemes and in many other public or private projects. The clay bricks manufacturing unit can be established anywhere in the country or near the towns or cities where main access to basic raw materials and requirements for this project are easily available, like Hyderabad, Larkana, Sukkur, Lahore, Rawalpindi, Multan, Faisalabad and Quetta.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Market for the clay bricks exist almost in all over the country. Investors can find demand of clay bricks round the year. Therefore, Clay Bricks Manufacturing Unit can be established at any time of the year. Expected potential customers are given below:

1. Contractors of construction industry.
2. Government's construction projects.
3. Building material suppliers.
4. Individuals of rural & urban areas.

9 PROJECT COST SUMMARY

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of 500,000 bricks in year one. The capacity utilization during year one is worked out at 80% with 2% increase in subsequent years up to the maximum capacity utilization of 90%.

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

Table 1: Project Economics

Description	Details
Internal Rate of Return (IRR)	45%
Payback Period (yrs.)	2.22
Net Present Value (Rs.)	7,159,368

9.2 Project Financing

Following table provides details of the equity required and variables related to bank loan:

Table 2: Project Financing

Description	Details
Total Equity (50%)	Rs.2,784,750
Bank Loan (50%)	Rs. 2,784,750
Markup to the Borrower (%age / annum)	18%
Tenure of the Loan (Years)	5

9.3 Project Cost

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

Table 3: Project Cost

Description	Amount (Rs.)
Capital Cost	
Land	2,400,000
Plant and Machinery	1,417,000
Site/Office Renovation & Construction	950,000
Plant / Office Furniture	25,000
Preliminary Expenses	50,000
Total Capital Cost	**4,842,000**
Working Capital	
Raw Material Inventory (clay, sand, firing material etc.)	712,500
Utilities office and Kiln (1 month)	15,000
Total Working Capital	**727,500**
Total Project Cost	**5,569,500**

9.4 Space Requirement

The space requirement for the proposed Clay Bricks Manufacturing Kiln Unit is 03 acres. Space for the manufacturing unit has been calculated on the basis of considering various facilities including management office, production area where kiln will be constructed, storage area, open space, etc. Details of space requirement and cost related to land & building is given below:

Table 4: Space Requirment for Kiln & Office construction and land cost.

Description	Estimated Area	Civil work/ Construction Cost/sq.ft.	Total Cost (Rs.)
Land (acres)	3 Acres		2400,000
Bricks Kiln Construction	--	--	450,000
Storage area	500 sq. ft.	400	200,000
Office and staff facilities	500 sq. ft.	600	300,000
Total Cost			**3,350,000**

9.5 Machinery & Equipment Requirement

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

Table 5: Machinery & Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Molds	100	600	60,000
Iron Buckets	100	350	35,000
Shovels	100	500	50,000
Tractor & trolley	1	1,200,000	1,200,000
Tube well (small diesel engine)	1	72,000	72,000
Total			**1,417,000**

9.6 Furniture & Fixtures Requirement

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

Table 6: Furniture & Fixture

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Tables	2	5,000	10,000
Chairs	6	8,00	4,800
Sitting Benches	2	2,500	5,000
Electrical Fans	2	2,600	5,200
Total			**25,000**

9.7 Human Resource Requirement

In order to run operations of Clay Bricks Manufacturing Kiln smoothly, about 80 contractual employees will be engaged for the preparation of raw bricks apart from contractual employees, some human resources will be hired on monthly salary basis, details are given as under:

Table 7: Human Resource Requirment

Description	No. of Employees	Monthly Salary per person (Rs.)	Total Monthly Salary (Rs.)	Annual Salary (Rs.)
Business Unit Manager/owner	1	20,000	20,000	240,000
Supervisor	1	15,000	15,000	180,000
Accountant	1	12,000	12,000	144,000
Guard / Chowkidar	1	12,000	12,000	144,000
Tractor Driver	1	12,000	12,000	144,000
Helper	1	12,000	12,000	144,000
Total	**6**	**83,000**	**83,000**	**996,000**

9.8 Utilities and other costs

An essential cost to be borne by the project is the cost of burning material. The burning or firing material expenses are estimated to be around Rs.532,500 per production cycle, whereas fuel expenses are estimated to be Rs. 85000 / production cycle which includes fuel for small tube well and tractor. Furthermore promotional expense being essential for marketing of Clay Bricks Manufacturing Unit is estimated as 0.25% of Sales.

9.9 Revenue Generation

Based on the capacity utilization of 80% of the unit, sales revenue during the first year of operations is estimated as under;

Table 8: Revenue Generation – Year 1 (10 cycles/year)

Description	No. of Units Produced /cycle	Sale Price / unit (Rs.)	Sales Revenue (Rs.)/cycle
A Grade Brick	350,003	04	1,400,011
B Grade Brick	75,001	03	225,002
Wastage	75,001	1.5	112,501

Total	**500,004**		**1,737,514**
Gross Annual Sales			**20,850,167**

10 CONTACT DETAILS

In order to facilitate potential investors, contact details of private sector Service Providers relevant to the proposed project be given:

10.1 Technical Experts / Consultants

Name of Expert/ Organization	Address	Contact Number.
Solangi Enterprises	Phulji Road Dadu.	0344-3239339
Asghar Ali	Bhan Saeedabad Town, Distt. Jamshoro	0300-3649733
Ali Khan Otho	Bodla Bahar Colony, Sehwan Sharif.	0306-3253398

11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Ministry of Education, Training & Standards in Higher Education	http://moptt.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.**phdec**.org.pk
Punjab Vocational Training Council (PVTC)	www.**pvtc**.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.**tevta**.org

Pakistan Readymade Garment Technical Training Institute	www.prgmea.org/**prgtti**/
Livestock & Dairy Development Department, Government of Punjab.	www.**livestock**punjab.gov.pk
Punjab Industrial Estates (PIE)	www.pie.com.pk
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	www.fiedmc.com.pk

12 ANNEXURES

12.1 Income Statement

Projected Income Statement (Rs.)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	**20,850,167**	**22,543,200**	**24,373,708**	**26,352,853**	**28,492,705**	**30,806,313**	**33,307,785**	**36,012,377**	**38,936,582**	**42,098,233**
Beginning Inventory	**-**	**334,833**	**358,558**	**383,964**	**411,171**	**440,307**	**471,510**	**504,924**	**540,708**	**579,030**
Ending Inventory	**334,833**	**358,558**	**383,964**	**411,171**	**440,307**	**471,510**	**504,924**	**540,708**	**579,030**	**620,068**
Gross Revenue	**20,515,333**	**22,519,476**	**24,348,302**	**26,325,646**	**28,463,569**	**30,775,110**	**33,274,371**	**35,976,593**	**38,898,261**	**42,057,194**
Sales on Credit	**2,051,533**	**2,251,948**	**2,434,830**	**2,632,565**	**2,846,357**	**3,077,511**	**3,327,437**	**3,597,659**	**3,889,826**	**4,205,719**
Sales on Cash	**18,463,800**	**20,267,529**	**21,913,472**	**23,693,081**	**25,617,212**	**27,697,599**	**29,946,934**	**32,378,934**	**35,008,435**	**37,851,475**
Bad Debt Expenses	**41,031**	**45,039**	**48,697**	**52,651**	**56,927**	**61,550**	**66,549**	**71,953**	**77,797**	**84,114**
Net (Adjusted Sales)	**20,474,303**	**22,519,476**	**24,348,302**	**26,325,646**	**28,463,569**	**30,775,110**	**33,274,371**	**35,976,593**	**38,898,261**	**42,057,194**
Cost of Sales	**17,220,000**	**18,440,100**	**19,746,701**	**21,145,939**	**22,644,383**	**24,249,071**	**25,967,539**	**27,807,857**	**29,778,669**	**31,889,231**
Material Cost	9,570,000	10,249,470	10,977,182	11,756,562	12,591,278	13,485,259	14,442,712	15,468,145	16,566,383	17,742,596
Labor (Production Staff)	7,530,000	8,064,630	8,637,219	9,250,461	9,907,244	10,610,658	11,364,015	12,170,860	13,034,991	13,960,476
Other Utilities	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Gross Profit	**3,254,303**	**4,079,376**	**4,601,601**	**5,179,707**	**5,819,186**	**6,526,039**	**7,306,832**	**8,168,736**	**9,119,592**	**10,167,963**
Gross Profit Margin	**16%**	**18%**	**19%**	**20%**	**20%**	**21%**	**22%**	**23%**	**23%**	**24%**
General Administrative & Selling Expenses										
Salaries	996,000	1,095,600	1,205,160	1,325,676	1,458,244	1,604,068	1,764,475	1,940,922	2,135,014	2,348,516
Lease Charges of Land - Quarry / Excavation	-	-	-	-	-	-	-	-	-	-
Plant/Office Miscellaneous Expenses	-	-	-	-	-	-	-	-	-	-
Amortization of Preliminary Expenses	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
Depreciation Expense	239,200	215,280	193,752	174,377	156,939	150,745	135,671	122,104	109,893	98,904
Maintenance Expense (Brick Kiln)	283,400	311,740	342,914	377,205	414,926	456,419	502,060	552,266	607,493	668,242
Marketing & Selling	51,186	56,299	60,871	65,814	71,159	76,938	83,186	89,941	97,246	105,143
Subtotal	***1,579,786***	***1,688,919***	***1,812,697***	***1,953,072***	***2,111,268***	***2,288,169***	***2,485,392***	***2,705,234***	***2,949,646***	***3,220,805***
Operating Income	**1,674,517**	**2,390,457**	**2,788,904**	**3,226,635**	**3,707,918**	**4,237,870**	**4,821,440**	**5,463,503**	**6,169,946**	**6,947,158**
Financial Charges (15% Per Annum)	471,119	397,282	309,002	203,452	77,255	-	-	-	-	-
Earnings Before Taxes	**1,203,398**	**1,993,175**	**2,479,902**	**3,023,183**	**3,630,663**	**4,237,870**	**4,821,440**	**5,463,503**	**6,169,946**	**6,947,158**
Tax	103,010	246,135	343,480	478,296	630,166	793,861	968,932	1,161,551	1,381,981	1,654,005
Net Profit	**1,100,388**	**1,747,040**	**2,136,422**	**2,544,887**	**3,000,497**	**3,444,009**	**3,852,508**	**4,301,952**	**4,787,965**	**5,293,152**
Monthly Profit After Tax	**91,699**	**145,587**	**178,035**	**212,074**	**250,041**	**287,001**	**321,042**	**358,496**	**398,997**	**441,096**

12.2 Balance Sheet

Projected Balance Sheet (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Current Assets											
Cash & Bank Balance	2,415,000	3,024,130	4,459,722	6,174,118	8,165,625	10,367,195	13,854,972	17,728,188	22,028,696	26,793,778	31,995,638
Fuel Inventoriy (Diesel)	712,500	398,750	427,061	457,383	489,857	524,637	561,886	601,780	644,506	690,266	739,275
Finished Goods Inventory	0	334,833	358,558	383,964	411,171	440,307	471,510	504,924	540,708	579,030	620,068
Accounts Receivable	0	341,922	375,325	405,805	438,761	474,393	512,919	554,573	599,610	648,304	700,953
Total Current Assets	**3,127,500**	**4,099,635**	**5,620,666**	**7,421,269**	**9,505,413**	**11,806,532**	**15,401,286**	**19,389,465**	**23,813,520**	**28,711,378**	**34,055,935**
Fixed Assets											
Plant Machinery & Facility	1,417,000	1,275,300	1,147,770	1,032,993	929,694	836,724	753,052	677,747	609,972	548,975	494,077
Factory Construction	950,000	855,000	769,500	692,550	623,295	655,966	590,369	531,332	478,199	430,379	434,841
Furniture & Fixtures	25,000	22,500	20,250	18,225	16,403	14,762	13,286	11,957	10,762	9,686	8,717
Vehicle	0	0	0	0	0	0	0	0	0	0	0
Total Fixed Assets	**2,392,000**	**2,152,800**	**1,937,520**	**1,743,768**	**1,569,391**	**1,507,452**	**1,356,707**	**1,221,036**	**1,098,933**	**989,039**	**937,635**
Intangible Assets											
Preliminary Expenses	**50,000**	**40,000**	**30,000**	**20,000**	**10,000**	**-**	**-**	**-**	**-**	**-**	**-**
Total Assets	**5,569,500**	**6,292,435**	**7,588,186**	**9,185,037**	**11,084,804**	**13,313,984**	**16,757,993**	**20,610,501**	**24,912,453**	**29,700,418**	**34,993,570**
Owner's Equity	2,784,750	3,885,138	5,632,178	7,768,600	10,313,487	13,313,984	16,757,993	20,610,501	24,912,453	29,700,418	34,993,570
Long Term Liability	2,784,750	2,407,297	1,956,007	1,416,437	771,317	0	0	0	0	0	0
Total Equity & Liabilities	**5,569,500**	**6,292,435**	**7,588,186**	**9,185,037**	**11,084,804**	**13,313,984**	**16,757,993**	**20,610,501**	**24,912,453**	**29,700,418**	**34,993,570**

12.3 Cash Flow Statement

Projected Statement of Cash Flows (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash Flow From Operating Activities											
Net Profit	0	1,100,388	1,747,040	2,136,422	2,544,887	3,000,497	3,444,009	3,852,508	4,301,952	4,787,965	5,293,152
Add: Depreciation Expense	0	239,200	215,280	193,752	174,377	156,939	150,745	135,671	122,104	109,893	98,904
Amortization Expense	0	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
(Increase) / decrease in Receivables	-	(341,922)	(33,402)	(30,480)	(32,956)	(35,632)	(38,526)	(41,654)	(45,037)	(48,694)	(52,649)
(Increase) / decrease in RM	-	313,750	(28,311)	(30,321)	(32,474)	(34,780)	(37,249)	(39,894)	(42,726)	(45,760)	(49,009)
(Increase) / decrease in FG Inventory		(334,833)	(23,724)	(25,406)	(27,207)	(29,136)	(31,202)	(33,415)	(35,784)	(38,321)	(41,039)
Net Cash Flow From Operations	**0**	**986,583**	**1,886,882**	**2,253,966**	**2,636,627**	**3,067,888**	**3,487,777**	**3,873,216**	**4,300,508**	**4,765,082**	**5,249,360**
Cash Flow From Financing Activities											
Receipt of Long Term Debt	2,784,750										
Repayment of Long Term Debt		(377,453)	(451,290)	(539,570)	(645,120)	(771,317)	-	-	-	-	-
Owner's Equity	2,784,750										
Net Cash Flow From Financing Activities	**5,569,500**	**(377,453)**	**(451,290)**	**(539,570)**	**(645,120)**	**(771,317)**	**0**	**0**	**0**	**0**	**0**
Cash Flow From Investing Activities											
Capital Expenditure	(2,367,000)					(95,000)					(47,500)
Factory/Office Furniture	(25,000)										
Preliminary Operating Expenses	(50,000)										
Raw Material Inventory (15 Days)	(712,500)										
Net Cash Flow From Investing Activities	**(3,154,500)**	**0**	**0**	**0**	**0**	**(95,000)**	**0**	**0**	**0**	**0**	**(47,500)**
NET CASH FLOW	**2,415,000**	**609,130**	**1,435,593**	**1,714,396**	**1,991,507**	**2,201,571**	**3,487,777**	**3,873,216**	**4,300,508**	**4,765,082**	**5,201,860**
Cash at the Beginning of the Period	**0**	**2,415,000**	**3,024,130**	**4,459,722**	**6,174,118**	**8,165,625**	**10,367,195**	**13,854,972**	**17,728,188**	**22,028,696**	**26,793,778**
Cash at the End of the Period	**2,415,000**	**3,024,130**	**4,459,722**	**6,174,118**	**8,165,625**	**10,367,195**	**13,854,972**	**17,728,188**	**22,028,696**	**26,793,778**	**31,995,638**

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Shift Length	12 hours
Number of shifts	01
Days operational per year	330 days

13.2 Production Cost Assumptions

Description	Details
Raw Material Cost per unit of product (Combine Average Price)	Rs.1.6
Increase in Cost Price	5%
Production Capacity	500,000 units
Production Capacity Utilization	80%

13.3 Revenue Assumptions

Description	Details
Price per unit (Combine Average Price)	Rs.4
Price per unit growth rate	6%

13.4 Financial Assumptions

Description	Details
Project Life	10 years
Debt Equity Ratio	50 : 50
Interest Rate on Long Term Debt	18%
Long Term Debt Tenure	5 years
Numbers of Payment / Year	12