

# Pre-Feasibility Study

## PPRC PIPE MANUFACTURING UNIT



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**Ministry of Industries & Production**

**Government of Pakistan**

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## 1 DISCLAIMER

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## 2 EXECUTIVE SUMMARY

The Poly Propylene Random Copolymer (PPRC) Pipes Manufacturing is a project of plastic sector. PPRC pipe production line is mainly used in the residential water supply systems, industrial water transportation and other related applications. The PPRC pipes are produced in various diameters. Key characteristics of high temperature resistance, non-corrosion, ease of installation and durability marks PPRC pipes as the most reliable plumbing system for the hot and cold-water applications. The continual growth of housing and construction sector along with increasing urbanization in the country attributed to increasing demand of PPRC pipes.

This pre-feasibility study is for setting up a semi-mechanized PPRC Pipe Manufacturing Unit. The proposed unit comprised of production facility for manufacturing of PPRC pipes in three different diametric ranges of 25 mm, 32 mm and 40 mm, mainly used in plumbing systems for underground hot and cold water supplies in residential houses and commercial buildings. Pipe extrusion line having single screw extruders will be used for extruding the pipes with various tube diameters and thickness. The maximum production capacity of the unit is assumed to be 204,111 pipes annually on 8 hours single shift basis and 330 operational days. The business will provide employment opportunity to 11 individuals including the owner manager.

Most of the PPRC Pipes manufacturing units are part of small-scale industry and operating in major cities like Lahore, Gujranwala, Karachi, Multan and Faisalabad. The market for PPRC pipes exists in almost every part of the country. Ability to generate work orders through industrial networking, direct marketing and negotiating long term contracts is key aspect for the success of the proposed business.

The total project cost for setting up this unit is estimated at Rs. 22.68 million out of which Rs. 20.68 million is capital cost and Rs. 2.00 million as working capital. The project is financed through 50% debt and 50% equity. The project NPV is around Rs. 14.94 million, with an IRR of 34% and payback period of 3.82 years. The legal status of this project is proposed as '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 **PPRC Pipe Manufacturing 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 its 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**

The proposed project entails setting up of a PPRC Pipe manufacturing Unit, which has a product range of 25 mm, 32 mm and 40 mm pipes. PPRC stands for 'Poly

Propylene Random Copolymer' is a thermoplastic polymer composition. This raw material made by the chemical industry and used a wide variety of applications, including water supply systems, plumbing, food packaging, textiles, plastic parts and etc. PPRC material is superior to others as to the resistance to temperature, pressure and chemical materials.

Because of these characteristics, PPRC pipes are recognized as the highly resistant and durable options for plumbing and liquid supply systems; particularly for supply of cold and hot waters in houses, residential colonies and commercial buildings as well as movement of chemicals in the industries. In Pakistan, Most of the PPRC Pipes manufacturing units are part of small-scale industry. While, market for PPRC pipes exists in almost every part of the country.

For the purpose of this project, the extruder machine with total capacity of 100 Kgs / hour will be used for the production of PPRC Pipes.

### **5.1 Production Process Flow**

PPRC Pipes manufacturing process mainly involves the following key steps:

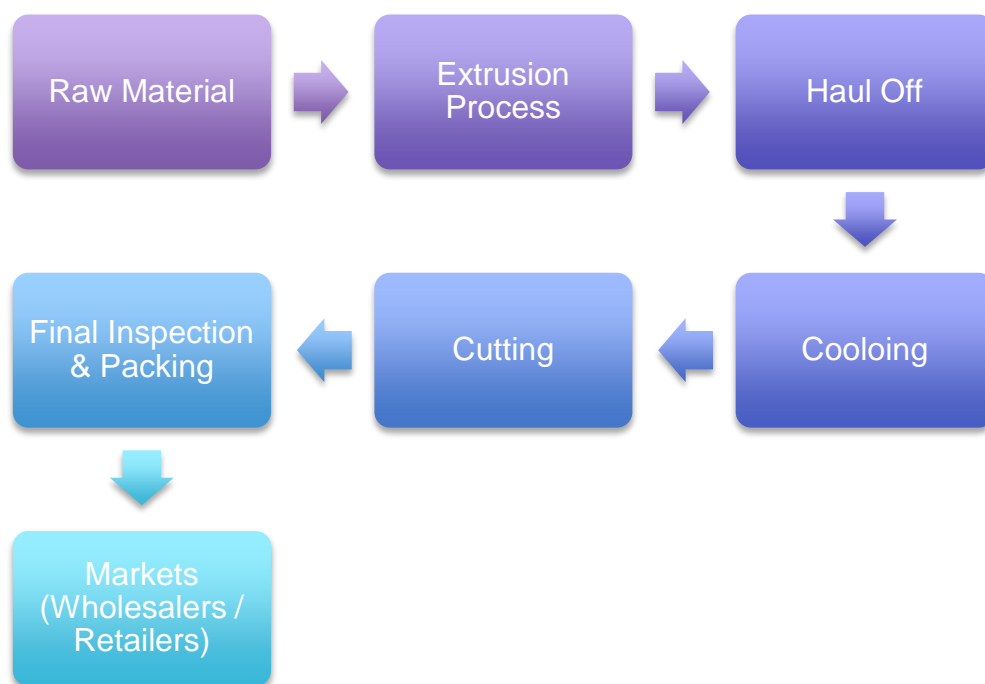
Extrusion Process: To get blended compound in predetermined ratio with PPRC resin along with adding color. Mixing is done at high-speed mixer at high temperature. The melted compound is passed through a warm die fixed to the extruder to get a specific size and quality of pipe.

Haul Off: Extruder is pulled by a machine that is called Haul Off. This machine is also called take up machine/unit. Haul off is used to give proper shape to pipe. This machine worked under a fixed command/time. Haul off machine basically consist of rollers.

Cooling: After Extruder and Haul Off the next process is to cool down the hot pipe. Putting water in cooling tank cools down this soft pipe. After cooling the pipes, PPRC pipe transforms an unbending form.

Cutting: After maturing pre decided/desired lengths an automatic machine come into force and cut the pipes as per the standard length of 13 feet.

Final Inspection & Packing: This is the last process of production. Finished products are inspected and only those complying with the standards are considered passed. Passed products are carefully packed and then send to the customers.

**Figure: Process Flow Diagram of PPRC Pipes Manufacturing**

## 5.2 Installed And Operational Capacities

The maximum installed capacity of producing PPRC Pipes (without wastage) is 204,111 pipes (around 251 tons in terms of weight) per year. While percentage share of 25 mm, 32 mm and 40 mm diameter pipes in total production capacity are assumed as 60%, 25% and 15% respectively. These percentages are assumed on the basis of market demands.

The physical dimensions of different diametric sizes of pipes produced by the proposed unit are illustrated below:

**Table 1: Physical Dimensions of PPRC Pipes Produced**

Size	Wall Thickness	Length	Net Weight (Kgs)
25 mm	4.2 mm	13 ft	1.00
32 mm	5.4 mm	13 ft	1.60
40 mm	6.7 mm	13 ft	2.70

The starting production capacity of the project is worked out at 65% and accordingly 132,672 pipes will be produced in year one in an 8-hour single shift basis. The maximum capacity utilization is 95% that will be attained in 7<sup>th</sup> year of operation.

The details of installed and operational capacities are provided in the table below:

**Table 2: Installed and Operational Capacity**

<b>Product Mix (Pipes Diameter)</b>	<b>Production Process Contribution</b>	<b>Daily Production (No of Pipes)</b>	<b>Annual Production (No Pipes)</b>	<b>Starting Production (No of Pipes)</b>
25 mm	60%	457	150,857	98,057
32 mm	25%	119	39,286	25,536
40 mm	15%	43	13,968	9,079
<b>Total Production</b>	<b>100%</b>	<b>619</b>	<b>204,111</b>	<b>132,672</b>

## 6 CRITICAL FACTORS

The most critical considerations / factors for the success of this project are as follows:

- ⇒ Technical know-how and relevant experience of entrepreneur.
- ⇒ Availability of skilled labour having technical knowledge.
- ⇒ Ability to generate work orders through industrial networking, direct marketing and negotiating long term contracts.
- ⇒ Higher return on investment and a steady growth of business is closely associated with regular training and capacity building of the entrepreneur and employees.
- ⇒ Stringent supervision of the production process at every level.
- ⇒ Strong linkages with wholesaler / retailers for selling of product.
- ⇒ Knowledge about local environmental regulations and compliance requirements.

## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The major PPRC pipe-manufacturing units are established in Gujranwala, Lahore, Karachi, Faisalabad and Multan. Therefore, any of the above cities would be suitable for setting up a PPRC pipe-manufacturing unit. Raw material and labor is also easily accessible in these cities. The ideal location for the project may be



outside municipal and cantonment limits, preferably in a small industrial cluster / estate.

## **8 POTENTIAL TARGET CUSTOMERS / MARKETS**

The proposed unit mainly caters for the demand of different diametric sizes of PPRC pipes used for water supplies in houses, residential and commercial buildings. Target customers of the proposed unit largely comprises of following segments:

- ⇒ Residential Apartments, Public Housing
- ⇒ Commercial Buildings, Shopping Centers
- ⇒ Schools, Hospitals, Laboratories
- ⇒ Hotels, Resorts, Entertainment Parks, Halls, Theaters. etc
- ⇒ Chemical Sewerage and Drainage Systems
- ⇒ Liquid Chemicals flow system in chemical, pharmaceuticals and food processing industries.

The development in civil works is a continuous process and the civil works related industries are developing day by day. The market for PPRC pipes exists in almost every part of the country.

## **9 PROJECT COST SUMMARY**

A detailed financial model has been developed to analyze the commercial viability of PPRC Pipe Manufacturing Unit. Various cost 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 attached as appendices.

### **9.1 Project Economics**

All the figures in this financial model have been calculated for estimated sales of 132,672 pipes with net revenue of Rs. 49.02 million in the year one. The capacity utilization during year one is worked out at 65% with 5 % increase in subsequent years up to the maximum capacity utilization of 95%.

The following table shows Internal Rate of Return, Payback Period and Net Present Value of the proposed venture.

**Table 3: Project Economics**

Description	Details
Internal Rate of Return (IRR)	34%
Payback Period (Yrs.)	3.82
Net Present Value (Rs.)	14,939,527

## 9.2 Project Financing

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

**Table 4: Project Financing**

Description	Details
Total Equity (50%)	Rs. 11,340,232
Bank Loan (50%)	Rs. 11,340,232
Markup to the Borrower (%age / annum)	14%
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 5: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Land	2,700,000
Building and Infrastructure	10,471,134
Plant and Machinery	4,636,160
Furniture and Fixture	272,000
Office Equipment	116,000
Pre-operating Cost	2,485,387
<b>Total Capital Cost</b>	<b>20,680,681</b>
<b>Working Capital</b>	

Raw Material Inventory	1,499,784
Cash	500,000
<b>Total Working Capital</b>	<b>1,999,784</b>
<b>Total Project Cost</b>	<b>22,680,465</b>

#### 9.4 Space Requirement

The space requirement for the proposed PPRC Pipe Manufacturing Unit is estimated considering various facilities including production hall, management office, storage, open space, and etc.

Total land requirement for proposed project is 1.5 kanal. It is suggested to purchase land instead of getting on rent or lease as the project life is very high and Plant & Machinery used in the project is expensive. Total estimated land cost is taken at Rs. 2.70 million. Details of space requirements along with cost of building and infrastructural requirements is given below:

**Table 6: Building and Infrastructural Requirement**

Description	Estimated Area (Sq.ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Management Office	500	2,500	1,250,000
Production Hall	3,600	1,800	6,480,000
Store – Finished Goods	700	1,500	1,050,000
Store – Raw Material	700	1,500	1,050,000
Loading Area	1,250	250	312,500
Boundary Wall	329	1,000	328,634
<b>Total</b>			<b>10,471,134</b>

#### 9.5 Machinery & Equipment Requirement

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

**Table 7: Machinery & Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Extruder	1	1,296,000	1,296,000
Mould (Pipe)	1	432,000	432,000
Vacuum Tank	1	540,000	540,000

Hauling off	1	410,400	410,400
Cutter	1	313,200	313,200
Stacker	1	54,000	54,000
Miscellaneous Charges (e.g. Freight Charges, Commissioning and Installation, etc.)		790,560	790,560
Generator	1	800,000	800,000
<b>Total</b>			<b>4,636,160</b>

## 9.6 Furniture & Fixtures Requirement

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

**Table 8: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Office Table with Chair	4	16,000	64,000
Visitor Chairs	8	3,500	28,000
Sofa Set	1	10,000	10,000
Office Cabinet	1	25,000	25,000
Air Conditioners	2	60,000	120,000
Electric Wiring and Lighting	1	25,000	25,000
<b>Total</b>			<b>272,000</b>

## 9.7 Office Equipment Requirement

Following office equipment will be required for the proposed unit:

**Table 9: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	2	50,000	100,000
Printer	1	14,000	14,000
Telephone Set	2	1,000	2,000
<b>Total</b>			<b>116,000</b>

## 9.8 Raw Material Requirement

Following raw material required for PPRC pipes manufacturing.

**Table 10: Raw Material Requirement**

Description	Composition	Per Kg Rate	Per Kg Raw Material Cost
PPRC Resin	98%	208	204
Color	2%	296	6
<b>Total</b>	<b>100%</b>		<b>210</b>

## 9.9 Human Resource Requirement

In order to run operations of PPRC Pipe Manufacturing Unit smoothly, details of human resources required along with monthly salary are recommended as under:

**Table 11: Human Resource Requirement**

Description	No. of Employees	Monthly Salary per person (Rs.)
Owner Manager	1	40,000
Extruder Operator	1	22,000
Accountant	1	18,000
Store In charge	1	16,000
Marketing and Purchase Officer	1	18,000
Helper	4	13,000
Guard	2	13,000
<b>Total</b>		<b>192,000</b>

## 9.10 Utilities and other costs

An essential cost to be borne by the project is the cost of electricity. The direct electricity (including generator) expenses are estimated to be around Rs.372,641 per month. Furthermore, promotional expense being essential for marketing of PPRC Pipe is estimated as 1% of revenue.

## 9.11 Revenue Generation

Based on the 65% capacity utilization, sales revenue during the first year of operations is estimated as under:

**Table 12: Revenue Generation – Year 1 (Ex-factory Price)\***

Product Mix (Pipes Diameter)	Production Percentages	Year 1 Production (No of Pipes)	Year 1 Sale Price / Pipe	Sales Revenue (Rs.)
25 mm	60%	98,057	300	29,417,143
32 mm	25%	25,536	480	12,257,143
40 mm	15%	9,079	810	7,354,286
<b>Total</b>	<b>100%</b>	<b>132,672</b>		<b>49,028,572</b>

\* Variation in figures is due to rounding off factor.

## 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 Machinery Suppliers

Name of Supplier	Address	Phone	E-mail	Website
Weifang Kaide Plastic Machinery Co.	Yinma Industrial Park, Changi City, Shandong Province China	0086-536-8650536	<a href="mailto:marketthree@kai-de.com">marketthree@kai-de.com</a>	<a href="http://www.kai-de.com">www.kai-de.com</a>
Suzhou Caivi Plastic Technology Co., Ltd.	Zone A, No. 3, Zhenxing Road, Economic Developmet Zone, Zhangjiangang, China	0086-51258156669		<a href="http://www.caivi.com.cn">www.caivi.com.cn</a>
Zhangjiaganag Golden Far East Machinery Co. Ltd.	Chengfeng industrial Park, Zhaofong Town, Zhongjagang, Jiangsu, China.	0086-512-58603308		<a href="http://www.jy-djx.com/">http://www.jy-djx.com/</a>

### 10.2 Raw Material Suppliers

Name of Supplier	Address	Phone	E-mail
Ijaz Brothers	1 <sup>st</sup> Floor Bhagwan Das Building, Rutan Chan Road, Chowk Shah Alam, Lahore	042-37220883	<a href="mailto:anjumchemicalcorp@hotmail.com">anjumchemicalcorp@hotmail.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>
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 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>
Punjab Small Industries Corporation	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
Sindh Small Industries Corporation	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
Punjab Vocational Training Council (PVTC)	<a href="http://www.pvtc.gop.pk">www.pvtc.gop.pk</a>
Technical Education and Vocational Training Authority (TEVTA)	<a href="http://www.tevta.org">www.tevta.org</a>
Punjab Industrial Estates (PIE)	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>
Gujranwala Tools Dies and Molds Center (GTDMC)	<a href="http://www.gtdmc.org.pk">www.gtdmc.org.pk</a>
Pakistan Industrial and Technical Assistance (PITAC)	<a href="http://www.pitac.gov.pk">www.pitac.gov.pk</a>

## 12 ANNEXURES

### 12.1 Income Statement

Calculations										SMEDA
Income Statement										
	Rs. In actuals									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	49,028,571	58,080,000	68,451,429	80,316,343	93,869,726	109,330,622	126,945,000	139,639,500	153,603,450	168,963,795
<i>Cost of sales</i>										
Raw Material Cost	35,994,816	42,640,013	50,254,301	58,965,046	68,915,398	80,266,169	93,197,941	102,517,735	112,769,509	124,046,459
Operating costs 1 (direct labor)	1,014,000	1,201,200	1,415,700	1,661,088	1,941,397	2,261,156	2,625,453	2,887,999	3,176,799	3,494,478
Operating costs 2 (machinery maintenance)	150,675	178,492	210,366	246,829	288,482	335,996	390,129	429,142	472,056	519,262
Operating costs 3 (direct electricity)	4,471,694	5,297,237	6,243,173	7,325,322	8,561,471	9,971,595	11,578,130	12,735,943	14,009,537	15,410,491
Total cost of sales	41,631,185	49,316,942	58,123,539	68,198,286	79,706,747	92,834,917	107,791,653	118,570,818	130,427,900	143,470,690
Gross Profit	7,397,386	8,763,058	10,327,890	12,118,057	14,162,979	16,495,705	19,153,347	21,068,681	23,175,549	25,493,104
<i>General administration &amp; selling expenses</i>										
Administration expense	744,000	818,400	900,240	990,264	1,089,290	1,198,219	1,318,041	1,449,846	1,594,830	1,754,313
Electricity expense	470,289	517,318	569,050	625,955	688,550	757,405	833,146	916,460	1,008,106	1,108,917
Office expenses (stationary, entertainment, janitorial services, etc)	74,400	81,840	90,024	99,026	108,929	119,822	131,804	144,985	159,483	175,431
Promotional expense	490,286	580,800	684,514	803,163	938,697	1,093,306	1,269,450	1,396,395	1,536,034	1,689,638
Professional fees (legal, audit, consultants, etc.)	49,029	58,080	68,451	80,316	93,870	109,331	126,945	139,639	153,603	168,964
Depreciation expense	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973
Amortization of pre-operating costs	497,077	497,077	497,077	497,077	497,077	-	-	-	-	-
Subtotal	3,351,054	3,579,488	3,835,330	4,121,775	4,442,387	4,304,056	4,705,359	5,073,298	5,478,030	5,923,236
Operating Income	4,046,333	5,183,570	6,492,560	7,996,282	9,720,592	12,191,649	14,447,987	15,995,383	17,697,519	19,569,868
Earnings Before Interest & Taxes	4,046,333	5,183,570	6,492,560	7,996,282	9,720,592	12,191,649	14,447,987	15,995,383	17,697,519	19,569,868
Interest expense on long term debt (Debt facility : Bank 1)	1,482,283	1,230,772	941,700	609,458	227,597	-	-	-	-	-
Subtotal	1,482,283	1,230,772	941,700	609,458	227,597	-	-	-	-	-
Earnings Before Tax	2,564,050	3,952,798	5,550,860	7,386,824	9,492,995	12,191,649	14,447,987	15,995,383	17,697,519	19,569,868
Taxable earnings for the year	2,564,050	3,952,798	5,550,860	7,386,824	9,492,995	12,191,649	14,447,987	15,995,383	17,697,519	19,569,868
Tax	363,512	710,699	1,187,758	1,807,888	2,545,047	3,489,576	4,279,295	4,820,884	5,416,631	6,071,953
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>2,200,538</b>	<b>3,242,098</b>	<b>4,363,102</b>	<b>5,578,936</b>	<b>6,947,947</b>	<b>8,702,072</b>	<b>10,168,693</b>	<b>11,174,500</b>	<b>12,280,888</b>	<b>13,497,915</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
	Rs. In actuals										
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	500,000	159,031	1,792,927	4,274,021	7,380,875	11,159,685	18,748,709	27,760,292	37,669,379	48,308,172	74,085,652
Accounts receivable		1,114,286	2,434,286	2,875,714	3,381,086	3,958,774	4,618,190	5,369,900	6,058,739	6,664,612	7,331,074
Finished goods inventory		1,734,633	2,054,873	2,421,814	2,841,595	3,321,114	3,868,122	4,491,319	4,940,451	5,434,496	5,977,945
Raw material inventory	1,499,784	1,954,334	2,533,654	3,270,103	4,204,126	5,386,228	6,879,410	8,324,086	10,072,144	12,187,294	-
<b>Total Current Assets</b>	<b>1,999,784</b>	<b>4,962,283</b>	<b>8,815,740</b>	<b>12,841,653</b>	<b>17,807,683</b>	<b>23,825,802</b>	<b>34,114,430</b>	<b>45,945,597</b>	<b>58,740,713</b>	<b>72,594,575</b>	<b>87,394,671</b>
<i>Fixed assets</i>											
Land	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000	2,700,000
Building/Infrastructure	10,471,134	9,947,577	9,424,020	8,900,464	8,376,907	7,853,350	7,329,793	6,806,237	6,282,680	5,759,123	5,235,567
Machinery & equipment	4,636,160	4,172,544	3,708,928	3,245,312	2,781,696	2,318,080	1,854,464	1,390,848	927,232	463,616	-
Furniture & fixtures	272,000	244,800	217,600	190,400	163,200	136,000	108,800	81,600	54,400	27,200	-
Office equipment	116,000	104,400	92,800	81,200	69,600	58,000	46,400	34,800	23,200	11,600	-
<b>Total Fixed Assets</b>	<b>18,195,293</b>	<b>17,169,321</b>	<b>16,143,348</b>	<b>15,117,375</b>	<b>14,091,403</b>	<b>13,065,430</b>	<b>12,039,457</b>	<b>11,013,485</b>	<b>9,987,512</b>	<b>8,961,539</b>	<b>7,935,566</b>
<i>Intangible assets</i>											
Pre-operation costs	2,485,387	1,988,310	1,491,232	994,155	497,077	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>2,485,387</b>	<b>1,988,310</b>	<b>1,491,232</b>	<b>994,155</b>	<b>497,077</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>22,680,465</b>	<b>24,119,913</b>	<b>26,450,320</b>	<b>28,953,183</b>	<b>32,396,163</b>	<b>36,891,232</b>	<b>46,153,887</b>	<b>56,959,082</b>	<b>68,728,225</b>	<b>81,556,114</b>	<b>95,330,238</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		923,037	1,946,981	2,311,451	2,732,445	3,218,377	3,778,960	4,415,462	5,010,105	5,557,106	5,833,315
<b>Total Current Liabilities</b>	<b>-</b>	<b>923,037</b>	<b>1,946,981</b>	<b>2,311,451</b>	<b>2,732,445</b>	<b>3,218,377</b>	<b>3,778,960</b>	<b>4,415,462</b>	<b>5,010,105</b>	<b>5,557,106</b>	<b>5,833,315</b>
<i>Other liabilities</i>											
Long term debt (Debt facility : Bank 1)	11,340,232	9,656,107	7,720,470	5,495,762	2,938,811	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>11,340,232</b>	<b>9,656,107</b>	<b>7,720,470</b>	<b>5,495,762</b>	<b>2,938,811</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232	11,340,232
Retained earnings		2,200,538	5,442,636	9,805,738	15,384,675	22,332,622	31,034,695	41,203,387	52,377,887	64,658,775	78,156,690
<b>Total Equity</b>	<b>11,340,232</b>	<b>13,540,770</b>	<b>16,782,869</b>	<b>21,145,971</b>	<b>26,724,907</b>	<b>33,672,855</b>	<b>42,374,927</b>	<b>52,543,620</b>	<b>63,718,120</b>	<b>75,999,008</b>	<b>89,496,923</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>22,680,465</b>	<b>24,119,913</b>	<b>26,450,320</b>	<b>28,953,183</b>	<b>32,396,163</b>	<b>36,891,232</b>	<b>46,153,887</b>	<b>56,959,082</b>	<b>68,728,225</b>	<b>81,556,114</b>	<b>95,330,238</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	Rs. In actuals Year 10
<i>Operating activities</i>											
Net profit		2,200,538	3,242,098	4,363,102	5,578,936	6,947,947	8,702,072	10,168,693	11,174,500	12,280,888	13,497,915
Add: depreciation expense		1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973	1,025,973
amortization of pre-operating costs		497,077	497,077	497,077	497,077	497,077	-	-	-	-	-
Accounts receivable		(1,114,286)	(1,320,000)	(441,429)	(505,371)	(577,689)	(659,415)	(751,711)	(688,838)	(605,874)	(666,461)
Finished goods inventory		(1,734,633)	(320,240)	(366,942)	(419,781)	(479,519)	(547,007)	(623,197)	(449,132)	(494,045)	(543,450)
Raw material inventory	(1,499,784)	(454,550)	(579,320)	(736,449)	(934,023)	(1,182,101)	(1,493,182)	(1,444,676)	(1,748,058)	(2,115,150)	12,187,294
Accounts payable		923,037	1,023,945	364,469	420,994	485,933	560,583	636,502	594,643	547,001	276,209
Cash provided by operations	(1,499,784)	1,343,156	3,569,533	4,705,802	5,663,805	6,717,621	7,589,023	9,011,583	9,909,087	10,638,793	25,777,480
<i>Financing activities</i>											
Debt facility : Bank 1 - principal repayment		(1,684,126)	(1,935,636)	(2,224,708)	(2,556,951)	(2,938,811)	-	-	-	-	-
Additions to Debt facility : Bank 1	11,340,232	-	-	-	-	-	-	-	-	-	-
Issuance of shares	11,340,232	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	22,680,465	(1,684,126)	(1,935,636)	(2,224,708)	(2,556,951)	(2,938,811)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(20,680,681)	-	-	-	-	-	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(20,680,681)	-	-	-	-	-	-	-	-	-	-
<b>NET CASH</b>	<b>500,000</b>	<b>(340,969)</b>	<b>1,633,897</b>	<b>2,481,094</b>	<b>3,106,854</b>	<b>3,778,810</b>	<b>7,589,023</b>	<b>9,011,583</b>	<b>9,909,087</b>	<b>10,638,793</b>	<b>25,777,480</b>

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Office Expenses (Administrative Benefits, Stationery, Entertainment etc)	10% of Administrative Expense
Machinery & Equipment Maintenance	5% of Machinery Cost
Promotional Expenses	1% of Revenue
Professional Fee	0.1% of Revenue
Depreciation Method	Straight Line
Depreciation Rate	
Building & infrastructure	5%
Machinery & Equipment's	10%
Furniture & Fixtures	10%
Inflation Growth Rate	10%
Electricity Price Growth Rate	10%
Salaries Growth Rate	10%

### 13.2 Production Cost Assumptions

Description	Details
Production Cost Growth Rate	10%
Material Wastage	5%
PPRC Resin (25 Kg Bag)	Rs. 5,200
Color (25 Kg Bag)	Rs. 7,400

### 13.3 Revenue Assumptions

Description	Details
Sales Price Growth Rate	10%
Starting Capacity Utilization	65%
Growth in Capacity	5%
Maximum Capacity Utilization	95%
<b>Sales Price (Year 1)</b>	
25 mm Pipe (13 ft. Length)	Rs. 300
32 mm Pipe (13 ft. Length)	Rs. 480

40 mm Pipe (13 ft. Length)

Rs. 810

### 13.4 Financial Assumptions

Description	Details
Project Life (Years)	10
Debt: Equity	50:50
Interest rate on long term debt	14%
Discount rate for calculation of NPV	20%