
Pre-Feasibility Study

UPVC PIPE MANUFACTURING UNIT



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1 DISCLAIMER

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2 EXECUTIVE SUMMARY

The Un Plasticized Polyvinyl Chloride (abbreviated as UPVC) Pipes Manufacturing is a project of plastic sector. UPVC pipes are generally recognized as pressure pipelines and are most commonly used in agriculture, chemical and construction industry. It is available in a variety of colors and finishes, especially for use in construction of housing / buildings as cable protector, drainage and window frames / sills as a substitute for painted wood.

This pre-feasibility study is for setting up a semi-mechanized UPVC Pipe Manufacturing Unit. The proposed unit comprises of production facility for manufacturing of UPVC pipes in three different diametric ranges of 3", 4" and 6". The proposed unit is based on 02 extrusion lines having Twin Screw Extruders Machines, each with a capacity of approximate production of 1,840 kgs / day. The maximum production capacity of the unit is assumed to be 270,913 pipes annually on 8 hours single shift basis and 300 operational days. The business will provide employment opportunity to 22 individuals including the owner manager.

Most of the UPVC Pipes manufacturing units are part of small-scale industry and operating in major cities like Lahore, Gujranwala, Karachi, Multan and Faisalabad. The market for UPVC 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. 43.06 million out of which Rs. 33.87 million is capital cost and Rs. 9.18 million as working capital. The project is financed through 50% debt and 50% equity. The project NPV is around Rs. 30.75 million, with an IRR of 35% and payback period of 3.38 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 **UPVC 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 UPVC Pipe manufacturing Unit, which has a product range of 3", 4" and 6" pipes. UPVC, which stands for 'Un Plasticized Polyvinyl Chloride' is a thermoplastic polymer composition with high rigidity and high modulus of elasticity. This raw material is made by the chemical industry and used for a wide variety of applications, including Underground Water Supply, Chemical Industries, Ventilation, Sewerage Systems, and Cable Conduits.

The sizes vary from range ½ to 16 inch diameter and PS. 3051 Standard. Accordingly, UPVC can be divided in two major categories, i.e. Pressure Pipes (used for Water Distribution and in Tube wells) and Non-Pressure pipes (used for Drainage / Sewerage and as Conduits)

This Industry is playing an important role in the construction and agriculture sector, particularly for transportation of portable drinking water. It has 95% penetration in the conduit sector, 65% in tube well sector, 15% in drainage and 20% in water supply sector.

Currently the most basic UPVC applications are being made in Pakistan with the low material quality. The absence of information about UPVC processing and lack of exposure in international markets are the reasons behind low quality pipes. Promoting UPVC in agriculture sector would help in utilizing far flung areas for cultivation through drip irrigation, salinity control and land reclamation. Therefore, market for PPRC pipes exists in almost every part of the country.

For the purpose of this project, the two extruder machines with total capacity of 460 Kgs / hour will be used for the production of UPVC Pipes.

5.1 Production Process Flow

UPVC Pipes manufacturing process mainly involves the following key steps:

Extrusion Process: To get blended compound in predetermined ratio with UPVC resin along with adding color; mixing is done in a high-speed mixer at high temperature. The melted compound is passed through a warm dye 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 works under a fixed command / time. Haul off machine basically consist of rollers.

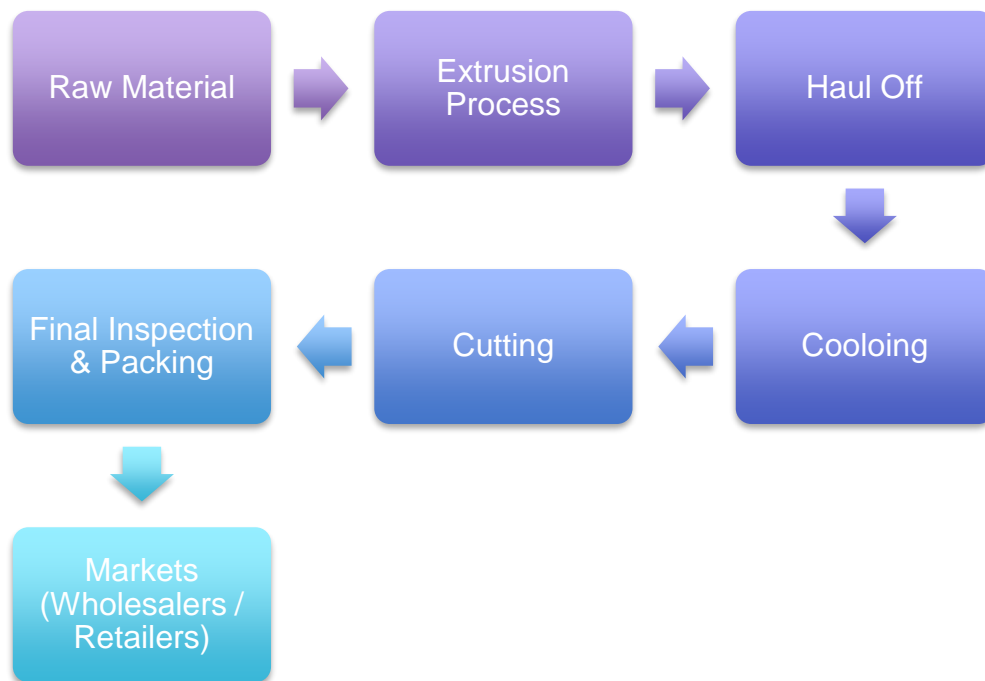
Cooling: After Extruder and Haul Off the next process is to cool down the hot pipe. Putting water in cooling tank cools down this soft pipe. After cooling the pipes, UPVC pipe transforms an unbending form.

Cutting: After maturing pre decided / desired lengths an automatic machine comes into force and cuts the pipes as per the standard length.

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 sent to the customers.

Figure: Process Flow Diagram of UPVC Pipes Manufacturing



5.2 Installed and Operational Capacities

The maximum installed capacity of producing UPVC Pipes is 270,913 pipes (around 1,104 tons in terms of weight) per year. While percentage share of 3", 4" and 6" diameter pipes in total production capacity are assumed as 50%, 35% 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 UPVC Pipes Produced

Diametric Size	Length	Net Weight (Kgs)
3"	13 ft	3.19
4"	13 ft	4.12
6"	13 ft	9.50

The starting production capacity of the project is worked out at 55% and accordingly 149,002 pipes will be produced in year one on an 8-hour single shift

basis. Capacity utilization growth rate of 5% is considered for subsequent years, while maximum capacity utilization is 257,367 pipes at 95% that will be attained in 9th year of operations.

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

Table 2: Installed and Operational Capacities

Product Mix (Pipes Diameter)	Production Process Contribution	Daily Production (No of Pipes)	Annual Production (No Pipes)	Starting Production (No of Pipes)
3"	50%	550	164,904	90,697
4"	35%	298	89,407	49,174
6"	15%	55	16,602	9,131
Total Production	100%	903	270,913	149,002

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 labor 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 UPVC 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 UPVC 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

In Pakistan, the UPVC Pipes are being used in four major areas: Water supply, drainage, conduits and tube wells. The main products produced in Pakistan constitute of Polyvinyl Chloride and UPVC (Un-plasticized Polyvinyl Chloride). UPVC is used in the drinking water supply system, especially in agriculture, drainage and sanitation. These pipes usually fall in four categories as per their composition are scrap based, resin based, scrap resin mix and compact type.

Therefore, the market for UPVC 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 UPVC 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 145,898 pipes with net revenue of Rs. 111.98 million in the year one. The capacity utilization during year one is worked out at 55% 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)	35%
Payback Period (Yrs.)	3.38
Net Present Value (Rs.)	30,753,983

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. 21,532,215
Bank Loan (50%)	Rs. 21,532,215
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.
Capital Cost	
Land	4,555,555
Building and Infrastructure	13,010,000
Plant and Machinery	13,125,000
Furniture and Fixture	380,000
Office Vehicle	1,040,000
Office Equipment	216,500
Pre-operating Cost	1,551,599
Total Capital Cost	33,878,654

Working Capital	
Equipment Spare Parts Inventory	27,344
Raw Material Inventory	7,036,944
Upfront Insurance Payment	708,250
Cash	1,413,237
Total Working Capital	9,185,775
Total Project Cost	43,064,430

9.4 Space Requirement

The space requirement for the proposed UPVC 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 around 2 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. 4.55 million. Details of space requirements along with cost of building and infrastructural requirements is given below:

Table 6: Space Requirement

Description	Estimated Area (Sq.ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Management Office	1,000	2,500	2,500,000
Production Hall	3,700	1,800	6,660,000
Warehouse	2,000	1,800	3,600,000
Loading & Unloading	500	500	250,000
Total			13,010,000

9.5 Machinery & Equipment Requirement

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

Table 7: Machinery & Equipment Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
UPVC Production Line 1) Powder Auto-Loader	2	3,500,000	7,000,000

2) Twin Screw Extruder			
3) Mould			
4) Calibration tank			
5) Haul-Off Machine			
6) Automatic cutting machine			
7) Stacker			
Oil Ink Printer	1	500,000	500,000
Compressor	2	250,000	500,000
Mixer	1	1,000,000	1,000,000
Generator (300 KVA)	1	3,500,000	3,500,000
Contingences	5%	625,000	625,000
Total			13,125,000

9.6 Furniture & Fixtures Requirement

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

Table 8: Furniture & Fixture Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Furniture	Lump sum	250,000	250,000
Office Furnishing	Lump sum	20,000	20,000
Air Conditioners	2	55,000	110,000
Total			380,000

9.7 Office Equipment Requirement

Following office equipment will be required for the proposed unit:

Table 9: Office Equipment Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computer with LCD	5	25,000	125,000
Printer	1	15,000	15,000
Telephone Set	2	2,000	4,000
Scanner	1	10,000	10,000
UPS	5	12,500	62,500

Total			216,500
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9.8 Raw Material Requirement

Following raw material required for UPVC pipes manufacturing.

Table 10: Raw Material Requirement

Description	Composition	Per Kg Rate	Per Kg Raw Material Cost
UPVC Resin	96.62%	130	125.60
Stabilizer	1.93%	250	4.83
Filler	0.97%	200	1.93
Color	0.48%	2,000	9.66
Total	100%		142.02

9.9 Human Resource Requirement

In order to run operations of UPVC 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	60,000
Extruder Operator	2	40,000
Mixer Operator	1	25,000
Accountant	1	25,000
Marketing officers	2	25,000
Purchaser	1	20,000
Staking man	2	18,000
Office Assistant	1	15,000
Store keeper	1	15,000
Helper	6	14,000
Color Operator	1	14,000
Electrician	1	14,000

Sweeper	1	14,000
Guard	1	14,000
Total	22	

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. 475,508 per month. Furthermore, promotional expense being essential for marketing of UPVC Pipe is estimated as 2% of revenue.

9.11 Revenue Generation

Based on the 55% 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.)
3"	50%	90,697	635.83	57,667,874
4"	35%	49,174	810.03	39,832,415
6"	15%	9,131	1,846.52	16,860,574
Total	100%	149,002		114,360,863
Finished Goods Inventory (25 Days)		(3,104)	768	(2,382,514)
Total				111,976,991

* 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	Website / E-mail
Speedup Engineering	Shahdara, Lahore	042-37933110	www.speedup.com.pk Speedup313@gmail.co

			m
Blowmatic Corporation	10 / 3 Modern H S Shahed E Millat Road, Karachi	021-4548132, 5416167 Mobile: 0300 2014380	
Azfar & Company	6-Rana Chambers, Lake Road, Lahore	Tel: 042-37323798 Fax: 042-37235352	

10.2 Raw Material Suppliers

Name of Supplier	Address	Phone	Website
Engropolymer & Chemicals	First Floor, 38 Z Block, Commercial Area, Phase III, DHA, Lahore, Pakistan.	Tel:042 - 35743690-3 Fax:042-35743689	www.engropolymer.com

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
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
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Punjab Industrial Estates (PIE)	www.pie.com.pk
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	www.fiedmc.com.pk
Gujranwala Tools Dies and Molds Center (GTDMC)	www.gtdmc.org.pk
Pakistan Industrial and Technical Assistance (PITAC)	www.pitac.gov.pk

12 ANNEXURES

12.1 Income Statement

Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	111,978,157	133,881,041	155,936,488	180,547,170	207,972,312	238,495,648	272,427,639	310,107,892	351,907,776	378,716,118
<i>Cost of sales</i>										
Raw Material	84,443,333	100,960,417	117,592,548	136,151,597	156,833,044	179,850,857	205,439,155	233,854,037	265,375,556	285,591,871
Direct Labor	2,868,000	3,147,233	3,453,652	3,789,904	4,158,894	4,563,810	5,008,149	5,495,750	6,030,824	6,617,993
Machinery Manintenance	656,250	1,345,313	2,068,828	2,828,520	3,626,196	4,463,755	5,343,193	6,266,603	7,236,183	8,254,242
Direct Electricity & Generator	5,706,098	6,847,317	8,159,720	9,666,129	11,392,224	13,366,876	15,622,536	18,195,660	21,127,183	23,239,901
Total cost of sales	93,673,681	112,300,279	131,274,747	152,436,149	176,010,358	202,245,298	231,413,033	263,812,049	299,769,745	323,704,008
Gross Profit	18,304,476	21,580,762	24,661,740	28,111,021	31,961,954	36,250,350	41,014,606	46,295,843	52,138,031	55,012,111
<i>General administration & selling expenses</i>										
Administration expense	2,724,000	2,989,212	3,280,246	3,599,616	3,950,080	4,334,665	4,756,694	5,219,812	5,728,021	6,285,709
Administration benefits expense	136,200	149,461	164,012	179,981	197,504	216,733	237,835	260,991	286,401	314,285
Electricity expense	403,495	484,195	576,998	683,521	805,579	945,212	1,104,717	1,286,670	1,493,967	1,643,364
Travelling expense	272,400	298,921	328,025	359,962	395,008	433,466	475,669	521,981	572,802	628,571
Communications expense (phone, fax, mail, internet, etc.)	272,400	298,921	328,025	359,962	395,008	433,466	475,669	521,981	572,802	628,571
Office vehicles running expense	208,000	228,800	251,680	276,848	304,533	334,986	368,485	405,333	445,866	490,453
Office expenses (stationary, entertainment, janitorial services, etc.)	204,300	224,191	246,018	269,971	296,256	325,100	356,752	391,486	429,602	471,428
Promotional expense	2,239,563	2,015,607	1,814,046	1,632,642	1,469,377	1,322,440	1,190,196	1,071,176	964,058	867,653
Insurance expense	708,250	632,225	556,200	480,175	404,150	411,872	329,497	247,123	164,749	82,374
Professional fees (legal, audit, consultants, etc.)	559,891	669,405	779,682	902,736	1,039,862	1,192,478	1,362,138	1,550,539	1,759,539	1,893,581
Depreciation expense	2,281,167	2,281,167	2,281,167	2,292,542	2,292,542	2,419,528	2,432,696	2,432,696	2,432,696	2,447,940
Amortization of pre-operating costs	310,320	310,320	310,320	310,320	310,320	-	-	-	-	-
Subtotal	10,319,986	10,582,425	10,916,420	11,348,274	11,860,218	12,369,947	13,090,348	13,909,790	14,850,503	15,753,929
Operating Income	7,984,490	10,998,338	13,745,320	16,762,746	20,101,736	23,880,403	27,924,257	32,386,053	37,287,528	39,258,182
Other income (interest on cash)	-	-	-	-	-	-	-	-	-	-
Gain / (loss) on sale of office vehicles	-	-	-	-	416,000	-	-	-	-	-
Earnings Before Interest & Taxes	7,984,490	10,998,338	13,875,220	16,762,746	20,517,736	24,095,728	27,924,257	32,386,053	37,569,269	39,258,182
Interest on short term debt	-	-	-	-	-	-	-	-	-	-
Interest expense on long term debt (Project Loan)	2,214,141	1,838,450	1,406,653	910,370	339,971	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	381,668	-	-	-	-	-	-	-	-	-
Subtotal	2,595,809	1,838,450	1,406,653	910,370	339,971	-	-	-	-	-
Earnings Before Tax	5,388,682	9,159,888	12,468,568	15,852,377	20,177,766	24,095,728	27,924,257	32,386,053	37,569,269	39,258,182
Tax	1,139,104	2,428,460	3,586,498	4,770,831	6,284,717	7,656,004	8,995,989	10,557,618	12,371,743	12,962,863
NET PROFIT/(LOSS) AFTER TAX	4,249,577	6,731,428	8,882,070	11,081,546	13,893,048	16,439,724	18,928,268	21,828,435	25,197,526	26,295,319

12.2 Balance Sheet

Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
<i>Current assets</i>											
Cash & Bank	1,413,237	1,662,806	9,371,331	18,884,272	31,215,096	45,102,735	68,076,807	94,584,814	124,858,381	160,915,664	236,923,602
Accounts receivable		4,601,842	5,051,901	5,955,155	6,914,048	7,983,277	9,173,999	10,498,424	11,969,908	13,603,062	15,012,820
Finished goods inventory		1,993,057	2,343,658	2,739,280	3,180,486	3,671,982	4,218,937	4,827,020	5,502,453	6,252,058	6,743,833
Equipment spare part inventory	27,344	58,857	95,037	136,432	183,653	237,375	298,350	367,406	445,464	533,543	-
Raw material inventory	7,036,944	8,834,036	10,803,815	13,134,374	15,885,962	19,128,361	22,942,343	27,421,343	32,673,380	36,920,561	-
Pre-paid insurance	708,250	632,225	556,200	480,175	404,150	411,872	329,497	247,123	164,749	82,374	-
Total Current Assets	9,185,775	17,782,824	28,221,943	41,329,688	57,783,395	76,535,602	105,039,933	137,946,130	175,614,335	218,307,262	258,680,255
<i>Fixed assets</i>											
Land	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555	4,555,555
Building/Infrastructure	13,010,000	12,359,500	11,709,000	11,058,500	10,408,000	9,757,500	9,107,000	8,456,500	7,806,000	7,155,500	6,505,000
Machinery & equipment	13,125,000	11,812,500	10,500,000	9,187,500	7,875,000	6,562,500	5,250,000	3,937,500	2,625,000	1,312,500	-
Furniture & fixtures	380,000	342,000	304,000	266,000	228,000	190,000	152,000	114,000	76,000	38,000	-
Office vehicles	1,040,000	832,000	624,000	416,000	208,000	1,674,930	1,339,944	1,004,958	669,972	334,986	-
Office equipment	216,500	144,333	72,167	250,626	167,084	83,542	290,131	193,420	96,710	335,863	223,908
Total Fixed Assets	32,327,055	30,045,888	27,764,722	25,734,181	23,441,639	22,824,027	20,694,630	18,261,934	15,829,237	13,732,404	11,284,463
<i>Intangible assets</i>											
Pre-operation costs	1,551,599	1,241,279	930,960	620,640	310,320	-	-	-	-	-	-
Total Intangible Assets	1,551,599	1,241,279	930,960	620,640	310,320	-	-	-	-	-	-
TOTAL ASSETS	43,064,430	49,069,991	56,917,624	67,684,509	81,535,354	99,359,630	125,734,563	156,208,063	191,443,573	232,039,666	269,964,719
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		7,725,409	9,304,486	10,925,933	12,743,813	14,780,135	17,059,340	19,608,583	22,458,040	25,484,864	24,151,735
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	7,725,409	9,304,486	10,925,933	12,743,813	14,780,135	17,059,340	19,608,583	22,458,040	25,484,864	24,151,735
<i>Other liabilities</i>											
Deferred tax		1,139,104	3,567,564	7,154,062	11,924,893	18,209,611	25,865,615	34,861,604	45,419,222	57,790,965	70,753,828
Long term debt (Project Loan)	16,939,327	14,423,686	11,532,354	8,209,224	4,389,811	-	-	-	-	-	-
Long term debt (Working Capital Loan)	4,592,888	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	21,532,215	15,562,790	15,099,918	15,363,286	16,314,705	18,209,611	25,865,615	34,861,604	45,419,222	57,790,965	70,753,828
<i>Shareholders' equity</i>											
Paid-up capital	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215	21,532,215
Retained earnings		4,249,577	10,981,005	19,863,075	30,944,621	44,837,669	61,277,393	80,205,661	102,034,096	127,231,622	153,526,940
Total Equity	21,532,215	25,781,792	32,513,220	41,395,290	52,476,835	66,369,884	82,809,608	101,737,876	123,566,311	148,763,836	175,059,155
TOTAL CAPITAL AND LIABILITIES	43,064,430	49,069,991	56,917,624	67,684,509	81,535,354	99,359,630	125,734,563	156,208,063	191,443,573	232,039,666	269,964,719

12.3 Cash Flow Statement

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		4,249,577	6,731,428	8,882,070	11,081,546	13,893,048	16,439,724	18,928,268	21,828,435	25,197,526	26,295,319
Add: depreciation expense		2,281,167	2,281,167	2,281,167	2,292,542	2,292,542	2,419,528	2,432,696	2,432,696	2,432,696	2,447,940
amortization of pre-operating costs		310,320	310,320	310,320	310,320	310,320	-	-	-	-	-
amortization of training costs		-	-	-	-	-	-	-	-	-	-
Deferred income tax		1,139,104	2,428,460	3,586,498	4,770,831	6,284,717	7,656,004	8,995,989	10,557,618	12,371,743	12,962,863
Accounts receivable		(4,601,842)	(450,059)	(903,253)	(958,893)	(1,069,229)	(1,190,722)	(1,324,425)	(1,471,484)	(1,633,153)	(1,409,758)
Finished goods inventory		(1,993,057)	(350,601)	(395,622)	(441,206)	(491,496)	(546,955)	(608,083)	(675,433)	(749,605)	(491,775)
Equipment inventory	(27,344)	(31,514)	(36,179)	(41,395)	(47,221)	(53,723)	(60,974)	(69,056)	(78,058)	(88,079)	533,543
Raw material inventory	(7,036,944)	(1,797,092)	(1,969,779)	(2,330,559)	(2,751,588)	(3,242,399)	(3,813,982)	(4,479,000)	(5,252,037)	(4,247,181)	36,920,561
Advance insurance premium	(708,250)	76,025	76,025	76,025	76,025	(7,722)	82,374	82,374	82,374	82,374	82,374
Accounts payable		7,725,409	1,579,077	1,621,447	1,817,881	2,036,322	2,279,205	2,549,243	2,849,456	3,026,824	(1,333,128)
Cash provided by operations	(7,772,538)	7,358,097	10,599,858	13,086,696	16,150,237	19,952,380	23,264,203	26,508,007	30,273,567	36,393,145	76,007,938
<i>Financing activities</i>											
Project Loan - principal repayment		(2,515,641)	(2,891,332)	(3,323,130)	(3,819,413)	(4,389,811)	-	-	-	-	-
Working Capital Loan - principal repayment		(4,592,888)	-	-	-	-	-	-	-	-	-
Short term debt principal repayment		-	-	-	-	-	-	-	-	-	-
Additions to Project Loan	16,939,327	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	4,592,888	-	-	-	-	-	-	-	-	-	-
Issuance of shares	21,532,215	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	43,064,430	(7,108,529)	(2,891,332)	(3,323,130)	(3,819,413)	(4,389,811)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(33,878,654)	-	-	(250,626)	-	(1,674,930)	(290,131)	-	-	(335,863)	-
Cash (used for) / provided by investing activities	(33,878,654)	-	-	(250,626)	-	(1,674,930)	(290,131)	-	-	(335,863)	-
NET CASH	1,413,237	249,568	7,708,526	9,512,941	12,330,824	13,887,638	22,974,072	26,508,007	30,273,567	36,057,282	76,007,938

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Office Expenses (Stationery, Entertainment, Janitorial services, etc.)	7.5% of Administrative Expense
Machinery & Equipment Maintenance	5% of Machinery Cost
Promotional Expenses	2% of Revenue
Professional Fee	0.5% of Revenue
Depreciation Method	Straight Line
Depreciation Rate	
Building & infrastructure	5%
Machinery & Equipment	10%
Furniture & Fixtures	10%
Office Equipment	33%
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	7.5%
Raw Material Wastage	5%
UPVC Resin (25 Kg Bag)	Rs. 3,250
Stabilizer (25 Kg Bag)	Rs. 6,250
Filler (25 Kg Bag)	Rs. 5,000
Color (1 Kg)	Rs. 2,000

13.3 Revenue Assumptions

Description	Details
Sales Price Growth Rate	8%
Starting Capacity Utilization	55%
Growth in Capacity	5%
Maximum Capacity Utilization	95%

Sales Price (Year 1)	
3" Pipe (13 ft. Length)	Rs. 636
4" Pipe (13 ft. Length)	Rs. 810
6" mm Pipe (13 ft. Length)	Rs. 1,847

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%