

# Pre-Feasibility Study

## SANITARY WARE MANUFACTURING



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**Ministry of Industries & Production**

**Government of Pakistan**

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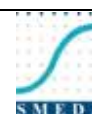


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## **1 EXECUTIVE SUMMARY**

The Ceramics Sanitary ware manufacturing unit is a project of ceramics sector. Ceramics products made from inorganic materials having non-metallic properties usually processed at a high temperature at some time during their manufacture. It's an art of clay and fire. The Sanitary Ware Products are classified under three broad categories on the basis of material type. Sanitary ware made of Plastics, Sanitary ware made of Ceramics and Sanitary ware made of Iron.

In Pakistan Ceramics Sanitary ware industry has key strengths e.g. a strong manufacturing skills base, and established training support infrastructure, sources of investment funding, transport infrastructure and national & international market etc. These attributes should be proactively promoted investor. Improvement in living standards and construction of buildings is generating the high demand of Ceramics sanitary ware products both at national and international level. The vender development program can help to standardize and quality and create more business opportunities in the area. Growth trend of Ceramics sanitary ware idnustry has been increasing every year. The industry has not only fulfilling the domestic needs but also exporting small quantities of ceramics sanitary ware goods over the last few years.

A Ceramics Sanitary ware manufacturing unit with a proposed capacity of 400 pieces per day needs a capital investment estimated at Rs. 47.192 million for construction and purchasing machinery & equipment. In addition to this, an estimated sum of Rs. 6.270 million is required as working capital. The total project cost is estimated at Rs. 53.462 million. Projected IRR, Net Present Value and Payback of this project are 49%, Rs. 149,738,602 and 3.23 years respectively.

## 2 INTRODUCTION

### 2.1 Project Brief

This particular Pre-feasibility is regarding “Sanitary Ware Manufacturing Unit”. The objective of the Pre-feasibility study is primarily to provide an overview about the Sanitary Ware Manufacturing business. The proposed Pre-feasibility defines the criteria on which the investment decision is based. This document covers various aspects of Sanitary Ware Manufacturing business concept development, Start-up, Production, Marketing, Finance and Business Management. The Sanitary Ware Products are classified under following three broad categories on the basis of material type. This particular pre-feasibility however discusses the sanitary ware made of ceramics.

- Sanitary ware made of Plastics such as baths, showers, washbasins, bidets, lavatory pans, seats and covers, flushing cisterns of plastics;
- Ceramic sanitary ware such as sinks, wash basins, wash basin pedestals, baths, bidets, lavatory pans, flushing cisterns, urinals and similar sanitary fixtures;
- Sanitary ware made of iron or steel such as baths shower basins and washbasins;

### 2.2 Opportunity Rationale

The Sanitary wares available in the local market are produced mainly in the Province of Punjab and Sindh. In addition some niches of the market are also served by imports as small quantity of some multinational brands is also available in the local market imported mainly from Spain, Italy UK and USA.

Demand for sanitary ware is influenced by general economic conditions as well as the number of new houses built and old houses renovated. New housing also presents opportunities for new kitchens, bath rooms and latrine facilities.

### 2.3 Project Capacity and Rationale

This particular Pre-feasibility study is however based on the capacity of 400 Pieces per day which is the minimum viable size for a Sanitary ware Manufacturing Unit. The project will be working on a single shift basis in all except the Kiln which will be working on three shift basis.

### 2.4 Project Investment

The estimated cost of the project is about Rs 53.462 million.

**Table 2-1: Project Parameters**

Capacity	Human Resource	Technology/Machinery	Location
400 pieces	78	Local	Gujranwala
Financial Summary			
Project Cost (Rs.)	IRR	NPV (Rs.)	Payback period
53.462 million	49%	149.739 million	3.23 Yrs

**Table 2-2: Total project cost is worked out in the table below:-**

Capital Investment	47,192,291
Working Capital Requirement	6,269,552
<b>Total Investment</b>	<b>53,461,843</b>

### 3 SECTOR AND INDUSTRY ANALYSIS

#### 3.1 EVOLUTION OF SANITARY WARE INDUSTRY IN PAKISTAN

This is a story of how the manufacture of sanitary ware started in a small town called Gujranwala (now in Pakistan), way back to the prior to partition. Situated along the contours of the old Grand Trunk Road, Gujranwala is famous for its Sanitary Fittings and Sanitary ware and Electric Fans & Motors.

The know-how about this industry is a result of technology and skill transfer from Gujrat to Gujranwala, where people have been associated with this sector prior to the partition. The first major pottery factory (M/S Premier Ceramics Limited) which was established in early 60's in Gujrat and subsequently the establishment of Institute of Ceramics, Gujrat in 1965 have contributed to the development of the trend/style, expertise about manufacturing of different products and in technology transfer. Over the years this industry has expanded and resulted in a long chain of ceramics factories in this area and still they are growing.

Growth trend of Ceramics sanitary ware industry has been increasing every year. The industry has not only fulfilling the domestic needs but also exporting small quantities of ceramics sanitary ware goods over the last few years. Though the exports trend in the past two decades has been insignificant volume wise and erratic, the capability of the sector for export exists keeping in mind the technology & know-how available with the manufacturers. The main reason for not achieving the significant break through in exports by this industry is the uncompetitive cost structure of domestic products due to ever increasing utilities prices coupled with the high tariffs on imported materials

### 3.2 Sanitary Ware Manufacturing Units Currently in Operation in Pakistan

The main sanitary ware units currently in operation in Pakistan are reproduced below:

**Table 3-1: Major players of the market**

No.	COMPANY NAME	ADDRESS
1-	3 Star Ceramics	G.T.Road, Gujranwala, Tel # 055-3252941
2-	Master Sanitary ware	G.T. Road, Gujranwala Tel # 055-4271668
3-	Dar Ceramics	Rahwali Road, Gujranwala Tel # 055-4294425
4-	Asia Ceramics	G.T. Road, Attawa, Gujranwala. Tel # 055- 3264263
5-	Rizwan Ceramics	G.T. Road, Attawa, Gujranwala Tel # 055- 3264379-80
6-	Ihsan Ceramics	G.T.Road, Gujranwala Tel # 055 4241100.
7-	Minhas Ceramics	G.T.Road, Kamonke, Tel # 055 6810731
8-	Capital Ceramics	G.T. Road, Attawa, Gujranwala Tel # (055) 3262310

## 4 PRODUCTS OFFERED

The proposed project will be capable of making following ceramics sanitary ware items. These are of various design sizes and specifications.

The product group ceramics sanitary ware consists of:

Ceramics Sanitary ware porcelain /China  
(HS691010)

Ceramics Sanitary (HS 691090)





#### 4.1 Production Mix

Keeping in view the demand of the product mix the proposed production is divided into the below proportion.

**Table 4-1: Production Mix**

Sanitary Ware Production Mix	Production Ratio
Bath Tub including legs	5 %
Shower Tray	5 %
Wash Basin	25 %
Wash Stand	25 %
Toilet combination	20 %
Wall Toilets	5 %
Bidet	4 %
One piece Toilet	7 %

Urinal	4 %
	<b>100%</b>

## 4.2 Raw Materials Requirement & Availability

The Raw Material involved in the manufacturing process is detailed below:

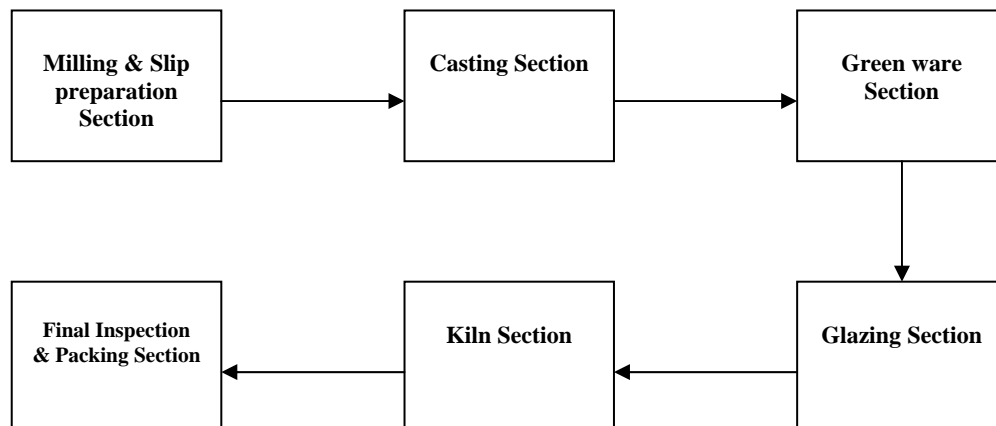
**Table 4-2: Raw Material Requirements & Availability**

Sr. No.	Description
1.	Pottery Clay
2.	Feldspar ( Stone)
3.	Quartz
4.	K.D 7 & K.D10 Stone
5.	Lime Stone
6.	<b>Chemicals &amp; Colors</b>
a)	- Zirconium Silicate
b)	- Zinc Oxide
c)	- Barium Carbonate
d)	- Bar Clay/ China Clay
e)	- Coloring
f)	- CMC

## 5 PRODCUTION PROCESS

### 5.1 Production Process Flow

The following figure shows the production process flow of Sanitary Ware:



### 5.1.1 Milling Section

Material in Raw shape is mixed in a standard composition and put in Ball milling machines for grinding. The composition of raw material mix is stated below along with the usage requirement of these material based on the production capacity of 400 pieces.

**Table 5-1: Raw Material Composition**

	Percentage	Qty (Tons)
Pottery Clay	35%	5
Quartz – Natural Silicon	17.5%	2.50
Grinding Stone	3.5%	0.50
Feldspar Stone	14%	2
<b>Sub Total</b>	<b>70%</b>	<b>10</b>
Water	30%	4.29
<b>Total</b>	<b>100%</b>	<b>14.29</b>

The Raw Material requirement in tons is determined based on industry general trends and visits to various sanitary ware manufacturing units.

The Ball section machinery keeps the raw material in constant rotation. After being grinded the machine converts the raw material in the form of slurry mixture. There is no waste production at this stage of the process. The slurry mixture is then further stirred and un-dissolved material is separated from the slurry mixture for further refining. This Slurry in liquid form (called slip) is then transferred to overhead tanks through piping for further supply to casting section.

### 5.1.2 Casting Section

The slip is then put in the moulds and then left for 2 to 3 hours for dryness. In the casting section there should be a heating system to keep the temperature a bit higher to facilitate the drying process. This requires the use of Gas heaters, extra heat of Kiln section can also be utilized through the use of piping system. After 2 to 3 hours the unfinished product (Green ware) is taken out from the moulds and kept in the open areas for further 2 to 3 days for hardness. About 20% of the Production is wasted which is recycled.

The moulds of required design and dimensions are prepared from the mother moulds. These moulds are made from Plaster of Paris for final reshaping of the required product. Plaster of Paris is mixed in water to prepare a slurry mixture which is then put in the mother moulds for 1 to 2 hours. The heating system helps to facilitate the drying process. These sample moulds are taken out from the mother moulds and then sent to the Casting department.

### 5.1.3 Green ware Section

The Green ware is then stored in the green ware section (the storage section) temporarily with the heating system for continuous dryness. These pieces are then inspected; the defected pieces if any are rejected for recycling while the approved pieces are then forwarded to the Glazing Section.

### 5.1.4 Glazing Section

The green ware pieces after being successful inspection are transferred to Glazing section where the glaze of required color is sprayed on the green ware pieces for color & painting through pump machines in the glaze booths. The glaze is manufactured for the purpose of shining the sanitary ware products. This is manufactured using different chemicals, some of which are listed in section 8.10, and required coloring schemes.

### 5.1.5 Kiln Section

In the Kiln Section, the glazed pieces are then moved into the Kiln through the Kiln cars. The size of the Kiln should be 75 meter long with a capacity of 34 Kiln Cars (7.4" long and containing on average 15 pieces per car) in the kiln at a time. The Kiln is made up of slabs imported from china and fire resisting cement. The Kiln car passes through the kiln where the temperature increases phase by phase up to a maximum of 1,125 degree Celsius. The temperature then reduces to normal and the green ware in finished sanitary ware form comes out of the kiln. It takes a time of 32 hours for the green ware piece to remain in the kiln to be transformed into the finished sanitary ware piece. The Kiln section requires a complete heating system with industrial fans, gas station and burners

### 5.1.6 Final Inspection & Packing Section

The finished sanitary ware pieces are then inspected for final finishing and then categorized as Grade A, B and C. These are then sent to the packing department for packaging into cartons while the defected pieces, about 15% of total production, are scrapped out.

## 6 MACHINERY REQUIREMENT

Following table shows the plant & machinery requirement for setting up a sanitary ware Manufacturing Unit.

**Table 6-1: Machinery Detail**

Machine Description	Make	No. of Units	Cost per unit(Rs.)	Total Cost (Rs.)
<b><i>Slip Section Machine</i></b>				
- Ball Mill Machine (Capacity 5 Ton) (With inner lining & Grinding Media)	Local	2	625,000	1,250,000
- Stirrers 10 H.P	Local	2	70,000	140,000

- Diaphragm Pumps 5 H.P	Local	2	100,000	200,000
- Slip Storage Tank (S.S.)	Local	2	100,000	200,000
<b><u>Glazing Section Machine</u></b>				
- Ball Mill 1 Ton (with inner lining & grinding media)	Local	2	250,000	500,000
- Glazing Cabin with Compressor	Local	1	250,000	250,000
- Accessories	Local	1	150,000	150,000
- Kiln	Local	1	900,000	900,000
<b>TOTAL</b>				<b>3,590,000</b>

### 6.1 Fittings & Installations Requirement

Following fittings & installations are required for factory and management offices.

**Table 6-2: Fittings & Installations**

Items	No. of Items	Cost per unit	Total Cost (Rs.)
Water Tank with a capacity of about 20,000 Liters	1	50,000	50,000
<b><u>Power House</u></b>			
Generator 80 KVA – China	1	395,000	395,000
Pannel – Local	1	200,000	200,000
Transformer	1	450,000	450,000
Electric Installations and Heating System			1,500,000
Slip Storage Tanks	2	50,000	100,000
Water Pump ( 7.5 H.P ) including boaring 400 ft.	1		250,000
<b>TOTAL</b>			<b>2,945,000</b>

## 7 OFFICE EQUIPMENTS REQUIREMENT

Following office equipments are required for factory and management offices.

**Table 7-1: Office Equipment**

Items	No. of Items	Cost per unit	Total Cost(Rs.)
Computers	2	30,000	60,000
Printers	1	20,000	20,000
UPS	2	10,000	20,000
Fax Machine	1	12,000	12,000
Telephone Sets	3	1,000	3,000
Internet Connection		1,500	1,500
<b>TOTAL</b>			<b>116,500</b>

## 8 FURNITURE & FIXTURES REQUIREMENT

Following furniture & fixtures are required for factory and management offices.

**Table 8-1: Furniture & Fixture**

Items	No. of Items	Cost per unit	Total Cost(Rs.)
Furniture Set	1	800,000	800,000
Fans	30	2,500	75,000
Energy Savers	120	150	18,000
Air conditioners (1.5 ton Split)	2	40,000	80,000
Meco Water Cooler (Capacity 40 gln/hr)	2	30,000	60,000
<b>TOTAL</b>			<b>1,033,000</b>

## 9 VEHICLES REQUIREMENT

The proposed project will also be using one car costing Rs. 1,000,000/-, One Loader truck for transportation purposes, two motor cycles costing 55,000, two cycles costing 3,500. The schedule is presented below:

**Table 9-1: Vehicle Requirements**

Items	Qty	Cost	Total Cost
		Rs.	Rs.
Cars	1	1,000,000	1,000,000
Loader Truck	1	1,100,000	1,100,000
Motor Cycles	2	65,000	130,000
Registration Cost			66,900
<b>TOTAL</b>			<b>2,296,900</b>

## 10 LAND & BUILDING REQUIREMENT

Land for the proposed business can be acquired on rent but it is recommended that it should be purchased or built as machinery will be installed. Total land required for the Sanitary Ware Manufacturing Unit is approximately 8.19 Kannals. Land price per kannal is taken to be Rs. 500,000 per Kannal (Gujranwala).

**Table 10-1: Land Details**

	Total Kanals	Cost per Kanal Rs.	Total Land cost in Rs.
Total	8.189	500,000	4,094,444

- including acquisition & documentation charges

## 10.1 BUILDING REQUIREMENT

**Table 10-2: Building & Civil Works**

Building & Civil works	Space Required in Sq. ft	Construction Cost Per Sq. Ft. <sup>1</sup>	Total Cost (Rs.)
Milling & Slip Section	1,840	1,000	1,840,000
Casting Halls	10,250	1,000	10,250,000
Green ware storage	4,100	1,000	4,100,000
Kiln Hall	2,460	1,000	2,460,000
Glaze Section	580	1,000	580,000
Mould & Dying Section	820	1,000	820,000
Work Shop	250	1,000	250,000
Power House	400	1,000	400,000
Finished Goods Store ( Semi-open )	8,000	1,000	8,000,000
Air Compressor Room	200	1,000	200,000
Management Office	400	1,000	400,000
Accessories Store	150	1,000	150,000
Toilets	100	1,000	100,000
<b>Total Space Requirement (sq. ft.)</b>	<b>29,550</b>		<b>29,550,000</b>
Open Plot Area (Raw Material Store + Loading, unloading Bay + Grounds & Tracks)	7,300	100	730,000
Boundary wall 9" thick, & 6.00 ft. high above plinth level	781 <sup>2</sup>	1,125 <sup>3</sup>	878,130
<b>Total Infrastructure Cost</b>	<b>36,850</b>		<b>31,158,130</b>

## 11 UTILITY REQUIREMENTS

Utilities required for a sanitary ware manufacturing unit are; Electricity, Telephone, Gas and Water.

<sup>1</sup> These per sq. ft rates are estimated on the basis of rates notified by Punjab Building Department, 2nd quarter of 2010 for Gujranwala and surroundings.

<sup>2</sup> Boundary Wall Length in Running Feet 195.14 X Sides 4 = 781

<sup>3</sup> These per sq. ft rates are estimated on the basis of rates notified by Punjab Building Department, 2nd quarter of 2010 for Gujranwala and surroundings.

## 12 HUMAN RESOURCE REQUIREMENTS

Following table shows the requirements of Human Recourses in the Sanitary ware Manufacturing unit:

**Table 12-1: Human Resource**

Description	Number of Employees	Per Month Salary	Annual Salary
<b>PRODUCTION STAFF</b>			
Ceramics Engineer	1	30,000	360,000
Production Manager	1	25,000	300,000
Sections In charge	2	10,000	240,000
Die maker	1	20,000	240,000
Moulder + Caster	34	8,000	3264,000
Casting Checker	1	18,000	216,000
Skilled Kiln Operator	3	12,000	432,000
Helpers for Kiln + Workshop operator	4	8,000	384,000
Ball Mill Operator	6	8,000	576,000
Packing & Quality Section	8	8,000	768,000
<b>Total Direct Labor</b>			<b>6,780,000</b>
<b>ADMINISTRATIVE STAFF</b>			
Accounts Officer	1	12,000	144,000
Purchasers	1	12,000	144,000
Office Boys	3	7,000	252,000
Security Guard, Gate Keepers	2	7000	168,000
Sweeper	2	7,000	168,000
Driver	2	8,000	192,000
<b>Total Administrative Salaries</b>			<b>1,068,000</b>
<b>MARKETING COST</b>			
Marketing In charge	1	20,000	240,000
Sales Representatives	5	10,000	600,000
<b>Total Marketing Salaries</b>			<b>840,000</b>



## 13 FINANCIAL ANALYSIS

### 13.1 Project Cost

<b>Capital Investment</b>	<b>Rs. in actuals</b>
Land	4,094,444
Building/Infrastructure	31,158,130
Machinery & equipment	6,535,000
Furniture & fixtures	1,033,000
Office vehicles	2,296,900
Office equipment	116,500
Pre-operating costs	1,858,317
<b>Total Capital Costs</b>	<b>47,192,291</b>

<b>Working Capital</b>	<b>Rs. in actuals</b>
Equipment spare part inventory	54,458
Raw material inventory	5,100,249
Upfront building rent	-
Upfront insurance payment	114,845
Cash	1,000,000
<b>Total Working Capital</b>	<b>6,269,552</b>

<b>Total Investment</b>	<b>53,461,843</b>
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<b>Initial Financing</b>		<b>Rs. in actuals</b>
Debt	50%	26,730,922
Equity	50%	26,730,922

	<b>Equity</b>	<b>Project</b>
Internal Rate of Return (IRR)	61%	49%
Payback Period (yrs)	3.06	3.23
Net Present Value (NPV)	99,157,331	149,738,602

## 13.2 Projected Income Statement

Calculations										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
Revenue	55,936,000	79,587,200	105,202,240	135,144,416	170,023,005	210,525,867	232,655,563	255,921,119	281,513,231	309,664,554
<i>Cost of sales</i>										
Cost of goods sold 1	20,400,996	29,027,070	38,369,396	49,289,916	62,010,846	76,783,064	84,854,214	93,339,635	102,673,598	112,940,958
Operation costs 1 (direct labor)	6,780,000	7,440,110	8,164,490	8,959,396	9,831,696	10,788,924	11,839,348	12,992,044	14,256,968	15,645,047
Operating costs 2 (machinery maintenance)	653,500	718,850	790,735	869,809	956,789	1,052,468	1,157,715	1,273,487	1,400,835	1,540,919
Operating costs 3 (direct electricity)	2,050,473	2,255,521	2,481,073	2,729,180	3,002,098	3,302,308	3,632,539	3,995,792	4,395,372	4,834,909
Operating costs 5 (direct gas)	2,880,000	3,960,000	5,227,200	6,708,240	8,433,216	10,436,105	11,479,715	12,627,687	13,890,455	15,279,501
Total cost of sales	32,764,970	43,401,551	55,032,893	68,556,541	84,234,645	102,362,868	112,963,531	124,228,645	136,617,229	150,241,333
<b>Gross Profit</b>	<b>23,171,030</b>	<b>36,185,649</b>	<b>50,169,347</b>	<b>66,587,875</b>	<b>85,788,359</b>	<b>108,162,999</b>	<b>119,692,032</b>	<b>131,692,474</b>	<b>144,896,002</b>	<b>159,423,221</b>
<i>General administration &amp; selling expenses</i>										
Administration expense	1,908,000	2,093,766	2,297,618	2,521,317	2,766,796	3,036,175	3,331,781	3,656,168	4,012,138	4,402,765
Administration benefits expense	190,800	209,377	229,762	252,132	276,680	303,617	333,178	365,617	401,214	440,277
Electricity expense	732,197	805,416	885,958	974,554	1,072,009	1,179,210	1,297,131	1,426,844	1,569,529	1,726,482
Travelling expense	1,678,080	62,813	68,929	75,640	83,004	91,085	99,953	109,685	120,364	132,083
Communications expense (phone, fax, mail, internet, etc.)	286,200	314,065	344,643	378,198	415,019	455,426	499,767	548,425	601,821	660,415
Office vehicles running expense	229,690	252,659	277,925	305,717	336,289	369,918	406,910	447,601	492,361	541,597
Office expenses (stationary, entertainment, janitorial services, etc.)	381,600	418,753	459,524	504,263	553,359	607,235	666,356	731,234	802,428	880,553
Promotional expense	2,796,800	3,979,360	5,260,112	6,757,221	8,501,150	10,526,293	11,632,778	12,796,056	14,075,662	15,483,228
Insurance expense	114,845	91,876	68,907	45,938	22,969	184,959	147,967	110,975	73,984	36,992
Professional fees (legal, audit, consultants, etc.)	139,840	198,968	263,006	337,861	425,058	526,315	581,639	639,803	703,783	774,161
Depreciation expense	2,785,737	2,785,737	2,785,737	2,785,737	2,785,737	3,066,193	3,066,193	3,066,193	3,066,193	3,066,193
Amortization of pre-operating costs	371,663	371,663	371,663	371,663	371,663	-	-	-	-	-
Bad debt expense	1,678,080	2,387,616	3,156,067	4,054,332	5,100,690	6,315,776	6,979,667	7,677,634	8,445,397	9,289,937
Subtotal	13,303,532	13,982,068	16,479,849	19,374,572	22,720,423	26,672,203	29,053,321	31,586,235	34,374,872	37,444,682
<b>Operating Income</b>	<b>9,867,499</b>	<b>22,203,581</b>	<b>33,689,498</b>	<b>47,213,303</b>	<b>63,067,936</b>	<b>81,490,796</b>	<b>90,638,711</b>	<b>100,106,240</b>	<b>110,521,131</b>	<b>121,978,539</b>
Other income (interest on cash)	50,000	401,292	1,644,354	3,924,462	7,285,172	12,569,566	19,905,156	28,534,216	38,569,810	52,566,016
<b>Earnings Before Interest &amp; Taxes</b>	<b>9,917,499</b>	<b>22,604,873</b>	<b>35,333,852</b>	<b>51,137,765</b>	<b>71,271,868</b>	<b>94,060,362</b>	<b>110,543,867</b>	<b>128,640,456</b>	<b>149,090,941</b>	<b>174,544,556</b>
Interest expense on long term debt (Project Loan)	3,645,077	3,081,319	2,423,752	1,656,767	762,154	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	438,604	286,332	107,828	-	-	-	-	-	-	-
Subtotal	4,182,870	3,466,841	2,531,580	1,656,767	762,154	-	-	-	-	-
<b>Earnings Before Tax</b>	<b>5,734,628</b>	<b>19,138,032</b>	<b>32,802,272</b>	<b>49,480,998</b>	<b>70,509,714</b>	<b>94,060,362</b>	<b>110,543,867</b>	<b>128,640,456</b>	<b>149,090,941</b>	<b>174,544,556</b>
Tax	1,433,657	4,784,508	8,200,568	12,370,250	17,627,429	23,515,091	27,635,967	32,160,114	37,272,735	43,636,139
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>4,300,971</b>	<b>14,353,524</b>	<b>24,601,704</b>	<b>37,110,749</b>	<b>52,882,286</b>	<b>70,545,272</b>	<b>82,907,900</b>	<b>96,480,342</b>	<b>111,818,206</b>	<b>130,908,417</b>

## 13.3 Projected 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	Rs. in actuals Year 10
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	1,000,000	-	8,025,846	24,861,242	53,628,003	92,075,436	159,315,882	238,787,232	331,897,096	439,499,110	611,821,219
Accounts receivable		4,597,479	5,569,447	7,594,087	9,877,260	12,541,127	15,638,995	18,212,935	20,078,494	22,086,343	24,294,977
Finished goods inventory		1,424,564	1,823,595	2,309,072	2,873,627	3,528,153	4,284,957	4,706,814	5,176,194	5,692,385	6,260,056
Equipment spare part inventory	54,458	62,899	72,649	83,909	96,915	111,937	129,287	149,327	172,473	199,206	-
Raw material inventory	5,100,249	7,619,606	10,575,565	14,264,810	18,843,643	24,499,202	28,428,190	32,834,560	37,923,917	43,802,124	-
Pre-paid insurance	114,845	91,876	68,907	45,938	22,969	184,959	147,967	110,975	73,984	36,992	-
<b>Total Current Assets</b>	<b>6,269,552</b>	<b>13,796,425</b>	<b>26,136,008</b>	<b>49,159,058</b>	<b>85,342,418</b>	<b>132,940,814</b>	<b>207,945,279</b>	<b>294,801,843</b>	<b>395,322,156</b>	<b>511,316,159</b>	<b>642,376,252</b>
<i>Fixed assets</i>											
Land	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444	4,094,444
Building/Infrastructure	31,158,130	29,600,224	28,042,317	26,484,411	24,926,504	23,368,598	21,810,691	20,252,785	18,694,878	17,136,972	15,579,065
Machinery & equipment	6,535,000	5,881,500	5,228,000	4,574,500	3,921,000	3,267,500	2,614,000	1,960,500	1,307,000	653,500	-
Furniture & fixtures	1,033,000	929,700	826,400	723,100	619,800	516,500	413,200	309,900	206,600	103,300	-
Office vehicles	2,296,900	1,837,520	1,378,140	918,760	459,380	3,699,180	2,959,344	2,219,508	1,479,672	739,836	-
Office equipment	116,500	104,850	93,200	81,550	69,900	58,250	46,600	34,950	23,300	11,650	-
<b>Total Fixed Assets</b>	<b>45,233,974</b>	<b>42,448,238</b>	<b>39,662,501</b>	<b>36,876,765</b>	<b>34,091,028</b>	<b>35,004,472</b>	<b>31,938,279</b>	<b>28,872,087</b>	<b>25,805,894</b>	<b>22,739,702</b>	<b>19,673,509</b>
<i>Intangible assets</i>											
Pre-operation costs	1,858,317	1,486,653	1,114,990	743,327	371,663	-	-	-	-	-	-
Legal, licensing, & training costs	100,000	90,000	80,000	70,000	60,000	50,000	40,000	30,000	20,000	10,000	-
<b>Total Intangible Assets</b>	<b>1,958,317</b>	<b>1,576,653</b>	<b>1,194,990</b>	<b>813,327</b>	<b>431,663</b>	<b>50,000</b>	<b>40,000</b>	<b>30,000</b>	<b>20,000</b>	<b>10,000</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>53,461,843</b>	<b>57,821,315</b>	<b>66,993,499</b>	<b>86,849,149</b>	<b>119,865,109</b>	<b>167,995,286</b>	<b>239,923,558</b>	<b>323,703,930</b>	<b>421,148,050</b>	<b>534,065,860</b>	<b>662,049,761</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		2,361,945	3,320,066	4,397,988	5,679,475	7,198,255	8,744,631	9,780,478	10,907,631	12,170,611	9,409,469
<b>Total Current Liabilities</b>	<b>-</b>	<b>3,513,502</b>	<b>3,320,066</b>	<b>4,397,988</b>	<b>5,679,475</b>	<b>7,198,255</b>	<b>8,744,631</b>	<b>9,780,478</b>	<b>10,907,631</b>	<b>12,170,611</b>	<b>9,409,469</b>
<i>Other liabilities</i>											
Deferred tax		816,875	816,875	816,875	816,875	816,875	653,500	490,125	326,750	163,375	-
Long term debt (Project Loan)	23,596,145	20,208,179	16,256,456	11,647,165	6,270,889	-	-	-	-	-	-
Long term debt (Working Capital Loan)	3,134,776	2,250,867	1,214,685	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>26,730,922</b>	<b>23,275,921</b>	<b>18,288,016</b>	<b>12,464,040</b>	<b>7,087,764</b>	<b>816,875</b>	<b>653,500</b>	<b>490,125</b>	<b>326,750</b>	<b>163,375</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922	26,730,922
Retained earnings		4,300,971	18,654,496	43,256,199	80,366,948	133,249,234	203,794,505	286,702,405	383,182,747	495,000,953	625,909,370
<b>Total Equity</b>	<b>26,730,922</b>	<b>31,031,893</b>	<b>45,385,417</b>	<b>69,987,121</b>	<b>107,097,870</b>	<b>159,980,155</b>	<b>230,525,427</b>	<b>313,433,327</b>	<b>409,913,669</b>	<b>521,731,875</b>	<b>652,640,292</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>53,461,843</b>	<b>57,821,315</b>	<b>66,993,499</b>	<b>86,849,149</b>	<b>119,865,109</b>	<b>167,995,286</b>	<b>239,923,558</b>	<b>323,703,930</b>	<b>421,148,050</b>	<b>534,065,860</b>	<b>662,049,761</b>

## 13.4 Projected 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		4,300,971	14,353,524	24,601,704	37,110,749	52,882,286	70,545,272	82,907,900	96,480,342	111,818,206	130,908,417
Add: depreciation expense		2,785,737	2,785,737	2,785,737	2,785,737	2,785,737	3,066,193	3,066,193	3,066,193	3,066,193	3,066,193
amortization of pre-operating costs		371,663	371,663	371,663	371,663	371,663	-	-	-	-	-
Deferred income tax		816,875	-	-	-	-	(163,375)	(163,375)	(163,375)	(163,375)	(163,375)
Accounts receivable		(4,597,479)	(971,967)	(2,024,640)	(2,283,173)	(2,663,867)	(3,097,868)	(2,573,941)	(1,865,558)	(2,007,849)	(2,208,634)
Finished goods inventory		(1,424,564)	(399,031)	(485,478)	(564,555)	(654,525)	(756,805)	(421,857)	(469,380)	(516,191)	(567,671)
Equipment inventory	(54,458)	(8,441)	(9,749)	(11,261)	(13,006)	(15,022)	(17,350)	(20,040)	(23,146)	(26,733)	199,206
Raw material inventory	(5,100,249)	(2,519,357)	(2,955,959)	(3,689,245)	(4,578,833)	(5,655,559)	(3,928,988)	(4,406,370)	(5,089,357)	(5,878,207)	43,802,124
Advance insurance premium	(114,845)	22,969	22,969	22,969	22,969	(161,990)	36,992	36,992	36,992	36,992	36,992
Accounts payable		2,361,945	958,120	1,077,922	1,281,488	1,518,780	1,546,375	1,035,847	1,127,153	1,262,980	(2,761,141)
Cash provided by operations	(5,269,552)	2,120,319	14,165,307	22,659,371	34,143,038	48,417,502	67,240,445	79,471,350	93,109,864	107,602,014	172,322,109
<i>Financing activities</i>											
Project Loan - principal repayment		(3,387,966)	(3,951,724)	(4,609,290)	(5,376,276)	(6,270,889)	-	-	-	-	-
Working Capital Loan - principal repayment		(883,910)	(1,036,181)	(1,214,685)	-	-	-	-	-	-	-
Additions to Project Loan	23,596,145	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	3,134,776	-	-	-	-	-	-	-	-	-	-
Issuance of shares	26,730,922	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	53,461,843	(4,271,876)	(6,139,461)	(5,823,976)	(5,376,276)	(6,270,889)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(47,192,291)	-	-	-	-	(3,699,180)	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(47,192,291)	-	-	-	-	(3,699,180)	-	-	-	-	-
<b>NET CASH</b>	<b>1,000,000</b>	<b>(2,151,556)</b>	<b>8,025,846</b>	<b>16,835,395</b>	<b>28,766,762</b>	<b>38,447,433</b>	<b>67,240,445</b>	<b>79,471,350</b>	<b>93,109,864</b>	<b>107,602,014</b>	<b>172,322,109</b>

## 14 PROJECT ASSUMPTIONS

**Table 14-1: Financial Layout**

Projected life of the Project	10 Years
Sponsor's Equity	50%
Debt Finance	50%
Annual Mark up rate	16%
Debt Tenure in Years	5 Years
Debt Payment in a Year	2
General Inflation rate	5%

**Table 14-2: Operating Assumptions**

Total no. of working days in a Year	300
<b><u>No. of Shifts</u></b>	
Kiln	3
Milling section	1
Casting section	1
Working Hours per shift	8
Installed production capacity	400 Pieces per day
Initial Year capacity utilization	40%
Capacity Growth rate	10%
Maximum capacity utilization	95%

**Table 14-3: Depreciation rate Assumptions**

Depreciation Method	Straight Line
Building & Infrastructure	5%
Machinery & Equipment, Fitting & Installations, Office Equipments, Furniture & Fixtures	10%
Vehicles	20%

**Table 14-4: Working Capital Turnover Assumptions**

Raw material inventory	3 Months raw material consumption
Finished goods	15 days goods available for sale
Packing material	30 days goods available for sale
Stores & Spares	30 days stores & spares consumptions
Accounts Receivables	30 days
Accounts Payables	30 Days

**Table 14-5: Revenue Assumptions – Sales Price & Production Mix**

Items	Production Mix	No. of Pieces	Ex – Factory Price Including Sales Tax	Weighted Avg. Price
Bath Tub Including Legs	5 %	20	8,000	400
Shower Tray	5 %	20	1,200	60
Wash Basin	25 %	100	700	175
Wash Stand	25 %	100	300	75
Toilet Combination	20 %	80	1,700	340
Wall Toilets	5 %	20	700	35
Bidets	4 %	16	1,000	40
One Piece Toilet	7 %	28	1,100	77
Urinal	4 %	16	350	14
<b>Total</b>	<b>100%</b>	<b>400</b>		<b>1,216</b>

**Table 14-6: Cost of Raw Material**

Raw Material cost during the 1<sup>st</sup> Year of operation & consumption Requirements for 400 pieces.

Sr. No	Raw Material	%age contribution	Qty in Kgs.	Per Kg Cost (Rs.)	Cost of Raw Material (Rs.)
1	Pottery Clay	35%	4,536	20	90,718
2	Quartz – Natural Silicon	17.5%	2,268	2.50	5,670
3	Grinding Stone	3.5%	454	1.80	816
4	Feldspar (stone)	14%	1,814	3.20	5,806
	<b>Total (Slip)</b>	<b>70%</b>	<b>9,072</b>		<b>103,011</b>
5	Water	30%	3,892	-	-
	<b>Total</b>	<b>100%</b>	<b>12,964</b>		<b>103,011</b>
6	<b><u>Chemical &amp; Colors</u> (10 % of Slip)</b>				
	Zirconium Silicate	10%	91	150	13,608
	Zinc Oxide	10%	91	200	18,144
	Barium Carbonate	10%	91	40	3,629
	Clay	65%	590	20	11,793
	Coloring	5%	45	600	27,216
	<b>Total of Chemicals &amp; Colors</b>	<b>100%</b>	<b>907</b>		<b>74,389</b>

<b>Total Cost of Raw Material for 400 Pieces</b>	<b>177,400</b>
<b>Per piece Cost of Raw Material</b>	<b>443.50</b>

**Table 14-7: Administrative Expenses Assumptions**

Traveling Expenses	1 % of Sales
Administration Benefit Expenses	10% of Admin Salaries
Machinery Maintenance	10% of Machinery Cost
Promotional Expenses	1% of Sales
Bad Debt Expense	3% of Sales

## 15 ANNEXTURE

**Table 15-1: Raw Material & Machinery Suppliers**

Raw Material Suppliers	Machinery Suppliers
M/s J.R. Corporation G.T.Road, Kangniwala Bypass, Gujranwala. Tel : 055- 4275911	Allied Machine Craft Opposite Fruit Mandi, Gujrat Tel: 0332 8484124
M/s Parey Enterprises G.T.Road, Kangniwala Bypass, Gujranwala Tel: 055-4242619	
M/s Bashir Traders G.T.Road, Kangniwala Gujranwala Tel: 055-4552364	