Pre-feasibility Study

OXYGEN GAS PRODUCING PLANT

January 2021

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

Small and Medium Enterprises Development Authority
Ministry of Industries and Production
Government of Pakistan

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2 EXECUTIVE SUMMARY

Oxygen Gas Manufacturing Unit is a project of chemicals industry. The proposed unit would produce gaseous oxygen for medical and industrial use. The project is proposed to be set up in Pakistan. Oxygen is used in hospitals, chemical processes, general engineering, fabrication, steel manufacturing, motorcycle and steel cutting / welding industries.

Oxygen has mainly three sectors in which the application of this product is going on. First and most important is healthcare, all hospitals are involved in this respect. The second biggest sector concerned with oxygen is the ship-breaking industry, which has a potential usage for oxygen. The third sector is that of the processes industry, which includes steel melting. These three sectors are very lively all over Pakistan at present. With the growing steel, ship breaking and related industries as well as the growing need of hospitals, the demand for oxygen is increasing, offering a good investment opportunity.

The total capacity of the Oxygen Manufacturing unit is 65,733,120 $ft.^3$ of Gaseous Oxygen per year. The unit would operate for 24 hours per day at 100% capacity, working in 3 shifts of 8 hours each. This production capacity is estimated to be economically viable and justifies the capital as well as operational cost of the project. However, entrepreneur's knowledge of the industry, skilled labor and location of unit are key factors for the success of this project.

The total initial cost for setting up the unit is estimated at Rs. 554.247 million out of which Rs. 531.283 million is capital cost and Rs. 22.964 million is working capital. The project is proposed to be financed through 100% equity. The project NPV is projected around Rs. 54.418 million, with an IRR of 20% and a payback period of 5.11 years. The project will provide employment opportunities to 84 people based on 3 shifts. The legal business status of this project is assumed to be 'Sole Proprietorship.

3 INTRODUCTION TO SMEDA

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

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

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

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

4 PURPOSE OF THE DOCUMENT

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

The purpose of this document is to facilitate potential investors in oxygen Gas 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 it's successful management.

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

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Oxygen gas is nonmetallic element, which is colorless, odorless and tasteless. Oxygen reacts with all elements, but not with inert gases to form compound called oxides. Oxygen support combustion and support flammable materials to burn more rapidly. This combustion supporting property prefers it for different industrial applications. Oxygen is largest volume industrial gas and is widely used in Steel, Chemical, Glass, Petroleum, Pulp and Paper industries. In addition to that, Oxygen is also largely consumed in the medical field in the hospitals. There are many units which are in the business of industrial and medical oxygen gas manufacturing but still they are not successful in catering the demand. So, there is a potential for new entrepreneurs to enter the market.

The project proposes setting up an oxygen manufacturing plant in any big city of Pakistan. The plant would produce medical grade oxygen and industrial oxygen from free saturated air sucked from the atmosphere. The process adopted to produce oxygen and nitrogen is called liquefaction and fractional distillation of air.

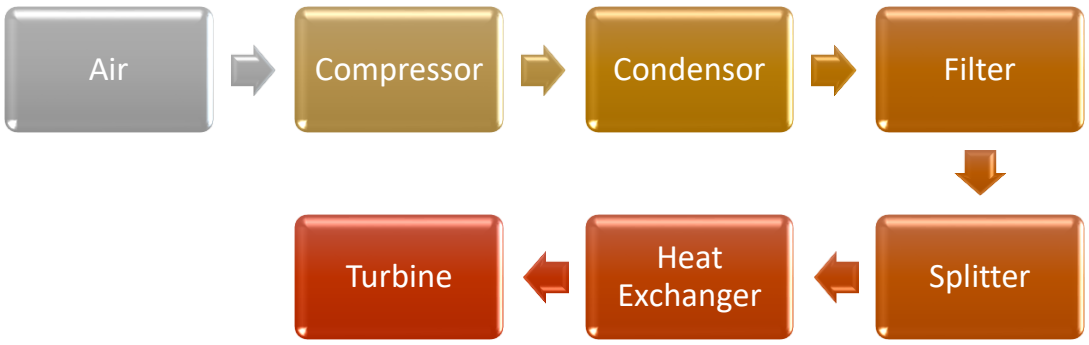
5.1 Production Process Flow

Free atmospheric air is sucked in by a multi-stage air compressor through a filter and compressed to the working pressure. After each stage, intermediate coolers and water separators are provided. The compressed air then passes through the (evaporation) pre-cooler and then to the molecular sieve battery where the moisture and carbon dioxide are removed from the process air. It then passes through the exchanger, where it is cooled by the out-going waste nitrogen and product oxygen.

A part of this cold air then flows through an expansion machine and the balance through the 2nd heat exchanger. The ratio of the two air streams is controlled by an expansion valve (Valve 1). Both these streams of air then unite in the lower pressure column where it partially liquefies. The liquid air (rich air) then passes through the other expansion valve (Valve 2) to the upper column which is at a lower pressure than the lower column. Similarly the liquid nitrogen (poor liquid) travels from the lower column to the upper column through another expansion valve (Valve 3), where the separation of oxygen and nitrogen occurs.

Nitrogen being more volatile passes out as a gas from the top of the column and this waste nitrogen flows through both the heat exchangers cooling the in-coming air. Similarly product oxygen is also passed through the two heat exchangers to cool the in-coming air and then to the filling manifold via a liquid pump. If a small amount of air is vented out from the upper column, higher purity nitrogen can also be obtained from this plant. Afterwards fourth valve (Valve 4) is provided in order to fasten cooling during the start-up.

Figure 1: Process Flow Diagram



In the end, Oxygen gas is filled into the cylinders through single acting piston pump also called ‘Liquid Oxygen Pump’.

5.2 Installed and Operational Capacities

The oxygen plant proposed would have a capacity to produce 300 m^3 per hour of gaseous oxygen. The plant is proposed to operate for 24 hours per day at 100% capacity since the start of its operations, working in 3 shifts of 8 hours each. Hence the total installed and operational capacity of the project is 65,733,120 cubic feet of Oxygen per year.

6 CRITICAL FACTORS

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

- ⇒ Latest technology oxygen producing plant with high working efficiency and trouble free operations, safety and low power consumption.
- ⇒ Technical knowledge and experience of the entrepreneur in the field of oxygen business is absolutely necessary.
- ⇒ Continuous availability of and easy access to raw material, i.e. free atmospheric air.
- ⇒ The process is completely automated and requires technical expertise of machine operators on a continuous basis.
- ⇒ Appropriate storage arrangement.
- ⇒ Careful selection of good location and purchase of land at competitive price.
- ⇒ Strong linkage and networking with industrial buyers.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

As the major customers of Oxygen Gas are chemicals and medical industrial buyers, so the unit can be established in any major city comprising of large industrial sector bases. Therefore, cities like Karachi, Lahore, Faisalabad, Peshawar and Sialkot can be suitable locations for setting up unit. Subsequently, availability of skilled labor, and close customer proximity is extremely important for the success of this business.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Potential target customers for the produced Oxygen gas are mainly buyers from the following industries/businesses;

- Steel Manufacturing Industry
- Chemical Industry
- Pulp and Paper Industry

- Glass Manufacturing
- Petroleum Recovery and Refining
- Medical Fields
- Hospitals

Since, majority of the target customer of the proposed unit belongs to business segments, which are predominantly located in the major cities in Pakistan. Therefore, industrial buyers of above mentioned industries from all across Pakistan will be the key potential markets for the proposed venture. However, major industrial cities such as Lahore, Karachi, Peshawar, Rawalpindi, Faisalabad, Sialkot and Multan have the larger potentials.

9 PROJECT COST SUMMARY

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

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

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs. 203.033 million in the year one. The capacity utilization during year one is worked out at 100%.

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

Table 1: Project Economics

Description	Details
Internal Rate of Return (IRR)	20%
Payback Period (yrs.)	5.11
Net Present Value (Rs.)	54,418,427

Calculation of break-even analysis is as follows:

Table 2: Breakeven (100% Equity Based)

Break-Even Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Break-Even Revenue	120,801,268	119,221,557	118,848,699	118,786,992	119,011,178	120,747,133	121,638,644	122,889,655	124,564,175	126,721,990

Break-Even Units	40,267,089	36,127,745	32,740,688	29,748,808	27,095,412	24,991,490	22,887,281	21,020,608	19,370,036	17,914,165
Margin of Safety	41%	48%	53%	57%	61%	64%	67%	70%	72%	74%

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

Table 3: Project Economics Based on Debt (50%) : Equity (50%)

Description	Details
Internal Rate of Return (IRR)	19%
Payback Period (Yrs.)	5.21
Net Present Value (Rs.)	186,682,060

The financial assumptions for Debt:Equity are as follows:

Table 4: Financial Assumptions for Debt:Equity Model

Description	Details
Debt	50%
Equity	50%
Interest Rate on Debt	12%
Debt Tenure	5 Years
Debt Payment / Year	Annual

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

9.2 Project Cost

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

Table 5: Project Cost

Description	Amount Rs.
Capital Cost	
Machinery & Equipment	434,860,934
Land	50,000,000

Building / Infrastructure	31,564,400
Office Vehicles	7,770,000
Pre-operating Costs	2,945,000
Licensing & Legal fee	2,500,000
Furniture & Fixture	756,024
Wapda Security	659,883
Computer Equipment	227,000
Total Capital Cost	**531,283,241**
Upfront Insurance Payment	15,492,083
Cash	6,928,540
Equipment Spare Parts	543,576
Total Working Capital	**22,964,199**
Total Project Cost	**554,247,440**

9.3 Space Requirement

Approximately 5 Kanals of land would be required for establishment of proposed unit. It is recommended that required land should be procured in the industrial estates of identified city / area. The cost of land is estimated at the rate of Rs. 10 million per kanal.

The infrastructural requirements of the project mainly comprise the construction of management building, plant area, cooling hall, cylinder storage areas and other facilities. The cost of construction of building for the proposed unit is provided in the table below.

Table 6: Space Requirment

Description	Estimated Area (Sq.ft.)	Unit Cost (Rs.)	Total Cost (Rs.)
Plant Area	7,500	2,200	16,500,000
Finished Goods and Empty Cylinder Area	9,000	500	4,500,000
Management Building	1,000	2,500	2,500,000
Cooling Tank Area	1,100	2,200	2,420,000

Pavement / Driveway	900	2,200	1,980,000
Cafeteria	500	2,200	1,100,000
Washrooms	252	2,500	630,000
Electric Room	120	2,500	300,000
Grounds	2,128	50	106,400
Boundary Wall and Gate			728,000
Total Construction Cost			**31,564,400**
Cost of Land			50,000,000
Total Cost of Land and Building			**81,564,400**

9.4 Machinery & Equipment Requirement

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

Table 7: Machinery & Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Cost of Cylinders (240 CFT)	10,000	25,000	250,000,000
Application for Industrial and Medical Oxygen Plant	1	157,443,849	157,443,849
Design, Erecting, Testing and Commissioning Cost			15,744,385
Generator	1	3,800,000	3,800,000
Transformer	1	2,695,000	2,695,000
Boarding & Lodging	Lumpsum	1,650,000	1,650,000
Chinese Supervision Cost		3,527,700	3,527,700
Total			**434,860,934**

9.5 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.)
Air Conditioners (1.5 ton window)	4	84,000	336,000
Chairs for Staff, Visitors & Conference Room etc.	40	3,976	159,024
Work Stations	6	15,000	90,000
Tables	10	6,200	62,000
Renovation & Fixtures	1	60,000	60,000
Telephone Exchange	1	20,000	20,000
Fax Machines	1	20,000	20,000
Telephones	6	1,500	9,000
Total			**756,024**

9.6 Office vehicles Requirement

Details of the office vehicles required for the project are given below.

Table 9: Ofice Vehicles

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Delivery Vehicle	4	1,850,000	7,400,000
Total			**7,400,000**

9.7 Office Equipment Requirement

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

Table 10: Office Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computers	6	25,000	150,000
Computer Printers	2	38,500	77,000
Total			**227,000**

9.8 Raw Material Requirements.

The proposed oxygen gas manufacturing plant separates atmospheric air as its raw material to the primary components, oxygen and nitrogen. Oxygen is processed and finally filled in cylinders for its further consumption.

9.9 Human Resource Requirement

In order to run operations of oxygen gas manufacturing unit smoothly, details of human resources required along with number of employees and monthly salaries are recommended as under.

Table 11: Human Resource Requirment

Description	No. of Employees	Monthly Salary per person (Rs.)
Owner/Manager	1	100,000
Production Manager	1	70,000
Accounts Officer	1	35,000
Plant Engineer	1	50,000
Technical Supervisor*	1	40,000
Machine Operators*	3	30,000
Quality Inspector*	1	28,000
Filling In charge*	1	22,000
Helpers*	8	17,500
Operator/ Receptionist	1	20,000
Sweepers	2	17,500
Security Guards	4	17,500
Office Boys	2	17,500
Loading and unloading*	8	17,500
Maali	1	17,500
Driver	4	25,000
Total	**40**	

* The staff is calculated on single shift basis, as the shift increases the staff will increase accordingly.

9.10 Utilities and other costs

An essential cost to be borne by the project is the cost of electricity and water. The electricity and water expenses are estimated to be around Rs. 3,643,061 per month. Furthermore, promotional expense being essential for marketing of oxygen gas manufacturing unit is estimated as 1% of Administration Expenses.

9.11 Revenue Generation

Based on the capacity utilization of 100%, sales revenue during the first year of operations is provided in the table below.

Table 12: Revenue Generation – Year 1

Description	Production in Cubic Ft.	Finished Goods Inventory In Cubic Ft.	Available for Sale in Cubic Ft.	Sale Price / Cubic Ft (Rs.)	Sales Revenue (Rs.) in Cubic Ft.
Oxygen Gas	65,733,120	1,278,144	64,454,976	3.15	203,033,174
Total			**64,454,976**		**203,033,174**

10 CONTACT DETAILS

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

Table 13: Machinery Suppliers

Name of Supplier	Address	Phone	E-mail
Jianyang Green Fir New Energy Equipment Co. Ltd.	255, South Section Kailiwei Industrial Ave., Jianyang, Chengdu, Sichuan, China	+86 28 2725 5631	info@greenfirtech.com
Pakistan Oxygen Limited	P. O. Box 4845, Dockyard Road, West Wharf, Karachi – 74000 Pakistan	+92 21 111 262 725	customer.service@pakoxygen.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
Punjab Health Department	www.info.health@punjab.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 (PSIC)	www.psic.org.pk
Pakistan Oxygen Limited	www.pakoxygen.com
Sindh Small Industries Corporation (SSIC)	www.ssic.gos.pk
Oil and Gas Regulatory Authority (OGRA) Pakistan	www.ogra.org.pk

12 ANNEXURES

12.1 Income Statement

Calculations **SMEDA**

Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	203,033,174	227,765,261	250,541,787	275,595,966	303,155,562	333,471,118	366,818,230	403,500,053	443,850,059	488,235,064
Cost of sales										
Operation costs 1 (direct labor)	18,000,000	19,800,000	21,780,000	23,958,000	26,353,800	28,989,180	31,888,098	35,076,908	38,584,599	42,443,058
Operating costs 2 (machinery maintenance)	6,522,914	6,849,060	7,191,513	7,551,088	7,928,643	8,325,075	8,741,329	9,178,395	9,637,315	10,119,181
Operating costs 3 (direct electricity)	42,879,996	47,167,996	51,884,795	57,073,275	62,780,602	69,058,662	75,964,529	83,560,981	91,917,080	101,108,788
Operating costs 4 (direct water)	644,550	690,198	724,708	760,943	798,990	838,940	880,887	924,931	971,178	1,019,736
Total cost of sales	68,047,460	74,507,253	81,581,016	89,343,306	97,862,035	107,211,857	117,474,842	128,741,215	141,110,171	154,690,763
Gross Profit	134,985,715	153,258,008	168,960,771	186,252,660	205,293,527	226,259,261	249,343,388	274,758,838	302,739,888	333,544,301
General administration & selling expenses										
Administration expense	4,950,000	5,445,000	5,989,500	6,588,450	7,247,295	7,972,025	8,769,227	9,646,150	10,610,765	11,671,841
Administration benefits expense	148,500	163,350	179,685	197,654	217,419	239,161	263,077	289,384	318,323	350,155
Electricity expense	192,192	211,411	232,552	255,808	281,388	309,527	340,480	374,528	411,981	453,179
Travelling expense	198,000	217,800	239,580	263,538	289,892	318,881	350,769	385,846	424,431	466,874
Communications expense (phone, fax, mail, internet, etc.)	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076	1,167,184
Office vehicles running expense	6,090,995	6,832,958	7,516,254	8,267,879	9,094,667	10,004,134	11,004,547	12,105,002	13,315,502	14,647,052
Office expenses (stationary, entertainment, janitorial services, etc	990,000	1,089,000	1,197,900	1,317,690	1,449,459	1,594,405	1,753,845	1,929,230	2,122,153	2,334,368
Promotional expense	2,030,332	1,827,299	1,644,569	1,480,112	1,332,101	1,198,891	1,079,002	971,101	873,991	786,592
Insurance expense	15,492,083	13,915,679	12,339,276	10,762,873	9,186,470	8,048,045	6,438,436	4,828,827	3,219,218	1,609,609
Professional fees (legal, audit, consultants, etc.)	609,100	683,296	751,625	826,788	909,467	1,000,413	1,100,455	1,210,500	1,331,550	1,464,705
Depreciation expense	46,768,826	46,768,826	46,768,826	46,782,904	46,780,634	47,729,366	47,745,663	47,743,035	47,743,035	47,761,900
Amortization of pre-operating costs	589,000	589,000	589,000	589,000	589,000	-	-	-	-	-
Amortization of legal, licensing, and training costs	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Bad debt expense	1,015,166	1,138,826	1,252,709	1,377,980	1,515,778	1,667,356	1,834,091	2,017,500	2,219,250	2,441,175
Miscellaneous expense 1	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076	1,167,184
Subtotal	80,314,193	80,221,445	80,149,376	80,278,364	80,593,027	81,926,607	82,683,436	83,680,333	84,962,351	86,571,819
Operating Income	54,671,522	73,036,563	88,811,395	105,974,296	124,700,500	144,332,655	166,659,952	191,078,505	217,777,537	246,972,482
Other income (interest on cash)	1,146,221	3,358,768	5,978,203	8,904,020	12,035,433	15,531,595	19,568,521	24,054,044	29,025,130	34,550,289
Gain / (loss) on sale of computer equipment	-	-	56,750	-	-	122,445	-	-	198,496	158,468
Gain / (loss) on sale of office vehicles	-	-	-	-	3,108,000	-	-	-	-	
Earnings Before Interest & Taxes	55,817,742	76,395,331	94,846,349	114,878,315	139,843,933	159,986,695	186,228,473	215,132,549	247,001,163	281,681,239
Earnings Before Tax	55,817,742	76,395,331	94,846,349	114,878,315	139,843,933	159,986,695	186,228,473	215,132,549	247,001,163	281,681,239
Tax	18,656,210	25,858,366	32,316,222	39,327,410	48,065,376	55,115,343	64,299,965	74,416,392	85,570,407	97,708,433
NET PROFIT/(LOSS) AFTER TAX	**37,161,533**	**50,536,966**	**62,530,127**	**75,550,905**	**91,778,557**	**104,871,352**	**121,928,508**	**140,716,157**	**161,430,756**	**183,972,806**

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
Assets											
Current assets											
Cash & Bank	6,928,540	84,769,116	183,932,353	294,323,927	417,997,639	544,837,010	697,690,626	867,791,037	1,056,532,483	1,265,477,947	1,498,545,153
Accounts receivable		8,343,829	8,852,023	9,828,227	10,811,050	11,892,155	13,081,370	14,389,507	15,828,458	17,411,304	19,152,434
Finished goods inventory		1,349,383	1,448,752	1,586,298	1,737,231	1,902,873	2,084,675	2,284,233	2,503,301	2,743,809	3,007,876
Equipment spare part inventory	543,576	599,293	660,720	728,444	803,110	885,428	976,185	1,076,244	1,186,559	1,308,181	-
Pre-paid insurance	15,492,083	13,915,679	12,339,276	10,762,873	9,186,470	8,048,045	6,438,436	4,828,827	3,219,218	1,609,609	-
Total Current Assets	22,964,199	108,977,300	207,233,124	317,229,768	440,535,499	567,565,510	720,271,291	890,369,848	1,079,270,019	1,288,550,849	1,520,705,463
Fixed assets											
Land	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000
Building/Infrastructure	31,564,400	29,986,180	28,407,960	26,829,740	25,251,520	23,673,300	22,095,080	20,516,860	18,938,640	17,360,420	15,782,200
Wapda Security	659,883	659,883	659,883	659,883	659,883	659,883	659,883	659,883	659,883	659,883	659,883
Machinery & equipment	434,860,934	391,374,841	347,888,747	304,402,654	260,916,560	217,430,467	173,944,374	130,458,280	86,972,187	43,486,093	-
Furniture & fixtures	756,024	680,422	604,819	529,217	453,614	378,012	302,410	226,807	151,205	75,602	-
Office vehicles	7,770,000	6,216,000	4,662,000	3,108,000	1,554,000	12,513,663	10,010,930	7,508,198	5,005,465	2,502,733	-
Computer equipment	227,000	152,090	77,180	265,051	176,063	89,345	306,830	203,815	103,429	355,194	235,942
Total Fixed Assets	525,838,241	479,069,415	432,300,590	385,794,545	339,011,641	304,744,670	257,319,506	209,573,843	161,830,808	114,439,925	66,678,025
Intangible assets											
Pre-operation costs	2,945,000	2,356,000	1,767,000	1,178,000	589,000	-	-	-	-	-	-
Legal, licensing, & training costs	2,500,000	2,250,000	2,000,000	1,750,000	1,500,000	1,250,000	1,000,000	750,000	500,000	250,000	-
Total Intangible Assets	5,445,000	4,606,000	3,767,000	2,928,000	2,089,000	1,250,000	1,000,000	750,000	500,000	250,000	-
TOTAL ASSETS	**554,247,440**	**592,652,715**	**643,300,713**	**705,952,313**	**781,636,140**	**873,560,181**	**978,590,797**	**1,100,693,691**	**1,241,600,827**	**1,403,240,774**	**1,587,383,488**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		1,243,742	1,354,775	1,476,247	1,609,169	1,754,653	1,913,917	2,088,303	2,279,282	2,488,473	2,658,380
Total Current Liabilities	-	1,243,742	1,354,775	1,476,247	1,609,169	1,754,653	1,913,917	2,088,303	2,279,282	2,488,473	2,658,380
Other liabilities											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
Shareholders' equity											
Paid-up capital	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440	554,247,440
Retained earnings		37,161,533	87,698,499	150,228,626	225,779,531	317,558,088	422,429,440	544,357,948	685,074,105	846,504,861	1,030,477,667
Total Equity	554,247,440	591,408,973	641,945,938	704,476,066	780,026,971	871,805,528	976,676,880	1,098,605,388	1,239,321,545	1,400,752,301	1,584,725,107
TOTAL CAPITAL AND LIABILITIES	**554,247,440**	**592,652,715**	**643,300,713**	**705,952,313**	**781,636,140**	**873,560,181**	**978,590,797**	**1,100,693,691**	**1,241,600,827**	**1,403,240,774**	**1,587,383,488**

12.3 Cash Flow Statement

Calculations **SMEDA**

Cash Flow Statement

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Operating activities											
Net profit		37,161,533	50,536,966	62,530,127	75,550,905	91,778,557	104,871,352	121,928,508	140,716,157	161,430,756	183,972,806
Add: depreciation expense		46,768,826	46,768,826	46,768,826	46,782,904	46,780,634	47,729,366	47,745,663	47,743,035	47,743,035	47,761,900
amortization of pre-operating costs		589,000	589,000	589,000	589,000	589,000	-	-	-	-	-
amortization of training costs		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Accounts receivable		(8,343,829)	(508,194)	(976,204)	(982,823)	(1,081,105)	(1,189,215)	(1,308,137)	(1,438,951)	(1,582,846)	(1,741,130)
Finished goods inventory		(1,349,383)	(99,369)	(137,545)	(150,933)	(165,642)	(181,802)	(199,558)	(219,068)	(240,507)	(264,067)
Equipment inventory	(543,576)	(55,717)	(61,428)	(67,724)	(74,666)	(82,319)	(90,756)	(100,059)	(110,315)	(121,622)	1,308,181
Advance insurance premium	(15,492,083)	1,576,403	1,576,403	1,576,403	1,576,403	1,138,425	1,609,609	1,609,609	1,609,609	1,609,609	1,609,609
Accounts payable		1,243,742	111,033	121,472	132,922	145,484	159,265	174,386	190,979	209,190	169,908
Cash provided by operations	(16,035,659)	77,840,576	99,163,237	110,654,355	123,673,713	139,353,033	153,157,818	170,100,411	188,741,446	209,297,615	233,067,206
Financing activities											
Issuance of shares	554,247,440	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	554,247,440	-	-	-	-	-	-	-	-	-	-
Investing activities											
Capital expenditure	(531,283,241)	-	-	(262,781)	-	(12,513,663)	(304,202)	-	-	(352,152)	-
Acquisitions											
Cash (used for) / provided by investing activities	(531,283,241)	-	-	(262,781)	-	(12,513,663)	(304,202)	-	-	(352,152)	-
NET CASH	6,928,540	77,840,576	99,163,237	110,391,574	123,673,713	126,839,371	152,853,616	170,100,411	188,741,446	208,945,464	233,067,206

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Communication Expenses	10% of Administration expenses
Promotional Expenses	1% of Administration expenses
Depreciation Method	Accelerated depreciation
Depreciation Rate	10% on Machinery 33% on Office Equipment 10% on Furniture & Fixture 20% on vehicles
Inflation Growth Rate	10%
Electricity Price Growth Rate	10%
Salaries Growth Rate	10%
Water Price Growth Rate	5%
Gas Price Growth Rate	5%
Wage Growth Rate	10%

13.2 Capacity Utilization Assumptions

Description	Details
Maximum Operational Capacity (Cubic feet)	65,733,120
Production Capacity in First Year	100%
Finish good Inventory Stock (Cubic feet)	7 Days

13.3 Revenue Assumptions

Description	Details
Sale Price Growth Rate	10%
Capacity Utilization	100%

Small and Medium Enterprises Development Authority

HEAD OFFICE

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

www.smeda.org.pk, **helpdesk@smeda.org.pk**

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