
Pre-Feasibility Study

Fluorite Mining



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1 DISCLAIMER

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

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2 EXECUTIVE SUMMARY

The project Fluorite Mining would comprise on the mining of the mineral fluorite and unit would be located in Loralai and other promising areas of Balochistan or where fluorite deposits are available in all over Pakistan. This project will focus on the mining aspect of the value chain. Fluorite is produced for the steel and glassware industries.

The fluorite mine has the capacity of producing approximately 6,500 tons annually and will be operational for 330 days a year and 12 hours a day. Initially the fluorite mine will be operated at 65% of capital utilization and will increase it by 5% annually. The Maximum capacity utilization will be 95%.

The total project investment is Rs. **67,550,232/-** with an Internal Rate of Return (IRR) of **33%** and Net Present Value (NPV) of **69,243,908/-**. The total project investment would be paid back in approximately **3.68** years.

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

- Large deposits of high quality Fluorite in the country.
- General accessibility to major Fluorite deposits.
- Significant number of mining Site.
- Availability of hard working & low cost labor.
- Industrial Revolution.
- Large and established world markets.
- Improved technological changes available.
- Easy availability of locally made Fluorite Mining machinery and spare parts.
- Ample opportunity for exports.
- Establishment of the unit in the mining vicinity would be more beneficial to avoid wastage and transportation cost.
- The location plays an important role, as the facility should easily be accessible to the target customers.
- Emphasizing on excellent services to its customers such as standardized products and timely order fulfillment.
- New machinery should be purchased in order to increase the efficiency and lower the maintenance cost and wastage.
- Adapt to the rapid, social, economic and technological changes.
- Well-trained/experienced staff will add in the efficiency of the facility.

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 **Fluorite Mining** 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.

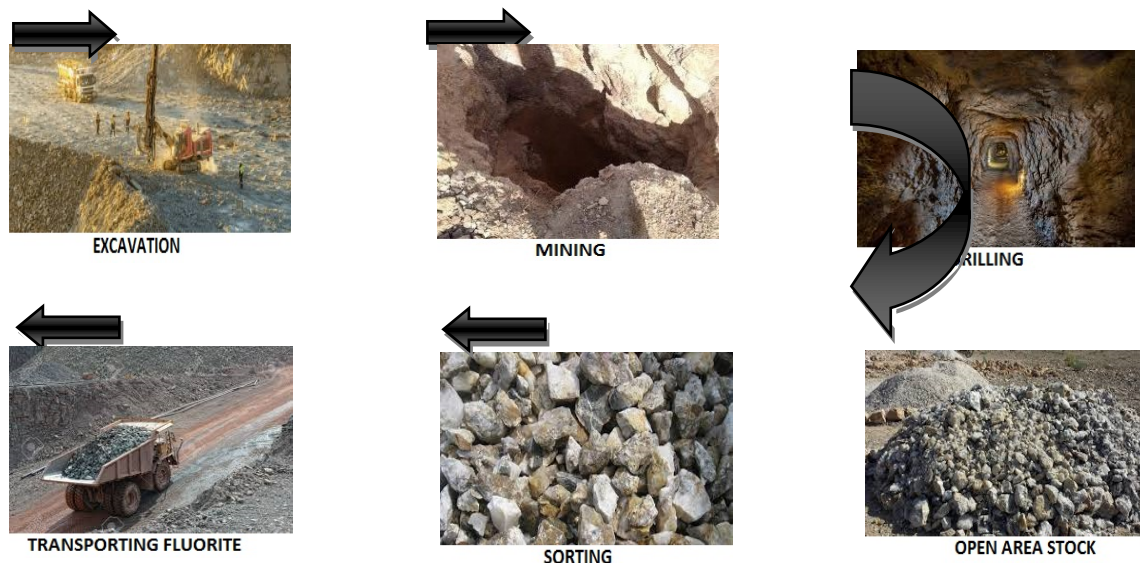
Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Following key parameters must be addressed as per pre-feasibility study under preparation

- **Technology:** This proposed unit with modern mining machines including Excavator, Drill Machine, Loaders and Air compressor that will set up a fluorite mining unit.
- **Location:** The unit would be located in Loralai and other promising areas of Balochistan or where fluorite deposits are available in all over Pakistan.
- **Product:** The unit will produce fluorite ore.
- **Target Market:** The target market for Fluorite ore include steel and glassware industries that are located in Sindh and Punjab initially.
- **Employment Generation:** The proposed project will provide direct employment to 23 people.

5.1 Production Process Flow



5.2 Installed And Operational Capacities

The fluorite mine has the capacity of producing approximately 6,500 tons annually and will be operational for 330 days a year and 12 hours a day. Initially the fluorite mine will be operated at 65% of capital utilization and will increase it by 5% annually. The Maximum capacity utilization will be 95%.

6 CRITICAL FACTORS

- Market demand
- Government rule and policies
- Availability of skilled workers
- Natural Disasters

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Fluorite is included in the list of largest minerals extracted among chromite, coal, rock salt, limestone, china clay, dolomite, fire clay, gypsum, silica sand etc. Since 1990 mining & quarrying. Pakistan has excellent mineral potential including precious metals, dimension stones, industrial minerals, rock salt, coal, etc. but the potential has not been developed commensurately. Mismatch primarily due to capital intensive nature of investment.

China was the world's largest miner of fluorspar as of 2019, having produced four million metric tons. Fluorspar, also known as fluorite, is the mineral form of calcium fluoride. It is used as a flux for smelting, in the production of enamels and glasses, as well as ornamental uses. The world import of fluorite stood at \$513.34 Million for the year 2018. United States has been the major importers of world for the last few years followed by India & Germany respectively

Pakistan has good potential due to its huge and high quality reserves of Marble & Granite in different parts of country, but unfortunately so far Pakistan could not develop its name in the list of major exporters. The main cause of this poor contribution from Pakistan is the non-existence of adequate supply chain and high wastage besides the quality of mined and processed stones.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Fluorite Mining is gaining popularity due to increase in its usage in the steel and glassware industries. Today almost all the modern industries include the final touch in their produces. Even though reasonable number of mines are working in province but there is still a great demand for a fully equipped fluorite-mining units.

The new Sites would not only explore the industry within the area, but it would also be able to full fill the orders from the adjoining areas. Establishment of such like units in the marble city will be more beneficial being the gateway to the export markets.

Due to modern industrialization, use of fluorite in steel and glassware industries is increasing. The increase in demand could be judged easily from its supply from Karachi and Punjab in spite of the presence of reasonable number of constraints/hurdles. The target customers for Fluorite ore include steel and glassware industries.

9 PROJECT COST SUMMARY

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of **Rs. 119.44 million** in the year one. The capacity utilization during year one is worked out at **65%** with **5%** increase in subsequent years up to the maximum capacity utilization of **95%**.

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

Table 1: Project Economics

Description	Details
Internal Rate of Return (IRR)	33%
Payback Period (yrs.)	3.68
Net Present Value (Rs.)	69,243,908

9.2 Project Financing

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

Table 2: Project Financing

Description	Details
Total Equity (50%)	Rs. 33,775,116
Bank Loan (50%)	Rs. 33,775,116
Markup to the Borrower (%age / annum)	16 %
Tenure of the Loan (Years)	5

9.3 Project Cost

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

Table 3: Project Cost

Description	Amount Rs.
Capital Cost	
Infrastructure	7,340,000
Plant and Machinery	31,062,500
Furniture & Fixture	400,000
Vehicles	13,390,000
Office Equipment	302,500
Pre-operating Cost	808,576
Total Capital Cost	53,303,576
Working Capital	
Equipment and Spare Part Inventory	168,707
Raw Material Inventory	624,214
Up-front Mine Lease	10,731,110
Upfront Insurance Payment	2,222,625
Cash	500,000
Total Working Capital	14,246,656
Total Project Cost	67,550,232

9.4 Space Requirement

The space requirement for the proposed fluorite mining is estimated considering various facilities including management office, production hall, storage, open space, etc. Details of space requirement and cost related to land & building is given below;

Table 4: Space Requirement

Description	Estimated Area (Sqft)	Unit Cost (Rs.)	Total Cost (Rs.)
Management Office	500	1,500	750,000
Mining Area	440,000	2	880,000
Worker rooms	2,300	1,500	3,450,000
Cafeteria	400	1,500	600,000
Pavement/driveway	20,000	50	1,000,000
Ground	22,000	30	660,000
Total	443,200		7,340,000

9.5 Machinery & Equipment Requirement

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

Table 5: Machinery & Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Excavator	1	25,000,000	25,000,000
Mining Pick	10	80,000	800,000
Drill	25	4,500	112,500
Air compressor	1	1,200,000	1,200,000
Generator	1	2,500,000	2,500,000
Transportation and Installation	1	950,000	950,000
Miscellaneous Expense	1	500,000	500,000
Total			31,062,500

9.6 Furniture & Fixtures Requirement

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

Table 6: Furniture & Fixture

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Tables	2	10,000	20,000
Chairs	4	5,000	20,000
Plastic Chairs	8	2,500	20,000
Carpeting	1,500	100	150,000
Electric wiring and lighting	1	100,000	100,000
Air conditioner (2 Ton Split)	1	90,000	90,000
Total			400,000

9.7 Office Equipment Requirement

Following office equipment will be required for Fluorite mining;

Table 7: Office Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	2	70,000	140,000
Printer (3 in one)	1	35,000	35,000
Telephones	3	2,500	7,500
Fax Machine	1	20,000	20,000
Copier	1	100,000	100,000
Total			302,500

9.8 Human Resource Requirement

In order to run operations of fluorite mining smoothly, details of human resources required along with number of employees and monthly salary are recommended as under;

Table 8: Human Resource Requirement

Description	No. of Employees	Monthly Salary per person (Rs.)
Manager/CEO	1	50,000
Operation Manager	1	45,000

Supervisor	1	35,000
Mechanic	1	25,000
Accountant/ Munshi	1	22,000
Salesman	1	22,000
Skilled worker	10	22,000
Semi-skilled workers	5	18,000
Security Guard	2	18,000
Total	23	

9.9 Utilities and other costs

An essential cost to be borne by the project is the cost of utilities. The administrative expenses are Rs. 498,000 per month which includes the utilities. Furthermore, promotional expense being essential for marketing of fluorite mining is estimated as 1% and that is Rs. 1,194,443 for year 1.

9.10 Revenue Generation

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

Table 9: Revenue Generation – Year 1

Description	No. of Units Produced (No.)	Finished Goods Inventory (No.)	Units available for Sale (No.)	Sale Price / unit (Rs.)	Sales Revenue (Rs.)
Fluorite Ore	4225	176	4,4049	29,500	119,444,271

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	Fax	E-mail	Website
Atlas Copco	588, Block H3, Abdul	+92 (0) 42 1111	+92 42 35473777	atlascopeco.pakistan@pk.atlascopeco.com	www.atlascopeco.com

	Haque Road, opposite Emporium Mall, Johar Town, Lahore , Punjab	28527			
Allied Engineering & Services (Pvt.) Ltd.	21/3, Sector No.22, Korangi Industrial Area, Karachi	+92-21- 35066901	-	saad.ali@aesl.com.pk	www.aesl.com.pk/

10.2 Technical Experts / Consultants

Name of Expert/Organization	Address	Phone	Fax	E-mail	Website
Water, Minerals & Environmental (WME) Consultants	Suite # F-7, 1st Floor, A 166/167, QuettaTown, Sector 18-A, Scheme-33, Karachi	(021) 34690011- 2		info@wmeconsultants.com.pk	www.wmeconsultants.com.pk

11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Ministry of Education, Training & Standards in Higher Education	http://moptt.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Balochistan	www.balochistan.gov.pk

Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.phdec.org.pk
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Pakistan Readymade Garment Technical Training Institute	www.prgmea.org/prgtti/
Livestock & Dairy Development Department, Government of Punjab.	www.livestockpunjab.gov.pk
Punjab Industrial Estates (PIE)	www.pie.com.pk
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	www.fiedmc.com.pk

12 ANNEXURES

12.1 Income Statement

Statement Summaries										SMEDA
Income Statement										
	Rs. in actuals									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	119,444,271	143,193,307	164,193,568	187,432,217	213,119,729	241,485,075	272,777,282	292,513,168	312,989,090	#####
Cost of goods sold	77,470,708	91,096,731	102,461,880	114,733,900	127,975,090	142,251,717	157,634,265	165,887,328	174,192,251	#####
Gross Profit	41,973,563	52,096,576	61,731,688	72,698,317	85,144,639	99,233,358	115,143,017	126,625,840	138,796,839	#####
<i>General administration & selling expenses</i>										
Administration expense	6,155,280	6,754,567	7,412,201	8,133,863	8,925,788	9,794,815	10,748,452	11,794,937	12,943,308	14,203,487
Rental expense	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110
Utilities expense	-	-	-	-	-	-	-	-	-	-
Travelling & Comm. expense (phone, fax, etc.)	119,520	131,157	143,926	157,939	173,316	190,191	208,708	229,028	251,326	275,796
Office vehicles running expense	669,500	736,450	810,095	891,105	980,215	1,078,236	1,186,060	1,304,666	1,435,133	1,578,646
Office expenses (stationary, etc.)	59,760	65,578	71,963	78,970	86,658	95,095	104,354	114,514	125,663	137,898
Promotional expense	1,194,443	1,431,933	1,641,936	1,874,322	2,131,197	2,414,851	2,727,773	2,925,132	3,129,891	3,348,983
Insurance expense	2,222,625	1,933,413	1,644,200	1,354,988	1,065,775	1,854,799	1,483,839	1,112,879	741,920	370,960
Professional fees (legal, audit, etc.)	597,221	715,967	820,968	937,161	1,065,599	1,207,425	1,363,886	1,462,566	1,564,945	1,674,492
Depreciation expense	6,221,500	6,221,500	6,221,500	6,221,500	6,221,500	7,856,446	7,856,446	7,856,446	7,856,446	7,856,446
Amortization expense	161,715	161,715	161,715	161,715	161,715	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	3,583,328	4,295,799	4,925,807	5,622,967	6,393,592	7,244,552	8,183,318	8,775,395	9,389,673	10,046,950
Subtotal	31,716,002	33,179,188	34,585,421	36,165,639	37,936,465	42,467,520	44,593,947	46,306,672	48,169,415	50,224,767
Operating Income	10,257,560	18,917,388	27,146,267	36,532,678	47,208,174	56,765,837	70,549,070	80,319,168	90,627,424	#####
<i>Other income</i>										
Gain / (loss) on sale of assets	-	-	-	-	5,356,000	-	-	-	-	-
Earnings Before Interest & Taxes	10,257,560	18,917,388	27,146,267	36,532,678	52,564,174	56,765,837	70,549,070	80,319,168	90,627,424	#####
Interest expense	4,943,500	3,659,532	2,579,340	1,683,860	634,115	541,876	453,487	349,871	228,405	86,014
Earnings Before Tax	5,314,060	15,257,856	24,566,927	34,848,818	51,930,059	56,223,961	70,095,584	79,969,297	90,399,019	#####
Tax	2,178,765	6,255,721	10,072,440	14,288,015	21,291,324	23,051,824	28,739,189	32,787,412	37,063,598	41,685,424
NET PROFIT/(LOSS) AFTER TAX	3,135,295	9,002,135	14,494,487	20,560,803	30,638,735	33,172,137	41,356,394	47,181,885	53,335,421	59,986,343
Balance brought forward	-	3,135,295	6,068,715	10,281,601	15,421,202	46,059,937	79,232,074	120,588,468	167,770,354	#####
Total profit available for appropriation	3,135,295	12,137,430	20,563,202	30,842,404	46,059,937	79,232,074	120,588,468	167,770,354	221,105,775	#####
Dividend	-	6,068,715	10,281,601	15,421,202	-	-	-	-	-	-
Balance carried forward	3,135,295	6,068,715	10,281,601	15,421,202	46,059,937	79,232,074	120,588,468	167,770,354	221,105,775	#####

12.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rs. in actuals										
Assets											
<i>Current assets</i>											
Cash & Bank	500,000	-	5,160,221	9,738,785	14,334,448	27,842,952	66,073,049	112,357,718	164,547,997	222,959,664	#####
Accounts receivable	-	4,908,669	5,396,663	6,316,169	7,225,187	8,230,519	9,341,195	10,567,035	11,615,557	12,441,827	13,312,755
Finished goods inventory	-	3,368,292	3,807,028	4,281,137	4,793,061	5,345,397	5,940,907	6,582,530	6,911,972	7,258,010	7,621,491
Equipment spare part inventory	168,707	206,409	241,546	281,402	326,547	377,617	435,319	476,414	520,244	568,106	-
Raw material inventory	624,214	763,713	893,722	1,041,188	1,208,224	1,397,182	1,610,682	1,762,730	1,924,902	2,101,993	-
Pre-paid annual land lease	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	2,222,625	1,933,413	1,644,200	1,354,988	1,065,775	1,854,799	1,483,839	1,112,879	741,920	370,960	-
Total Current Assets	14,246,656	21,911,604	27,874,489	33,744,779	39,684,353	55,779,577	95,616,101	143,590,416	196,993,701	256,431,670	#####
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	7,340,000	6,973,000	6,606,000	6,239,000	5,872,000	5,505,000	5,138,000	4,771,000	4,404,000	4,037,000	3,670,000
Machinery & equipment	31,062,500	27,956,250	24,850,000	21,743,750	18,637,500	15,531,250	12,425,000	9,318,750	6,212,500	3,106,250	-
Furniture & fixtures	400,000	360,000	320,000	280,000	240,000	200,000	160,000	120,000	80,000	40,000	-
Office vehicles	13,390,000	10,712,000	8,034,000	5,356,000	2,678,000	21,564,729	17,251,783	12,938,837	8,625,892	4,312,946	-
Office equipment	302,500	272,250	242,000	211,750	181,500	151,250	121,000	90,750	60,500	30,250	-
Total Fixed Assets	52,495,000	46,273,500	40,052,000	33,830,500	27,609,000	42,952,229	35,095,783	27,239,337	19,382,892	11,526,446	3,670,000
<i>Intangible assets</i>											
Pre-operation costs	808,576	646,861	485,146	323,430	161,715	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	808,576	646,861	485,146	323,430	161,715	-	-	-	-	-	-
TOTAL ASSETS	67,550,232	68,831,965	68,411,635	67,898,709	67,455,068	98,731,806	130,711,884	170,829,754	216,376,592	267,958,116	#####
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	3,201,383	3,764,997	4,237,282	4,747,616	5,298,659	5,893,246	6,529,755	6,873,358	7,219,577	7,463,603
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	3,672,201	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	6,873,584	3,764,997	4,237,282	4,747,616	5,298,659	5,893,246	6,529,755	6,873,358	7,219,577	7,463,603
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	2,178,765	6,367,813	6,367,813	6,367,813	6,367,813	5,094,250	3,820,688	2,547,125	1,273,563	0
Long term debt	33,775,116	22,869,205	18,434,994	13,236,898	7,143,322	3,615,141	3,102,058	2,500,586	1,795,499	968,945	-
Total Long Term Liabilities	33,775,116	25,047,970	24,802,807	19,604,711	13,511,134	9,982,953	8,196,308	6,321,274	4,342,624	2,242,507	0
<i>Shareholders' equity</i>											
Paid-up capital	33,775,116	33,775,116	33,775,116	33,775,116	33,775,116	37,390,257	37,390,257	37,390,257	37,390,257	37,390,257	37,390,257
Retained earnings	-	3,135,295	6,068,715	10,281,601	15,421,202	46,059,937	79,232,074	120,588,468	167,770,354	221,105,775	#####
Total Equity	33,775,116	36,910,411	39,843,831	44,056,717	49,196,318	83,450,194	116,622,331	157,978,725	205,160,611	258,496,032	#####
TOTAL CAPITAL AND LIABILITY	67,550,232	68,831,965	68,411,635	67,898,709	67,455,068	98,731,806	130,711,884	170,829,754	216,376,592	267,958,116	#####

Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0

12.3 Cash Flow Statement

Statement Summaries											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
	Rs. in actuals										
<i>Operating activities</i>											
Net profit	-	3,135,295	9,002,135	14,494,487	20,560,803	30,638,735	33,172,137	41,356,394	47,181,885	53,335,421	59,986,343
Add: depreciation expense	-	6,221,500	6,221,500	6,221,500	6,221,500	6,221,500	7,856,446	7,856,446	7,856,446	7,856,446	7,856,446
amortization expense	-	161,715	161,715	161,715	161,715	161,715	-	-	-	-	-
Deferred income tax	-	2,178,765	4,189,048	-	-	-	(1,273,563)	(1,273,563)	(1,273,563)	(1,273,562)	(1,273,563)
Accounts receivable	-	(4,908,669)	(487,994)	(919,506)	(909,019)	(1,005,332)	(1,110,675)	(1,225,840)	(1,048,522)	(826,270)	(870,928)
Finished good inventory	-	(3,368,292)	(438,736)	(474,109)	(511,924)	(552,336)	(595,510)	(641,623)	(329,442)	(346,038)	(363,480)
Equipment inventory	(168,707)	(37,702)	(35,138)	(39,856)	(45,145)	(51,070)	(57,703)	(41,094)	(43,830)	(47,862)	568,106
Raw material inventory	(624,214)	(139,498)	(130,009)	(147,467)	(167,036)	(188,958)	(213,500)	(152,048)	(162,171)	(177,091)	2,101,993
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(2,222,625)	289,213	289,213	289,213	289,213	(789,024)	370,960	370,960	370,960	370,960	370,960
Accounts payable	-	3,201,383	563,614	472,285	510,334	551,043	594,587	636,509	343,603	346,219	244,026
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(3,015,546)	6,733,710	19,335,348	20,058,261	26,110,441	34,986,274	38,743,179	46,886,141	52,895,366	59,238,221	68,619,902
<i>Financing activities</i>											
Change in long term debt	33,775,116	(10,905,911)	(4,434,211)	(5,198,096)	(6,093,576)	(3,528,181)	(513,083)	(601,472)	(705,088)	(826,554)	(968,945)
Change in short term debt	-	3,672,201	(3,672,201)	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110	10,731,110
Land lease payment	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	(10,731,110)	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	33,775,116	-	-	-	-	3,615,141	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	56,819,122	(7,233,710)	(8,106,412)	(5,198,096)	(6,093,576)	86,959	(513,083)	(601,472)	(705,088)	(826,554)	9,762,165
<i>Investing activities</i>											
Capital expenditure	(53,303,576)	-	-	-	-	(21,564,729)	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for)/ provided by invest	(53,303,576)	-	-	-	-	(21,564,729)	-	-	-	-	-
NET CASH	500,000	(500,000)	11,228,936	14,860,165	20,016,865	13,508,505	38,230,097	46,284,670	52,190,278	58,411,668	78,382,067
Cash balance brought forward		500,000	-	5,160,221	9,738,785	14,334,448	27,842,952	66,073,049	112,357,718	164,547,997	#####
Cash available for appropriation	500,000	(0)	11,228,936	20,020,386	29,755,650	27,842,952	66,073,049	112,357,718	164,547,997	222,959,664	#####
Dividend	-	-	6,068,715	10,281,601	15,421,202	-	-	-	-	-	-
Cash carried forward	500,000	-	5,160,221	9,738,785	14,334,448	27,842,952	66,073,049	112,357,718	164,547,997	222,959,664	#####

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Operational Days/ year	330
Hours operational/ days	12
Shift Length (Hours)	12

13.2 Production Cost Assumptions

Description	Details
Initial Capital utilization	65%
Annual Capital Utilization Growth	5%
Maximum Capital Utilization	95%

13.3 Revenue Assumptions

Description	Details
Revenue	119,444,271
Cost of goods sold	77,470,708
Sale Price/Ton	29,500
Production per year	4,225
Production Quantity sold	4,049
Production quantity in finished good inventory	176

13.4 Financial Assumptions

Description	Details
Interest Rate	16%
Debt: Equity Ratio	50:50
Debt Tenure	5 Years