
Pre-Feasibility Study

CORRUGATED PACKAGES



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

www.smeda.org.pk

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
helpdesk@smeda.org.pk

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3 rd 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	5 TH 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

December 2016

Table of Contents

1	DISCLAIMER.....	3
2	EXECUTIVE SUMMARY	4
3	INTRODUCTION TO SMEDA.....	4
4	PURPOSE OF THE DOCUMENT.....	5
5	BRIEF DESCRIPTION OF PROJECT & PRODUCT.....	5
5.1	PROPOSED PRODUCT MIX	6
5.2	PRODUCTION PROCESS FLOW.....	7
5.3	INSTALLED AND OPERATIONAL CAPACITIES.....	8
6	CRITICAL FACTORS	8
7	GEOGRAPHICAL POTENTIAL FOR INVESTMENT	9
8	POTENTIAL TARGET CUSTOMERS / MARKETS.....	9
9	PROJECT COST SUMMARY.....	9
9.1	PROJECT ECONOMICS	10
9.2	PROJECT FINANCING.....	10
9.3	PROJECT COST	10
9.4	SPACE REQUIREMENT	11
9.5	MACHINERY & EQUIPMENT REQUIREMENT	12
9.6	FURNITURE & FIXTURES REQUIREMENT.....	12
9.7	OFFICE EQUIPMENT REQUIREMENT.....	13
9.8	HUMAN RESOURCE REQUIREMENT	13
9.9	UTILITIES AND OTHER COSTS.....	14
9.10	RAW MATERIAL REQUIREMENT	14
9.11	REVENUE GENERATION	14
10	CONTACT DETAILS.....	15
11	USEFUL WEB LINKS.....	15
12	ANNEXURES	16
12.1	INCOME STATEMENT.....	16
12.2	BALANCE SHEET.....	17
12.3	CASH FLOW STATEMENT.....	18
13	KEY ASSUMPTIONS.....	19
13.1	OPERATING COST ASSUMPTIONS	19
13.2	REVENUE ASSUMPTIONS	19
13.3	FINANCIAL ASSUMPTIONS	19

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.

For more information on services offered by SMEDA, please contact our website: www.smeda.org.pk

Document Control

Document No.	PREF - 79
Revision	No. 2
Prepared by	SMEDA-Punjab
Revision Date	December, 2016
For information	Provincial Chief –Punjab janjua@smeda.org.pk

2 EXECUTIVE SUMMARY

Corrugated Packages are used in so many different sectors that the demand never gets affected with seasons, changing trends, emerging attributes. Therefore, the proposed business can be started at any time of the year. Corrugated packaging unit is viable wherever goods are produced, transported and displayed. Since its invention, corrugated packaging has ensured efficient, safe and sanitary transit of goods, protecting and wrapping majority of solid and liquid products and materials from producers to consumers.

The proposed Corrugated Packaging manufacturing business involves a total investment of about Rs. 53.20 million. This includes capital investment of Rs. 50.74 million and Rs. 2.46 million as initial working capital. The Net Present Value (NPV) of the project is around Rs. 46.73 million with an Internal Rate of Return (IRR) of 31% and a payback period of 3.89 years. Project will provide employment opportunities to 18 people including owner manager.

Higher return on investment and a steady growth of business is expected with the entrepreneur having some prior experience or education in the related field of business. The legal business status of this project is proposed as 'Sole Proprietorship'.

3 INTRODUCTION TO SMEDA

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

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

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

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

4 PURPOSE OF THE DOCUMENT

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

The purpose of this document is to facilitate potential investors in **Corrugated Packages** 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

This document provides information regarding the corrugated manufacturing unit. Corrugated Packages are used in so many different sectors that the demand never gets affected with seasons, changing trend and emerging attributes. The trend for packaging has changed from the primitive packaging to a modern and up to date packaging. Now-a-days corrugated packaging is used by almost every manufacturer and supplier of perishable, non-perishable and fragile products. Corrugated packaging has inherent benefits as it is environment friendly and has recycling capability. This is the major reason, the international market prefers corrugated packaging.

The target customers are manufacturers and suppliers of all types of goods. Followings are target clients for a manufacturer of corrugated packaging.

- Footwear Industry
- Electronics Industry
- Textile industry
- FMCG Industry

- Fruit Industry

The proposed project will be producing 5-ply corrugating packaging boxes of different sizes which will be serving several purposes. A 5-ply corrugated box consists of 5 layers of sheet. 2 sheets of kraft paper are used on both sides and 3 sheets of flutter paper are used in between them.

The proposed business will only be buying Kraft paper and plain flutter paper from the market. A plain flutter paper is converted into a lined flutter paper during the process of corrugation. Wastage is the common feature for corrugated packages business. It is estimated that 5% of the total production goes into wastage and sold separately.

5.1 Proposed Product Mix

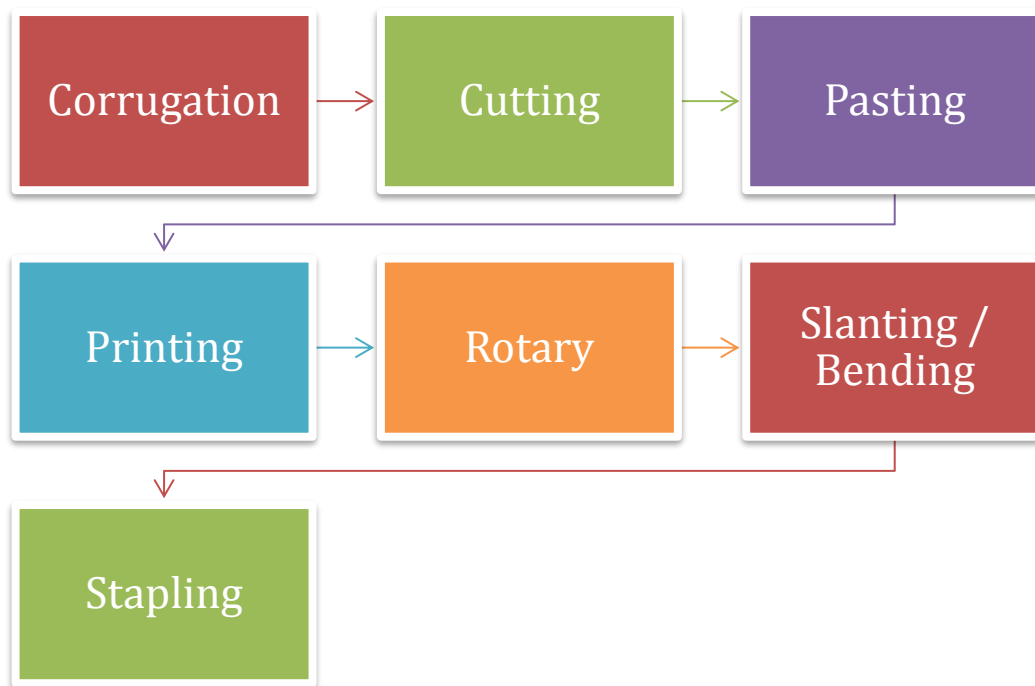
The product mix would include boxes for Footwear, Electronics, Textile, FMCG, Fruits and other industries. Detailed production mix is given in table below.

Table 1: Product Mix

Description	Production Percentage
Footwear Industry (36x36x24)	20%
Electronics Industry (72x72x48)	20%
Textile Industry (48x48x36)	20%
FMCG Industry (20x24x12)	20%
Fruit Industry (12x12x8)	20%

5.2 Production Process Flow

Figure 1: Production Process Flow



Corrugation: a) In this process the flutter paper is firstly heated up, then passed over the tray, which contains pasting fluid, along with the kraft paper. It is then passed through a corrugating machine, where 5-ply paper corrugated board is manufactured by using glue making unit and reel stand.

b) The liner paper can also be used instead of flutter paper for better quality upon client's special request.

Cutting: The sheet is cut according to the required size using a paper cutter.

Pasting: The corrugated sheet is then pasted on to another set of corrugated sheet, making it 5-Ply.

Printing: It is then printed as per customer's requirement i.e. fragile, some object, and recycle after use etc.

Rotary: In this process the flaps and the four corners of the box are made using rotary machine.

Slanting: The sheet is bent in this process, forming a box shape.

Stapling: To give the box a firm and a proper shape, they are finally stapled.

5.3 Installed and Operational Capacities

This pre-feasibility study is based on an installed production capacity of manufacturing 4,843 corrugated boxes per day on single shift basis (i.e. for 8 hours) and will be able to produce 1,452,960 boxes annually with 300 operational days. While maximum capacity utilization of the unit is assumed at 95% i.e. 1,380,312 boxes annually. However, during first year of operation unit will operate at 65% capacity producing 944,424 boxes. Capacity utilization growth rate of 10% is considered for subsequently years.

This production capacity is estimated to be economically viable and justifies the capital as well as operational costs of the project.

Table 2: Installed and Operational Capacity

Description	Production Capacity (Boxes) Annually	Production Percentage	Production Capacity (Boxes) Annually as per Production Percentage	Operational Capacity Year 1 (65%)
Footwear Industry (36x36x24)	1,663,200	20%	332,640	216,216
Electronics Industry (72x72x48)	595,200	20%	119,040	77,376
Textile Industry (48x48x36)	1,408,800	20%	281,760	183,144
FMCG Industry (20x24x12)	1,788,000	20%	357,600	232,440
Fruit Industry (12x12x8)	1,809,600	20%	361,920	235,248
Total			1,452,960	944,424

6 CRITICAL FACTORS

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

- ⇒ Awareness about the quality of the boxes.
- ⇒ Higher return on investment and a steady growth of business is closely associated with regular training and capacity building of the entrepreneur and employees.
- ⇒ Prior experience / education in the related field of business.

- ⇒ Strict compliance regarding local and international environmental regulations.
- ⇒ Good quality raw material conforming to the international standards like Registration, Evaluation, Authorization & Restriction of Chemical (REACH) substances.
- ⇒ Availability of skilled labor.
- ⇒ Stringent supervision of the production process at every level.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Sialkot, Karachi and Lahore are three key clusters of corrugated boxes manufacturing unit. Availability of skilled labor is vital while selecting a location; all the above cities have adequate availability of skilled labor, raw material and other support infrastructure. Therefore, proposed corrugated manufacturing unit should ideally be established in the suburbs / periphery areas of these cities.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

As mentioned above, the Targeted customers for 'Corrugated Boxes' are manufacturers and suppliers of all types of goods. Following are some of the target clients for a manufacturer of corrugated packaging.

- Pharmaceutical Industry
- Textile Industry
- Home Appliances
- Garments
- Confectionary
- Fruits and Vegetables
- Footwear Industry
- Cosmetics

Apart from that strong growth in e-commerce is driving corrugated boxes usage because retail-ready packaging has become increasingly popular in more affluent countries.

9 PROJECT COST SUMMARY

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

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

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales revenue of Rs.70.13 million in the year one. The capacity utilization during year one is worked out at 65% with 10% increase in subsequent years up to the maximum capacity utilization of 95%.

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

Table 3: Project Economics

Description	Details
Internal Rate of Return (IRR)	31%
Payback Period (Yrs.)	3.89
Net Present Value (Rs.)	46,733,936

9.2 Project Financing

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

Table 4: Project Financing

Description	Details
Total Equity (50%)	Rs. 26,601,571
Bank Loan (50%)	Rs. 26,601,571
Markup to the Borrower (%age / annum)	14%
Tenure of the Loan (Years)	5

9.3 Project Cost

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

Table 5: Project Cost

Description	Amount (Rs.)
Capital Cost	
Land	20,000,000
Building / Infrastructure	15,050,000
Machinery & Equipment	12,685,000
Furniture and Fixtures	896,000
Office Equipment	202,000
Pre-operating Cost	1,659,757
Legal, Licensing, Medical and Trial Production	250,000
Total Capital Cost	50,742,757
Working Capital	
Raw Material Inventory	2,118,025
Cash	300,000
Equipment Spare Part Inventory	42,361
Total Working Capital	2,460,386
Total Project Cost	53,203,143

9.4 Space Requirement

The area has been calculated based on space required for production, management building and storage. However, the units operating in the industry do not follow any set pattern. Total 4 kanal land is assumed for the proposed business which will be bought at Rs. 5 million per kanal in an industrial / commercial area where skilled labor is available.

Detail of infrastructure required along with its cost is given in table below:

Table 6: Space Requirement

Description	Estimated Area (Sq ft)	Cost Rate	Amount (Rs.)
Management / Admin Area	1,500	2,000	3,000,000

Production Area	9,000	1,000	9,000,000
Store	3,000	600	1,800,000
Open Area	4,000	125	500,000
Public Health Facilities	500	1,500	750,000
Total Area			15,050,000

9.5 Machinery & Equipment Requirement

Machinery and equipment required for the proposed project are stated below:

Table 7: Machinery & Equipment Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
5-Ply Plant (Pre-Heater, Double Glue Unit, Imported Felt, Pneumatic Lifting, Side Moving Function of Felt Size 50")	1	6,200,000	6,200,000
Two Color printer slotter-China (1450x2600)	1	2,400,000	2,400,000
Thin Blade Slitter scorer-China 1800m	1	525,000	525,000
Manual Machines China Stitching	2	600,000	1,200,000
Die Cutting Karma 35x45	2	580,000	1,160,000
Generator (200 KVA) - Used	1	1,200,000	1,200,000
Total			12,685,000

9.6 Furniture & Fixtures Requirement

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

Table 8: Furniture & Fixtures Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Office / Visitor Chairs	6	6,000	36,000
Office Tables	2	10,000	20,000
Ceiling Fans	10	3,000	30,000
AC 1.5 Tons	2	60,000	120,000
Industrial Air Cooler	5	40,000	200,000

Lights	1	40,000	40,000
Storage Racks etc.	5	50,000	250,000
Fire Frightening Equipment	1	50,000	50,000
Miscellaneous	1	150,000	150,000
Total			896,000

9.7 Office Equipment Requirement

Following office equipment will be required for the proposed project:

Table 9: Office Equipment Requirement

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	1	60,000	60,000
Computer Desktop (Used)	2	25,000	50,000
Computer UPS	2	12,000	24,000
Computer Printer	2	15,000	30,000
Telephone Sets	2	1,500	3,000
Fax Machines	1	20,000	20,000
Scanner	1	15,000	15,000
Total			202,000

9.8 Human Resource Requirement

In order to run operations smoothly, details of human resources required along with monthly salary are given in table below:

Table 10: Human Resource Requirement

Description	No. of Employees	Salary Per Month (Rs.)
Manager / Owner	1	50,000
Production In-charge	1	30,000
Plant Supervisor	1	22,000
Accountant	1	20,000
Helper	10	14,000
Guard	2	15,000
Sweeper	2	14,000
Total	18	

9.9 Utilities and Other Costs

An essential cost to be borne by the project is the cost of gas and electricity. The direct gas and direct electricity expenses are estimated to be around Rs. 0.56 and 2.41 million, respectively, in year one with 10% increase in subsequent years. Furthermore, promotional expenses are estimated as 0.5% of revenue.

9.10 Raw Material Requirement

Following table provides the details about raw material's cost for producing corrugation boxes:

Table 11: Raw Material Requirement

Description	Raw Material Cost per Box*
Footwear Industry	55
Electronics Industry	120
Textile Industry	100
FMCG Industry	35
Fruit Industry	25

* Cost included Kraft Paper, Fluting, Printing and other Raw Material components.

9.11 Revenue Generation

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

Table 12: Revenue Generation Year 1

Description	Sales Price Per Box	Production Quantity Sold after Wastage	Revenue (Rs.)
Footwear Industry (36x36x24)	80	205,405	16,432,416
Electronics Industry (72x72x48)	150	73,507	11,026,080
Textile Industry (48x48x36)	125	173,987	21,748,350
FMCG Industry (20x24x12)	50	220,818	11,040,900
Fruit Industry (12x12x8)	40	223,486	8,939,424
Total		897,203	69,187,170
Wastage	20	47,221	944,424
Grand Total		944,424	70,131,594

10 CONTACT DETAILS

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

Name of Supplier	Address	Phone	Website
Prime Machines	Off Bank Stop Kamahan Road, Near Azam Chowk 16-km Off Ferozepur Road, Lahore	042-35923024	www.primemachines.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
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 GilgitBaltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Punjab Industrial Estates (PIE)	www.pie.com.pk

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	70,131,605	89,013,177	110,969,747	136,427,499	150,070,249	165,077,274	181,585,001	199,743,501	219,717,851	241,689,636
<i>Cost of sales</i>										
Raw Material Cost	50,832,611	64,518,300	80,432,800	98,885,018	108,773,519	119,650,871	131,615,958	144,777,554	159,255,310	175,180,841
Operating costs 1 (direct labor)	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300	4,831,530	5,314,683	5,846,151	6,430,766	7,073,843
Operating costs 2 (machinery maintenance)	254,163	322,592	402,164	494,425	543,868	598,254	658,080	723,888	796,277	875,904
Operating costs 3 (direct electricity)	2,409,480	2,650,428	2,915,471	3,207,018	3,527,720	3,880,492	4,268,541	4,695,395	5,164,934	5,681,428
Operating costs 4 (direct water)	180,000	198,000	217,800	239,580	263,538	289,892	318,881	350,769	385,846	424,431
Operating costs 5 (direct gas)	555,750	705,375	879,367	1,081,104	1,189,215	1,308,136	1,438,950	1,582,845	1,741,129	1,915,242
Total cost of sales	57,232,005	71,694,695	88,477,602	107,900,145	118,690,160	130,559,175	143,615,093	157,976,602	173,774,263	191,151,689
Gross Profit	12,899,601	17,318,483	22,492,144	28,527,354	31,380,089	34,518,098	37,969,908	41,766,899	45,943,589	50,537,948
<i>General administration & selling expenses</i>										
Administration expense	840,000	924,000	1,016,400	1,118,040	1,229,844	1,352,828	1,488,111	1,636,922	1,800,615	1,980,676
Administration benefits expense	42,000	46,200	50,820	55,902	61,492	67,641	74,406	81,846	90,031	99,034
Electricity expense	255,528	281,081	309,189	340,108	374,119	411,530	452,683	497,952	547,747	602,522
Travelling expense	84,000	92,400	101,640	111,804	122,984	135,283	148,811	163,692	180,061	198,068
Communications expense (phone, fax, mail, internet, etc.)	84,000	92,400	101,640	111,804	122,984	135,283	148,811	163,692	180,061	198,068
Office expenses (stationary, entertainment, janitorial services, etc)	126,000	138,600	152,460	167,706	184,477	202,924	223,217	245,538	270,092	297,101
Promotional expense	350,658	445,066	554,849	682,137	750,351	825,386	907,925	998,718	1,098,589	1,208,448
Professional fees (legal, audit, consultants, Medical etc.)	701,316	890,132	1,109,697	1,364,275	1,500,702	1,650,773	1,815,850	1,997,435	2,197,179	2,416,896
Depreciation expense	2,151,000	2,151,000	2,151,000	2,151,000	2,151,000	2,175,665	2,175,665	2,175,665	2,175,665	2,175,665
Amortization of pre-operating costs	331,951	331,951	331,951	331,951	331,951	-	-	-	-	-
Amortization of legal, licensing, and training costs	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Bad debt expense	701,316	890,132	1,109,697	1,364,275	1,500,702	1,650,773	1,815,850	1,997,435	2,197,179	2,416,896
Subtotal	5,692,769	6,307,962	7,014,344	7,824,003	8,355,608	8,633,087	9,276,329	9,983,895	10,762,218	11,618,374
Operating Income	7,206,831	11,010,521	15,477,801	20,703,351	23,024,482	25,885,012	28,693,579	31,783,004	35,181,370	38,919,574
<i>Gain / (loss) on sale of office equipment</i>	-	-	-	-	80,800	-	-	-	-	-
Earnings Before Interest & Taxes	7,206,831	11,010,521	15,477,801	20,703,351	23,105,282	25,885,012	28,693,579	31,783,004	35,181,370	38,919,574
Interest expense on long term debt (Project Loan)	3,551,993	3,014,635	2,402,047	1,703,696	907,576	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	160,799	133,515	102,156	66,114	24,690	-	-	-	-	-
Subtotal	3,712,792	3,148,150	2,504,203	1,769,810	932,266	-	-	-	-	-
Earnings Before Tax	3,494,040	7,862,371	12,973,598	18,933,541	22,173,015	25,885,012	28,693,579	31,783,004	35,181,370	38,919,574
Tax	876,645	1,112,665	1,387,122	1,705,344	1,875,878	2,063,466	2,269,813	2,496,794	2,746,473	3,021,120
NET PROFIT/(LOSS) AFTER TAX	2,617,395	6,749,707	11,586,476	17,228,197	20,297,137	23,821,546	26,423,767	29,286,210	32,434,897	35,898,453

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											
<i>Current assets</i>											
Cash & Bank	300,000	630,962	4,610,029	12,134,586	24,838,349	38,914,261	63,321,176	89,989,967	119,109,270	150,878,698	205,586,325
Equipment spare part inventory	42,361	59,142	81,103	109,680	132,713	160,582	194,305	235,109	284,482	344,223	-
Raw material inventory	2,118,025	2,957,089	4,055,154	5,483,998	6,635,638	8,029,122	9,715,237	11,755,437	14,224,079	17,211,136	-
Total Current Assets	2,460,386	6,529,314	12,016,384	21,837,502	36,690,204	52,990,905	79,706,352	109,103,710	141,453,348	177,053,125	215,067,301
<i>Fixed assets</i>											
Machinery & equipment	12,685,000	11,416,500	10,148,000	8,879,500	7,611,000	6,342,500	5,074,000	3,805,500	2,537,000	1,268,500	-
Furniture & fixtures	896,000	806,400	716,800	627,200	537,600	448,000	358,400	268,800	179,200	89,600	-
Office equipment	202,000	161,600	121,200	80,800	40,400	325,323	260,258	195,194	130,129	65,065	-
Total Fixed Assets	48,833,000	46,682,000	44,531,000	42,380,000	40,229,000	38,403,323	36,227,658	34,051,994	31,876,329	29,700,665	27,525,000
<i>Intangible assets</i>											
Pre-operation costs	1,659,757	1,327,805	995,854	663,903	331,951	-	-	-	-	-	-
Legal, licensing, & training costs	250,000	225,000	200,000	175,000	150,000	125,000	100,000	75,000	50,000	25,000	-
Total Intangible Assets	1,909,757	1,552,805	1,195,854	838,903	481,951	125,000	100,000	75,000	50,000	25,000	-
TOTAL ASSETS	53,203,143	54,764,119	57,743,238	65,056,405	77,401,156	91,519,228	116,034,011	143,230,704	173,379,677	206,778,790	242,592,301
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	2,964,548	3,779,570	4,735,816	5,816,317	6,438,745	7,131,982	7,904,909	8,767,671	9,731,887	9,646,945
Total Current Liabilities	-	2,964,548	3,779,570	4,735,816	5,816,317	6,438,745	7,131,982	7,904,909	8,767,671	9,731,887	9,646,945
<i>Other liabilities</i>											
Long term debt (Project Loan)	25,371,378	21,533,106	17,157,476	12,169,258	6,482,689	-	-	-	-	-	-
Long term debt (Working Capital Loan)	1,230,193	1,047,498	837,520	596,182	318,803	-	-	-	-	-	-
Total Long Term Liabilities	26,601,571	22,580,605	17,994,996	12,765,440	6,801,492	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571	26,601,571
Retained earnings	-	2,617,395	9,367,101	20,953,578	38,181,775	58,478,912	82,300,458	108,724,224	138,010,434	170,445,331	206,343,785
Total Equity	26,601,571	29,218,966	35,968,673	47,555,149	64,783,346	85,080,483	108,902,029	135,325,796	164,612,005	197,046,903	232,945,356
TOTAL CAPITAL AND LIABILITIES	53,203,143	54,764,119	57,743,238	65,056,405	77,401,156	91,519,228	116,034,011	143,230,704	173,379,677	206,778,790	242,592,301

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
<i>Operating activities</i>											
Net profit		2,617,395	6,749,707	11,586,476	17,228,197	20,297,137	23,821,546	26,423,767	29,286,210	32,434,897	35,898,453
Add: depreciation expense		2,151,000	2,151,000	2,151,000	2,151,000	2,151,000	2,175,665	2,175,665	2,175,665	2,175,665	2,175,665
amortization of pre-operating costs		331,951	331,951	331,951	331,951	331,951	-	-	-	-	-
amortization of training costs		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Equipment inventory	(42,361)	(16,781)	(21,961)	(28,577)	(23,033)	(27,870)	(33,722)	(40,804)	(49,373)	(59,741)	344,223
Raw material inventory	(2,118,025)	(839,063)	(1,098,065)	(1,428,845)	(1,151,640)	(1,393,484)	(1,686,116)	(2,040,200)	(2,468,642)	(2,987,057)	17,211,136
Accounts payable		2,964,548	815,022	956,246	1,080,501	622,427	693,237	772,927	862,763	964,216	(84,942)
Cash provided by operations	(2,160,386)	4,351,929	8,564,676	12,754,112	18,667,711	21,202,727	24,406,915	26,668,791	29,119,303	31,769,428	54,707,627
<i>Financing activities</i>											
Project Loan - principal repayment		(3,838,272)	(4,375,630)	(4,988,218)	(5,686,569)	(6,482,689)	-	-	-	-	-
Working Capital Loan - principal repayment		(182,695)	(209,979)	(241,337)	(277,379)	(318,803)	-	-	-	-	-
Additions to Project Loan	25,371,378	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	1,230,193	-	-	-	-	-	-	-	-	-	-
Issuance of shares	26,601,571	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	53,203,143	(4,020,967)	(4,585,609)	(5,229,556)	(5,963,948)	(6,801,492)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(50,742,757)	-	-	-	-	(325,323)	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(50,742,757)	-	-	-	-	(325,323)	-	-	-	-	-
NET CASH	300,000	330,962	3,979,067	7,524,557	12,703,763	14,075,912	24,406,915	26,668,791	29,119,303	31,769,428	54,707,627

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Promotional Expenses	0.5% of revenue
Operating costs growth rate	10%
Communication expense	10% of Administrative expense
Office expenses (stationary, entertainment, janitorial services, etc.)	15% of Administrative expense
Professional fees (legal, audit, consultants, etc.)	1% of revenue
Machinery & Equipment depreciation	10%
Office Equipment depreciation	20%
Furniture & fixtures depreciation	10%
Inflation Growth Rate	10%
Electricity Price Growth Rate	10%
Salaries Growth Rate	10%

13.2 Revenue Assumptions

Description	Details
Sales Price Growth Rate	10%
Starting Capacity Utilization	65%
Capacity Growth Rate	10%
Maximum Capacity Utilization	95%

13.3 Financial Assumptions

Description	Details
Project Life (Years)	10
Debt: Equity	50:50
Interest rate on long term debt	14%