

# Pre-Feasibility Study

## BIO-DEGRADABLE PLASTIC BAGS MANUFACTURING UNIT



**Small and Medium Enterprises Development Authority**

**Ministry of Industries & Production**

**Government of Pakistan**

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**May 2015**

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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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### ***Document Control***

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## 2 EXECUTIVE SUMMARY

**Bio-degradable Plastic Bags manufacturing unit** is proposed to be located at semi-urban areas.

Products include **Pure Bio-degradable Plastic Bags, Recycled Bio-degradable Plastic Bags.**

Installed capacity of **1,000 Kg** at initial capacity utilization of **60%** on 2-shift basis.

Total Cost Estimates is **Rs.5,279,446** with fixed investment **Rs.3,074,196** and working capital **Rs.2,205,250**

Given the cost assumptions, IRR and payback are **43%** and **2.26 years** respectively

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

- Most significant consideration
  - Availability of continuous power supply
  - Securing a regular source of raw material at competitive prices
  - Machine operators with technical knowledge.
  - Credit Recovery
  
- Equally important factor
  - Background Experience
  - Marketing Skill
  - Product size and quality with respect to market demand

### 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 **Bio-degradable Plastic Bags 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

The plastic packaging sector is growing industrial segment in Pakistan. The increased trade and commercial activity in consumer and industrial sectors, changing lifestyle, increased population and growth in retail business has created a great demand for supply of plastic bags as most of the consumer sector use plastic bags while delivering their products to the customer.

Pakistan-Environmental Protection Agency (Pak-EPA) conducted a study that showed that in the early 1990s as many as 12 billion plastic bags a year were produced in Pakistan. By the years 2007-08, the production went higher than 55 billion per year. In addition, the projected projection of plastic bags by 2014-15 stood at 112 billion a year. Today 200,000 people directly and 600,000 indirectly involved in the production of plastic bags in more than 8,000 manufacturing units spread across the country, mostly Lahore, Karachi and Peshawar.<sup>1</sup>

Due to environmental pollution problems, Government of Pakistan has imposed a ban on non-biodegradable plastic bags like other countries to encourage Bio-degradable Plastic Bags. The production of biodegradable plastic bags does not require a major change of machinery or process. It involves mixing a small quantity of a petroleum based compound or olefin with the polyethylene resins. The olefin introduces biodegradation characteristics to the plastic, which are activated when the plastic comes in contact with air. From there on, bacteria can decompose the weak molecular structure of the plastic.<sup>2</sup>

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

- **Technology:** This proposed unit including hopper, extruder, cooling tower, sealing and cutting machines which will produce plastic bags of different sizes using pure and recycled raw material.
- **Location:** This unit can be located in or near markets, industrial areas in Pakistan, especially in semi-urban areas like Jafarabad, Haripur, Bahawalpur, Nawabshah, Bhimber and Gilgit where competition is less as compared to the urban areas like Karachi, Lahore and Islamabad.
- **Product:** This unit would process Bio-degradable Plastic Bags of various sizes to facilitate different shopping purposes.

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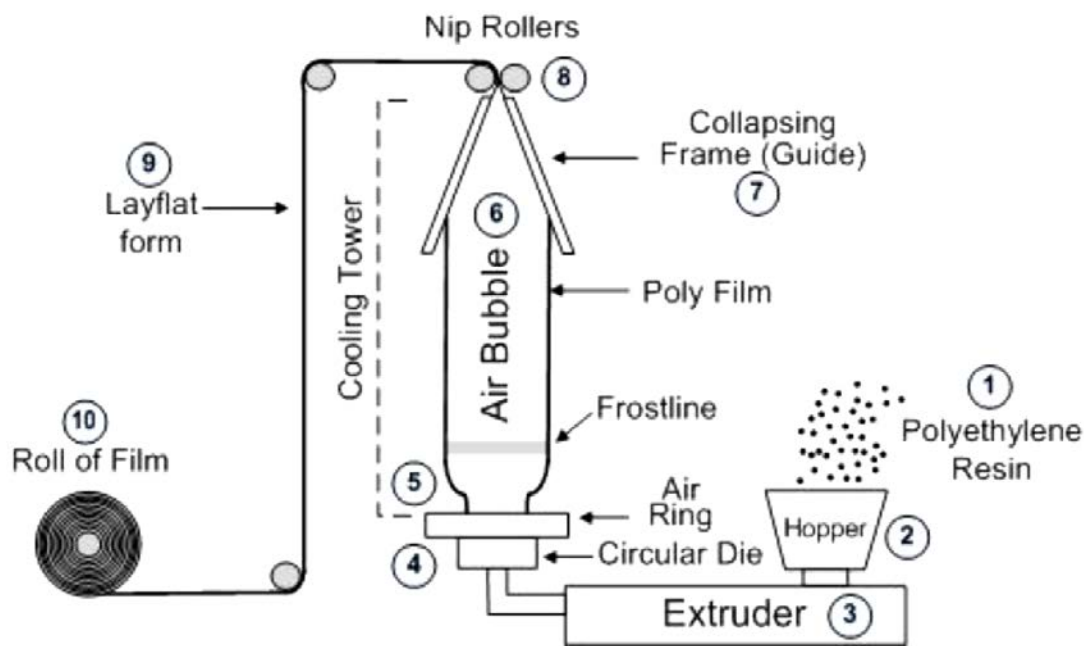
<sup>1</sup> PAK-EPA – Press Conference (<http://www.dawn.com/news/782816/no-more-plastic-bags-in-capital>)

<sup>2</sup> The Ministry of Law and Justice – Notification (<http://tribune.com.pk/story/501287/ban-on-plastic-bags-from-april-1/>)

- **Target Market:** The target customers will be distributors and retailers of consumer goods, which includes grocery stores, bakeries, shopping malls, hardware shops, boutiques, garment shops, etc.
- **Employment Generation:** The proposed project will provide direct employment to **10 people**. Financial analysis shows the unit shall be profitable from the very first year of operation.

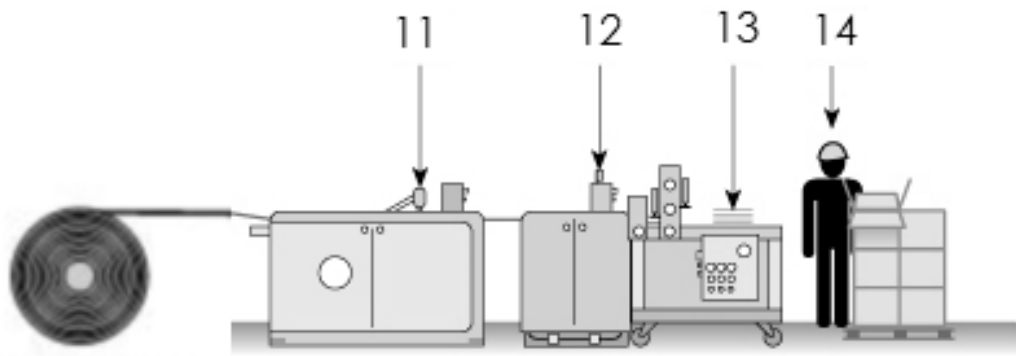
## 5.1 Production Process Flow

### Stage 1



1. The machine operator pours the polyethylene resin into the hopper along with the additives  $d_2w$  (for converting it into bio-degradable) and master batch (for color adding purposes)
2. The hopper feeds the resin into the extruder
3. Extruder melts the resin into molten form under 200 °C maintained temperature
4. The molten poly flows evenly up and over the circular die
5. The machine operator grabs the molten poly and pinches it together
6. Air ring blows air upward, to avoid sticking together and solidify the molten poly
7. The guides gradually flatten the solidified poly
8. Nip rollers grab the solidified film at the top of cooling tower
9. The lay flat film travels over a series of rollers
10. The film is wound on a roll and then taken out of line for further processing at a converting facility

## Stage 2



10. The wounded film on a roll taken in of line for further processing
11. Seals bottom of the tubes
12. Separator separates the tubes
13. Pile up stacks of plastic bags
14. Packer inspects product and places in carton

### 5.2 Installed and Operational Capacities

The operational capacity of this unit is 1,000 Kg per day. The assumed operational capacity during the first year of operations is 60% on double shift basis with annual increase of 5%.

## 6 CRITICAL FACTORS

The main critical success factors that affect the decision to invest in the proposed business setup are:

- Availability of continuous power supply
- Securing a regular source of raw material at competitive prices
- Machine operators with technical knowledge
- Credit Recovery
- Background Experience
- Marketing Skill
- Product size and quality with respect to market demand



## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

For the success of the project, it is important to find a location preferably in an industrial cluster where proper infrastructure is available. All industrial clusters in Karachi, Hub / Lasbela, Hyderabad, Lahore, Gujranwala, Multan, Rawalpindi, Quetta and Peshawar etc. are suitable to house the project. Establishing the unit in large cities would have an advantage of being close to large buyers, which may lead to consistent orders and referrals but the competition in big cities are also high, therefore it is advisable to start this type of unit in second tier cities where competition is relatively less.

## 8 POTENTIAL TARGET CUSTOMERS / MARKETS

The target customers will be any distributors and retailers of consumer goods, which includes grocery stores, bakeries, shopping malls, hardware shops, boutiques, garment shops, etc.

## 9 PROJECT COST SUMMARY

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

### 9.1 Project Economics

The capacity utilization during year one is worked out at 60% with 5% increase in subsequent years up to the maximum capacity utilization of 90%.

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

**Table 9.1: Project Economics**

Description	Details
Internal Rate of Return (IRR)	43%
Payback Period	2.26 years
Net Present Value	Rs.4,930,146

## 9.2 Project Financing

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

**Table 9.2: Project Financing**

Description	Details
Total Equity (50%)	Rs.2,213,421
Bank Loan (50%)	Rs.2,224,525
Markup to the Borrower (annual)	18%
Tenure of the Loan	5 years

## 9.3 Project Cost

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

**Table 9.3: Project Cost**

Description	Amount (Rs.)
<b>Capital Cost</b>	
Plant and Machinery	1,800,000
Furniture & Fixture	70,000
Office Equipment	104,000
Office Vehicles	698,000
Pre-operating Cost	352,196
Legal, Licensing and Training Costs	50,000
<b>Total Capital Cost</b>	<b>3,074,196</b>
<b>Working Capital</b>	
Equipment Spare Part Inventory	3,750
Raw Material Inventory	841,500
Up-front Building Rent	360,000
Cash	1,000,000
<b>Total Working Capital</b>	<b>2,205,250</b>
<b>Total Project Cost</b>	<b>5,279,446</b>

## 9.4 Space Requirement

The space requirement for the proposed Bio-degradable Plastic Bag unit is estimated as follows, considering various facilities which includes management building and factory. Details of space requirement and cost related to building rent is given below:

**Table 9.4: Space Requirement**

Description	Estimated Area (Sqft)	Total Rent (Monthly) (Rs.)	Total Rent (Yearly) (Rs.)
Rented Space	1,500	30,000	360,000
<b>Total</b>			<b>360,000</b>

## 9.5 Machinery & Equipment Requirement

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

**Table 9.5: Machinery & Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Plastic Bags Manufacturing Unit (Imported)	1	1,400,000	1,400,000
Generator (25 KVA)	1	400,000	400,000
<b>Total</b>			<b>1,800,000</b>

## 9.6 Furniture & Fixtures Requirement

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

**Table 9.6: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Table, Visitor Chairs & Cabinets	1	70,000	70,000
<b>Total</b>			<b>70,000</b>

## 9.7 Office Equipment Requirement

Following office equipment will be required for Bio-degradable Plastic Bag unit:

**Table 9.7: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computer	2	35,000	70,000
Printer	1	15,000	15,000
Telephone Sets	2	2,000	4,000
Fax Machine	1	15,000	15,000
<b>Total</b>			<b>104,000</b>

## 9.8 Office Vehicles Requirement

Following office vehicles will be required for Bio-degradable Plastic Bag unit:

**Table 9.8: Office Vehicles**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Suzuki Ravi	1	650,000	650,000
Motor bike 70 cc	1	48,000	48,000
<b>Total</b>			<b>698,000</b>

## 9.9 Human Resource Requirement

In order to run operations of Bio-degradable Plastic Bag unit smoothly, details of human resources required along with number of employees and monthly salary are recommended as following:

**Table 9.9: Human Resource Requirement**

Description	No. of Employees	Monthly Salary per person (Rs.)	Monthly Salary (Rs.)
CEO	1	40,000	40,000
Accountant	1	30,000	30,000
Machine Operator – (2 shifts)	2	30,000	60,000
Plant Helper – (2 shifts)	4	20,000	80,000
Guard – (2 shifts)	2	20,000	40,000
<b>Total</b>			<b>250,000</b>

### 9.10 Utilities and other costs

The direct electricity expenses are estimate to be around Rs.162,360 per month, whereas, pure and recycled polyethylene resins are Rs.180 and Rs.130 per Kg respectively. Furthermore, cost of additives d<sub>2</sub>w is estimated as Rs.15 per Kg of polyethylene resin.

### 9.11 Revenue Generation

Based on the capacity utilization of 50% and 50% for Pure Bio-degradable Plastic Bags and Recycled Bio-degradable Plastic Bags respectively, sales revenue during the first year of operations is estimated as under:

**Table 9.11: Revenue Generation – Year 1**

Description	No. of Units Produced (Kg)	Finished Goods Inventory (Kg)	Units available for Sale (Kg)	Sale Price / Kg (Rs.)	Sales Revenue (Rs.)
Combine Average	198,000	2,475	195,525	225	43,993,125
<b>Total</b>					<b>43,993,125</b>

## 10 CONTACT DETAILS

In order to facilitate potential investors, details of private sector Service Providers relevant to the proposed project is given below:

### 10.1 Machinery Suppliers

The machinery suppliers easily available in the areas like Shershah in Karachi, Railway Road in Lahore and State two in Gujranwala.

For Imported Machinery following can be contacted:

<b>Name of Supplier</b>	Plastipack Machines (PVT.) LTD		
<b>Address</b>	G-2, State Life Building No. 3, Dr.Ziauddin Ahmed Road, Karachi – 75530, Pakistan.		
<b>Phone</b>	(+92-21) 35684449	<b>Fax</b>	(+92-21) 35682150
<b>E-mail</b>	<a href="mailto:info@plastipack.com">info@plastipack.com</a>		
<b>Website</b>	<a href="http://www.plastipack.com">www.plastipack.com</a>		

### 10.2 Raw Material Suppliers

The raw material suppliers easily available in the areas like Jodia Bazar in Karachi, Shahalmi Market in Lahore and Daal Bazar & Rail Bazar in Gujranwala.

### 10.3 Technical Experts / Consultants

#### Technical Experts / Consultants

<b>Name of Expert /Organization</b>	Fawad Aftab / Premier Plastic Industries (PVT) LTD		
<b>Address</b>	Plot # 229 Suparco Road, on Hub River Road, Opp. TCF School Mouch Goth, Karachi, Pakistan.		
<b>Phone</b>	(+92-21) 32819055-6	<b>Fax</b>	(+92-21) 32819057
<b>E-mail</b>	<a href="mailto:fawad@premierplastics.com.pk">fawad@premierplastics.com.pk</a>		
<b>Website</b>	<a href="http://www.premierplastics.com.pk">www.premierplastics.com.pk</a>		

## 11 USEFUL WEB LINKS

<b>Small &amp; Medium Enterprises Development Authority (SMEDA)</b>	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
<b>Government of Pakistan</b>	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
<b>Ministry of Industries &amp; Production</b>	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
<b>Ministry of Education, Training &amp; Standards in Higher Education</b>	<a href="http://moptt.gov.pk">http://moptt.gov.pk</a>
<b>Government of Punjab</b>	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
<b>Government of Sindh</b>	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
<b>Government of Khyber Pakhtunkhwa</b>	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
<b>Government of Balochistan</b>	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
<b>Government of Gilgit Baltistan</b>	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>
<b>Government of Azad Jamu Kashmir</b>	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
<b>Trade Development Authority of Pakistan (TDAP)</b>	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
<b>Security Commission of Pakistan (SECP)</b>	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
<b>Federation of Pakistan Chambers of Commerce and Industry (FPCCI)</b>	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
<b>State Bank of Pakistan (SBP)</b>	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
<b>Punjab Small Industries Corporation</b>	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
<b>Sindh Small Industries Corporation</b>	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
<b>Pakistan Horticulture Development and Export Company (PHDEC)</b>	<a href="http://www.phdec.org.pk">www.phdec.org.pk</a>
<b>Punjab Vocational Training Council (PVTTC)</b>	<a href="http://www.pvtc.gop.pk">www.pvtc.gop.pk</a>
<b>Technical Education and Vocational Training Authority (TEVTA)</b>	<a href="http://www.tevta.org">www.tevta.org</a>
<b>Pakistan Readymade Garment Technical Training Institute</b>	<a href="http://www.prgmea.org/prgtti/">www.prgmea.org/prgtti/</a>
<b>Livestock &amp; Dairy Development Department, Government of Punjab.</b>	<a href="http://www.livestockpunjab.gov.pk">www.livestockpunjab.gov.pk</a>
<b>Punjab Industrial Estates (PIE)</b>	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
<b>Faisalabad Industrial Estate Development and Management Company (FIEDMC)</b>	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>
<b>Pakistan Plastic Manufacturing Association</b>	<a href="http://www.pakplas.com.pk">www.pakplas.com.pk</a>
<b>Plastic Technology Centre (PTC)</b>	<a href="http://www.ptc.org.pk">www.ptc.org.pk</a>

## 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	43,993,125	50,626,898	57,251,275	64,411,521	72,144,664	80,490,093	89,489,702	94,029,486	98,730,960	103,667,508	
<i>Cost of sales</i>											
Cost of goods sold 1	33,660,000	38,288,250	43,295,175	48,707,072	54,551,921	60,859,486	67,661,429	71,044,500	74,596,725	78,326,562	
Operating costs 1 (direct labor)	1,659,000	1,841,795	2,021,253	2,218,177	2,434,269	3,243,838	3,559,808	3,909,111	4,289,707	4,707,359	
Operating costs 2 (machinery maintenance)	90,000	99,000	108,900	119,790	131,769	144,946	159,440	175,385	192,923	212,215	
Operating costs 3 (direct electricity)	1,948,320	2,321,748	2,750,378	3,241,517	3,803,380	4,445,201	5,177,352	5,695,087	6,264,595	6,891,055	
Operating costs 4 (diesel for Genset)	627,660	747,962	886,047	1,044,269	1,225,276	1,432,041	1,667,907	1,834,698	2,018,167	2,219,984	
<b>Total cost of sales</b>	<b>37,984,980</b>	<b>43,298,754</b>	<b>49,061,753</b>	<b>55,330,826</b>	<b>62,146,615</b>	<b>70,125,512</b>	<b>78,225,936</b>	<b>82,658,780</b>	<b>87,362,118</b>	<b>92,357,175</b>	
<b>Gross Profit</b>	<b>6,008,145</b>	<b>7,328,144</b>	<b>8,189,521</b>	<b>9,080,695</b>	<b>9,998,049</b>	<b>10,364,580</b>	<b>11,263,766</b>	<b>11,370,706</b>	<b>11,368,842</b>	<b>11,310,333</b>	
	14%	14%	14%	14%	14%	13%	13%	12%	12%	11%	
<i>General administration &amp; selling expenses</i>											
Administration expense	1,320,000	1,448,517	1,589,547	1,744,307	1,914,135	2,577,884	2,828,871	3,104,294	3,406,532	3,738,197	
Administration benefits expense	92,400	101,396	111,268	122,102	133,989	180,452	198,021	217,301	238,457	261,674	
Building rental expense	360,000	396,000	435,600	479,160	527,076	579,784	637,762	701,538	771,692	848,861	
Distribution Expense	86,031	94,289	101,549	108,809	116,069	123,329	130,589	130,680	130,680	130,680	
Electricity expense	114,240	123,379	133,250	143,909	155,422	167,856	181,285	195,787	211,450	228,366	
Communications expense (phone, fax, mail, internet, etc.)	66,000	72,426	79,477	87,215	95,707	128,894	141,444	155,215	170,327	186,910	
Office vehicles running expense	244,300	268,730	295,603	325,163	357,680	393,448	432,792	476,072	523,679	576,047	
Office expenses (stationary, entertainment, janitorial services, etc.)	52,800	57,941	63,582	69,772	76,565	103,115	113,155	124,172	136,261	149,528	
Marketing & selling	439,931	506,269	572,513	644,115	721,447	804,901	894,897	940,295	987,310	1,036,675	
Professional fees (legal, audit, consultants, etc.)	87,986	101,254	114,503	128,823	144,289	160,980	178,979	188,059	197,462	207,335	
Depreciation expense	517,000	517,000	517,000	517,000	517,000	517,000	517,000	517,000	517,000	517,000	
Amortization of pre-operating costs	70,439	70,439	70,439	70,439	70,439	-	-	-	-	-	
Amortization of legal, licensing, and training costs	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-	
Bad debt expense	879,863	1,012,538	1,145,025	1,288,230	1,442,893	1,609,802	1,789,794	1,880,590	1,974,619	2,073,350	
Miscellaneous expense 1	500,000	525,000	551,250	578,813	607,753	638,141	670,048	703,550	738,728	775,664	
<b>Subtotal</b>	<b>4,840,990</b>	<b>5,305,178</b>	<b>5,790,606</b>	<b>6,317,859</b>	<b>6,890,466</b>	<b>8,170,275</b>	<b>8,899,325</b>	<b>9,519,240</b>	<b>10,188,885</b>	<b>10,914,975</b>	
<b>Operating Income</b>	<b>1,167,155</b>	<b>2,022,966</b>	<b>2,398,915</b>	<b>2,762,836</b>	<b>3,107,583</b>	<b>2,194,306</b>	<b>2,364,441</b>	<b>1,851,466</b>	<b>1,179,956</b>	<b>395,357</b>	
Gain / (loss) on sale of machinery & equipment	-	-	-	-	720,000	-	-	-	-	-	
Gain / (loss) on sale of office vehicles	-	-	-	-	279,200	-	-	-	-	-	
<b>Earnings Before Interest &amp; Taxes</b>	<b>1,167,155</b>	<b>2,022,966</b>	<b>2,398,915</b>	<b>2,762,836</b>	<b>4,106,783</b>	<b>2,194,306</b>	<b>2,364,441</b>	<b>1,851,466</b>	<b>1,179,956</b>	<b>395,357</b>	
Interest expense on long term debt (Project Loan)	398,416	342,726	277,012	199,470	107,970	-	-	-	-	-	
<b>Subtotal</b>	<b>398,416</b>	<b>342,726</b>	<b>277,012</b>	<b>199,470</b>	<b>107,970</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>Earnings Before Tax</b>	<b>768,739</b>	<b>1,680,240</b>	<b>2,121,903</b>	<b>2,563,367</b>	<b>3,998,813</b>	<b>2,194,306</b>	<b>2,364,441</b>	<b>1,851,466</b>	<b>1,179,956</b>	<b>395,357</b>	
Tax	153,748	336,048	424,381	512,673	799,763	438,861	472,888	370,293	235,991	79,071	
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>614,991</b>	<b>1,344,192</b>	<b>1,697,523</b>	<b>2,050,693</b>	<b>3,199,051</b>	<b>1,755,445</b>	<b>1,891,553</b>	<b>1,481,173</b>	<b>943,965</b>	<b>316,286</b>	
Balance brought forward		614,991	1,371,428	2,148,266	2,939,271	4,296,825	6,052,270	5,560,676	4,929,294	4,111,281	
Total profit available for appropriation	614,991	1,959,184	3,068,951	4,198,959	6,138,322	6,052,270	7,943,823	7,041,849	5,873,259	4,427,567	
Dividend	-	587,755	920,685	1,259,688	1,841,497	-	2,383,147	2,112,555	1,761,978	1,328,270	
Balance carried forward	614,991	1,371,428	2,148,266	2,939,271	4,296,825	6,052,270	5,560,676	4,929,294	4,111,281	3,099,297	
	1%	3%	3%	3%	4%	2%	2%	2%	1%	0%	



## 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
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	158,500	1,151,747	2,130,350	2,866,649	3,499,683	1,170,737	3,642,880	3,718,314	3,488,185	3,110,049	3,565,810
Accounts receivable		1,807,937	1,944,247	2,216,675	2,499,920	2,805,949	3,136,331	3,492,736	3,770,942	3,960,831	4,158,873
Finished goods inventory		480,823	541,755	613,820	692,212	777,440	877,214	978,504	1,033,235	1,092,026	1,154,465
Equipment spare part inventory	3,750	4,331	5,003	5,778	6,674	7,708	8,903	10,283	11,876	13,717	-
Raw material inventory	841,500	957,206	1,082,379	1,217,677	1,363,798	1,521,487	1,691,536	1,776,113	1,864,918	1,958,164	1,958,164
Pre-paid building rent	360,000	396,000	435,600	479,160	527,076	579,784	637,762	701,538	771,692	848,861	-
<b>Total Current Assets</b>	<b>1,363,750</b>	<b>4,798,044</b>	<b>6,139,335</b>	<b>7,399,758</b>	<b>8,589,363</b>	<b>6,863,105</b>	<b>9,994,625</b>	<b>10,677,487</b>	<b>10,940,848</b>	<b>10,983,649</b>	<b>10,837,311</b>
<i>Fixed assets</i>											
Machinery & equipment	1,800,000	1,440,000	1,080,000	720,000	360,000	2,297,307	1,837,845	1,378,384	918,923	459,461	-
Furniture & fixtures	70,000	63,000	56,000	49,000	42,000	35,000	28,000	21,000	14,000	7,000	-
Office vehicles	698,000	558,400	418,800	279,200	139,600	1,124,136	899,309	674,482	449,654	224,827	-
Office equipment	104,000	93,600	83,200	72,800	62,400	52,000	41,600	31,200	20,800	10,400	-
<b>Total Fixed Assets</b>	<b>2,672,000</b>	<b>2,155,000</b>	<b>1,638,000</b>	<b>1,121,000</b>	<b>604,000</b>	<b>3,508,443</b>	<b>2,806,754</b>	<b>2,105,066</b>	<b>1,403,377</b>	<b>701,689</b>	<b>-</b>
<i>Intangible assets</i>											
Pre-operation costs	352,196	281,756	211,317	140,878	70,439	-	-	-	-	-	-
Legal, licensing, & training costs	50,000	40,000	30,000	20,000	10,000	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>402,196</b>	<b>321,756</b>	<b>241,317</b>	<b>160,878</b>	<b>80,439</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>4,437,946</b>	<b>7,274,800</b>	<b>8,018,652</b>	<b>8,681,637</b>	<b>9,273,803</b>	<b>10,371,548</b>	<b>12,801,380</b>	<b>12,782,552</b>	<b>12,344,225</b>	<b>11,685,337</b>	<b>10,837,311</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		2,377,503	2,703,742	3,056,680	3,438,174	3,850,198	4,294,854	4,767,621	5,006,622	5,257,639	5,513,489
<b>Total Current Liabilities</b>	<b>-</b>	<b>2,377,503</b>	<b>2,703,742</b>	<b>3,056,680</b>	<b>3,438,174</b>	<b>3,850,198</b>	<b>4,294,854</b>	<b>4,767,621</b>	<b>5,006,622</b>	<b>5,257,639</b>	<b>5,513,489</b>
<i>Other liabilities</i>											
Deferred tax		153,748	180,000	144,000	72,000	-	229,731	229,731	183,785	91,892	(0)
Long term debt (Project Loan)	2,213,421	1,904,034	1,538,957	1,108,166	599,833	-	-	-	-	-	-
Long term debt (Working Capital Loan)	-	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>2,213,421</b>	<b>2,057,781</b>	<b>1,718,957</b>	<b>1,252,166</b>	<b>671,833</b>	<b>-</b>	<b>229,731</b>	<b>229,731</b>	<b>183,785</b>	<b>91,892</b>	<b>(0)</b>
<i>Shareholders' equity</i>											
Paid-up capital	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525	2,224,525
Retained earnings		614,991	1,371,428	2,148,266	2,939,271	4,296,825	6,052,270	5,560,676	4,929,294	4,111,281	3,099,297
<b>Total Equity</b>	<b>2,224,525</b>	<b>2,839,516</b>	<b>3,595,953</b>	<b>4,372,790</b>	<b>5,163,796</b>	<b>6,521,350</b>	<b>8,276,795</b>	<b>7,785,201</b>	<b>7,153,819</b>	<b>6,335,806</b>	<b>5,323,822</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>4,437,946</b>	<b>7,274,800</b>	<b>8,018,652</b>	<b>8,681,637</b>	<b>9,273,803</b>	<b>10,371,548</b>	<b>12,801,380</b>	<b>12,782,552</b>	<b>12,344,225</b>	<b>11,685,337</b>	<b>10,837,311</b>
	-	-	-	-	-	-	-	-	-	-	-

## 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		614,991	1,344,192	1,697,523	2,050,693	3,199,051	1,755,445	1,891,553	1,481,173	943,965	316,286
Add: depreciation expense		517,000	517,000	517,000	517,000	517,000	517,000	701,689	701,689	701,689	701,689
amortization of pre-operating costs		70,439	70,439	70,439	70,439	70,439	-	-	-	-	-
amortization of training costs		10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
Deferred income tax		153,748	26,252	(36,000)	(72,000)	(72,000)	229,731	-	(45,946)	(91,892)	(91,892)
Accounts receivable		(1,807,937)	(136,310)	(272,428)	(283,246)	(306,029)	(330,382)	(356,405)	(278,207)	(189,889)	(198,042)
Finished goods inventory		(480,823)	(60,933)	(72,065)	(78,392)	(85,228)	(99,774)	(101,290)	(54,731)	(58,792)	(62,438)
Equipment inventory	(3,750)	(581)	(671)	(775)	(896)	(1,034)	(1,195)	(1,380)	(1,594)	(1,841)	13,717
Raw material inventory	(841,500)	(115,706)	(125,173)	(135,297)	(146,121)	(157,689)	(170,049)	(84,577)	(88,806)	(93,246)	-
Pre-paid building rent	(360,000)	(36,000)	(39,600)	(43,560)	(47,916)	(52,708)	(57,978)	(63,776)	(70,154)	(77,169)	848,861
Accounts payable		2,377,503	326,239	352,938	381,493	412,024	444,657	472,767	239,001	251,017	255,850
<b>Cash provided by operations</b>	<b>(1,205,250)</b>	<b>1,302,634</b>	<b>1,931,435</b>	<b>2,087,775</b>	<b>2,401,055</b>	<b>3,533,826</b>	<b>2,472,143</b>	<b>2,458,581</b>	<b>1,882,425</b>	<b>1,383,842</b>	<b>1,784,031</b>
<i>Financing activities</i>											
Project Loan - principal repayment		(309,387)	(365,077)	(430,791)	(508,333)	(599,833)	-	-	-	-	-
Working Capital Loan - principal repayment		-	-	-	-	-	-	-	-	-	-
Additions to Project Loan	2,213,421	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	2,224,525	-	-	-	-	-	-	-	-	-	-
<b>Cash provided by / (used for) financing activities</b>	<b>4,437,946</b>	<b>(309,387)</b>	<b>(365,077)</b>	<b>(430,791)</b>	<b>(508,333)</b>	<b>(599,833)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Investing activities</i>											
Capital expenditure	(3,074,196)	-	-	-	-	(3,421,443)	-	-	-	-	-
<b>Cash (used for) / provided by investing activities</b>	<b>(3,074,196)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(3,421,443)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>NET CASH</b>	<b>158,500</b>	<b>993,247</b>	<b>1,566,358</b>	<b>1,656,984</b>	<b>1,892,722</b>	<b>(487,450)</b>	<b>2,472,143</b>	<b>2,458,581</b>	<b>1,882,425</b>	<b>1,383,842</b>	<b>1,784,031</b>
Cash balance brought forward		158,500	1,151,747	2,130,350	2,866,649	3,499,683	1,170,737	3,642,880	3,718,314	3,488,185	3,110,049
Cash available for appropriation	158,500	1,151,747	2,718,105	3,787,334	4,759,371	3,012,234	3,642,880	6,101,461	5,600,739	4,872,027	4,894,080
Dividend		-	587,755	920,685	1,259,688	1,841,497	-	2,383,147	2,112,555	1,761,978	1,328,270
Cash balance	158,500	1,151,747	2,130,350	2,866,649	3,499,683	1,170,737	3,642,880	3,718,314	3,488,185	3,110,049	3,565,810
Cash carried forward	158,500	1,151,747	2,130,350	2,866,649	3,499,683	1,170,737	3,642,880	3,718,314	3,488,185	3,110,049	3,565,810

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Shift Length	12 hours
Number of shifts	2
Days operational per year	330 days

### 13.2 Production Cost Assumptions

Description	Details
Raw Material Cost per unit of product (Combine Average Price)	Rs.170
Increase in Cost Price	5%
Production Capacity	330,000 Kg
Production Capacity Utilization	60%

### 13.3 Revenue Assumptions

Description	Details
Price per Kg (Combine Average Price)	Rs.225
Price per Kg growth rate	5%

### 13.4 Financial Assumptions

Description	Details
Project Life	10 years
Debt Equity Ratio	50 : 50
Interest Rate on Long Term Debt	18%
Long Term Debt Tenure	5 years
Numbers of Payment / Year	12