



**Pre-feasibility Study**

# **HARD GELATIN CAPSULE SHELL MANUFACTURING UNIT**

**June 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, and revenues 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

## Table of Contents

<b>1. DISCLAIMER .....</b>	<b>3</b>
<b>2. EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>3. INTRODUCTION TO SMEDA.....</b>	<b>5</b>
<b>4. PURPOSE OF THE DOCUMENT .....</b>	<b>6</b>
<b>5. BRIEF DESCRIPTION OF PROJECT &amp; PRODUCT .....</b>	<b>6</b>
<b>6. PRODUCTION PROCESS FLOW.....</b>	<b>7</b>
<b>7. INSTALLED AND OPERATIONAL CAPACITIES .....</b>	<b>10</b>
<b>8. CRITICAL FACTORS.....</b>	<b>10</b>
<b>9. GEOGRAPHICAL POTENTIAL FOR INVESTMENT .....</b>	<b>10</b>
<b>POTENTIAL TARGET CUSTOMERS / MARKETS .....</b>	<b>11</b>
<b>10. PROJECT COST SUMMARY .....</b>	<b>11</b>
9.1 PROJECT ECONOMICS.....	11
9.2 PROJECT FINANCING.....	11
9.3 PROJECT COST .....	12
9.4 SPACE REQUIREMENT .....	12
9.5 MACHINERY & EQUIPMENT REQUIREMENT.....	13
9.6 FURNITURE & FIXTURES REQUIREMENT .....	13
9.7 OFFICE EQUIPMENT REQUIREMENT.....	14
9.8 HUMAN RESOURCE REQUIREMENT .....	14
9.9 REVENUE GENERATION .....	14
<b>11. CONTACT DETAILS .....</b>	<b>15</b>
10.1 MACHINERY AND RAW MATERIAL SUPPLIERS.....	15
<b>12. USEFUL WEB LINKS .....</b>	<b>16</b>
<b>13. ANNEXURES .....</b>	<b>17</b>
12.2 BALANCE SHEET .....	18
1.3 CASH FLOW STATEMENT.....	19
<b>14. KEY ASSUMPTIONS .....</b>	<b>20</b>
13.1 COST OF GOODS SOLD PER UNIT OF PRODUCTION.....	20
13.2 PRODUCTION RELATED ASSUMPTIONS .....	20
<b>13.4 FINANCIAL ASSUMPTIONS .....</b>	<b>20</b>

**1. DISCLAIMER**

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## **2. EXECUTIVE SUMMARY**

Hard Gelatin Capsule Shell Manufacturing Unit is proposed to be located at any industrial zone throughout Pakistan nearby pharmaceutical industries.

The finished product would be halal gelatin capsule.

The Installed unit would have the capacity to produce **180,000 packets (1000 units per packet) per year** and initially operate at 65% capacity utilization.

Total Cost Estimated is **Rs. 95,928,110** with fixed investment of **Rs. 81,274,235** and working capital of **Rs. 14,653,875**

Given the cost assumptions IRR and payback are **40%** and **3.42 years** respectively.

Moreover the project is set to employ 16 employees.

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

- The proposed project must be established in the adjoining areas of major cities where pharmaceutical industries are established.
- The finished product must be produced through halal raw material so that it can be differentiated from already available alternatives.
- The main feature of the project would include Hard Gelatin Capsule prepared according to international quality standards.
- Selection of proper equipment and staff would be required to run project successfully.
- Procurement of raw material from trusted suppliers and below market rates.

### **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 **Hard Gelatin Capsule Shell 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 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 is likely to be equipped with state of the art machinery moreover plant would be able to produce 75000 units per hour.
- **Location:** The proposed project must be established in the adjoining areas of major cities where pharmaceutical industries are already operational.
- **Product:** The main feature of the project would include halal Hard Gelatine Capsule prepared according to international quality standards.
- **Target Market:** In addition to local markets in Karachi, Lahore and Islamabad an enormous export market for the halal Gelatin capsules exists in Europe, USA, Middle East, Hong Kong, Taiwan, etc.
- **Employment Generation:** The proposed project will provide direct employment to 16 people. Financial analysis shows the unit shall be profitable from the very first year of operation.

## 6. PRODUCTION PROCESS FLOW

Hard gelatin capsule shell is composed largely of gelatin. Other than gelatin, it may contain materials such as plasticizer, colorants, opacifying agents, and preservatives which either enable capsule formation or improve their performance. Hard gelatin capsules also contain 12–16% water, but the water content can vary, depending on the storage conditions.

### Gelatin

Gelatin is by far the most common and most well-known material used to produce hard capsule shells. It is a generic term for a mixture of purified protein fractions obtained from irreversible hydrolytic extraction of collagen obtained from the skin, white connective tissue, and bones of animals.

Depending on the source of the collagen and the method of extraction, two types of gelatin can be produced – type A gelatin and type B gelatin. Type A gelatin is made from pork skin via acid hydrolysis and has an isoelectric point between 7.0 and 9.0. Type B gelatin is prepared by alkaline hydrolysis of bovine bones and has an isoelectric point between 4.8 and 5.0. Because of this difference in isoelectric points, both gelatins show solubility differences at different pH values.

Traditionally capsules may be manufactured by using both types of gelatin, but combinations of pork skin and bone gelatin are often used to optimize shell characteristics because bone gelatin contributes firmness, whereas pork skin gelatin contributes plasticity and clarity.

Gelatin derived from Gelatin grade is further specified by bloom strength. This is measured in a Bloom Gelometer which determines the weight in grams that is required to depress a standard plunger in a 6.67% w/w gel under standard conditions.

Gelatin is stable in air when dry but is subject to microbial decomposition when it becomes moist.

### Plasticizer

Plasticizers are added to gelatin to reduce the rigidity of the polymer and make it more pliable. Common examples of plasticizers are glycerin and polyhydric alcohol. Water is also a good plasticizer and is naturally present in the gelatin.

### Colorants

Most frequently, hard gelatin capsules are colored to enhance the aesthetic properties and also to act as a means of identifying the product. Colorants used must meet the regulatory requirements of those countries where the product will be sold. Examples of commonly

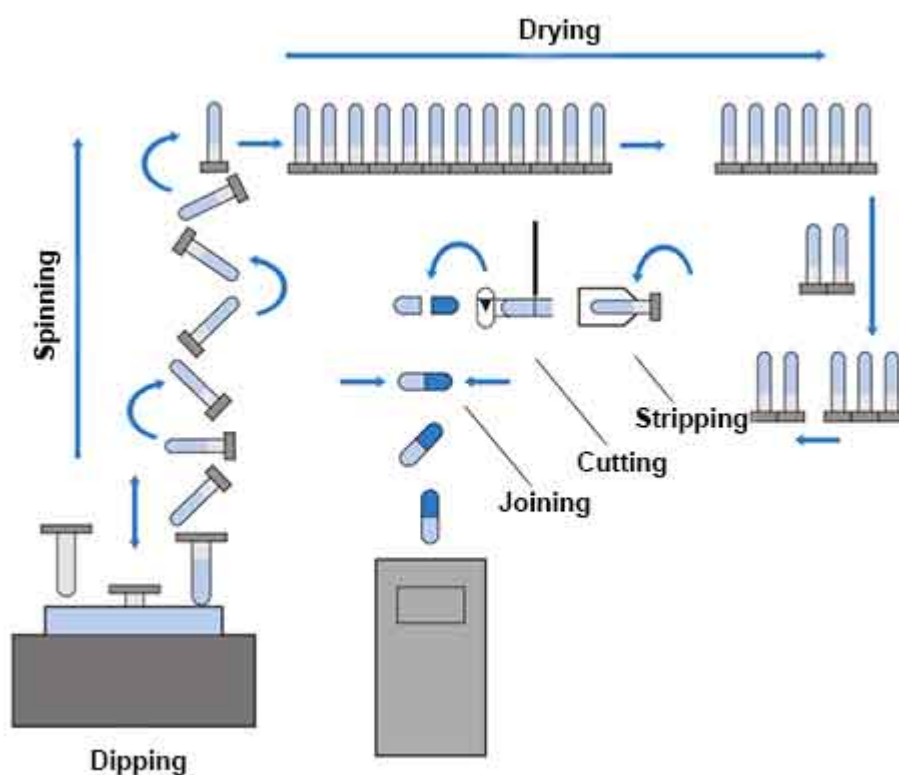
used capsule colorants include synthetic dyes such as azo dyes and xanthene dyes. Iron oxide pigments are also used.

### **Opacifying agents**

Opacifiers (e.g., titanium dioxide) may be included to make clear gelatin opaque. Opaque capsules may be employed to provide protection against light or to conceal the contents.

### **Preservatives**

Preservatives (often parabens esters) were formerly added to hard capsules as an in-process aid in order to prevent microbiological contamination during manufacture. Manufacturers operating their plants to Good Manufacturing Practice (GMP) guidelines no longer use them. In the finished capsules, the moisture levels, 12–16% w/ v, are such that the water activity will not support bacterial growth because the moisture is too strongly bound to the gelatin molecule.



Hard gelatin capsules are manufactured using a dip-coating method and the various stages involved are as follows:

#### **Step 1: Preparation of the gelatin solution (dipping solution)**



A concentrated solution of gelatin is prepared by dissolving the gelatin in demineralized water which has been heated to 60–70°C in jacketed pressure vessels. This solution contains 30 – 40% w/w of gelatin and is highly viscous, which causes bubbles as a result of air entrapment. The presence of these bubbles in the final solution would yield capsules of inconsistent weight and would also become problematic during capsule filling and upon storage. To remove the air bubbles, a vacuum is applied to the solution; the duration of this process varies with batch size.

Following the above steps, colorants and pigments are added to attain the desired final capsule appearance. At this stage, other processing aids may be added, such as sodium lauryl sulfate, to reduce surface tension. The solution viscosity is measured and adjusted as needed with hot demineralized water to achieve the target specification.

The viscosity of the gelatin solution is a critical parameter as it affects the downstream manufacturing process and plays a major role in capsule shell wall thickness. After physical, chemical, and microbiological testing, the gelatin is released for capsule production. The gelatin solution is then transferred to temperature-controlled tanks on the dipping machine where it is fed continuously into the dipping dishes.

#### **Step 2:** Dip-coating the gelatin solution on to metal pins (moulds)

Capsule shells are manufactured under strict climatic conditions by dipping pairs (body and cap) of standardized steel pins arranged in rows on metal bars into an aqueous gelatin solution (25 – 30% w/w) maintained at about 50 ° C in a jacketed heating pan. Because the moulds are below the gelling temperature, the gelatin begins to form a thin gelatin layer or film on the moulds.

The rows of pins are arranged so that caps are formed on one side of the machine while bodies are simultaneously formed on the opposite side of the machine

#### **Step 3:** Rotation of the dip-coated pins

Following adsorption of the gelatin solution on to the surface of the pins, the bar containing the pins is removed and rotated several times to evenly distribute the solution around the pins, correct gelatin distribution being critical to uniform and precise capsule wall thickness and dome strength.

#### **Step 4:** Drying of the gelatin-coated pins

Once the gelatin is evenly distributed on the mould, a blast of cool air is used to set the gelatin on the mould. At this point, the gelatin is dried, and the pins are then passed through several drying stages to achieve the target moisture content.

**Step 5: Stripping and trimming**

After the gelatin is dried, the capsule is stripped off the mould and trimmed to the proper length.

**Step 6: Joining of the trimmed capsule shell**

Once trimmed, the two halves (the cap and body) are joined to the pre-closed position using a pre lock mechanism. At this point, printing is done if needed before packing in cartons for shipping.

**7. INSTALLED AND OPERATIONAL CAPACITIES**

The proposed manufacturing unit is set to operate at 65% capacity utilization initially and shall increase its production by 5%.

The proposed manufacturing plant has the ability to produce 117,000 units per hours. The proposed plant is set to operate for 8 hours per day however production can be increased if needed.

**8. CRITICAL FACTORS**

- Trained and specialized human resource should be hired which could play vital role projects success
- Continuous efforts should be made to upgrade technology.
- Gelatin produced through halal sources should be used
- End product should be halal and certified.
- Gelatin having higher levels of bloom should be used.

**9. GEOGRAPHICAL POTENTIAL FOR INVESTMENT**

The **global empty capsules market** was valued approximately USD 3.8 Billion in 2019. And the market is expected to reach \$4.7 billion by 2026, the market is expected to grow at a CAGR of 6%. Capsules are relatively stable shells that contain or encapsulate medicines, which are administered in a variety of dosage forms.

Empty capsules are of two types in the market namely, gelatin capsules and non-gelatin capsules, of these, the vegetable/non-gelatin capsules are expected to witness considerable demand in the coming years. This is attributed to the preference for the same among the consumers due to its natural or non-animal origin.

The size of global Halal products market including all Halal food, non-food products has reached to US\$ 2.3 trillion per annum, out of which Global Halal Meat Market is worth US\$ 2,951.1 million and it is growing at rapid pace.

The worldwide production amount of Gelatin is about 375,000 tons per year (roughly 827 million lb.). The non-food components like Gelatin, Personal Care & Cosmetics and Pharmaceutical goods constitute 33% of the global Halal products market.

This market has emerged as a new growth sector in the global economy and is creating a strong presence in developed countries.

The most promising halal markets are the fast-growing economies of the Asia, Middle East, Europe and the Americas. With a growing consumer base, and increasing growth in many parts of the world, the industry is set to become a competitive force in world international trade. The halal industry has now expanded well beyond the food sector further widening the economic potentials for halal.

## **POTENTIAL TARGET CUSTOMERS / MARKETS**

Initially local market would be targeted however with maturity markets seeking halal products could be explored.

## **10. PROJECT COST SUMMARY**

### **9.1 Project Economics**

All the figures in this financial model have been calculated for estimated sales of Rs.167 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**

<b>Description</b>	<b>Details</b>
Internal Rate of Return (IRR)	40%
Payback Period (yrs.)	3.42
Net Present Value (Rs.)	166,022,544

### **9.2 Project Financing**

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

**Table 2: Project Financing**

<b>Description</b>	<b>Details</b>
--------------------	----------------

Total Equity (50%)	Rs. 47,964,055
Bank Loan (50%)	Rs. 47,964,055
Markup to the Borrower (%age / annum)	16%
Tenure of the Loan (Years)	10

### 9.3 Project Cost

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

**Table 3: Project Cost**

<b>Capital Investment</b>		<b>Rs. in actuals</b>
Land	5,250,000	
Building/Infrastructure	6,325,000	
Machinery & equipment	66,200,000	
Furniture & fixtures	495,000	
Office vehicles	1,890,000	
Office equipment	107,000	
Pre-operating costs	1,007,235	
<b>Total Capital Costs</b>	<b>81,274,235</b>	

<b>Working Capital</b>		<b>Rs. in actuals</b>
Equipment spare part inventory	24,375	
Raw material inventory	10,725,000	
Upfront insurance payment	3,404,500	
Cash	500,000	
<b>Total Working Capital</b>	<b>14,653,875</b>	

<b>Total Investment</b>	<b>95,928,110</b>
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### 9.4 Space Requirement

The space requirement for the proposed Hard Gelatin Capsule Shell Manufacturing Unit is estimated 10500 sq.ft. 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	1,200	600000
Cafeteria	2000	800	1600000
Factory	7000	500	3500000
warehouse	500	1200	600000
Pavement/driveway	500	50	25000
<b>Total</b>			<b>6325000</b>

### 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.)
Automatic capsule making machine	1	65,000,000	65,000,000
generator	1	1,200,000	1,200,000
<b>Total</b>			<b>66,200,000</b>

### 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.)
furniture	1		300000
Electric wiring & lighting	1		100,000
Air conditioners (2 ton split)	1		95,000
<b>Total</b>			<b>495,000</b>

### 9.7 Office Equipment Requirement

Following office equipment will be required for Hard Gelatin Capsule Shell Manufacturing Unit.

**Table 7: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	1		75000
Computer printer Scanner and Copier	1		25000
Telephones	2		3500
<b>Total</b>			<b>107,000</b>

### 9.8 Human Resource Requirement

In order to run operations of Hard Gelatin Capsule Shell Manufacturing Unit 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	1	75000
Accounts and admin officer	1	45000
Operations manger	1	65000
Lab assistant	1	40000
supervisor	2	20000
helpers	10	18500

### 9.9 Revenue Generation

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

**Revenue Generation – Year 1**

<b>Description</b>	<b>No. of Units Produced (No.)</b>	<b>Sale Price / unit (Rs.)</b>	<b>Sales Revenue (Rs.)</b>
Hard gelatin capsule	117,000	1,430	167,310,000

**11. 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 and raw material Suppliers**

<b>Name of Supplier</b>	<b>Name of the company</b>	<b>Phone</b>	<b>Fax</b>	<b>E-mail</b>	<b>Website</b>
Gelatin supplier	Ravi gelatin private limited	0303-3480125		Hrravigelatin@gmail.com	
Machinery supplier.	Rotech	(86)-21-34223215	(86)-21-34223217	hans@rotech-group.com	www.Rotech-group.com

**12. 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 (PVTC)</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>



## 13. ANNEXURES

## 12.1 Income Statement

Statement Summaries										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
Revenue	167,310,000	198,198,000	233,590,500	274,079,520	320,330,439	373,090,747	433,199,811	476,519,792	524,171,772	576,588,949
Cost of goods sold	129,004,200	145,887,210	164,138,704	183,853,643	205,133,103	228,084,649	252,822,736	265,495,681	278,805,454	292,784,215
Gross Profit	38,305,800	52,310,790	69,451,796	90,225,877	115,197,336	145,006,098	180,377,076	211,024,112	245,366,318	283,804,734
<i>General administration &amp; selling expenses</i>										
Administration expense	5,562,000	6,103,524	6,697,772	7,349,876	8,065,471	8,850,736	9,712,457	10,658,075	11,695,760	12,834,476
Rental expense	-	-	-	-	-	-	-	-	-	-
Utilities expense	60,000	66,000	72,600	79,860	87,846	96,631	106,294	116,923	128,615	141,477
Travelling & Comm. expense (phone, fax, etc.)	216,000	237,030	260,108	285,432	313,222	343,718	377,183	413,906	454,204	498,426
Office vehicles running expense	945,000	1,039,500	1,143,450	1,257,795	1,383,575	1,521,932	1,674,125	1,841,538	2,025,691	2,228,261
Office expenses (stationary, etc.)	270,000	296,288	325,135	356,790	391,528	429,647	471,478	517,382	567,755	623,033
Promotional expense	334,620	396,396	467,181	548,159	640,661	746,181	866,400	953,040	1,048,344	1,153,178
Insurance expense	3,404,500	3,064,050	2,723,600	2,383,150	2,042,700	1,702,250	1,361,800	1,021,350	680,900	340,450
Professional fees (legal, audit, etc.)	836,550	990,990	1,167,953	1,370,398	1,601,652	1,865,454	2,165,999	2,382,399	2,620,839	2,882,945
Depreciation expense	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450
Amortization expense	201,447	201,447	201,447	201,447	201,447	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	5,019,300	5,945,940	7,007,715	8,222,386	9,609,913	11,192,722	12,995,994	14,295,594	15,725,153	17,297,668
Subtotal	24,034,867	25,526,615	27,252,410	29,240,743	31,523,464	33,934,722	36,917,180	39,385,856	42,132,732	45,185,364
Operating Income	14,270,933	26,784,175	42,199,387	60,985,134	83,673,871	111,071,376	143,459,896	171,638,255	203,233,585	238,619,370
Other income	130,527	1,041,951	2,404,734	3,441,317	4,509,484	5,543,562	6,621,278	7,765,168	8,865,590	11,938,746
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
Earnings Before Interest & Taxes	14,401,460	27,826,126	44,604,121	64,426,451	88,183,355	116,614,938	150,081,174	179,403,423	212,099,176	250,558,116
Interest expense	7,152,353	6,196,991	5,843,251	5,432,913	4,956,921	4,404,770	3,764,275	3,021,301	2,159,451	1,159,705
Earnings Before Tax	7,249,106	21,629,135	38,760,870	58,993,538	83,226,434	112,210,167	146,316,899	176,382,122	209,939,724	249,398,411
Tax	2,972,134	8,867,945	15,891,957	24,187,350	34,122,838	46,006,169	59,989,928	72,316,670	86,075,287	102,253,348
NET PROFIT/(LOSS) AFTER TAX	4,276,973	12,761,190	22,868,913	34,806,187	49,103,596	66,203,999	86,326,970	104,065,452	123,864,437	147,145,062
Balance brought forward	-	4,276,973	8,519,081	15,693,997	25,250,092	37,176,844	51,690,421	69,008,696	86,537,074	105,200,756
Total profit available for appropriation	4,276,973	17,038,162	31,387,994	50,500,184	74,353,688	103,380,843	138,017,392	173,074,148	210,401,511	252,345,818
Dividend	-	8,519,081	15,693,997	25,250,092	37,176,844	51,690,421	69,008,696	86,537,074	105,200,756	126,172,909
Balance carried forward	4,276,973	8,519,081	15,693,997	25,250,092	37,176,844	51,690,421	69,008,696	86,537,074	105,200,756	126,172,909

## 12.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											Rs. in actuals
	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	500,000	2,110,533	18,728,478	29,366,211	39,460,128	50,729,550	60,141,683	72,283,880	83,019,476	94,292,334	144,482,583
Accounts receivable	-	13,751,507	15,020,877	17,744,733	20,863,152	24,427,807	28,496,761	33,135,228	37,385,737	41,124,311	45,236,742
Finished goods inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	24,375	28,941	34,186	40,203	47,094	54,975	63,977	70,535	77,765	85,736	-
Raw material inventory	10,725,000	12,733,875	15,041,890	17,689,262	20,721,313	24,189,085	28,150,048	31,035,428	34,216,559	37,723,756	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	3,404,500	3,064,050	2,723,600	2,383,150	2,042,700	1,702,250	1,361,800	1,021,350	680,900	340,450	-
<b>Total Current Assets</b>	<b>14,653,875</b>	<b>31,688,905</b>	<b>51,549,030</b>	<b>67,223,560</b>	<b>83,134,386</b>	<b>101,103,667</b>	<b>118,214,269</b>	<b>137,546,421</b>	<b>155,380,437</b>	<b>173,566,587</b>	<b>189,719,325</b>
<i>Fixed assets</i>											
Land	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000	5,250,000
Building/Infrastructure	6,325,000	6,008,750	5,692,500	5,376,250	5,060,000	4,743,750	4,427,500	4,111,250	3,795,000	3,478,750	3,162,500
Machinery & equipment	66,200,000	59,580,000	52,960,000	46,340,000	39,720,000	33,100,000	26,480,000	19,860,000	13,240,000	6,620,000	-
Furniture & fixtures	495,000	445,500	396,000	346,500	297,000	247,500	198,000	148,500	99,000	49,500	-
Office vehicles	1,890,000	1,701,000	1,512,000	1,323,000	1,134,000	945,000	756,000	567,000	378,000	189,000	-
Office equipment	107,000	96,300	85,600	74,900	64,200	53,500	42,800	32,100	21,400	10,700	-
<b>Total Fixed Assets</b>	<b>80,267,000</b>	<b>73,081,550</b>	<b>65,896,100</b>	<b>58,710,650</b>	<b>51,525,200</b>	<b>44,339,750</b>	<b>37,154,300</b>	<b>29,968,850</b>	<b>22,783,400</b>	<b>15,597,950</b>	<b>8,412,500</b>
<i>Intangible assets</i>											
Pre-operation costs	1,007,235	805,788	604,341	402,894	201,447	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>1,007,235</b>	<b>805,788</b>	<b>604,341</b>	<b>402,894</b>	<b>201,447</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>95,928,110</b>	<b>105,576,243</b>	<b>118,049,471</b>	<b>126,337,104</b>	<b>134,861,033</b>	<b>145,443,417</b>	<b>155,368,569</b>	<b>167,515,271</b>	<b>178,163,837</b>	<b>189,164,537</b>	<b>198,131,825</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable	-	11,631,889	13,205,936	14,919,874	16,785,169	18,814,253	21,020,612	23,284,318	24,582,758	25,959,878	23,994,861
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>11,631,889</b>	<b>13,205,936</b>	<b>14,919,874</b>	<b>16,785,169</b>	<b>18,814,253</b>	<b>21,020,612</b>	<b>23,284,318</b>	<b>24,582,758</b>	<b>25,959,878</b>	<b>23,994,861</b>
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	2,972,134	11,840,079	13,803,470	13,880,960	13,958,450	11,166,760	8,375,070	5,583,380	2,791,690	-
Long term debt	47,964,055	38,731,193	36,520,320	33,955,707	30,980,757	27,529,814	23,526,721	18,883,133	13,496,571	7,248,158	-
<b>Total Long Term Liabilities</b>	<b>47,964,055</b>	<b>41,703,326</b>	<b>48,360,399</b>	<b>47,759,177</b>	<b>44,861,717</b>	<b>41,488,264</b>	<b>34,693,481</b>	<b>27,258,203</b>	<b>19,079,951</b>	<b>10,039,848</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055	47,964,055
Retained earnings	-	4,276,973	8,519,081	15,693,997	25,230,092	37,176,844	51,690,421	69,008,696	86,537,074	105,200,756	126,172,909
<b>Total Equity</b>	<b>47,964,055</b>	<b>52,241,028</b>	<b>56,483,136</b>	<b>63,658,052</b>	<b>73,214,147</b>	<b>85,140,899</b>	<b>99,654,476</b>	<b>116,972,751</b>	<b>134,501,129</b>	<b>153,164,811</b>	<b>174,136,964</b>
<b>TOTAL CAPITAL AND LIABILITY</b>	<b>95,928,110</b>	<b>105,576,243</b>	<b>118,049,471</b>	<b>126,337,104</b>	<b>134,861,033</b>	<b>145,443,417</b>	<b>155,368,569</b>	<b>167,515,271</b>	<b>178,163,837</b>	<b>189,164,537</b>	<b>198,131,825</b>
Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0											

## 1.3 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	Rs. in actuals Year 10
<i>Operating activities</i>											
Net profit	-	4,276,973	12,761,190	22,868,913	34,806,187	49,103,596	66,203,999	86,326,970	104,065,452	123,864,437	147,145,062
Add: depreciation expense	-	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450	7,185,450
amortization expense	-	201,447	201,447	201,447	201,447	201,447	-	-	-	-	-
Deferred income tax	-	2,972,134	8,867,945	1,963,391	77,490	77,490	(2,791,690)	(2,791,690)	(2,791,690)	(2,791,690)	(2,791,690)
Accounts receivable	-	(13,751,507)	(1,269,370)	(2,723,856)	(3,118,419)	(3,564,655)	(4,068,955)	(4,638,467)	(4,250,509)	(3,738,574)	(4,112,431)
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	(24,375)	(4,566)	(5,245)	(6,017)	(6,891)	(7,881)	(9,002)	(6,558)	(7,230)	(7,971)	85,736
Raw material inventory	(10,725,000)	(2,008,875)	(2,308,015)	(2,647,373)	(3,032,050)	(3,467,773)	(3,960,963)	(2,885,380)	(3,181,131)	(3,507,197)	37,723,756
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(3,404,500)	340,450	340,450	340,450	340,450	340,450	340,450	340,450	340,450	340,450	340,450
Accounts payable	-	11,631,889	1,574,047	1,713,938	1,865,295	2,029,084	2,206,359	2,263,706	1,298,440	1,377,120	(1,965,017)
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(14,153,875)	10,843,395	27,347,899	28,896,343	38,318,959	51,897,208	65,105,648	85,794,481	102,659,232	122,722,026	183,611,316
<i>Financing activities</i>											
Change in long term debt	47,964,055	(9,232,862)	(2,210,873)	(2,564,612)	(2,974,950)	(3,450,942)	(4,003,093)	(4,643,588)	(5,386,562)	(6,248,412)	(7,248,158)
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	-	-	-	-	-	-	-	-	-	-
Land lease payment	-	-	-	-	-	-	-	-	-	-	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	47,964,055	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	95,928,110	(9,232,862)	(2,210,873)	(2,564,612)	(2,974,950)	(3,450,942)	(4,003,093)	(4,643,588)	(5,386,562)	(6,248,412)	(7,248,158)
<i>Investing activities</i>											
Capital expenditure	(81,274,235)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by invest	(81,274,235)	-	-	-	-	-	-	-	-	-	-
<b>NET CASH</b>	<b>500,000</b>	<b>1,610,533</b>	<b>25,137,026</b>	<b>26,331,731</b>	<b>35,344,009</b>	<b>48,446,266</b>	<b>61,102,555</b>	<b>81,150,893</b>	<b>97,272,670</b>	<b>116,473,613</b>	<b>176,363,158</b>
Cash balance brought forward		500,000	2,110,533	18,728,478	29,366,211	39,460,128	50,729,550	60,141,683	72,283,880	83,019,476	94,292,334
Cash available for appropriation	500,000	2,110,533	27,247,559	45,060,209	64,710,220	87,906,394	111,832,104	141,292,576	169,556,550	199,493,089	270,655,492
Dividend	-	-	8,519,081	15,693,997	25,250,092	37,176,844	51,690,421	69,008,696	86,537,074	105,200,756	126,172,909
Cash carried forward	500,000	2,110,533	18,728,478	29,366,211	39,460,128	50,729,550	60,141,683	72,283,880	83,019,476	94,292,334	144,482,583

**14. KEY ASSUMPTIONS****13.1 Cost of goods sold per unit of production**

Description	Details
Cost of goods sold	Rs.1100 per 1000units packet
Growth rate per annum	5%

**13.2 Production related Assumptions**

Description	Details
Production capacity per year	180,000
Sale price per unit in year 1	1430
Sales growth rate per annum	10%
Production capacity utilization in first year	65%
Production capacity utilization growth rate	5%
Maximum production capacity utilization	95%

**13.3 Cash flow assumption**

Description	Details
Accounts receivable cycle (In days)	30
Accounts payable cycle (In days)	30

**13.4 FINANCIAL ASSUMPTIONS**

Description	Details
Wage growth rate	10%
CGS price growth rate	5%
Inflation rate	10%
Interest rate on long term debt	16%
Project debt ratio	50%
Project equity ratio	50%
Debt payments per year	1

# Small and Medium Enterprises Development Authority

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