



**Pre-feasibility Study**

# **ALOE VERA PROCESSING UNIT**

**November 2023**

*“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

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# 1 DISCLAIMER

The objective of 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 have been taken to compile this document, the contained information may vary due to any change in any of the concerned factors as the future is uncertain, 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 to be obtained by the user. 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 making any decision to act upon the information.

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## 2 EXECUTIVE SUMMARY

Aloe Vera is a cactus-like plant that grows in hot and dry climates. Aloe Vera has numerous benefits and is widely used in food products, cosmetics, medicines, and herbal remedies for different reasons. Aloe Vera has antioxidant and antibacterial properties that treat digestive disorders, boost the immune system, soothes and cools the skin, cleans open wounds and treats acne, sunburns and skin nourishment, etc.

This particular pre-feasibility study provides basic information for setting up an Aloe Vera Processing Unit that will mainly produce Aloe Vera Gel and Powder from own cultivated Aloe Vera plants. For this purpose, 30 acres of agriculture land will be acquired on lease basis in the areas with hot and dry climate. Whereas, processing unit, equipped with fully automated machinery will be installed nearby to the Aloe Vera fields. The major target customers will be the Pharmaceutical Companies, Food Product Manufacturers, Cosmetic and Toiletry Industries.

The proposed unit will have a maximum capacity to process 540,000 kgs of Aloe Vera leaves per annum, producing 283,500 liters of Aloe Gel and 14,175 kg of Aloe Powder. The produced gel will be packed in different size bottles while powder is packed in the form of packs / pouches. Complete adherence to best agronomic practices and efficient supply chain management is critical to the success of this project. Therefore, the technical knowledge and experience of the entrepreneur is necessary.

The total estimated cost for setting up the proposed Aloe Vera processing unit is Rs. 190.40 million with a fixed investment of Rs. 178.03 million and working capital Rs. 12.37 million. The project NPV is around Rs. 6.35 million, with an IRR of 21% and a Payback Period of 4.59 years. The project will provide employment opportunities to 41 people including the owner. Moreover, part time laborers will also be engaged for plucking of leaves from the farm. The legal status of the business is proposed to be 'Sole Proprietorship'.

## 3 INTRODUCTION TO SMEDA

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

With a mission "to assist in employment generation and value addition to the national income, through the 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 have 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 the 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, production, marketing, finance, and business management.

The purpose of this document is to facilitate potential investors in the **Aloe Vera Processing** business, 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 the basis of an informed Investment Decision.

## 5 BRIEF DESCRIPTION OF PROJECT AND PRODUCT

Aloe Vera is a succulent plant that stores water in its leaves in the form of a gel. Due to multiple uses and health benefits of Aloe Vera, it is grown commercially across the world. In the food industry, Aloe Vera has been utilized for the preparation of healthy food, including drinks, beverages and tea. In the pharmaceutical industry, it is used in the manufacturing of topical ointments, gel preparations, tablets, medicinal creams and capsules. Aloe Vera gel and powder also finds its application in the cosmetic and toiletry industries, where it is used as a base for the preparation of creams, lotions, soaps, shampoos, and facial cleansers.

The proposed business is about planting 5,000 Aloe Vera plants on 30 acres of leased agriculture land and processing it further to produce Aloe Vera Gel and Powder. Processing unit will be located in the vicinity of Aloe Vera field for quick transportation of leaves.

On an average, three leaves per plant can be obtained. There will be two crops in a year. Each leaf will have about 600 grams of weight out of which 420 ml of Aloe Vera gel can be extracted. The further processing, mainly drying of gel, leads to transformation of aloe powder. It is assumed that 75% of the extracted raw gel from the plants will be sold in the form of Aloe Vera Gel whereas remaining 25% will be used to produce the Aloe Vera Powder. Entire processing will be fully automated. Machinery will be imported and includes washing, pulp extraction (both squeezing and filleting technology), homogenizing, filtration, pasteurization (flash heating and chilling) drying, and storage components.

The produced gel will be packed in different sized bottles, while powder will be packed in paper bag packs. The unit will also comprise of the in-house packaging facility. The unit will mainly target the industrial buyers (i.e. pharmaceuticals, cosmetic manufacturers, food sector and toiletry industry) through direct order manufacturing basis while general consumers will be targeted through wholesalers and retailers. The legal business status of this project is assumed to be 'Sole Proprietorship'.

## 5.1 Product Mix

The product mix would include Aloe Vera Gel and Powder packed in the form of bottles / packets of different sizes. The detailed product mix is given in the following tables.

**Table 1: Product Mix**

Product Mix	Production Percentage
Aloe Vera Gel	75%
Aloe Vera Powder	25%

**Table 2: Aloe Vera Gel**

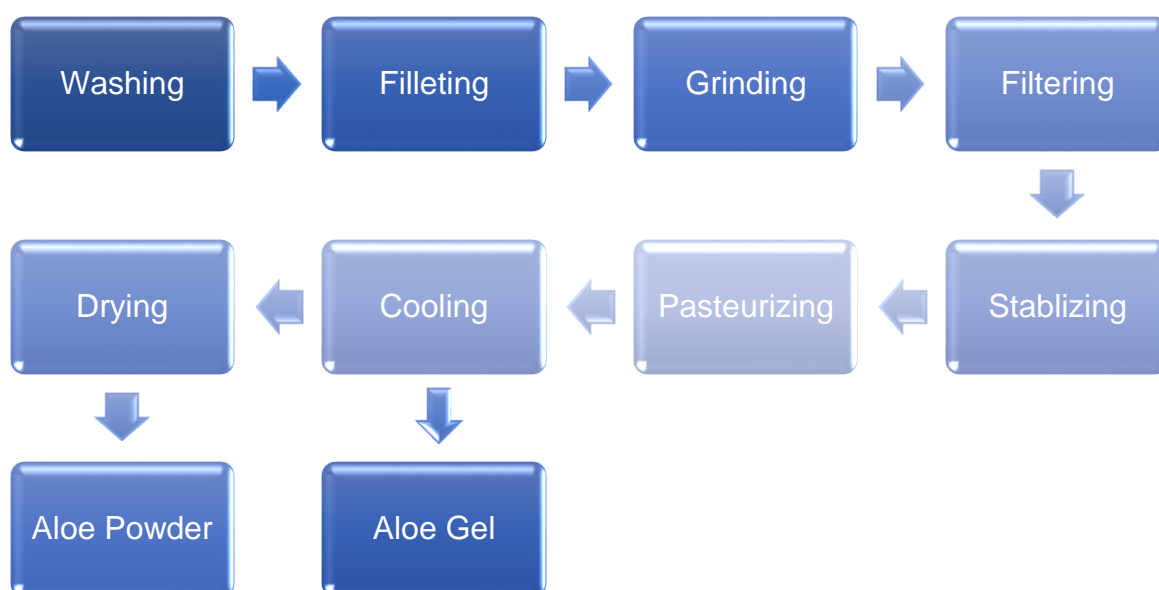
Size of Bottles	Production Percentage
250 ml	61.0%
500 ml	30.4%
1000 ml	7.6%
125 Liters	1.0%

<b>Total</b>	<b>100%</b>
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**Table 3: Aloe Vera Powder**

<b>Size of Packets</b>	<b>Production Percentage</b>
250 gm	64%
500 gm	24%
1000 gm	12%
<b>Total</b>	<b>100%</b>

## 5.2 Production Process Flow



### Washing:

Once the leaves arrive, they are washed. The purpose of this step is to remove dirt and other material from the surface of the leaves.

### Filleting:

The leaves go to the fillet machine that separates the rind from the inner gel fillet of the leaf.

### Grinding:

During crushing or grinding the Aloe Vera gel fillets are crushed and homogenized using a commercial high-speed crusher. The longer the crushing/grinding time, the

higher the browning index in Aloe vera gel. Therefore, crushing or grinding should be shortened within 10-20 min to avoid the enzymatic browning reaction

#### Filtering:

The filters are used to remove the insoluble fiber resulting from crushing the inner gel fillet.

#### Stabilizing:

Pure Aloe Vera gel is then subjected to a particular scientific process called the stabilization that extends the duration of the gel's freshness, effectiveness and protects all its valuable nutrients from oxidation.

Stabilizing agents are natural antioxidant ingredients (e.g. sodium benzoate, citric acid) that are added in a small percentage to the gel and are important for the process.

#### Pasteurizing:

The gel is then sterilized by heat treatment. The best method of pasteurization is HTST (High-Temperature Short Time), which expose the gel to elevated temperatures for periods of 1 to 3 min.

#### Cooling:

After pasteurization, the juice is flash cooled to 5°C or below within 10-15 sec. This is a crucial step to preserve biological activity of the Aloe Vera gel.

#### Drying:

The gel obtained using the pasteurization and flash cooling methods is concentrated under a vacuum. The gel is then dried to obtain Aloe Vera powder.

### 5.3 Installed and Operational Capacities

Installed and operational capacity of the proposed business venture is comprised of two key components i.e., cultivation of Aloe Vera plants and processing of Aloe Vera leaves for producing gel and powder.

Detailed calculation of installed/operational capacity in terms of cultivated Aloe Vera Plants is provided in the table below.

**Table 4: Installed/ Operational Capacity (100%) – Aloe Vera Plants**

Land in Acres (a)	Plants per Acre (b)	No. of Crops per Year (c)	No of Plants per Year (d = a*b*c)	No. of Leaves per Plant (e)	Leaves to be Processed per Year (f = d*e)	Weight per Leaf (g)	Weight of Total Leaves (h = f*g)
30	5,000	2	300,000	3	900,000	0.6 kg	540,000 kg



The proposed unit will have a processing capacity of 540,000 Kgs leaves per annum, from which 378,000 liters (70%) of Aloe Vera gel will be extracted. Out of the extracted gel, 283,500 liters (75%) will be sold without further processing and the remaining 94,500 (25%) liters of gel will be processed to produce 14,175 kg of Aloe Vera powder. Capacity utilization is assumed at 100%.

Detailed calculation of installed/operational capacity in terms of Aloe Vera gel and powder is provided in the tables below.

**Table 5: Installed / Operational Capacity (100%) – Aloe Vera Gel**

Product Mix	Capacity( No. of Bottles)
250 ml Bottles	113,400
500 ml Bottles	56,700
1000 ml Bottles	14,175
125 liters Bottles	1,701
<b>Total</b>	<b>185,976</b>

**Table 6: Installed/ Operational Capacity (100%) – Aloe Vera Powder**

Product Mix	Capacity (No. of Packets)
250 gm Packets	22,680
500 gm Packets	8,505
1000 gm Packets	4,253
<b>Total</b>	<b>35,438</b>

## 6 CRITICAL SUCCESS FACTORS

Following are critical success factors associated with this business:

- It is imperative to keep the leaves cool. Subsequently, to avoid the self-induced degradation of gel the processing of plants should initiated quickly therefore close proximity of processing plant to aloe vera field is extremely crucial.
- Complete adherence to best agronomic practices and efficient supply chain management is critical to the success of this project. Therefore, the technical knowledge and experience of the entrepreneur is necessary.
- Appropriate post-harvest arrangement for transportation of product to the processing unit.

- Properly designed irrigation systems and adaptation of modern cultivation practices.
- Appropriate storage arrangement and internal control for processed Aloe-Vera Gel and Powder.
- Selection of appropriate location with availability of required infrastructural support and easy access to markets.
- Development of strong linkages with industrial buyers and wholesalers for continued orders.
- Induction of trained human resources for the handling of business operations especially in production and sales.
- Stringent supervision of the production process at every level.

## **7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT**

Aloe Vera plants are cultivated in hot and dry climatic conduction. Therefore, the proposed unit is recommended to be located nearby to major cities with hot and dry weather and availability of required infrastructure, skilled human resources and easy access to market. As per current agriculture practices and weather conditions, peri urban areas near to Lahore, Faisalabad, Multan, Sahiwal, Bahawalpur, Rahim Yar Khan, Khairpur and Hyderabad etc., could be the ideal location for the proposed venture. It is ensured that processing plant should be closely located to Aloe Vera fields to avoid the degradation of aloe leaves as well as minimize the transpiration costs.

## **8 POTENTIAL TARGET CUSTOMERS / MARKETS**

The proposed unit will produce Aloe Gel and Aloe Powder to cater to the needs of the domestic market of Pakistan. Predominantly, these products are targeted to Business / Industrial Buyers (i.e. Pharmaceutical Industry, Food Sector, Cosmetics, and Toiletries Industry). However, small segment of general consumers will also use these products for different purposes, especially for herbal remedies and for personal cares. The industrial buyers will be directly targeted through order manufacturing basis while general consumers will be target through wholesalers / retailers.

Majority of the target customers are based in major urban cities across Pakistan. Therefore, easy accessibility to the industry as well as markets of major cities is extremely important for continued order.

## 9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Aloe Vera Processing unit. Various cost and revenue-related assumptions along with the results of the analysis are outlined in this section.

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

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs. 173.66 million in year one. The capacity utilization is assumed to be 100%.

In order to financially appraise the project, a 100% Equity-Based Business Model has been assumed. The following table shows the Internal Rate of Return, Payback Period, and Net Present Value of the proposed venture:

**Table 7: Project Economics (Equity Financed)**

Description	Details
Internal Rate of Return (IRR)	21%
Payback Period (Yrs.)	4.5
Net Present Value (Rs.)	69,970,042

Calculation of break-even analysis is as follows:

**Table 8: Breakeven (100% Equity Based)**

Break-Even Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Break-Even Revenue	88,204,735	89,617,831	92,351,646	95,813,337	100,125,689	100,341,069	106,756,359	114,781,571	124,999,101	138,405,300
Break-Even Units	230,329	219,134	213,036	208,511	205,562	194,344	195,065	197,857	203,274	212,335
Margin of Safety	49%	52%	54%	55%	55%	58%	58%	57%	56%	54%

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

**Table 9: Project Economics Based on Debt (50%):Equity (50%)**

Description	Details
Internal Rate of Return (IRR)	22%
Payback Period (Yrs.)	4.25

The financial assumptions for Debt: Equity is as follows:

**Table 10: Financial Assumptions for Debt: Equity Model**

Description	Details
Debt	50%
Equity	50%
Interest Rate on Debt	26%
Debt Tenure	5
Debt Payment / Year	2

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

## 9.2 Project Cost

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

**Table 11: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Land	13,500,000
Building / Infrastructure	42,330,250
Machinery and Equipment	101,513,572
Pre-Operating Costs	12,889,500
Office Vehicles	4,112,745
Office Equipment	2,854,000
Furniture and Fixtures	830,500
<b>Total Capital Cost</b>	<b>178,030,567</b>
<b>Working Capital</b>	

Cash	7,584,908
Upfront Insurance Payment	3,696,921
Upfront Land Rental	937,500
Equipment Spare Part Inventory	99,225
Raw Material Inventory	50,625
<b>Total Working Capital</b>	<b>12,369,179</b>
<b>Total Project Cost</b>	<b>190,399,746</b>

### 9.3 Land and Building Requirement

It is recommended to purchase 3 kanal land for the construction of factory building while 30 acres of agriculture land will be acquired on rental for the cultivation of Aloe Vera plants.

**Table 12: Land Requirement**

Description	Land Area	Unit Rate (Rs.)	Total Cost (Rs.)
Land for Factory Building (Purchased)	3 Kanals	4,500,000	13,500,000
Land for Aloe Vera Plant Cultivation (Leased – Annually)	30 Acres	125,000	3,750,000

The infrastructural requirements of the project mainly comprise the construction of a production hall, warehouses for storage of raw materials and finished goods, admin block for offices of production and administration staff.

The cost of construction of building for the proposed unit is provided in the table below.

**Table 13: Building Requirement**

Description	Area (Sq. ft.)	Unit Cost (Rs.)	Total Cost (Rs.)
Plant Area	7,500	3,500	26,250,000
Store / Raw Material, Finished Goods, Stores & Spares Warehouse	2,450	2,500	6,125,000
Management Office	750	5,000	3,750,000
Mosque	250	5,000	1,250,000
Room for Labour and Water Drain System			500,000

Laboratory	250	3,500	875,000
Loading/Unloading Bay	1,000	300	300,000
Room for Labour	100	3,000	300,000
Kitchen	100	3,000	300,000
Electric Room	100	2,500	250,000
Garage-Open Plot Area	1,000		
Boundary Wall and Main Gate	470 Running Ft.	3,000	1,410,000
Design Cost			1,020,250
<b>Total</b>			<b>42,330,250</b>

#### 9.4 Machinery and Equipment Requirement

Machinery and equipment for the proposed project are stated below.

**Table 14: Machinery and Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Machinery*			65,032,155
Custom Duty, Sales Tax, Clearance Charges			27,578,140
Generator (Perkins 150 KVA)	1	3,568,500	3,568,500
Installation Cost (Fabrication Cost)	1	2,500,000	2,500,000
Transformer (200 KVA)	1	2,000,000	2,000,000
Experts Cost	1	630,777	630,777
Stacker	3	68,000	204,000
<b>Total</b>			<b>101,513,572</b>

#### 9.5 Furniture and Fixtures Requirement

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

**Table 15: Furniture and Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Sitting Chair	18	10,600	190,800
Table	5	30,000	150,000
Fans	23	7,500	172,500
Wires and DB's	1	100,000	100,000
Guest Chair	6	5,800	34,800
Lights	35	754	26,400
Sofa	1	45,000	45,000
Exhaust Fan	14	6,500	91,000
Sofa Table	1	20,000	20,000
<b>Total</b>			<b>830,500</b>

## 9.6 Office Equipment Requirement

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

**Table 16: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Lab Equipment	1	400,000	400,000
Laptop	6	125,000	750,000
AC	3	185,000	555,000
Desktop Computer	9	65,000	585,000
UPS	1	95,000	95,000
Water Cooler	2	75,000	150,000
Fridge	1	125,000	125,000
LED	1	60,000	60,000
Telephone Set	17	2,000	34,000
Printer	2	50,000	100,000
<b>Total</b>			<b>2,854,000</b>

## 9.7 Vehicles Requirement

Vehicles are required for the transportation of raw material and finished goods. One Porter is recommended to ensure smooth movement of raw material from fields to the factory. Details of the vehicle required for the project are given below.

**Table 17: Vehicles Requirement**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Porter	1	3,839,000	3,839,000
Motorcycle (Used)	1	77,900	77,900
Registration / Transfer Charges			195,845
<b>Total</b>			<b>4,112,745</b>

## 9.8 Plantation Cost

The seed cost will be Rs. 60 per plant for year 1 and will be reduced by 50% from year 2 onwards. Below are the details of the material or input required for planting Aloe Vera.

**Table 18: Plantation Cost**

Description	Details
Irrigation Expense	Rs. 2.50 per Kg
Fertilizers	Rs. 2.00 per Kg
Spray	Rs. 1.00 per Kg
Seed Cost- Year 1	Rs. 60 (one seed per plant)
Seed Cost- Year 2 onwards	50% of year 1 price

## 9.9 Packing Material Requirement

Aloe Vera gel will be packed in bottles while Aloe Vera powder will be packed in plastic packets of different sizes. Packing cost per bottle/packet is provided in the table below.

**Table 19: Cost of Packing Material (Year 1)**

Bottle Size	Cost of Bottle (Rs.)	Packet Size	Cost of Packet (Rs.)
250 ml	10	250 gm	1.50



500 ml	12	500 gm	2.50
1000 ml	28	1000 gm	3.00
125 Liters	470		

### 9.10 Human Resource Requirement

In order to run the operations of Aloe Vera Processing unit smoothly, details of human resources required along with a number of employees and monthly salary are recommended as under.

**Table 20: Human Resource**

Description	No. of Employees	Monthly Salary Per Person (Rs.)
CEO	1	200,000
Production Manager	2	120,000
Quality In-charge	2	65,000
Technical Supervisor	2	45,000
Accounts Officer	1	65,000
Plant Operator	2	45,000
Admin Officer	1	55,000
Driver	1	35,000
Aloe Vera Farm Staff	3	25,000
Store Assistant	2	30,000
Office Boy	2	25,000
Factory Workers	20	30,000
Security Guard / Gate Keeper	2	30,000
	<b>41</b>	

Moreover, 60 laborers will be hired for plucking of leaves and each will be paid Rs. 1,200 / day.

### 9.11 Utilities and Other Costs

An essential cost to be borne by the project is the total electricity expense, which is calculated as direct electricity consumption in production and indirect electricity consumption other than production. Total electricity cost is estimated to be Rs. 41.95 million in year 1 with a 10% increase in subsequent years. Other expenses such as communication, office expenses, and traveling are calculated as a percent of total

admin expenses. Furthermore, promotional expense being essential for marketing the Aloe Vera products is estimated at Rs. 8.68 million.

### 9.12 Revenue Generation

Based on the assumed capacity utilization for the Aloe Vera Processing unit, sales revenue during the first year of operations is estimated as under:

**Table 21: Revenue Generation (Year 1)**

Description	Quantity Sold	Rate Per Unit (Rs.)	Total Revenue (Rs.)
<b>Aloe Vera Gel</b>			
250 ml. Bottles	111,038	112.5	12,491,775
500 ml. Bottles	55,519	225	12,491,775
1,000 ml Bottles	13,880	450	6,246,000
125 Liters Bottles	1,666	56,250	93,712,500
<b>Sub Total</b>	<b>182,103</b>		<b>124,942,050</b>
<b>Aloe Vera Powder</b>			
250 gm. Packets	22,208	875	19,432,000
500 gm. Packets	8,328	1,750	14,574,000
1,000 gm Packets	4,164	3,500	14,574,000
<b>Sub Total</b>	<b>34,700</b>		<b>48,580,000</b>
Aloe Vera Leaf Waste (Per Kg)	162,000	1	162,000
<b>Total Revenue*</b>			<b>173,684,050</b>

\* Difference is due to rounding off.

## 10 CONTACT DETAILS

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

Name Of Supplier	Type of Supplies	Website/ E-mail: Address	Phone
Nimo, Shanghai Shangwang Machinery Manufacturing Co., Ltd. Nanxingfu Road No.3, Fengxian District, Shanghai, China	Machinery	<a href="mailto:nimoyu@cncshangwang.com">nimoyu@cncshangwang.com</a>	+86 15700091445

## 11 USEFUL WEB LINKS

Small and Medium Enterprises Development Authority (SMEDA)	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
Government of Pakistan	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
Ministry of Industries and Production	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
Ministry of Education, Training, and Standards in Higher Education	<a href="http://moptt.gov.pk">http://moptt.gov.pk</a>
Government of Punjab	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
Government of Sindh	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
Government of Khyber Pakhtunkhwa	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
Government of Balochistan	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
Government of Gilgit Baltistan	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>
Government of Azad Jammu Kashmir	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Security and Exchange Commission of Pakistan (SECP)	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
State Bank of Pakistan (SBP)	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
Punjab Vocational Training Council (PVTC)	<a href="http://www.pvtc.gov.pk">www.pvtc.gov.pk</a>
Technical Education and Vocational Training Authority (TEVTA)	<a href="http://www.tevta.org">www.tevta.org</a>
Ministry of National Food Security and Research (MNFSR)	<a href="http://www.mnsfr.gov.pk">www.mnsfr.gov.pk</a>
Pakistan Agriculture Research Council (PARC)	<a href="http://www.parc.gov.pk">www.parc.gov.pk</a>
National Agriculture Research Council (NARC)	<a href="http://www.narc.gov.pk">www.narc.gov.pk</a>
Agriculture University of Faisalabad (UAF)	<a href="http://www.uaf.edu.pk">www.uaf.edu.pk</a>
Agriculture Department Government of Punjab	<a href="http://www.agripunjab.gov.pk">www.agripunjab.gov.pk</a>
Agriculture Department -Government of KPK	<a href="http://www.agriculture.kp.gov.pk">www.agriculture.kp.gov.pk</a>

Ayub Agricultural Research Institute	<a href="http://www.aari.punjab.gov.pk">www.aari.punjab.gov.pk</a>
University of Agriculture Faisalabad	<a href="http://www.uaf.edu.pk">www.uaf.edu.pk</a>
The University of Agriculture, Peshawar	<a href="http://www.aup.edu.pk">www.aup.edu.pk</a>
Sindh Agriculture University, Tandojam	<a href="http://www.sau.edu.pk">www.sau.edu.pk</a>
Baluchistan Agriculture College, Quetta.	<a href="http://www.bac.edu.pk">www.bac.edu.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	173,658,094	187,990,470	199,269,898	211,226,092	223,899,658	237,333,637	251,573,655	266,668,075	282,668,159	299,628,249
<i>Cost of sales</i>										
Irrigation Expense	1,350,000	1,417,500	1,488,375	1,562,794	1,640,933	1,722,980	1,809,129	1,899,586	1,994,565	2,094,293
Fertilizers	1,080,000	1,134,000	1,190,700	1,250,235	1,312,747	1,378,384	1,447,303	1,519,668	1,595,652	1,675,434
Spray	540,000	567,000	595,350	625,118	656,373	689,192	723,652	759,834	797,826	837,717
Seed Cost	4,500,000	4,725,000	4,961,250	5,209,313	5,469,778	5,743,267	6,030,430	6,331,952	6,648,549	6,980,977
Transportation Cost	2,700,000	2,835,000	2,976,750	3,125,588	3,281,867	3,445,960	3,618,258	3,799,171	3,989,130	4,188,586
Operation costs 1 (direct labor)	14,217,500	15,972,000	17,569,200	19,326,120	21,258,732	23,384,605	25,723,066	28,295,372	31,124,910	34,237,400
Daily Wagers for Agri Land (direct labor)	7,200,000	7,920,000	8,712,000	9,583,200	10,541,520	11,595,672	12,755,239	14,030,763	15,433,839	16,977,223
Diesel for Boiler	2,635,200	2,898,720	3,188,592	3,507,451	3,858,196	4,244,016	4,668,418	5,135,259	5,648,785	6,213,664
Operating costs 2 (machinery maintenance)	2,381,400	2,500,470	2,625,494	2,756,768	2,894,607	3,039,337	3,191,304	3,350,869	3,518,412	3,694,333
Operating costs 3 (direct electricity)	41,945,520	46,140,072	50,754,079	55,829,487	61,412,436	67,553,679	74,309,047	81,739,952	89,913,947	98,905,342
Operating costs 4 (direct water)	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594	1,954,674
Operating costs 5 (Enzymes-Sodium benzoate )	540,000	567,000	595,350	625,118	656,373	689,192	723,652	759,834	797,826	837,717
Packing Cost	3,014,668	3,272,724	3,436,360	3,608,178	3,788,587	3,978,016	4,176,917	4,385,763	4,605,051	4,835,304
Agri Land Rent for Aloevera Cultivation	3,750,000	3,937,500	4,134,375	4,341,094	4,558,148	4,786,056	5,025,359	5,276,627	5,540,458	5,817,481
Total cost of sales	87,114,288	95,209,986	103,617,025	112,809,070	122,861,836	133,858,472	145,890,294	159,057,598	173,470,545	189,250,146
Gross Profit	86,543,806	92,780,484	95,652,873	98,417,022	101,037,822	103,475,165	105,683,361	107,610,477	109,197,614	110,378,103
<i>General administration &amp; selling expenses</i>										
Administration expense	6,480,000	7,128,000	7,840,800	8,624,880	9,487,368	10,436,105	11,479,715	12,627,687	13,890,455	15,279,501
Administration benefits expense	648,000	712,800	784,080	862,488	948,737	1,043,610	1,147,972	1,262,769	1,389,046	1,527,950
Electricity expense	1,636,180	1,799,798	1,979,778	2,177,756	2,395,531	2,635,084	2,898,593	3,188,452	3,507,297	3,858,027
Water expense	120,000	126,000	138,915	160,811	195,467	249,471	334,316	470,415	695,018	1,078,201
Gas expense	300,000	315,000	347,288	402,029	488,668	623,678	835,789	1,176,039	1,737,545	2,695,502
Travelling expense	648,000	712,800	784,080	862,488	948,737	1,043,610	1,147,972	1,262,769	1,389,046	1,527,950
Communications expense (phone, fax, mail, internet, etc.)	648,000	712,800	784,080	862,488	948,737	1,043,610	1,147,972	1,262,769	1,389,046	1,527,950
Office vehicles running expense	1,028,186	1,131,005	1,244,105	1,368,516	1,505,367	1,655,904	1,821,495	2,003,644	2,204,009	2,424,409
Office expenses (stationary, entertainment, janitorial services, etc)	648,000	712,800	784,080	862,488	948,737	1,043,610	1,147,972	1,262,769	1,389,046	1,527,950
Promotional expense	8,682,905	8,248,759	7,836,321	7,444,505	7,072,280	6,718,666	6,382,733	6,063,596	5,760,416	5,472,396
Insurance expense	3,696,921	3,327,229	2,957,537	2,587,845	2,218,153	1,848,461	1,478,768	1,109,076	739,384	369,692
Professional fees (legal, audit, consultants, etc.)	1,736,581	1,879,905	1,992,699	2,112,261	2,238,997	2,373,336	2,515,737	2,666,681	2,826,682	2,996,282
Depreciation expense	13,332,994	13,332,994	13,332,994	13,332,994	13,332,994	13,490,696	13,490,696	13,490,696	13,490,696	13,490,696
Amortization of pre-operating costs	2,577,900	2,577,900	2,577,900	2,577,900	2,577,900	-	-	-	-	-
Bad debt expense	5,209,743	4,949,256	4,454,330	4,008,897	3,608,007	3,247,207	2,922,486	2,630,237	2,367,214	2,130,492
Subtotal	47,393,410	47,667,046	47,838,987	48,248,346	48,915,681	47,453,050	48,752,213	50,477,598	52,774,898	55,906,999
Operating Income	39,150,396	45,113,438	47,813,886	50,168,676	52,122,141	56,022,115	56,931,148	57,132,879	56,422,717	54,471,103
Other income (interest on cash)	366,742	986,688	1,835,343	2,623,745	3,326,368	3,965,146	4,576,701	5,136,237	5,641,997	6,124,380
Gain / (loss) on sale of office equipment	-	-	-	-	1,141,600	-	-	-	-	-
Earnings Before Interest & Taxes	39,517,137	46,100,127	49,649,229	52,792,421	56,590,109	59,987,260	61,507,850	62,269,116	62,064,713	60,595,483
Earnings Before Tax	39,517,137	46,100,127	49,649,229	52,792,421	56,590,109	59,987,260	61,507,850	62,269,116	62,064,713	60,595,483
Tax	13,195,997	15,500,044	16,742,230	17,842,347	19,171,538	20,360,540	20,892,747	21,159,190	21,087,649	20,573,418
NET PROFIT/(LOSS) AFTER TAX	26,321,140	30,600,083	32,907,000	34,950,075	37,418,572	39,626,720	40,615,103	41,109,926	40,977,064	40,022,065

## 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	7,584,908	21,754,417	57,180,662	89,646,813	120,252,791	145,856,663	171,355,002	194,781,088	216,117,890	235,241,834	254,708,531
Accounts receivable		21,409,902	22,293,405	23,872,214	25,304,547	26,822,820	28,432,189	30,138,121	31,946,408	33,863,192	35,894,984
Finished goods inventory		1,853,495	1,983,541	2,158,688	2,350,189	2,559,622	2,788,718	3,039,381	3,313,700	3,613,970	3,942,711
Equipment spare part inventory	99,225	109,396	120,609	132,971	146,601	161,627	178,194	196,459	216,596	238,797	-
Raw material inventory	50,625	55,814	61,535	67,842	74,796	82,463	90,915	100,234	110,508	121,835	-
Pre-paid building rent	937,500	1,031,250	1,134,375	1,247,813	1,372,594	1,509,853	1,660,838	1,826,922	2,009,615	2,210,576	-
Pre-paid insurance	3,696,921	3,327,229	2,957,537	2,587,845	2,218,153	1,848,461	1,478,768	1,109,076	739,384	369,692	-
Total Current Assets	12,369,179	49,541,503	85,731,664	119,714,186	151,719,671	178,841,508	205,984,626	231,191,281	254,454,100	275,659,896	294,546,226
<i>Fixed assets</i>											
Land	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000
Building/Infrastructure	42,330,250	40,213,738	38,097,225	35,980,713	33,864,200	31,747,688	29,631,175	27,514,663	25,398,150	23,281,638	21,165,125
Machinery & equipment	101,513,572	91,362,215	81,210,858	71,059,500	60,908,143	50,756,786	40,605,429	30,454,072	20,302,714	10,151,357	-
Furniture & fixtures	830,500	747,450	664,400	581,350	498,300	415,250	332,200	249,150	166,100	83,050	-
Office vehicles	4,112,745	3,701,471	3,290,196	2,878,922	2,467,647	2,056,373	1,645,098	1,233,824	822,549	411,275	-
Office equipment	2,854,000	2,283,200	1,712,400	1,141,600	570,800	3,642,508	2,914,006	2,185,505	1,457,003	728,502	-
WAPDA Security Deposit											
Total Fixed Assets	165,141,067	151,808,073	138,475,079	125,142,084	111,809,090	102,118,604	88,627,908	75,137,212	61,646,516	48,155,821	34,665,125
<i>Intangible assets</i>											
Pre-operation costs	12,889,500	10,311,600	7,733,700	5,155,800	2,577,900	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	12,889,500	10,311,600	7,733,700	5,155,800	2,577,900	-	-	-	-	-	-
<b>TOTAL ASSETS</b>	<b>190,399,746</b>	<b>211,661,176</b>	<b>231,940,442</b>	<b>250,012,071</b>	<b>266,106,661</b>	<b>280,960,111</b>	<b>294,612,534</b>	<b>306,328,493</b>	<b>316,100,617</b>	<b>323,815,716</b>	<b>329,211,351</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		204,518	215,101	226,249	237,994	250,372	263,417	277,168	291,667	306,956	306,742
Total Current Liabilities	-	204,518	215,101	226,249	237,994	250,372	263,417	277,168	291,667	306,956	306,742
<i>Other liabilities</i>											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746	190,399,746
Retained earnings		21,056,912	41,325,596	59,386,077	75,468,921	90,309,994	103,949,371	115,651,579	125,409,204	133,109,015	138,504,864
Total Equity	190,399,746	211,456,658	231,725,342	249,785,822	265,868,667	280,709,740	294,349,117	306,051,325	315,808,950	323,508,761	328,904,609
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>190,399,746</b>	<b>211,661,176</b>	<b>231,940,442</b>	<b>250,012,071</b>	<b>266,106,661</b>	<b>280,960,111</b>	<b>294,612,534</b>	<b>306,328,493</b>	<b>316,100,617</b>	<b>323,815,716</b>	<b>329,211,351</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		26,321,140	30,600,083	32,907,000	34,950,075	37,418,572	39,626,720	40,615,103	41,109,926	40,977,064	40,022,065
Add: depreciation expense		13,332,994	13,332,994	13,332,994	13,332,994	13,332,994	13,490,696	13,490,696	13,490,696	13,490,696	13,490,696
amortization of pre-operating costs		2,577,900	2,577,900	2,577,900	2,577,900	2,577,900	-	-	-	-	-
Accounts receivable		(21,409,902)	(883,503)	(1,578,810)	(1,432,333)	(1,518,273)	(1,609,369)	(1,705,931)	(1,808,287)	(1,916,784)	(2,031,792)
Finished goods inventory		(1,853,495)	(130,046)	(175,147)	(191,501)	(209,433)	(229,097)	(250,663)	(274,319)	(300,270)	(328,742)
Equipment inventory	(99,225)	(10,171)	(11,213)	(12,362)	(13,630)	(15,027)	(16,567)	(18,265)	(20,137)	(22,201)	238,797
Raw material inventory	(50,625)	(5,189)	(5,721)	(6,307)	(6,954)	(7,667)	(8,452)	(9,319)	(10,274)	(11,327)	121,835
Pre-paid building rent	(937,500)	(93,750)	(103,125)	(113,438)	(124,781)	(137,259)	(150,985)	(166,084)	(182,692)	(200,961)	2,210,576
Advance insurance premium	(3,696,921)	369,692	369,692	369,692	369,692	369,692	369,692	369,692	369,692	369,692	369,692
Accounts payable		204,518	10,582	11,148	11,746	12,377	13,045	13,751	14,499	15,289	(214)
Cash provided by operations	(4,784,271)	19,433,737	45,757,644	47,312,670	49,473,208	51,823,877	51,485,683	52,338,980	52,689,103	52,401,197	54,092,913
<i>Financing activities</i>											
Issuance of shares	190,399,746	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	190,399,746	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(178,030,567)	-	-	-	-	(3,642,508)	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(178,030,567)	-	-	-	-	(3,642,508)	-	-	-	-	-
NET CASH	7,584,908	19,433,737	45,757,644	47,312,670	49,473,208	48,181,370	51,485,683	52,338,980	52,689,103	52,401,197	54,092,913

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Operating Costs Growth Rate	5.0%
Administration Benefits Expense	10.0% of Admin Expense
Traveling Expense	10.0% of Admin Expense
Communication Expense	10.0% of Admin Expense
Office Vehicles Running Expense	25.0% of Vehicles Cost
Office Expenses (Stationary, Entertainment, Janitorial Services, Etc.)	10.0% of Admin Expense
Promotional Expense	5.0% of Revenue
Professional Fees (Legal, Audit, Consultants, etc.)	1.0% of Revenue
Bad Debt Expense	3.0% of Revenue
Office Vehicles Insurance Rate	3.5%
Machinery and Equipment Insurance Rate	3.5%
Depreciation Method	Straight Line
Depreciation on Building and Infrastructure	5%
Depreciation on Machinery, Furniture and Office Vehicle	10%
Depreciation of Office Equipment	20%

### 13.2 Production Cost Assumptions

Description	Details
Cost of Goods Sold Growth Rate	5.0%
Land Rent	Rs. 3,750,000 (125,000 Per Acre)
Daily Wagers for Agri Land (Direct Labor)	Rs. 7,200,000 (Per Acre 2 Person)
Machinery Maintenance	Rs. 8 Per Unit of Production



Irrigation Expense	Rs. 2.50 Per Kg
Fertilizers	Rs. 2.00 Per Kg
Spray	Rs. 1.00 Per Kg
Seed Cost- Year 1	Rs. 60 One Seed Per Plant
Seed Cost- Year 2 Onwards	50% Of Year 1 Price
Transportation Cost	Rs. 3 Per Leaf

### 13.3 Revenue Assumptions

Description	Details
Aloe Vera Gel Price	Rs. 450 Per Litre
Aloe Vera Powder Price	Rs. 3,500 Per Kg
Aloe Vera Leaf Waste Price	Rs. 1.0 Per Kg
Sale Price Growth Rate	6%
Total Machinery Maximum Capacity Utilization	100%
Aloe Vera Gel Production in Percentage of Leaf Weight	70%

# Small and Medium Enterprises Development Authority

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