
Pre-Feasibility Study

ESSENTIAL OIL DISTILLATION UNIT



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1 DISCLAIMER

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2 EXECUTIVE SUMMARY

Essential oil is an aromatic substance extracted from seeds, bark, roots, stem etc. of a specific herbs or plant either through distillation or extraction process. No substance is added in it during or after the process of extracting essential oil to preserve its natural aroma and properties. Essential oils are used as flavors and fragrances for food, soap, detergents, perfumes, lotions and cosmetic products, etc.

Pakistan being blessed with fertile land and suitable climate for the cultivation of different herbs and plants have a great potential to produce high quality raw material i.e. seeds necessary for the extraction of essential oil.

This pre-feasibility study provides the general information for initiating the 'Essential Oil (Basil Oil)' business in Pakistan. The unit will be able to extract 6,210 Kg of oil from 1,553 tons of basil leaves, operating at 100% capacity utilization rate from year 1. The proposed unit will cultivate basil on 50 acre of leased land to grow basil leaves / stems that will be used for extraction of oil.

The total project cost is estimated at Rs. 9.33 million, which includes a capital investment of Rs. 4.30 million and working capital of Rs. 5.03 million. The proposed project is financed through 50% debt and 50% equity. The Project's NPV is around Rs. 3.14 million, with an IRR of 25% and Payback Period of 4.93 years. The legal business status of this project is proposed as 'Sole Proprietorship'.

3 INTRODUCTION TO SMEDA

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

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectorial 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 **Essential Oil (Basil)** business by providing them a general understanding of the business with 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 shall form the basis of any investment decision.

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Essential oil is an aromatic substance obtained from seeds, leaves, bark, wood, plant secretions etc. Essential oils can be produced from variety of herbs through distillation or expression of the herb. The proposed venture is to produce essential oil through distillation process from Basil (*Ocimum Basilicum*) also commonly known as “Tulsi”. Steam Distillation is the most popular method used to extract and isolate essential oils from plants for use in natural products. This happens when the steam vaporizes the plant material’s volatile compounds, which eventually go through a condensation and collection process.

Essential oils are being used in cosmetic products, perfumes, detergents etc. Pakistan being blessed with fertile land and suitable climate has a great potential to produce high quality herbs required for the extraction of essential oil. Basil Seeds will be sown on 50 acre of leased land out of which 1,552,500 Kgs (31,050 Kgs / Acre) of basil leaves / stems will be produced for extraction of oil. The extraction ratio of Basil Oil is 0.40% of Basil Leaves / Stems per kg. The Basil Oil will be sold in local market through wholesale dealers and suppliers of raw material to large industry. Extracted oil will be distributed in different size of packing as per requirement of buyers. The legal business status of this project is proposed as ‘Sole Proprietorship’.

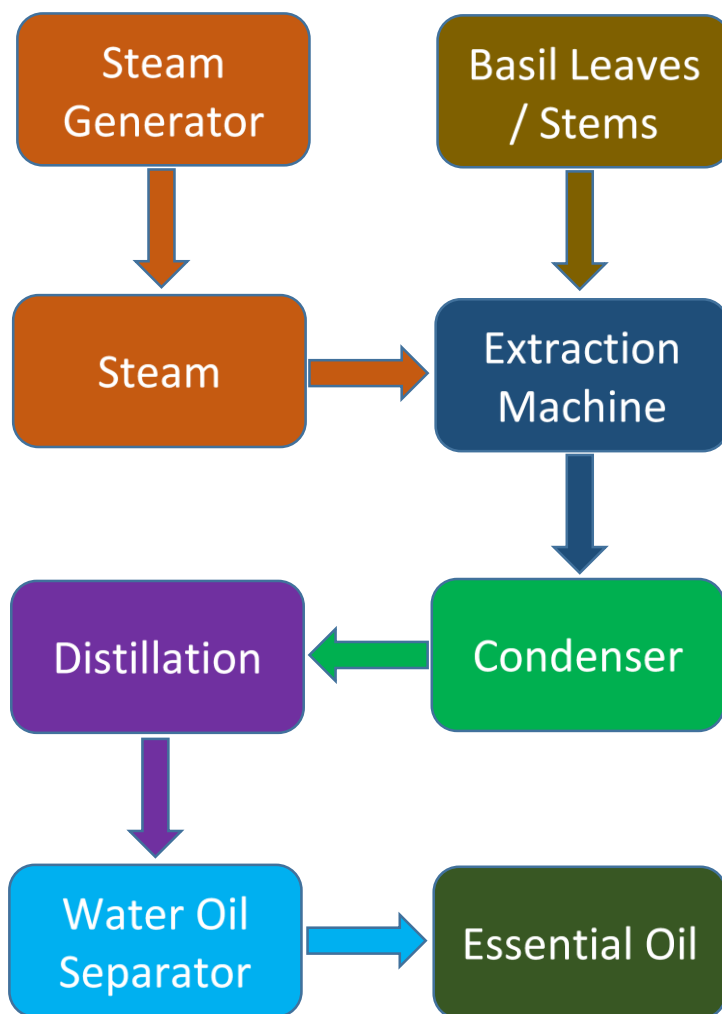
5.1 Production Process Flow

Steam distillation is the most common method of extracting essential oils. Pressurized steam is generated in a separate chamber from which it is passed through (a separate chamber) which contains plant materials. The hot steam causes the walls of cells in the plant that store the essential oil to open and to release the oil. The released essential oil evaporates and is carried by the steam into a condensation chamber (cooling tank) where the steam cools. The steam is condensed into water and the essential oils floats on the surface of the water.

Essential oils are insoluble, thus they float on the surface and are easily separated from the water with the help of oil separator. The remaining water is called floral water or hydrosol which can also be used for various purposes.

The process flow of proposed Essential Oil Distillation Unit includes the following steps:

Figure 1: Production Process Flow



5.2 Installed and Operational Capacities

The proposed venture will be able to produce 6,148 kg of essential oil while operating at 100% capacity utilization rate from 1,553 tons of basil leaves (excluding wastage) with an efficiency to extract 4 kg of essential oil from 1,000 kg of basil seeds (i.e. 0.40% per Kg). Installed and operational capacities of the proposed project are provided in the table below:

Table 1: Installed and Operational Capacities Year 1

Description	Operational Capacity (Kg.)
Basil Oil	6,210

6 CRITICAL FACTORS

Following factors play a critical role in the successful execution of the business operations and impact profitability:

- ⇒ Entrepreneur's background and technical know-how of the business.
- ⇒ Establishment of the farms in areas where basic infrastructure including water and electricity are available.
- ⇒ For best flavor, Basil Oil should be stored in a cool, dark place.
- ⇒ Farming should be done on scientific grounds, taking care of the input requirements and pest management techniques.
- ⇒ Well-trained / experienced staff will add to the efficiency of the farm as well as plant.
- ⇒ Effective marketing and distribution of the product particularly to the wholesale buyers.
- ⇒ The other important aspect is the need for strong linkages with the local and export market.
- ⇒ Ensure the quality of the finished product.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Since the basil plants are easy to grow they can be grown in any area of Pakistan that has the basic necessities needed for cultivation i.e. fertile land, water etc. However, due to the concentration of major buyers of the essential oil in the major economic and industrial hubs i.e. Karachi, Lahore, Faisalabad, Peshawar, Rawalpindi, Quetta, etc. It is recommended that this project is to be established in the surrounding areas of these cities where land is available as well for the cultivation of basil seeds.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Essential oil is used in many medical, cosmetic and culinary products. Large herbal medicine companies, cosmetic and pharmaceutical businesses are major buyers of essential oil. Additionally, due to traditional consumption of essential oil for household use, there is also a significant consumer market all across Pakistan.

9 PROJECT COST SUMMARY

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

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

9.1 Project Economics

All the assumptions in this financial model are based upon a total capacity of 6,148 Kg of basil oil. The unit will operate at its full capacity from the start of its operations. The financial analysis of the proposed project is based on the stated production capacity.

The following table shows Internal Rate of Return, Payback Period and Net Present Value:

Table 2: Project Economics

Description	Detail
IRR	25%
NPV	Rs. 3,138,299
Pay Back (years)	4.93

9.2 Project Financing

Following table provides the details of required equity and variables related to project financing:

Table 3: Project Financing

Description	Detail
Equity	50%
Debt	50%
Interest rate	12%
Debt tenure	5

9.3 Project Cost

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

Table 4: Project Cost

Description	Amount (Rs.)
Capital Investment	
Plant & Machinery	2,849,000
Furniture & fixtures	542,000
Office vehicles	656,500
Office equipment	57,000
Pre-operating costs	145,000
Legal, Licensing, and Training costs	50,000
Total Capital Costs	4,299,500
Working Capital	
Equipment spare part inventory	71,225
Raw material inventory	374,167
Upfront land lease rental	2,500,000
Upfront building rental	1,200,000
Cash	881,358
Total Working Capital	5,026,750
Total Investment	9,326,250

9.4 Space Requirement

To grow the required basil seeds for the extraction of essential oil on 50 acres of land will be taken on lease at Rs. 50,000 per acre per year grossing to Rs. 2.5 million per year. Apart from this land to grow basil seeds 2,300 sq. ft. of land will be required to set up the distillation plant for extraction of essential oil (basil oil) at an estimated rent of Rs. 100,000. The required covered area is estimated on the basis of space requirement of management building, production area, storage area and open area. However, units operating in industry do not follow any specific pattern. Following table shows the calculations for space requirement:

Table 5: Space Requirement

Description	Area Required (sq. ft.)
Management Building	500
Production Area	1,000

Storage Area	300
Parking & Open Area	500
Total Area Required	2,300

9.5 Machinery and Equipment Requirement

Following tables provides the list of office equipment and important tools required for an average size essential oil extraction unit:

Table 6: Machinery and Equipment Requirement

Description	Quantity	Cost per Unit (Rs.)	Amount (Rs.)
Plant & Machinery Set Included: Material loading vessel capacity 250 Kg per 2 hours Cooling Coil and water tank of Condenser Hydrosol & Essential Oil Separator Steam Generator (Gas)	3	700,000	2,100,000
Water Pump	3	18,000	54,000
Pull Chain (For Basil Loading)	3	15,000	45,000
Farm Tools (pruning, cutting, weighing scale, & carriage cart etc...)	1	150,000	150,000
Generator 25 KVA	1	500,000	500,000
Total Machinery and Equipment			2,849,000

9.6 Furniture and Fixture Requirement

Details of required furniture and fixture, for setting-up the office of proposed essential oil unit are provided in the following table:

Table 7: Furniture and Fixture Requirement

Description	Quantity	Cost per Unit (Rs.)	Amount (Rs.)
UPS (1500 Watt)	1	50,000	50,000
Chairs for Plant Workers	4	3,000	12,000
Furniture Set for CEO	1	40,000	40,000
Furniture Set for Accounts Office and Sales Officer	2	25,000	50,000
Water Cooler	1	40,000	40,000
Air conditioners (1.5 ton Split)	1	70,000	70,000

Total Energy Savers, Fans, etc.			30,000
Renovation			250,000
Total Furniture and Fixtures			542,000

9.7 Office Vehicle

A pick-up (used) will be purchased for business operations. Its cost is estimated as Rs. 656,500.

9.8 Office Equipment

Following table depicts the office equipment required to run the operations of essential oil unit:

Table 8: Office Equipment Requirement

Description	Quantity	Cost per Unit (Rs.)	Amount (Rs.)
Laptop (Used/New)	1	40,000	40,000
Computer printer (s)	1	15,000	15,000
Telephone	1	2,000	2,000
Total Office Equipment			57,000

9.9 Raw Material Requirement

Following raw materials will be required for the extraction of essential oil from basil seeds:

- ⇒ Seeds (to grow basil plants)
- ⇒ Fertilizers (NPK, Urea, Potash to be in used in 1:1:1 per Acre)
- ⇒ Packaging Material

9.10 Human Resource Requirement

Following table provides details of human resource required for the project along with monthly salaries:

Table 9: Human Resource Requirement

Description	Number of Employees	Salary per Employee per Month (Rs.)
Marketing Manager	1	35,000
Accounts Officer	1	20,000
Sales Officer	1	25,000

Plant Workers	3	18,000
Plant Helper	3	15,000
Foreman	1	20,000
Semi-Skilled Worker	10	15,000
Total	20	

9.11 Revenue Generation

Following table provides revenue and cost assumptions of the proposed business venture during first year of operations:

Table 10: Revenue Generation in First Year

Description	Quantity Sold (Kg.)	Price per Kg (Rs.)	Total Revenue (Rs.)
Basil Oil	6,210	3,200	19,872,000

9.12 Utilities and Other Costs

An essential cost to be borne by the project is the cost of electricity and gas. The electricity and gas expenses are estimated to be around Rs. 540,000 and Rs. 3.89 million per annum. Furthermore, promotional expense, being essential for marketing of essential oil distillation unit, is estimated as Rs. 397,440 in year 1.

10 CONTACT DETAILS

In order to facilitate potential investors, contact details of private sector service providers relevant to the proposed project are given below:

10.1 Machinery Suppliers

PAMICO technologies, P-124, Street No.2, Shadab Colony, Jhang Road, Faisalabad.

Tel: 041-2551911

Mobile : 0321-6615711

Web : www.pamicotechnologies.com

11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Ministry of Federal Education and Professional Training	http://moent.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Baluchistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
University of Agriculture Faisalabad	www.uaf.edu.pk
Barani Agriculture Research Institute, Chakwal,	www.barichakwal.org
Pakistan Agricultural Research Council (PARC)	www.parc.gov.pk

12 ANNEXURES

12.1 Income Statement

Calculations											SMEDA
Income Statement											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Revenue	19,872,000	21,859,200	24,045,120	26,449,632	29,094,595	32,004,055	35,204,460	38,724,906	42,597,397	46,857,137	
<i>Cost of sales</i>											
Cost of goods Sold	2,245,000	2,357,250	2,475,113	2,598,868	2,728,812	2,865,252	3,008,515	3,158,940	3,316,887	3,482,732	
Packing cost	993,600	1,092,960	1,202,256	1,322,482	1,454,730	1,600,203	1,760,223	1,936,245	2,129,870	2,342,857	
Direct labor	3,228,000	3,550,800	3,905,880	4,296,468	4,726,115	5,198,726	5,718,599	6,290,459	6,919,505	7,611,455	
Machinery maintenance	284,900	313,390	344,729	379,202	417,122	458,834	504,718	555,190	610,708	671,779	
Direct electricity	540,000	594,000	653,400	718,740	790,614	869,675	956,643	1,052,307	1,157,538	1,273,292	
Direct water	360,000	396,000	435,600	479,160	527,076	579,784	637,762	701,538	771,692	848,861	
Direct Gas	3,888,000	4,276,800	4,704,480	5,174,928	5,692,421	6,261,663	6,887,829	7,576,612	8,334,273	9,167,701	
Total cost of sales	11,539,500	12,581,200	13,721,458	14,969,848	16,336,889	17,834,137	19,474,288	21,271,292	23,240,474	25,398,677	
Gross Profit	8,332,500	9,278,000	10,323,663	11,479,784	12,757,706	14,169,917	15,730,172	17,453,615	19,356,923	21,458,460	
<i>General administration & selling expenses</i>											
Administration expense	960,000	1,056,000	1,161,600	1,277,760	1,405,536	1,546,090	1,700,699	1,870,768	2,057,845	2,263,630	
Land lease rental expense	2,500,000	2,625,000	2,756,250	2,894,063	3,038,766	3,190,704	3,350,239	3,517,751	3,693,639	3,878,321	
Building rental expense	1,200,000	1,320,000	1,452,000	1,597,200	1,756,920	1,932,612	2,125,873	2,338,461	2,572,307	2,829,537	
Office Vehicle Running Expenses	993,600	1,092,960	1,202,256	1,322,482	1,454,730	1,600,203	1,760,223	1,936,245	2,129,870	2,342,857	
Communications expense (phone, fax, mail, internet, etc.)	48,000	52,800	58,080	63,888	70,277	77,304	85,035	93,538	102,892	113,181	
Legal & Professional Charges	25,000	27,500	30,250	33,275	36,603	40,263	44,289	48,718	53,590	58,949	
Office expenses (stationary, entertainment, janitorial services, etc.)	300,000	330,000	363,000	399,300	439,230	483,153	531,468	584,615	643,077	707,384	
Marketing Expenses	397,440	357,696	321,926	289,734	260,760	234,684	211,216	190,094	171,085	153,976	
Depreciation expense	416,150	416,150	416,150	416,150	416,150	419,300	419,300	419,300	419,300	419,300	
Amortization of pre-operating costs	29,000	29,000	29,000	29,000	29,000	-	-	-	-	-	
Amortization of legal, licensing, and training costs	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-	
Bad debt expense	99,360	109,296	120,226	132,248	145,473	160,020	176,022	193,625	212,987	234,286	
Subtotal	6,978,550	7,426,402	7,920,738	8,465,099	9,063,444	9,684,333	10,404,364	11,193,115	12,056,590	13,001,421	
Operating Income	1,353,950	1,851,598	2,402,925	3,014,685	3,694,262	4,485,585	5,325,808	6,260,499	7,300,333	8,457,039	
Gain / (loss) on sale of office equipment	-	-	-	-	22,800	-	-	-	-	-	
Earnings Before Interest & Taxes	1,353,950	1,851,598	2,402,925	3,014,685	3,717,062	4,485,585	5,325,808	6,260,499	7,300,333	8,457,039	
Interest on short term debt	125,370	161,554	36,183	-	-	-	-	-	-	-	
Interest expense on long term debt (Project Loan)	240,005	197,666	149,958	96,199	35,622	-	-	-	-	-	
Interest expense on long term debt (Working Capital Loan)	194,649	-	-	-	-	-	-	-	-	-	
Subtotal	560,025	359,220	186,141	96,199	35,622	-	-	-	-	-	
Earnings Before Tax	793,925	1,492,378	2,216,783	2,918,486	3,681,440	4,485,585	5,325,808	6,260,499	7,300,333	8,457,039	
Tax	41,589	146,357	290,856	452,121	642,860	868,175	1,120,242	1,413,674	1,777,616	2,182,463	
NET PROFIT/(LOSS) AFTER TAX	752,337	1,346,022	1,925,927	2,466,365	3,038,580	3,617,410	4,205,566	4,846,825	5,522,717	6,274,576	

12.2 Balance Sheet

Calculations											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
<i>Current assets</i>											
Cash & Bank	881,358	-	-	1,318,953	3,727,872	6,719,204	11,037,343	16,137,376	22,107,170	29,044,445	46,046,868
Accounts receivable		544,438	571,660	628,826	691,709	760,880	836,968	920,665	1,012,731	1,114,004	1,225,405
Finished goods inventory		228,829	244,634	266,806	291,080	317,662	346,775	378,667	413,608	451,898	493,863
Equipment spare part inventory	71,225	82,265	95,016	109,743	126,754	146,400	169,093	195,302	225,574	260,538	-
Raw material inventory	374,167	432,163	499,148	576,516	665,875	769,086	888,295	1,025,980	1,185,007	1,368,683	-
Pre-paid annual land lease	2,500,000	2,625,000	2,756,250	2,894,063	3,038,766	3,190,704	3,350,239	3,517,751	3,693,639	3,878,321	-
Pre-paid building rent	1,200,000	1,320,000	1,452,000	1,597,200	1,756,920	1,932,612	2,125,873	2,338,461	2,572,307	2,829,537	-
Total Current Assets	5,026,750	5,232,694	5,618,708	7,392,107	10,298,976	13,836,548	18,754,585	24,514,201	31,210,036	38,947,426	47,766,136
<i>Fixed assets</i>											
Machinery & equipment	2,849,000	2,564,100	2,279,200	1,994,300	1,709,400	1,424,500	1,139,600	854,700	569,800	284,900	-
Furniture & fixtures	542,000	487,800	433,600	379,400	325,200	271,000	216,800	162,600	108,400	54,200	-
Office vehicles	656,500	590,850	525,200	459,550	393,900	328,250	262,600	196,950	131,300	65,650	-
Office equipment	57,000	45,600	34,200	22,800	11,400	72,748	58,198	43,649	29,099	14,550	-
Total Fixed Assets	4,104,500	3,688,350	3,272,200	2,856,050	2,439,900	2,096,498	1,677,198	1,257,899	838,599	419,300	-
<i>Intangible assets</i>											
Pre-operation costs	145,000	116,000	87,000	58,000	29,000	-	-	-	-	-	-
Legal, licensing, & training costs	50,000	40,000	30,000	20,000	10,000	-	-	-	-	-	-
Total Intangible Assets	195,000	156,000	117,000	78,000	39,000	-	-	-	-	-	-
TOTAL ASSETS	9,326,250	9,077,044	9,007,908	10,326,157	12,777,876	15,933,046	20,431,784	25,772,100	32,048,635	39,366,725	47,766,136
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		125,109	134,170	144,086	154,960	166,908	180,061	194,569	210,605	228,362	170,733
Short term debt	-	1,678,970	484,569	-	-	-	-	-	-	-	-
Total Current Liabilities	-	1,804,079	618,739	144,086	154,960	166,908	180,061	194,569	210,605	228,362	170,733
<i>Other liabilities</i>											
Deferred tax		41,589	187,945	478,802	930,923	1,573,783	2,441,958	3,562,200	4,975,874	6,753,490	8,935,953
Long term debt (Project Loan)	2,149,750	1,815,915	1,439,741	1,015,859	538,218	-	-	-	-	-	-
Long term debt (Working Capital Loan)	2,513,375	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	4,663,125	1,857,503	1,627,686	1,494,661	1,469,141	1,573,783	2,441,958	3,562,200	4,975,874	6,753,490	8,935,953
<i>Shareholders' equity</i>											
Paid-up capital	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125	4,663,125
Retained earnings		752,337	2,098,358	4,024,285	6,490,650	9,529,231	13,146,640	17,352,206	22,199,031	27,721,748	33,996,325
Total Equity	4,663,125	5,415,462	6,761,483	8,687,410	11,153,775	14,192,356	17,809,765	22,015,331	26,862,156	32,384,873	38,659,450
TOTAL CAPITAL AND LIABILITIES	9,326,250	9,077,044	9,007,908	10,326,157	12,777,876	15,933,046	20,431,784	25,772,100	32,048,635	39,366,725	47,766,136

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		752,337	1,346,022	1,925,927	2,466,365	3,038,580	3,617,410	4,205,566	4,846,825	5,522,717	6,274,576
Add: depreciation expense		416,150	416,150	416,150	416,150	416,150	419,300	419,300	419,300	419,300	419,300
amortization of pre-operating costs		29,000	29,000	29,000	29,000	29,000	-	-	-	-	-
amortization of training costs		10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
Deferred income tax		41,589	146,357	290,856	452,121	642,860	868,175	1,120,242	1,413,674	1,777,616	2,182,463
Accounts receivable		(544,438)	(27,222)	(57,166)	(62,883)	(69,171)	(76,088)	(83,697)	(92,066)	(101,273)	(111,400)
Finished goods inventory		(228,829)	(15,806)	(22,172)	(24,274)	(26,581)	(29,113)	(31,892)	(34,942)	(38,290)	(41,965)
Equipment inventory	(71,225)	(11,040)	(12,751)	(14,727)	(17,010)	(19,647)	(22,692)	(26,209)	(30,272)	(34,964)	260,538
Raw material inventory	(374,167)	(57,996)	(66,985)	(77,368)	(89,360)	(103,211)	(119,208)	(137,686)	(159,027)	(183,676)	1,368,683
Pre-paid building rent	(1,200,000)	(120,000)	(132,000)	(145,200)	(159,720)	(175,692)	(193,261)	(212,587)	(233,846)	(257,231)	2,829,537
Accounts payable		125,109	9,061	9,916	10,874	11,947	13,153	14,509	16,035	17,758	(57,629)
Cash provided by operations	(1,645,392)	411,882	1,701,825	2,365,217	3,031,263	3,754,236	4,477,674	5,267,545	6,145,682	7,121,957	13,124,102
<i>Financing activities</i>											
Project Loan - principal repayment		(333,835)	(376,174)	(423,882)	(477,641)	(538,218)	-	-	-	-	-
Working Capital Loan - principal repayment		(2,513,375)	-	-	-	-	-	-	-	-	-
Add: land lease expense		2,500,000	2,625,000	2,756,250	2,894,063	3,038,766	3,190,704	3,350,239	3,517,751	3,693,639	3,878,321
Land lease payment	(2,500,000)	(2,625,000)	(2,756,250)	(2,894,063)	(3,038,766)	(3,190,704)	(3,350,239)	(3,517,751)	(3,693,639)	(3,878,321)	-
Short term debt principal repayment		-	(1,678,970)	(484,569)	-	-	-	-	-	-	-
Additions to Project Loan	2,149,750	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	2,513,375	-	-	-	-	-	-	-	-	-	-
Issuance of shares	4,663,125	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	6,826,250	(2,972,210)	(2,186,394)	(1,046,263)	(622,344)	(690,156)	(159,535)	(167,512)	(175,888)	(184,682)	3,878,321
<i>Investing activities</i>											
Capital expenditure	(4,299,500)	-	-	-	-	(72,748)	-	-	-	-	-
Cash (used for) / provided by investing activities	(4,299,500)	-	-	-	-	(72,748)	-	-	-	-	-
NET CASH	881,358	(2,560,328)	(484,569)	1,318,953	2,408,919	2,991,332	4,318,139	5,100,033	5,969,794	6,937,275	17,002,423

13 KEY ASSUMPTION

13.1 Operating Cost Assumptions

Description	Detail
Salary Growth Rate	10%
Operating Cost Growth Rate	10%
Communication Expense	Rs. 48,000
Office Expenses (On Administrative Expense)	Rs. 300,000
Marketing Expense	Rs. 397,440
Bad Debt Expense	0.50% of sales

13.2 Production Cost Assumptions

Description	Detail
Seeds Cost	Rs. 7,200 per acre
Cost of Water	Rs. 5,000 per Acre
Land Preparing and Sapling	Rs. 25,000 per Acre
Fertilizers	NPK Rs. 2,400 per Bag
	Urea Rs. 1,500 per Bag
	Potash Rs. 3,800 per Bag
Packaging Cost	5% of sales

13.3 Revenue Assumptions

Description	Detail
Sale Price Per Kg	Rs. 3,200
Sale Price Growth Rate	10%
Capacity Utilization	100%

13.4 Financial Assumptions

Description	Detail
Debt	50%
Equity	50%
Debt Tenure	5 Years
Mark-up on Long Term Loan	12%