
Pre-Feasibility Study

OLIVE CULTIVATION



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

The proposed project is designed as Olive Farming, spreading over a land area of 50 acres. Growing olives in 50 acres with modern farm management techniques can be a long lasting business. The project of Olive Cultivation and marketing envisages the farming of olives and then supply to the processing market / oil processors.

Growing Olive trees is a profitable business and olive trees have more than 250 years of life and it can grow on barren lands. On an average an olive plant produces 20 to 35 kg of olive fruits per year which contain more than 20 % of oil contents. The olive fruit can be sold out in the market at the rate of Rs. 100/- to Rs. 200/- per kg and extracted oil can be sold at the rate of Rs. 700/- to Rs. 3,000/- per liter based on the oil variety and purity. Growing Olive in 50 acres with modern farm management techniques can be a long lasting business. It is recommended that land should be purchased in the suggested rural areas.

Olive Cultivation is proposed to be located at areas where wild plantation and crop farming is common. In Punjab, Khushab, Haripur, Attock, Potohar belt are ideal places for olive farming while in KPK, Karak, Kohat, Sawat, Malakand and Bannu are most suitable. In Balochistan Quetta, Pishin, Loralai, Khuzdar, Zhob, Musakhel, Barkhan, Harnai, Mastung and Qalat respectively are suitable for Olive production as per discussion with experts.

The total initial project cost for setting up Olive Cultivation farm is estimated at Rs. 50.93 million. The project is proposed to be financed through 50% debt and 50% equity. The project NPV is projected around Rs. 21.11 million, with an IRR of 25% and payback period of 4.58 years. The legal business status of this project is proposed as 'Sole Proprietorship'. This project will provide direct employment opportunity to 7 people including Farm Owner. Olive trees start giving fruits at the age of five to six years, therefore, initial four years cost is taken as pre-operating cost and mentioned in capital cost.

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 **Olive Cultivation** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and it's successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later, which form basis of any Investment Decision.

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

This project is about setting up an Olive Cultivation farm on 50 acres of land. The cuttings of olive / plants would be purchased from local private nurseries, agriculture research centres and agriculture extension departments and raised in conventional farming system. Olive plant is drought tolerant, therefore, the water requirement is much lower than apple, peaches and apricots and closer to almonds, pomegranates and grapes. Olive plantation may come as a boon for farmers in Barani areas. The wild trees in government owned forests should be grafted with European-type olive varieties in Pakistan.

Pakistan is a country conducive to small scale farming where olive cultivation provides an opportunity for enhancing income of under privileged. Olive cultivation is an upcoming opportunity in Pakistan since it requires very less water as compared to other crops. Beside this it can be cultivated on barren land which is normally un-utilized. It can play a major role in the economy of country as the price of olives is high in market. Fruiting age of Olive plants is about 250 years and a great immune power of plants which help to survive with less water and cold weather.

This proposed farm will cultivate and produce Olive fruits, revenues will be generated from the sale of olive fruits to local market. Fruiting age of plants start from 4 to 6 years, therefore, the farmer needs to invest in first four years. In this pre-feasibility study, first four years cost is taken as pre-operating cost. Fruiting season of Olive is of 2 months. It is suggested that farm management takes intensive care of olive trees in fruiting season to protect olives.

Olive oil is an expensive item and is used by the people who are health and hygiene conscious. Beside this it is also used in different cosmetics and for massage purposes. Initially only imported olive oil and olive products were available in local market but now local companies / farmers have started producing Oil and other products in Pakistan. Now olive farmers can sell their yield in local market to manufacturer and olive exporters as well. The Barani Agriculture Research Institute (BARI) located in Punjab's Chakwal district, has already planted 473,265 olive trees in the region so far¹. The BARI reveals that the massive Olive Valley Project is not only providing olive saplings to local farmers, but also technical support on olive grove management and financial support for water resource development and drip irrigation.

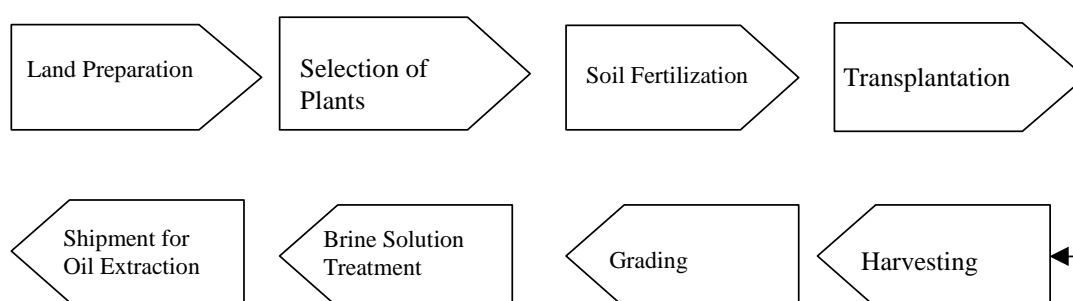
Since the olive sector in Pakistan is not highly developed, there are great variations in the production and consumption cycle of olive oil and its by-products. The production is especially dependent upon the natural environment and

¹ Director Olive BARI, Chakwal

weather. Similarly, the consumption cycle is determined by the price and availability. Due to these reasons it is difficult to forecast the actual requirements for olives. Similarly, appropriate infrastructure, processing facilities and transportation also plays an important role in the marketing and profitability of olive fruits and its bi-products. Focus on healthy and certified cuttings/ bulbs, land preparation, sowing pattern, water management, fertilizer application, hiring of skilled personal, pest management, and varieties along with marketing is required to run business successfully.

5.1 Production Process Flow

Below is the production process flow of Olive Cultivation Farm;



5.2 Installed and Operational Capacities

The Olive cultivation business can be started at any capacity but due to its economic commercial viability the proposed project is designed as olive farming, spreading over a land area of 50 acres. It is assumed that business will have an initial production capacity utilization of 70%. Production capacity growth rate is assumed at 10% with maximum capacity utilization of 100%.

Table 1: Installed & Operational Capacities

Description	Details
Total Land available for Cultivation (Acres)	50
No. of Plants Per acre	108
Total Plants in the Farm	5,400
Average Yield Per Plant (Kgs)	25
Installed Production Capacity (Kgs)	135,000
Starting Operational Capacity	70%
Yield in 1st Year of Operations in Kgs (5th year of Plant age)	94,500

6 CRITICAL FACTORS

Following principles need to be pursued for the best productivity of Olive fruit:

- Establishment of the farms in areas where basic infrastructure including water and electricity are available.
- 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.
- Special attention to healthy and certified cuttings, land preparation, sowing pattern, water management, fertilizer application and marketing is required.
- The other important aspect is the need for strong linkages with the local market and progressive olive purchaser.
- Timely control of pests, diseases and exercise of preventive measures.
- Timely irrigation and fertilization.
- Timely training and grading of plantation.
- Post harvest includes protection from direct sunlight.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The wild species of olive are found abundantly in different parts of the country particularly in the provinces of Punjab, KPK and Balochistan which indicate that improved varieties can also be grown successfully. The survey of potential areas of Pakistan with suitable ecology for olive cultivation indicates that olive can successfully be grown in Islamabad, Rawalpindi, Chakwal, Gujrat, Jehlum, Sialkot, Narrowal, Khushab, Mianwali, Swat, Dir, Malakand, Loralai, Zhob, Barkhan, Mastung, Khuzdar, Quetta, etc., with suitable management practices. Improved varieties of olive imported from Italy have been planted in Swat, Dir, Malakand, Loralai and Islamabad. In addition to Italian cultivars, four Turkish olive cultivars were also introduced and planted in Islamabad for evaluation studies. Some of these cultivars have shown good performance and giving good yield in Baluchistan and Islamabad.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

The target market for the Olive Farm is local. Major buyers and processors of the olive are in larger cities such as Karachi, Lahore and Islamabad whereas; other potential areas of the country can also be targeted upon demand.

In addition to local markets an enormous export market for the olive oil and its by-products exists in Europe, USA, Middle East, etc.

9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of “Olive Cultivation”. Various cost and revenue related assumptions along with results of the analysis are outlined in this section. The projected Income statement, Cash Flow Statement and Balance Sheet are attached as annexure.

9.1 Project Economics

The total project investment is Rs. 50.93 Million which includes Capital Cost of Rs. 50.21 Million and Working Capital of Rs. 0.72 Million. The project is assumed to be financed through 50% equity and 50% debt. All the figures in this financial model have been calculated for a total farm area assumed to be Fifty (50) Acres. The following table shows internal rates of return, payback period and net present value of the proposed venture:

Table 2: Project Economics

Description	Details
Internal Rate of Return (IRR)	25%
Payback Period (yrs.)	4.58
Net Present Value (Rs.)	21,109,157

9.2 Project Financing

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

Table 3: Project Financing

Description	Details
Total Equity (50%)	Rs. 25,463,715
Bank Loan (50%)	Rs. 25,463,715
Markup to the Borrower (%age / annum)	14%
Tenure of the Loan (Years)	5

9.3 Project Cost

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

Table 4: Project Cost

Description	Amount Rs.
Capital Cost	
Land	25,000,000
Building / Infrastructure	1,320,000
Plant Cultivation and Equipment	7,933,000
Furniture & Fixture	85,000
Office Equipment	233,000
Pre-operating Cost ²	15,634,878
Total Capital Cost	50,205,878
Working Capital	
Equipment spare part Inventory	13,222
Raw material inventory	208,329
Cash	500,000
Total Working Capital	721,551
Total Project Cost	50,927,429

9.4 Space Requirement

The space requirement for the proposed Olive Cultivation farm is estimated considering facilities including farm, management office, storage etc. Agricultural land can be purchased or taken on lease for the implementation of the proposed project. As project life is more than 200 years so it is proposed that land should be purchased. Details of space requirement and cost related to land & building is given below;

Table 5: Space Requirement

Description	Area
Agriculture Land (Acre)	50
Total Per Acre Cost	500,000
Total Cost of Land	25,000,000

² Pre-operating cost includes Salaries of Staff hired for Farm Management and Cultivation Cost (Irrigation, Fertilizers, Sprays, and other misc. costs) for initial 4 years.

Table 6: Mode of Land Acquisition

Description	Estimated Area (Sq. ft.)	Unit Cost (Rs.)	Total Cost (Rs.)
Management Building	400	1,500	600,000
Store	600	1,200	720,000
Total			1,320,000

9.5 Machinery, Plant and Equipment Requirement

Plant, machinery and equipment for the proposed olive cultivation farm of 50 acres are stated below. The Oil extraction machinery is not included in this pre-feasibility study. Oil Extraction Machinery is available at Agriculture Departments of almost every district. Machinery is also available at Barani Agriculture Research Institute at different districts. Currently, Government of Punjab is providing facility to the Olive growers to extract Olive Oil at nominal cost. However, this Pre-feasibility study will sell olive fruit in local market.

Table 7: Machinery, Plant and Equipment Requirement

Description	Quantity	Unit Cost Rs. (Per Acre)	Total Cost Rs. (50 Acres)
Drip irrigation system	1	85,000	4,250,000
Tank(Water Reservoir)	1	40,000	2,000,000
Boring Cost	1		500,000
Diesel Pump	1		200,000
Misc. Instrument cost	1		200,000
Pit Digging (Rs. 50 per Plant x 108 No. of Plants)	1	5,400	270,000
Pit Filling (Rs. 30 per Plant x 108 No. of Plants)	1	3,240	162,000
Plant Cost (Rs. 65 per Plant x 108 No. of Plants)	1	7,020	351,000
Total			7,933,000

9.6 Furniture & Fixtures Requirement

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

Table 8: Furniture and Fixtures Requirement

Particulars	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Furniture Set	1	50,000	50,000

Electric Wiring and Lighting	1	35,000	35,000
Total			85,000

9.7 Office Equipment Requirement

Following office equipment will be required for Olive Cultivation farm;

Table 9: Office Equipment Requirement

Particulars	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computer	2	45,000	90,000
Printer	1	20,000	20,000
Telephones	2	1,500	3,000
Generator 5 KVA China made	1	120,000	120,000
Total			233,000

9.8 Human Resource Requirement

In order to run operations of Olive Cultivation farm smoothly, details of human resources required along with number of employees and monthly salary are recommended as under;

Table 10: Human Resource Requirement

Description	No. of Employees	Monthly Salary per person (Rs.) ³
CEO	1	58,564
Farm Manager	1	43,923
Labor	5	21,962
Total	7	

9.9 Utilities and Other Costs

An essential cost to be borne by the project is the cost of electricity and diesel for tube well. The electricity expenses are estimated to be around Rs.10,000/- per month, whereas, diesel expenses are estimated to be Rs. 171,116/- per month. Furthermore, promotional expense being essential for marketing of Olive cultivation is estimated as 1% of revenue.

³ The staff will be hired during Pre-operations phase (4 Years) and the salaries are reflecting 10% growth from the day 1 salaries.

9.10 Revenue Generation

Based on the capacity utilization of 70% of olive fruit, sales revenue during the first year of operations is estimated at Rs. 13,835,745.

Table 11: Revenue Generation during Year 1⁴

Description	Farm Fruiting Capacity (Kgs)	First Year Fruiting Capacity (Kgs)	Per Kg Olive Selling Price	Revenue (Rs.)
Olive Fruit	135,000	94,500	146	13,835,745

10 FARM MANAGEMENT

Olive fruit production in Pakistan is not an organized sector so there is need to understand its technical parameters which are explained below.

10.1 Plantation & Growth Requirements

Olive plants show its growth well on poor soils even without fertilizer. It can also thrive in rocky and shallow soils. There are few essential requirements for healthy growth of plants. Following are the requirements:

- Hot dry summer
- Being successfully grown under rain fed conditions (200-900 mm annual rainfall)
- Winter chilling requirement (150-300 hours at temperature below 7°C)
- Flowering temperature 25°- 30°C (March)
- Varieties vary in temperature requirement
- Italian – most cold tolerant (-8°C)
- North African (Moroccan & Tunisian) most tolerant to high temperature (36°- 41°C)
- Variety of soil type (from sandy to clay) best soil light well drained

10.2 Planting an Olive Tree

It is very important to grow the olive plants according to recommended standards as it affects the fruit bearing capacity of the plants. Plants should be planted in square system and distance should be 20x20 feet between the plants on the plain land and on sloppy land it may not be less the 15x15 feet.

- Layout: Square system;

⁴ Year 1 revenue means the 1st year of fruiting which is basically 5th year of plantation.

- Planting Distance: 20x20 feet (in plain lands), 15x15 feet (in slopes or hilly areas);
- Pit Digging: The measurement of pit should be 1m³ (3x3x3 feet);
- Pit Filling: Pit must be filled by a homogenous mixture of soil, silt and FYM with the ratio 1:1:1. 2-3 irrigation must be applied for proper decay of FYM;
- Planting of olive trees can be done in two seasons: spring and autumn. Spring planting should be preferred because of provision of longer growth period.⁵

The distance between the plants is 20 X 20 feet and the space between the plants can be utilized for cultivation of other crops for initial six to ten years of age of the plants. However, it is recommended that such crops should be cultivated between the plants which have low height and require less irrigation.

10.3 Fertilizers on Production

Using fertilizers containing Nitrogen, Phosphorus and Potash, the yield of the crop can be maximized. Proper fertilizer application plays vital role in good growth and optimum fruit yield. Proper combination of FYM, Phosphorus, Potassium and Nitrogen provided balanced nutrients to fulfill needs of developing and mature fruiting trees. Detailed year wise fertilizer's requirements are given in table below:

Table 12: Fertilizer Requirements⁶

Age of Plant (years)	Farm Yard Manure(FYM) Kg/plant/year	Chemical Fertilizer g/plant/year		
		N (g)	P (g)	K (g)
1		--	--	--
2	5	200	100	--
3	10	300	150	150
4	15	400	200	200
5	20	500	250	250
6	25	600	300	300
7	30	700	350	350
8	35	800	400	400
9 and more	40	1000	500	500

⁵ Barani Agriculture Research Institute(BARI), Chakwal

⁶ As per Agronomist of Barani Agriculture Research Institute(BARI), Chakwal

Table 7: Time of Fertilization⁷

S. No	Type of Fertilizer	Time of application	Remarks
1	FYM	December	Well Rotten
2	Urea (Nitrogen)	1. Three weeks Before flowering (First to second week of Feb.) 2. After fruit setting (Last week of April)	Any other type can also be used (DAP, Nitrophos)
3	Phosphorous	1. Three weeks Before flowering (First to second week of Feb.) 2. After fruit setting (Last week of April)	(DAP, TSP, SSP)
4	Potash	December (Also can mix with FYM)	(SOP, MOP)

10.4 Material Availability

- Fertilizers of all kinds are available locally.
- Pesticides of different natures are also available locally.
- Water is available from canal or can be used from peter engine.

10.5 Irrigation of Olive Orchards

Irrigation depends on following three factors:

- Age of plant
- Soil texture and structure
- Temperature and rainfall

Young plants require regular irrigation for three years, however, for bearing plants three to four irrigations / year are required. Olive Plant is drought resistant but for commercial cultivation regular irrigation is necessary.

10.6 Time of Irrigation

Three to four weeks before flowering:	(First week of Feb.)
After fruit setting:	(Second week of April)
Summer days:	(June)
At fruit maturity:	(July)

⁷ As per Agronomist of Barani Agriculture Research Institute(BARI), Chakwal

10.7 Selection of Plant and its Importance

For Olive cultivation, selection of plant is very important. Different varieties of olive plants are available locally. Following table shows the production capacity of different plant types at the age of 18 years:

Table 148: Varieties and Average Yield per Plant⁸

Variety	Average yield/plant (Kg)
Coratina	28.46
Frantoio	38.08
Leccino	29.45
Ottobrattica	29.39
Pendolino	25.23

10.8 Expected Production

Sr. No	Yield / Plant	No. of Plant/Acre	Total Plants for 50 Acres	Total Production	Oil Content
1	25 (Kg)	108	5,400	135,000 (Kgs)	20-28%

However, yield of plant also depends upon following factors:

- Alternate Bearing
- Soil Moisture (drought)
- Management of Irrigation
- Nutrition
- Soil type
- Pruning

11 CONTACT DETAILS

Contact details of Service Providers for olive farming are given below:

11.1 Raw Material Suppliers / Technical Experts / Consultants

Name of Supplier	Contact
Pakistan products	0333 65 91 777 olive@pakistanproduct.com www.pakistan product.com
Zaitoon Pakistan Pvt. Ltd. Ltd	+92-51-4438371-73 www.zaitoonpakistan.com

⁸ Barani Agriculture Research Institute(BARI), Chakwal

Plot # 33, Street # 10, Industrial
Area, I-9/2 Islamabad

12 USEFULL 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
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of 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
Securities and Exchange Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.phdec.org.pk
Punjab Vocational Training Council (PVTTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Punjab Industrial Estates (PIE)	www.pie.com.pk
Ministry of National Food Security and Research (MNFSR)	www.mnsfr.gov.pk
Pakistan Agriculture Research Council (PARC)	www.parc.gov.pk
National Agriculture Research Council (NARC)	www.narc.gov.pk
Agriculture University of Faisalabad (UAF)	www.uaf.edu.pk
Agriculture Marketing Information Service	www.amis.pk
Barani Agricultural Research Institute (BARI), Chakwal	barichakwal.org

13 ANNEXURES

13.1 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	13,835,745	17,393,508	21,524,466	26,307,681	28,938,449	31,832,294	35,015,523	38,517,076	42,368,783	46,605,661
<i>Cost of sales</i>										
Irrigation, Fertilizers, Sprays, and other Farm Management Cost	2,499,951	2,624,948	2,756,196	2,894,005	3,038,706	3,190,641	3,350,173	3,517,682	3,693,566	3,878,244
Operation costs 1 (direct labor)	1,317,690	1,449,459	1,594,405	1,753,845	1,929,230	2,122,153	2,334,368	2,567,805	2,824,586	3,107,044
Operating costs 2 (machinery maintenance)	158,660	174,526	191,979	211,176	232,294	255,524	281,076	309,183	340,102	374,112
Total cost of sales	3,976,301	4,248,933	4,542,579	4,859,027	5,200,230	5,568,317	5,965,617	6,394,670	6,858,253	7,359,400
Gross Profit	9,859,444	13,144,575	16,981,887	21,448,654	23,738,219	26,263,976	29,049,906	32,122,405	35,510,530	39,246,261
<i>General administration & selling expenses</i>										
Administration expense	1,229,844	1,352,828	1,488,111	1,636,922	1,800,615	1,980,676	2,178,744	2,396,618	2,636,280	2,899,908
Administration benefits expense	36,895	40,585	44,643	49,108	54,018	59,420	65,362	71,899	79,088	86,997
Electricity expense	120,000	132,000	145,200	159,720	175,692	193,261	212,587	233,846	257,231	282,954
Travelling expense	24,597	27,057	29,762	32,738	36,012	39,614	43,575	47,932	52,726	57,998
Communications expense (phone, fax, mail, internet, etc.)	12,298	13,528	14,881	16,369	18,006	19,807	21,787	23,966	26,363	28,999
Office expenses (stationary, entertainment, janitorial services, etc.)	12,298	13,528	14,881	16,369	18,006	19,807	21,787	23,966	26,363	28,999
Promotional expense	138,357	173,935	215,245	263,077	289,384	318,323	350,155	385,171	423,688	466,057
Professional fees (legal, audit, consultants, etc.)	69,179	86,968	107,622	131,538	144,692	159,161	175,078	192,585	211,844	233,028
Depreciation expense	891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100
Amortization of pre-operating costs	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488
Bad debt expense	138,357	173,935	215,245	263,077	289,384	318,323	350,155	385,171	423,688	466,057
Subtotal	4,236,415	4,468,952	4,730,179	5,023,507	5,280,399	5,562,980	5,873,819	6,215,742	6,591,858	7,005,584
Operating Income	5,623,030	8,675,623	12,251,708	16,425,147	18,457,820	20,700,997	23,176,087	25,906,663	28,918,672	32,240,677
Earnings Before Interest & Taxes	5,623,030	8,675,623	12,251,708	16,425,147	18,457,820	20,700,997	23,176,087	25,906,663	28,918,672	32,240,677
Interest expense on long term debt (Project Loan)	3,323,614	2,771,662	2,138,284	1,411,468	577,430	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	47,157	39,155	29,959	19,389	7,241	-	-	-	-	-
Subtotal	3,370,771	2,810,817	2,168,243	1,430,857	584,671	-	-	-	-	-
Earnings Before Tax	2,252,259	5,864,806	10,083,466	14,994,290	17,873,149	20,700,997	23,176,087	25,906,663	28,918,672	32,240,677
Tax	297,952	1,281,941	2,751,712	4,470,501	5,478,102	6,467,848	7,334,130	8,289,831	9,344,035	10,506,736
NET PROFIT/(LOSS) AFTER TAX	1,954,307	4,582,864	7,331,753	10,523,789	12,395,048	14,233,148	15,841,957	17,616,832	19,574,638	21,733,941

13.2 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	500,000	191,913	2,715,956	7,174,641	14,035,467	21,980,600	38,419,904	56,442,257	76,211,076	97,906,372	122,285,017
Accounts receivable		1,137,185	1,283,394	1,599,369	1,965,705	2,270,389	2,497,428	2,747,171	3,021,888	3,324,076	3,656,484
Equipment spare part inventory	13,222	15,271	17,638	20,372	23,530	27,177	31,389	36,254	41,874	48,364	-
Raw material inventory	208,329	229,683	253,225	279,181	307,797	339,346	374,129	412,478	454,757	501,369	-
Total Current Assets	721,551	1,574,051	4,270,213	9,073,562	16,332,498	24,617,512	41,322,850	59,638,160	79,729,594	101,780,182	125,941,501
<i>Fixed assets</i>											
Land	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000
Building/Infrastructure	1,320,000	1,254,000	1,188,000	1,122,000	1,056,000	990,000	924,000	858,000	792,000	726,000	660,000
Machinery & equipment	7,933,000	7,139,700	6,346,400	5,553,100	4,759,800	3,966,500	3,173,200	2,379,900	1,586,600	793,300	-
Furniture & fixtures	85,000	76,500	68,000	59,500	51,000	42,500	34,000	25,500	17,000	8,500	-
Office equipment	233,000	209,700	186,400	163,100	139,800	116,500	93,200	69,900	46,600	23,300	-
Total Fixed Assets	34,571,000	33,679,900	32,788,800	31,897,700	31,006,600	30,115,500	29,224,400	28,333,300	27,442,200	26,551,100	25,660,000
<i>Intangible assets</i>											
Pre-operation costs	15,634,878	14,071,391	12,507,903	10,944,415	9,380,927	7,817,439	6,253,951	4,690,464	3,126,976	1,563,488	-
Total Intangible Assets	15,634,878	14,071,391	12,507,903	10,944,415	9,380,927	7,817,439	6,253,951	4,690,464	3,126,976	1,563,488	-
TOTAL ASSETS	50,927,429	49,325,342	49,566,916	51,915,677	56,720,025	62,550,451	76,801,202	92,661,923	110,298,770	129,894,770	151,601,501
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		238,649	252,357	266,936	282,453	298,974	316,577	335,341	355,356	376,718	349,509
Total Current Liabilities	-	238,649	252,357	266,936	282,453	298,974	316,577	335,341	355,356	376,718	349,509
<i>Other liabilities</i>											
Long term debt (Project Loan)	25,102,939	21,361,474	17,068,056	12,141,260	6,487,649	-	-	-	-	-	-
Long term debt (Working Capital Loan)	360,775	307,197	245,617	174,841	93,495	-	-	-	-	-	-
Total Long Term Liabilities	25,463,715	21,668,671	17,313,673	12,316,101	6,581,144	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715	25,463,715
Retained earnings		1,954,307	6,537,172	13,868,925	24,392,714	36,787,762	51,020,910	66,862,867	84,479,699	104,054,337	125,788,278
Total Equity	25,463,715	27,418,022	32,000,886	39,332,640	49,856,429	62,251,476	76,484,625	92,326,582	109,943,414	129,518,052	151,251,992
TOTAL CAPITAL AND LIABILITIES	50,927,429	49,325,342	49,566,916	51,915,677	56,720,025	62,550,451	76,801,202	92,661,923	110,298,770	129,894,770	151,601,501

13.3 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		1,954,307	4,582,864	7,331,753	10,523,789	12,395,048	14,233,148	15,841,957	17,616,832	19,574,638	21,733,941
Add: depreciation expense		891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100	891,100
amortization of pre-operating costs		1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488	1,563,488
Accounts receivable		(1,137,185)	(146,209)	(315,975)	(366,336)	(304,684)	(227,039)	(249,743)	(274,717)	(302,189)	(332,408)
Equipment inventory	(13,222)	(2,049)	(2,367)	(2,734)	(3,158)	(3,647)	(4,212)	(4,865)	(5,619)	(6,490)	48,364
Raw material inventory	(208,329)	(21,354)	(23,543)	(25,956)	(28,616)	(31,549)	(34,783)	(38,348)	(42,279)	(46,613)	501,369
Accounts payable		238,649	13,707	14,580	15,516	16,522	17,602	18,764	20,015	21,362	(27,209)
Cash provided by operations	(221,551)	3,486,957	6,879,041	9,456,257	12,595,783	14,526,277	16,439,304	18,022,353	19,768,819	21,695,296	24,378,645
<i>Financing activities</i>											
Project Loan - principal repayment		(3,741,466)	(4,293,418)	(4,926,796)	(5,653,611)	(6,487,649)	-	-	-	-	-
Working Capital Loan - principal repayment		(53,578)	(61,580)	(70,776)	(81,346)	(93,495)	-	-	-	-	-
Additions to Project Loan	25,102,939	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	360,775	-	-	-	-	-	-	-	-	-	-
Issuance of shares	25,463,715	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	50,927,429	(3,795,044)	(4,354,998)	(4,997,572)	(5,734,958)	(6,581,144)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(50,205,878)	-	-	-	-	-	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(50,205,878)	-	-	-	-	-	-	-	-	-	-
NET CASH	500,000	(308,087)	2,524,043	4,458,685	6,860,826	7,945,133	16,439,304	18,022,353	19,768,819	21,695,296	24,378,645

14 KEY ASSUMPTIONS

14.1 Cash Flow Assumptions

Accounts Payable cycle (in days)	30
Accounts Receivable cycle (in days)	30
Equipment Spare Part inventory (in months)	1
Raw Material Inventory (in months)	1

14.2 Economy related Assumptions

Electricity Growth Rate	10%
Wage Growth Rate	10%
Cost of Goods Sold Growth Rate	5%
Traveling Expenses	2% of Administration Expenses
Communication Expenses	1% of Administration Expenses
Office Expenses (Stationery, Entertainment, etc)	1% of Administration Expenses
Promotional Expenses	1 % of Revenue
Professional Fee (Consultant)	0.5% of Revenue
Bad Debt Expense	1% of Revenue
Administrative Benefit Expense	3% of Administration Expenses

14.3 Revenue Assumptions

Description	Details
Sale price growth rate	10.0%
Production capacity utilization	70%
Production capacity utilization growth rate	10%
Maximum capacity utilization	100%

14.4 Financial Assumptions

Description	Details
Debt Ratio	50%
Equity Ratio	50%
Interest Rate on Long Term Loan	14%
Interest Rate on Short Term Loan	15%

Debt Tenure (Years)	5
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14.5 Depreciation Assumption

Depreciation Method	Straight Line Method
Building depreciation rate	5%
Machinery & Equipment depreciation rate	10%
Office Equipment and Vehicle depreciation rate	10%
Furniture & Fixtures depreciation rate	10%