Pre-Feasibility Study

OFF-SEASON VEGETABLE FARMING (WALK IN TUNNEL)

Small and Medium Enterprises Development Authority
Ministry of Industries & Production
Government of Pakistan
www.smeda.org.pk

HEAD OFFICE
4th Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road,
Lahore
Tel: (92 42) 111 111 456, Fax: (92 42) 36304926-7
helpdesk@smeda.org.pk

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3rd Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road Lahore, Tel: (042) 111-111-456 Fax: (042) 36304926-7 helpdesk.punjab@smeda.org.pk	5TH Floor, Bahria Complex II, M.T. Khan Road, Karachi. Tel: (021) 111-111-456 Fax: (021) 5610572 helpdesk-khi@smeda.org.pk	Ground Floor State Life Building The Mall, Peshawar. Tel: (091) 9213046-47 Fax: (091) 286908 helpdesk-pew@smeda.org.pk	Bungalow No. 15-A Chaman Housing Scheme Airport Road, Quetta. Tel: (081) 831623, 831702 Fax: (081) 831922 helpdesk-qta@smeda.org.pk

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For information	janjua@smeda.org.pk

2 EXECUTIVE SUMMARY

Tunnel farming is practiced in many areas of Pakistan and is gaining popularity. Faisalabad, Mamokanjan, Gujranwala, Okara & Sahiwal are the most prominent cities for tunnel farming.

The proposed project is a medium sized off-season vegetable farming unit, spreading over 9 acres. Off-season vegetables are proposed to be cultivated in this project by using walk in tunnel technology. The proposed vegetable mix is Cucumber, Bitter Gourd and Hot Pepper each cultivated on 3 acres of land. The approximate total time from land preparation to harvesting is around 7 months.

The estimated yield of the farm varies according to the type of vegetables selected. The quantity of plants sown each year on 9 acres of land is 15,000 plants of cucumber, 15,000 plants of bitter gourd and 12,000 plants of hot pepper. The estimated produce per acre would be 55 tons of cucumber, 30 tons bitter gourd and 30 tons of hot pepper excluding wastage.

Complete adherence to best agronomic practices is critical to the success of this project. Therefore, technical knowledge & experience of the entrepreneur is absolutely necessary.

The cost for setting up the high tunnel farm is estimated at Rs. 6.96 million out of which Rs. 2.90 million is the capital cost and Rs. 4.06 million is for working capital. The project NPV is projected at Rs. 10.83 million with an IRR of 52% and payback period is 1.90 years respectively.

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, production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in **Off-Season Vegetable Farming (Walk-in Tunnel)** by providing them a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

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

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

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

The proposed project is designed as a medium sized off-season vegetable farming unit, spreading over a land area of 9 acres. Off-season vegetables, such as, tomatoes, chilies, cucumber, brinjal, hot pepper, sweet peppers, watermelon, muskmelon, pumpkin, ridge-gourd (teendi) and bitter-gourd (krela) can be cultivated using walk-in tunnel technology. However for the purpose of this pre-feasibility three vegetables have been proposed, namely: Cucumber, Bitter Gourd and Hot Pepper.

The land can be utilized for green manuring during the idle period to maintain the fertility of soil. Apart from green manuring, the land can also be utilized for growing seasonal vegetables in the idle period.

The estimated yield potential of the farm varies according to the selected type of vegetable. For this proposed vegetable mix it is estimated that a 9-acre farm unit will yield a total of 345 tons per season excluding wastage.

5.1 Walk-in Tunnel Structure Specifications

As mentioned above, off-season vegetable cultivation is recommended with the use of walk in tunnel structure on the basis of its low construction cost. The details of walk in tunnel structure are given in the following table:

Table 1 - Specifications of Walk-in Tunnel

	Material	Requirement
Material Specification	Galvanized Iron	Diameter ½ inch Length 20 ft.
	Plastic	0.08 mm thick and 20 ft. wide
Tunnel Specification	**Dimensions**	**Requirement**
	Height	8 ft., half-moon shaped
	Width	12 ft.
	Length	200 ft.
	No. of tunnels	14 per acre

The estimated cost of such tunnel for 9 acres of land is Rs. 2,790,180 excluding the cost related to plastic used as a shield (Cover) and mulch.

Figure 1 – Walk in Plastic Tunnel

Figure 2 - Support structure in walk in tunnels

5.2 Support Structure

Each tunnel will be 200 feet long, 8 feet high and 12 feet wide. The tunnel is built by ½ inch galvanized iron of 20 feet length, in half moon shape. The plastic pipes are put at regular intervals of approximately 10-15 feet.

Each tunnel structure will then be covered by 0.08 mm thick and 20 feet wide plastic sheet. Approximately 14 tunnels can be constructed on an acre of land depending on the type of vegetable, i.e. cucumber, bitter gourd and hot pepper.

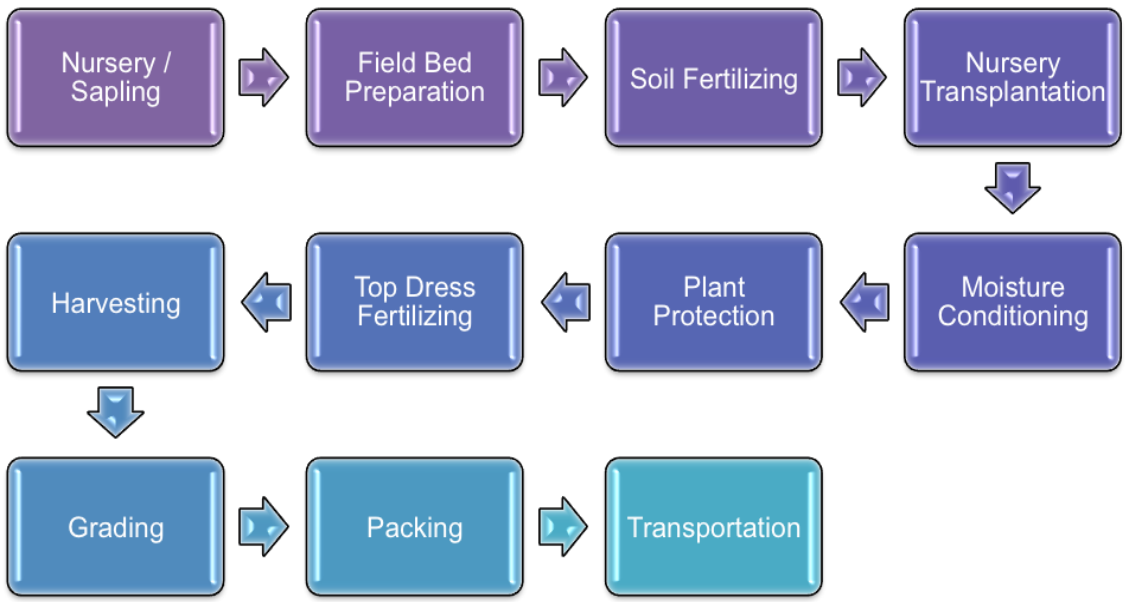
5.3 Installed and Operational Capacities

Following table provides information on the total production, inclusive of 10% wastage:

Table 2 - Total Production Capacity

Vegetables	Area (acres)	No. of Plants / Acre	Total Production (Kg) / Acre
Cucumber	3	15,000	165,000
Bitter Gourd	3	15,000	90,000
Hot Pepper	3	12,000	90,000
Total			**345,000**

5.4 Production Process Flow



6 CRITICAL FACTORS

Following principles need to be pursued for best productivity of vegetables:

- ⇒ Proper soil analysis for determining soil nutritional level.
- ⇒ Use of high quality hybrid seeds.
- ⇒ Fertile land and its maintenance within the tunnel during the period of cultivation.
- ⇒ Timely control of pests, diseases and implementation of all recommended agronomic measures.
- ⇒ Selection of profitable vegetables on the basis of best analysis of cost and revenues for a given season. Cost efficiency through better management.
- ⇒ Maintenance and control of internal temperature and humidity of the tunnel.
- ⇒ Timely irrigation, fertilization, training and grading of plantation.
- ⇒ Fertilization as per expert(s) recommendation.
- ⇒ Appropriate post-harvest arrangement for washing, grading, packing, and transportation of product to the market.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

As per the information gathered from Agriculture Department, Government of Punjab, and National Agricultural Research Center, Islamabad, following are the potential areas of off-season vegetable production:

Mamonkangan, Nankana Sahib, Faisalabad, Kamalia in Toba Tek Singh, Rahim Yar Khan, Chack Shahzad, Islamabad, Swat, Tarnab, Mardan, Khairabad, Mirpur Khas, Chiniot, etc., in addition to few other locations in Sindh and Balochistan

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Keeping in view the product price level, demand and purchasing power of customers; whole sale vegetable markets in metropolitan cities / urban areas are the potential markets for off season vegetables.

9 PROJECT SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Off Season Vegetable Farming (Walk-in Tunnel). 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 appendix.

9.1 Project Economics

The proposed crop mix is cucumber, bitter gourd and hot pepper each cultivated on 3 acres of land. The estimated per acre produce would be 55 tons of cucumber, 30 tons of bitter gourd and 30 tons of hot pepper excluding wastage.

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

Table 3 - Project Economics

Description	Details
Internal Rate of Return (IRR)	52%
Payback Period (Yrs.)	1.90
Net Present Value (NPV) (Rs.)	10,826,934

Returns on the investment and its profitability are highly dependent on the entrepreneur having some practical knowledge about agriculture & farming, selection of fertile land, selection of high yield seed, cultivating the in-demand vegetables and selection of right time for vegetable cultivation.

9.2 Project Financing

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

Table 4 - Project Financing

Description	Details
Total Equity (50%)	3,483,365
Bank Loan (50%)	3,483,365
Markup to the Borrower (%age/annum)	14%
Tenure of the Loan (Years)	5

9.3 Project Cost

Following requirements have been identified for operations of the proposed business:

Table 5 - Project Cost Sumary

Description	Amount Rs.
Capital Cost	

Plant and Machinery	50,000
Furniture and Fixtures	40,000
Tunnel Equipment	2,790,180
Pre-operating Cost	25,000
Total Capital Cost	**2,905,180**
Working Capital	
Cash	1,177,950
Upfront Land Lease Rental	450,000
Raw Material Inventory	2,433,600
Total Working Capital	**4,061,550**
Total Project Cost	**6,966,730**

9.4 Land Requirement

The area has been calculated on the basis of minimum viable land required for setting up an Off-Season Vegetable Farm (Walk-in Tunnel). Following table shows calculations for project space requirement.

Table 6 - Land Requirement

Vegetable	Land Utilization (Acres)	Land Lease Cost per Acre (Rs.)	Total Land Lease Cost (Rs.)
Cucumber	3	50,000	150,000
Bitter Gourd	3	50,000	150,000
Hot Pepper	3	50,000	150,000
Total	**9**		**450,000**

As the land will be acquired on lease, hence total land lease cost during 1st year would be approximately Rs. 450,000.

9.5 Machinery & Equipment

Plant and machinery required for an off-season vegetable farm can be purchased or leased by paying on hourly basis. In this particular pre-feasibility it has been assumed that the machinery for hoeing and land preparation would be rented, whereas, spray machine and some tools would be purchased.

Following table provides a list of machinery and tunnel farm equipment required for Off-Season Vegetable Farming (Walk-in Tunnel).

Table 7 - Machinery and Equipment Requirement

Description	Replacement Year	Quantity	Unit Cost Rs.	Total Cost Rs.
Farm Tools (Hand Tools)	5	1	20,000	20,000

Spray Machines	5	6	5,000	30,000
Total				**50,000**

9.6 Furniture and Fixture

Furniture and fixture required for an off-season vegetable are given below in the table:

Table 8 - Furniture and Fixture Requirement

Description	Replacement Year	Quantity	Unit Cost Rs.	Total Cost Rs.
Working Tables	5	4	5,000	20,000
Chairs	5	8	2,500	20,000
Total				**40,000**

9.7 Walk-in Tunnel Structure and Installation Requirement

Walk in tunnel structure requirements are given for 9 acres are given in the table:

Table 9 - Structure Requirement

Description	Replacement Year	Qty	Unit Cost Rs.	Total Cost Rs.
GI Wires (Kg)	3	900	135	121,500
Wire stretchers (Nos.)	3	756	30	22,680
Galvanized Iron Pipes (Nos.)	3	2,646	1,000	2,646,000
Total Equipment Cost				**2,790,180**

Additionally plastic sheet and other installation requirement for the proposed project are given in the table below:

Table 10 - Plastic Sheet and Other Installation Requirement

Description	Qty.	Unit Cost (Rs.)	Total Amount (Rs.)
Plastic Sheet White (kg)	1,800	250	450,000
Plastic Mulch Black (kg)	180	300	54,000
Structure installation cost (Acres)	9	8,000	72,000
Total			**576,000**

9.8 Raw Material Requirements

The major raw materials (i.e. plants, fertilizers and pesticides) required for the proposed project are provided in the following tables:

Table 11 - Cost of Plants

Vegetables	Area (acres)	No. of Plants / Acre	Unit Rate Rs.	Total Cost of Plants
Cucumber	3	15,000	10	450,000
Bitter Gourd	3	15,000	2	90,000
Hot Pepper	3	12,000	3	108,000
Total				**648,000**

Table 12 - Fertilizer Requirement

Fertilizer	Qty. Bags / Acre	Unit Cost (Rs.)	Total Cost (Rs.)
CAN	15	1,600	216,000
Nitrophos	10	2,500	225,000
DAP	2	3,200	57,600
SOP	4	4,250	153,000
Total			**651,600**

Table 13 - Pesticides Requirement

Pesticides	Unit	Qty.	Unit Cost (Rs.)	Total Cost (Rs.)
Fungicide	Area	9	20,000	180,000
Insecticide	Area	9	15,000	135,000
Total				**315,000**

9.9 Human Resource Requirement

Owner / Manager will be engaged for 8 months per year, whereas, permanent and temporary labor will be engaged for 7 months and 2 months respectively. Details of human resource requirements are given in the table below:

Table 14 - Human Resource Requirement (Permanent)

Description	No. of Employees	Salary per Month (Rs.)	Salary / Season (Rs.)
Owner / Farm Manager	1	25,000	200,000

Permanent Labor	9	13,000	819,000
Total Staff	**10**		**1,019,000**

Seven pickings per month are assumed from 1 acre with an average rate of Rs. 300 per picking per person. Following table shows the calculations for temporary labor wage:

Table 15 - Human Resource Requirement (Temporary)

Description	Number	Wages (Rs. per picking / person)	Total Seasonal Wages (Rs.)
Temporary Labor	4	Male: 300 Female: 300	151,200

Salaries of all employees / workers are estimated to increase at 10% annually.

9.10 Revenue Generation

Expected production and sale prices of vegetables are given in the table below:

Table 16 - Expected Production and Revenue Generation

Vegetable	Land Utilization (Acres)	Sale Price (Rs./ Kg)	First Year Production Per Acre excl. Wastage (Kg)	First Year Sales Revenue (Rs)
Cucumber	3	22	55,000	3,630,000
Bitter Gourd	3	32	30,000	2,880,000
Hot Pepper	3	35	30,000	3,150,000
Empty Bags of Fertilizer				2,790
Total Sales Revenue				**9,662,790**

9.11 Other Costs

An essential cost to be borne by the farm is the transportation cost incurred during transfer of vegetables from the farm to the market, which is assumed as Rs. 276,000 in year one. Similarly, electricity expense is estimated to be around Rs.35,000 for first year.

10 CONTACT DETAILS

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

Name of Experts	Address	Phone
Dr. M. Aslam Parvez Director	Institute of Horticultural Sciences, Faculty of Agriculture, University of Agriculture, Faisalabad	+92-41-9201281
Dr. Ghulam Jellani, Principal Scientific Officer (Vegetable)	Horticulture Research Institute National Agricultural Research Centre Park Road, Islamabad	+92-51 9255061
Dr. Muhammad Anjum Ali Director General (Extension)	Agriculture Department, Govt. of Punjab 21-Davis Road, Lahore	92-42-99200732
Chief Executive Officer (Pakistan Horticulture Development and Export Company)	30 N, Model Town Extension, Lahore (54700), Pakistan.	+92-42-99232210-17

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 Education, Training & Standards in Higher Education	http://moptt.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

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
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
Ministry of National Food Security and Research (MNFS&R)	www.mnfsr.gov.pk
National Agriculture Research Council (NARC)	www.narc.org.pk
Punjab Agriculture and Meat Company	www.pamco.bz
Farmers Associates Pakistan	www.farmersassociates.com
Punjab Agriculture Department	www.agripunjab.gov.pk
Pakistan Agriculture And Dairy Farm Association	www.padfapak.org
Sindh Chamber of Agriculture	www.sindhchamberofagriculture.com

12 ANNEXURES

12.1 Income Statement

Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	9,662,790	10,629,069	11,691,976	12,861,173	14,147,291	15,562,020	17,118,222	18,830,044	20,713,049	22,784,353
Cost of sales										
Plastic Sheet (white)	450,000	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076
Plastic Mulch (black)	54,000	59,400	65,340	71,874	79,061	86,968	95,664	105,231	115,754	127,329
Structure installation cost	72,000	79,200	87,120	95,832	105,415	115,957	127,552	140,308	154,338	169,772
Plants 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
Fertilizer expense	651,600	716,760	788,436	867,280	954,008	1,049,408	1,154,349	1,269,784	1,396,762	1,536,439
Pesticide expense	315,000	346,500	381,150	419,265	461,192	507,311	558,042	613,846	675,230	742,754
Green Manuring and Land Preparation	180,000	198,000	217,800	239,580	263,538	289,892	318,881	350,769	385,846	424,431
Weeding	22,500	24,750	27,225	29,948	32,942	36,236	39,860	43,846	48,231	53,054
Irrigation expense	40,500	41,310	42,136	42,979	43,839	44,715	45,610	46,522	47,452	48,401
Direct labor	970,200	1,067,220	1,173,942	1,291,336	1,420,470	1,562,517	1,718,768	1,890,645	2,079,710	2,287,681
Transportation Cost from Farm to Market	276,000	303,600	333,960	367,356	404,092	444,501	488,951	537,846	591,631	650,794
Packing expense	279,000	292,950	307,598	322,977	339,126	356,083	373,887	392,581	412,210	432,821
Total cost of sales	3,958,800	4,337,490	4,753,287	5,209,865	5,711,264	6,261,927	6,866,738	7,531,069	8,260,825	9,062,501
Gross Profit	5,703,990	6,291,579	6,938,689	7,651,309	8,436,027	9,300,093	10,251,484	11,298,975	12,452,223	13,721,853
General administration & selling expenses										
Administration expense	200,000	220,000	242,000	266,200	292,820	322,102	354,312	389,743	428,718	471,590
Administration benefits expense	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579
Land lease rental expense	450,000	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076
Electricity expense	35,000	38,500	42,350	46,585	51,244	56,368	62,005	68,205	75,026	82,528
Travelling expense	35,000	36,750	38,588	40,517	42,543	44,670	46,903	49,249	51,711	54,296
Communications expense (phone, mail, etc.)	21,000	22,050	23,153	24,310	25,526	26,802	28,142	29,549	31,027	32,578
Misc. expenses	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579
Vegetable Market expense	966,279	1,062,907	1,169,198	1,286,117	1,414,729	1,556,202	1,711,822	1,883,004	2,071,305	2,278,435
Depreciation expense	939,060	939,060	939,060	1,085,661	1,085,661	1,092,042	1,261,751	1,261,751	1,261,751	1,458,210
Amortization of pre-operating costs	5,000	5,000	5,000	5,000	5,000	-	-	-	-	-
Subtotal	2,671,339	2,841,267	3,028,048	3,379,960	3,605,649	3,855,125	4,297,569	4,597,398	4,927,023	5,485,873
Operating Income	3,032,651	3,450,312	3,910,642	4,271,349	4,830,378	5,444,968	5,953,915	6,701,577	7,525,200	8,235,980
Other income (interest on cash)	-	-	-	-	-	-	-	-	-	-
Earnings Before Interest & Taxes	3,032,651	3,450,312	3,910,642	4,271,349	4,830,378	5,444,968	5,953,915	6,701,577	7,525,200	8,235,980
Interest expense on long term debt (Project Loan)	189,868	157,652	120,624	78,066	29,153	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	157,274	-	-	-	-	-	-	-	-	-
Subtotal	347,142	157,652	120,624	78,066	29,153	-	-	-	-	-
Earnings Before Tax	2,685,509	3,292,660	3,790,018	4,193,282	4,801,225	5,444,968	5,953,915	6,701,577	7,525,200	8,235,980
Tax	380,326	471,399	546,002	606,492	697,684	794,245	870,587	982,736	1,106,280	1,212,897
NET PROFIT/(LOSS) AFTER TAX	**2,305,182**	**2,821,261**	**3,244,015**	**3,586,790**	**4,103,541**	**4,650,723**	**5,083,328**	**5,718,840**	**6,418,920**	**7,023,083**

12.2 Balance Sheet

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											
Current assets											
Cash & Bank	1,177,950	1,878,800	5,534,159	6,366,735	10,898,012	15,882,059	18,165,686	24,815,720	32,156,927	35,931,134	52,255,853
Accounts receivable		397,101	416,956	458,652	504,517	554,968	610,465	671,512	738,663	812,529	893,782
Raw material inventory	2,433,600	2,673,720	2,937,787	3,228,195	3,547,576	3,898,827	4,285,132	4,709,997	5,177,275	5,691,206	40,500
Pre-paid annual land lease	450,000	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076	-
Total Current Assets	4,061,550	5,444,621	9,433,402	10,652,531	15,608,950	21,060,584	23,858,486	31,074,152	39,037,479	43,495,945	53,190,135
Fixed assets											
Machinery & equipment	50,000	45,000	40,000	35,000	30,000	88,814	77,433	66,051	54,670	43,288	31,907
Furniture & fixtures	40,000	36,000	32,000	28,000	24,000	20,000	16,000	12,000	8,000	4,000	-
Tunnel equipment	2,790,180	1,860,120	930,060	3,229,982	2,153,321	1,076,661	3,739,108	2,492,739	1,246,369	4,328,485	2,885,657
Total Fixed Assets	2,880,180	1,941,120	1,002,060	3,292,982	2,207,321	1,185,475	3,832,541	2,570,790	1,309,039	4,375,773	2,917,564
Intangible assets											
Pre-operation costs	25,000	20,000	15,000	10,000	5,000	-	-	-	-	-	-
Total Intangible Assets	25,000	20,000	15,000	10,000	5,000	-	-	-	-	-	-
TOTAL ASSETS	**6,966,730**	**7,405,741**	**10,450,462**	**13,955,513**	**17,821,271**	**22,246,059**	**27,691,027**	**33,644,941**	**40,346,518**	**47,871,719**	**56,107,699**
Liabilities & Shareholders' Equity											
Current liabilities											
Total Current Liabilities	-	-	-	-	-	-	-	-	-	-	-
Other liabilities											
Deferred tax		380,326	851,725	1,397,728	2,004,220	2,701,903	3,496,148	4,366,735	5,349,472	6,455,752	7,668,649
Long term debt (Project Loan)	1,452,590	1,236,867	988,928	703,962	376,437	-	-	-	-	-	-
Long term debt (Working Capital Loan)	2,030,775	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	3,483,365	1,617,194	1,840,653	2,101,689	2,380,657	2,701,903	3,496,148	4,366,735	5,349,472	6,455,752	7,668,649
Shareholders' equity											
Paid-up capital	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365	3,483,365
Retained earnings		2,305,182	5,126,444	8,370,459	11,957,249	16,060,791	20,711,513	25,794,841	31,513,682	37,932,602	44,955,685
Total Equity	3,483,365	5,788,547	8,609,809	11,853,824	15,440,614	19,544,156	24,194,878	29,278,206	34,997,047	41,415,967	48,439,050
TOTAL CAPITAL AND LIABILITIES	**6,966,730**	**7,405,741**	**10,450,462**	**13,955,513**	**17,821,271**	**22,246,059**	**27,691,027**	**33,644,941**	**40,346,518**	**47,871,719**	**56,107,699**

12.3 Cash Flow Statement

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
Operating activities											
Net profit		2,305,182	2,821,261	3,244,015	3,586,790	4,103,541	4,650,723	5,083,328	5,718,840	6,418,920	7,023,083
Add: depreciation expense		939,060	939,060	939,060	1,085,661	1,085,661	1,092,042	1,261,751	1,261,751	1,261,751	1,458,210
amortization of pre-operating costs		5,000	5,000	5,000	5,000	5,000	-	-	-	-	-
Deferred income tax		380,326	471,399	546,002	606,492	697,684	794,245	870,587	982,736	1,106,280	1,212,897
Accounts receivable		(397,101)	(19,855)	(41,696)	(45,865)	(50,452)	(55,497)	(61,047)	(67,151)	(73,866)	(81,253)
Raw material inventory	(2,433,600)	(240,120)	(264,067)	(290,408)	(319,381)	(351,251)	(386,305)	(424,864)	(467,278)	(513,931)	5,650,706
Other liabilities		-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(2,433,600)	2,992,348	3,952,798	4,401,974	4,918,697	5,490,183	6,095,207	6,729,755	7,428,898	8,199,153	15,263,643
Financing activities											
Project Loan - principal repayment		(215,723)	(247,939)	(284,967)	(327,524)	(376,437)	-	-	-	-	-
Working Capital Loan - principal repayment		(2,030,775)	-	-	-	-	-	-	-	-	-
Add: land lease expense		450,000	495,000	544,500	598,950	658,845	724,730	797,202	876,923	964,615	1,061,076
Land lease payment	(450,000)	(495,000)	(544,500)	(598,950)	(658,845)	(724,730)	(797,202)	(876,923)	(964,615)	(1,061,076)	-
Additions to Project Loan	1,452,590	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	2,030,775	-	-	-	-	-	-	-	-	-	-
Issuance of shares	3,483,365	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	6,516,730	(2,291,498)	(297,439)	(339,417)	(387,419)	(442,322)	(72,473)	(79,720)	(87,692)	(96,461)	1,061,076
Investing activities											
Capital expenditure	(2,905,180)	-	-	(3,229,982)	-	(63,814)	(3,739,108)	-	-	(4,328,485)	-
Acquisitions											
Cash (used for) / provided by investing activities	(2,905,180)	-	-	(3,229,982)	-	(63,814)	(3,739,108)	-	-	(4,328,485)	-
NET CASH	**1,177,950**	**700,850**	**3,655,359**	**832,575**	**4,531,277**	**4,984,047**	**2,283,626**	**6,650,034**	**7,341,206**	**3,774,207**	**16,324,719**

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Administration Benefit Expenses	05% of Admin Expense
Communication Expenses	21,000 Annual Expense
Travelling Expense	35,000 Annual Expense
Promotional Expense	1.0% of Revenue
Professional Fees (Legal, Audit, Consultant)	05% of Revenue
Depreciation on Building and Infrastructure	5%
Office Expenses (Stationary, Entertainment, Janitorial Services, etc.)	10%
Office Vehicles Insurance Rate	10%
Depreciation on Tunnel Equipment	33%
Depreciation on Office Vehicle	20%
Operating Costs Growth Rate	10%
Accounts Receivable Cycle	07 Days
Raw Material Inventory	06 Months
Amortization Of Pre-Operating Expenses	05 Years

13.2 Production Cost Assumptions

Description	Details
Cost of Goods Sold Growth Rate	10%
Operating Cost Growth Rate	05%
Vegetable Market Expense	10% of Revenue
Miscellaneous Expense	05% of Admin Expense
Farm to Market Trip Cost	Rs. 280,000 Per Trip Cost: 8000 Per Trip Load: 10 (Tons) No. of Trip: 35
Pesticides Expense per season	Rs. 315,000
Cost of irrigation (9 acres)	40,500
Cost of Green manuring, Land preparation, & sowing (9 acres)	Rs. 180,000.
Cost of Mechanical Hoeing (9 acres)	Rs. 22,500

Total packing expense per season for 9 acres	Rs. 279,000

13.3 Revenue Assumptions

Description	Details
Sales Price Growth Rate	10%
Production Capacity Utilization (1-10 Yr.)	100%
Days Operational / Year	7 months

13.4 Financial Assumptions

Description	Details
Project Life	10 Years
Debt	50%
Equity	50%
Interest Rate on Debt	14%
Debt Tenure	5
Debt Payment / Year	12