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# Pre-Feasibility Study

## OFF-SEASON VEGETABLE FARMING (HIGH TUNNEL)



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**Ministry of Industries & Production**  
**Government of Pakistan**  
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## 1 DISCLAIMER

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 has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, 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. 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 taking any decision to act upon the information.

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## 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 using high tunnel technology. The three vegetables proposed to be cultivated in this particular project are Tomato, Sweet Pepper and Cucumber. The 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 proposed vegetable mix for this pre-feasibility will be cultivated on 9 acres of land. The numbers of plantations each year are 10,000 plants of tomato, 15,000 plants of sweet pepper and 15,000 plants of cucumber. The estimated produce would be 50 tons of tomato, 20 tons of sweet pepper and 45 tons of cucumber respectively.

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. 5.99 million out of which Rs. 1.37 million is the capital cost and Rs. 4.62 million is for working capital. The project NPV is projected at Rs. 13.67 million with an IRR of 64% and payback period is 1.67 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, and production, marketing, finance and business management. The purpose of this document is to facilitate potential investors in **Off-season Vegetable Farming (High Tunnel)** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

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

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

## 5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

There is a great demand of vegetables all year round. High prices of the produce can be fetched, provided modern techniques are applied to grow off-season vegetable. Vegetables can be cultivated in off-season, with introduction of techniques like tunnel technology, in which temperature and moisture is controlled for growth of vegetables in specific conditions. The production of vegetables all-round the year, enables the technically competent growers to fully utilize their resources and achieve higher income as compared to traditional crops.

The proposed project is designed as a medium sized off-season vegetable farming unit on 9 acres of land. Off-season vegetables, such as, tomatoes, chillies / hot pepper, cucumber, brinjal, sweet peppers, ridge-gourd (teenda) and bitter-gourd (karela) can be cultivated using high tunnel technology. However, for the purpose of this pre-feasibility, three crops are being proposed, namely, tomato, sweet pepper, and cucumber.

The farm will provide employment opportunities to 10 individuals directly, while seasonal pickers and packers would also be required. The estimated yield potential of the farm varies according to the selected type of vegetable. With above-mentioned vegetable mix, combined yield of 115 tons per season excluding wastage.

This pre-feasibility assumes the legal status of individual as a farmer / leaseholder with less than 12.5 acres of land.

## 5.1 High Tunnel Structure Specification

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

**Table 1 - Specifications of High Tunnel**

Material Specification	Material	Description
		Bamboo
	Plastic	0.10 mm thick
Tunnel Specification	Dimensions	Requirement
	Height	10 ft
	Width	30~32 ft
	Length	200 ft
	No. of tunnels	6 per acre

The cost of such tunnel amounts to Rs. 1,258,200, excluding the cost related to plastic used as a shield (Cover) and mulch.

**Figure 1 - High Plastic Tunnel**



## 5.2 Support Structure

Each tunnel will be 200 feet long, 10 feet high and 30~32 feet wide. The tunnel is built by 2~3 inch diameter bamboo having 8.5~20 feet length. The bamboos are fixed at regular distance of approximately 10~15 feet. Each tunnel structure will then be covered by 0.10 mm thick plastic sheet. Approximately 6 tunnels can be

constructed on an acre of land depending on the type of vegetable, i.e. tomato, sweet pepper and cucumber.

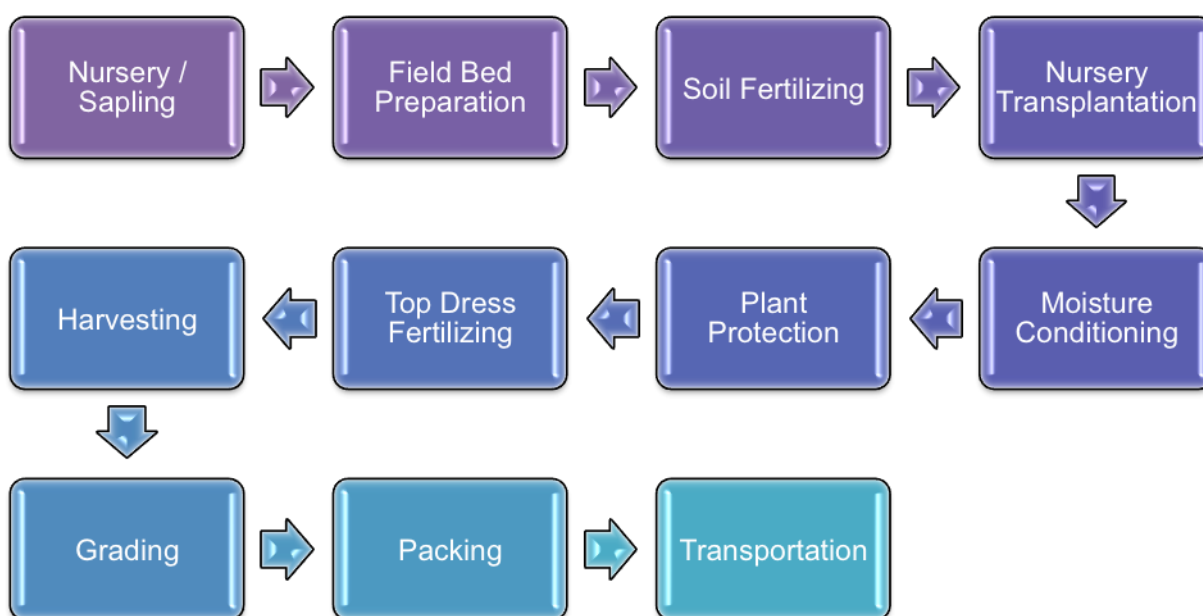
### 5.3 Installed and Operational Capacities

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)
Tomato	4	10,000	50,000
Sweet Pepper	2	15,000	20,000
Cucumber	3	15,000	45,000

### 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 (High 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 annexure.

### **9.1 Project Economics**

The proposed vegetable mix is tomato cultivated on 4 acres of land, sweet pepper on 2 acres and cucumber on 3 acres respectively. The estimated produce would be 50 tons of tomato, 20 tons of sweet pepper and 45 tons of cucumber 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)	64%
Payback Period (Yrs.)	1.67
Net Present Value (NPV) Rs.	13,671,302

Returns on investment and its profitability are highly dependent on the entrepreneur having some practical knowledge about agriculture and farming, selection of fertile land, selection of high yield seed, cultivation, 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%)	2,994,208
Bank Loan (50%)	2,994,208
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 Summary**

Description	Amount Rs.
<b>Capital Cost</b>	
Farm and Tools	45,000
Furniture and Fixtures	40,000
Tunnel Equipment	1,258,200
Pre-operating Cost	25,000
<b>Total Capital Cost</b>	<b>1,368,200</b>
<b>Working Capital</b>	
Cash	1,217,117

Upfront Land Lease Rental	450,000
Raw Material Inventory	2,953,100
<b>Total Working Capital</b>	<b>4,620,217</b>
<b>Total Project Cost</b>	<b>5,988,417</b>

#### 9.4 Land Requirement

The area has been calculated on the basis of minimum viable land required for setting up Off-Season Vegetable Farm (High Tunnel). However, the existing units do not follow any set pattern. 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.)
Tomato	4	50,000	200,000
Sweet pepper	2	50,000	100,000
Cucumber	3	50,000	150,000
<b>Total</b>	<b>9</b>		<b>450,000</b>

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

#### 9.5 Machinery & Equipment Requirement

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

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

**Table 7 - List of Machinery**

Description	Replacement Year	Quantity	Cost Rs. / Unit	Total Rs.
Farm Tools (Hand Tools)	5	1	20,000	20,000
Spray Machines	5	5	5,000	25,000
<b>Total</b>				<b>45,000</b>

#### 9.6 Furniture and Fixture

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

**Table 8 – Furniture and Fixture Requirement**

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

### 9.7 High tunnel Structure Requirement

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

**Table 9 – Structure Requirement for High Tunnel**

Description	Replacement Year	Qty.	Unit Cost (Rs.)	Total Amount (Rs.)
Bamboos (Nos.)	3	9,720	110	1,069,200
Wire (G. Iron) (Kg)	3	900	135	121,500
Wire stretchers (Nos.)	3	900	75	67,500
<b>Total Equipment Cost</b>				<b>1,258,200</b>

### 9.8 Plastic Sheet and Structure Installation Requirement

Plastic sheet and structure installation requirement for 9 acres of land are given in the table below:

**Table 10 – Plastic Sheet and Structure Installation Requirement**

Description	Qty.	Unit Cost (Rs.)	Total Amount (Rs.)
Plastic Sheet - White (Kg)	2,250	250	562,500
Plastic Mulch - Black (Kg)	180	300	54,000
Structure installation cost (Acres)	9	20,000	180,000
<b>Total</b>			<b>796,500</b>

### 9.9 Raw Material Requirements

Following table shows raw material requirement:

**Table 11 – Plants Cost**

Vegetables	Area (acres)	No. of Plants / Acre	Unit Cost Rs.	Total Cost of Plants
Tomato	4	10,000	8	320,000
Sweet pepper	2	15,000	5	150,000
Cucumber	3	15,000	10	450,000
<b>Total</b>	<b>9</b>			<b>920,000</b>

Apart from high yield seeds, following other raw material will also be required for cultivating off-season vegetables:

**Table 12 – Fertilizer Requirement**

Description	Qty. Bags / Acre	Unit Costs (Rs.)	Total Fertilizer 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
<b>Total Cost of Fertilizer</b>			<b>651,600</b>

**Table 13 – Pesticides Requirement**

Description	Unit	Qty.	Unit Costs (Rs.)	Total Cost (Rs.)
Fungicide	Area	9	20,000	180,000
Insecticide	Area	9	15,000	135,000
<b>Total Pesticide Spray Cost</b>				<b>315,000</b>

### 9.10 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.

**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
<b>Total Staff</b>			<b>1,019,000</b>

Five 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.

### 9.11 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 excl. Wastage (Kg)	First Year Sales Revenue (Rs)
Tomato	4	30	50,000	6,000,000
Sweet pepper	2	40	20,000	1,600,000
Cucumber	3	20	45,000	2,700,000
Empty bags of Fertilizer				2,790
<b>Total Sales Revenue</b>				<b>10,302,790</b>

The price of vegetables in normal season is around one-third of the price of vegetables grown in off-season.

### 9.12 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 estimated as Rs. 300,000 for 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 Supplier	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
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## 11 USEFUL WEB LINKS

Small & 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 & Production	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
Ministry of Education, Training & 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 Jamu Kashmir	<a href="http://www.aik.gov.pk">www.aik.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Security 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 Small Industries Corporation	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
Sindh Small Industries Corporation	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
Pakistan Horticulture Development and Export Company (PHDEC)	<a href="http://www.phdec.org.pk">www.phdec.org.pk</a>
Punjab Agriculture Department	<a href="http://www.agripunjab.gov.pk">www.agripunjab.gov.pk</a>
Ministry of National Food Security and Research (MNFS&R)	<a href="http://www.mnfsr.gov.pk">www.mnfsr.gov.pk</a>
Punjab Agriculture and Meat Company	<a href="http://www.pamco.bz">www.pamco.bz</a>
Farmers Associates Pakistan	<a href="http://www.farmersassociates.com">www.farmersassociates.com</a>
Punjab Agriculture Department	<a href="http://www.agripunjab.gov.pk">www.agripunjab.gov.pk</a>
Pakistan Agriculture And Dairy Farm Association	<a href="http://www.padfapak.org">www.padfapak.org</a>
Sindh Chamber of Agriculture	<a href="http://www.sindhchamberofagriculture.com">www.sindhchamberofagriculture.com</a>

## 12 ANNEXURES

### 12.1 Income Statement

<b>Income Statement</b>										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	10,302,790	11,333,069	12,466,376	13,713,013	15,084,315	16,592,746	18,252,021	20,077,223	22,084,945	24,293,440
<i>Cost of sales</i>										
Plastic Sheet (white)	562,500	618,750	680,625	748,688	823,556	905,912	996,503	1,096,153	1,205,769	1,326,346
Plastic Mulch	54,000	59,400	65,340	71,874	79,061	86,968	95,664	105,231	115,754	127,329
Structure installation cost	180,000	198,000	217,800	239,580	263,538	289,892	318,881	350,769	385,846	424,431
Plants expense	920,000	1,012,000	1,113,200	1,224,520	1,346,972	1,481,669	1,629,836	1,792,820	1,972,102	2,169,312
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	67,500	68,850	70,227	71,632	73,064	74,525	76,016	77,536	79,087	80,669
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	300,000	330,000	363,000	399,300	439,230	483,153	531,468	584,615	643,077	707,384
Packing expense	387,667	407,050	427,403	448,773	471,211	494,772	519,510	545,486	572,760	601,398
<b>Total cost of sales</b>	<b>4,610,967</b>	<b>5,047,280</b>	<b>5,526,148</b>	<b>6,051,774</b>	<b>6,628,782</b>	<b>7,262,255</b>	<b>7,957,780</b>	<b>8,721,501</b>	<b>9,560,174</b>	<b>10,481,226</b>
<b>Gross Profit</b>	<b>5,691,823</b>	<b>6,285,789</b>	<b>6,940,228</b>	<b>7,661,240</b>	<b>8,455,533</b>	<b>9,330,492</b>	<b>10,294,241</b>	<b>11,355,722</b>	<b>12,524,772</b>	<b>13,812,214</b>
<i>General administration &amp; selling expenses</i>										
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	1,030,279	1,133,307	1,246,638	1,371,301	1,508,431	1,659,275	1,825,202	2,007,722	2,208,495	2,429,344
Depreciation expense	427,900	427,900	427,900	494,008	494,008	499,751	576,279	576,279	576,279	664,870
Amortization of pre-operating costs	5,000	5,000	5,000	5,000	5,000	-	-	-	-	-
<b>Subtotal</b>	<b>2,224,179</b>	<b>2,400,507</b>	<b>2,594,328</b>	<b>2,873,491</b>	<b>3,107,698</b>	<b>3,365,907</b>	<b>3,725,477</b>	<b>4,036,645</b>	<b>4,378,742</b>	<b>4,843,442</b>
<b>Operating Income</b>	<b>3,467,644</b>	<b>3,885,282</b>	<b>4,345,901</b>	<b>4,787,748</b>	<b>5,347,834</b>	<b>5,964,584</b>	<b>6,568,764</b>	<b>7,319,077</b>	<b>8,146,030</b>	<b>8,968,772</b>
<b>Earnings Before Interest &amp; Taxes</b>	<b>3,467,644</b>	<b>3,885,282</b>	<b>4,345,901</b>	<b>4,787,748</b>	<b>5,347,834</b>	<b>5,964,584</b>	<b>6,568,764</b>	<b>7,319,077</b>	<b>8,146,030</b>	<b>8,968,772</b>
Interest expense on long term debt (Project Loan)	89,419	74,246	56,808	36,766	13,730	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	178,907	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>268,326</b>	<b>74,246</b>	<b>56,808</b>	<b>36,766</b>	<b>13,730</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Earnings Before Tax</b>	<b>3,199,318</b>	<b>3,811,036</b>	<b>4,289,093</b>	<b>4,750,983</b>	<b>5,334,105</b>	<b>5,964,584</b>	<b>6,568,764</b>	<b>7,319,077</b>	<b>8,146,030</b>	<b>8,968,772</b>
Tax	457,398	549,155	620,864	690,147	777,616	872,188	962,814	1,075,361	1,199,404	1,322,816
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>2,741,921</b>	<b>3,261,881</b>	<b>3,668,229</b>	<b>4,060,835</b>	<b>4,556,489</b>	<b>5,092,397</b>	<b>5,605,950</b>	<b>6,243,716</b>	<b>6,946,626</b>	<b>7,645,956</b>

## 12.2 Balance Sheet

<b>Balance Sheet</b>											
	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	1,217,117	1,905,134	5,654,130	8,359,634	12,987,154	18,070,620	22,282,542	28,804,767	36,015,147	42,032,224	59,503,776
Accounts receivable		197,588	207,467	228,214	251,035	276,139	303,753	334,128	367,541	404,295	444,724
Raw material inventory	2,953,100	3,243,010	3,561,803	3,912,365	4,297,871	4,721,813	5,188,032	5,700,754	6,264,627	6,884,763	67,500
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	-
<b>Total Current Assets</b>	<b>4,620,217</b>	<b>5,840,732</b>	<b>9,967,900</b>	<b>13,099,163</b>	<b>18,194,906</b>	<b>23,793,302</b>	<b>28,571,529</b>	<b>35,716,572</b>	<b>43,611,929</b>	<b>50,382,358</b>	<b>60,016,000</b>
<i>Fixed assets</i>											
Machinery & equipment	45,000	40,500	36,000	31,500	27,000	79,933	69,689	59,446	49,203	38,960	28,716
Furniture & fixtures	40,000	36,000	32,000	28,000	24,000	20,000	16,000	12,000	8,000	4,000	-
Tunnel equipment	1,258,200	838,800	419,400	1,456,524	971,016	485,508	1,686,108	1,124,072	562,036	1,951,881	1,301,254
<b>Total Fixed Assets</b>	<b>1,343,200</b>	<b>915,300</b>	<b>487,400</b>	<b>1,516,024</b>	<b>1,022,016</b>	<b>585,441</b>	<b>1,771,798</b>	<b>1,195,518</b>	<b>619,239</b>	<b>1,994,841</b>	<b>1,329,970</b>
<i>Intangible assets</i>											
Pre-operation costs	25,000	20,000	15,000	10,000	5,000	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>25,000</b>	<b>20,000</b>	<b>15,000</b>	<b>10,000</b>	<b>5,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>5,988,417</b>	<b>6,776,032</b>	<b>10,470,300</b>	<b>14,625,187</b>	<b>19,221,922</b>	<b>24,378,742</b>	<b>30,343,327</b>	<b>36,912,091</b>	<b>44,231,168</b>	<b>52,377,198</b>	<b>61,345,971</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
<b>Total Current Liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Other liabilities</i>											
Deferred tax		457,398	1,006,553	1,627,417	2,317,564	3,095,179	3,967,367	4,930,181	6,005,543	7,204,947	8,527,763
Long term debt (Project Loan)	684,100	582,505	465,738	331,532	177,284	-	-	-	-	-	-
Long term debt (Working Capital Loan)	2,310,108	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>2,994,208</b>	<b>1,039,903</b>	<b>1,472,290</b>	<b>1,958,949</b>	<b>2,494,848</b>	<b>3,095,179</b>	<b>3,967,367</b>	<b>4,930,181</b>	<b>6,005,543</b>	<b>7,204,947</b>	<b>8,527,763</b>
<i>Shareholders' equity</i>											
Paid-up capital	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208	2,994,208
Retained earnings		2,741,921	6,003,801	9,672,030	13,732,866	18,289,355	23,381,752	28,987,701	35,231,417	42,178,043	49,823,999
<b>Total Equity</b>	<b>2,994,208</b>	<b>5,736,129</b>	<b>8,998,010</b>	<b>12,666,238</b>	<b>16,727,074</b>	<b>21,283,563</b>	<b>26,375,960</b>	<b>31,981,909</b>	<b>38,225,625</b>	<b>45,172,251</b>	<b>52,818,208</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>5,988,417</b>	<b>6,776,032</b>	<b>10,470,300</b>	<b>14,625,187</b>	<b>19,221,922</b>	<b>24,378,742</b>	<b>30,343,327</b>	<b>36,912,091</b>	<b>44,231,168</b>	<b>52,377,198</b>	<b>61,345,971</b>



## 12.3 Cash Flow Statement

<b>Cash Flow Statement</b>											
	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		2,741,921	3,261,881	3,668,229	4,060,835	4,556,489	5,092,397	5,605,950	6,243,716	6,946,626	7,645,956
Add: depreciation expense		427,900	427,900	427,900	494,008	494,008	499,751	576,279	576,279	576,279	664,870
amortization of pre-operating costs		5,000	5,000	5,000	5,000	5,000	-	-	-	-	-
Deferred income tax		457,398	549,155	620,864	690,147	777,616	872,188	962,814	1,075,361	1,199,404	1,322,816
Accounts receivable		(197,588)	(9,879)	(20,747)	(22,821)	(25,104)	(27,614)	(30,375)	(33,413)	(36,754)	(40,429)
Raw material inventory	(2,953,100)	(289,910)	(318,793)	(350,562)	(385,506)	(423,942)	(466,219)	(512,722)	(563,873)	(620,136)	6,817,263
Cash provided by operations	(2,953,100)	3,144,721	3,915,263	4,350,684	4,841,663	5,384,067	5,970,502	6,601,946	7,298,072	8,065,420	16,410,476
<i>Financing activities</i>											
Project Loan - principal repayment		(101,595)	(116,767)	(134,206)	(154,248)	(177,284)	-	-	-	-	-
Working Capital Loan - principal repayment		(2,310,108)	-	-	-	-	-	-	-	-	-
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	684,100	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	2,310,108	-	-	-	-	-	-	-	-	-	-
Issuance of shares	2,994,208	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	5,538,417	(2,456,703)	(166,267)	(188,656)	(214,143)	(243,168)	(72,473)	(79,720)	(87,692)	(96,461)	1,061,076
<i>Investing activities</i>											
Capital expenditure	(1,368,200)	-	-	(1,456,524)	-	(57,433)	(1,686,108)	-	-	(1,951,881)	-
Acquisitions											
Cash (used for)/ provided by investing activities	(1,368,200)	-	-	(1,456,524)	-	(57,433)	(1,686,108)	-	-	(1,951,881)	-
<b>NET CASH</b>	<b>1,217,117</b>	<b>688,017</b>	<b>3,748,996</b>	<b>2,705,504</b>	<b>4,627,520</b>	<b>5,083,466</b>	<b>4,211,921</b>	<b>6,522,226</b>	<b>7,210,379</b>	<b>6,017,077</b>	<b>17,471,552</b>

## 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 % of admin 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. 304,000 Per Trip Cost: 8000 Per Trip Load: 10 (Tons) No. of Trip: 38
Pesticides Expense per Season	Rs. 315,000
Cost of Irrigation (9 acres)	Rs. 67,000
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. 387,667

### 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