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# Pre-Feasibility Study

## COLD STORAGE (FRUIT & VEGETABLE)



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**Ministry of Industries & Production**

**Government of Pakistan**

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**December 2015**

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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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### ***Document Control***

Document No.	PREF-131
Revision	No. 1
Prepared by	SMEDA-Punjab
Revision Date	December, 2015
For information	Provincial Chief – Punjab <a href="mailto:janjua@smeda.org.pk"><u>janjua@smeda.org.pk</u></a>

## **2 EXECUTIVE SUMMARY**

The storage of fruits and vegetables for preserving their edible characteristic and freshness for a longer period of time has become an integral part of fresh fruits and vegetables market supply chain systems. Therefore, setting up of a cold store on commercial basis is a quite lucrative business option for potential investors.

This particular pre-feasibility study provides the basic information for establishment of a cold store unit on commercial basis. The proposed unit is a medium size compartmentalized cold storage facility for different types of fruits and vegetables, particularly for 'Potatoes', 'Apples' and 'Kinnoes'. The unit will render storage facility services to fruit and vegetable traders (both local and exporter) and growers on market rates. This business is proposed to be located in the vicinity of Okara, Kasur, Sahiwal, Sargodha and Multan in Punjab and in some parts of KPK and Baluchistan where fruits and vegetables are grown and commercially traded.

According to the estimates of this pre-feasibility, the proposed cold store will have a maximum capacity of storage of 60,000 bags of Potato or 180,000 crates of Apple / Kinno or others at any given time. The storage capacity utilization for different fruits and vegetables will be determined on seasonal basis. As the proposed facility is compartmentalized, therefore, multiple fruits and vegetables will be stored at the same time.

The starting storage capacity utilization is assumed at 70% (i.e. 42,000 number of potato bags or 126,000 apple crates) whereas maximum capacity utilization is considered as 100%. This capacity utilization is estimated to be economically viable and justifies the capital as well as operational costs of the project. However, complete adherence to best agronomic practices is critical to the success of this project. Therefore, technical knowledge and experience of the entrepreneur is absolutely necessary.

The total project cost for setting up this unit is Rs. 135.78 million out of which Rs. 129.81 million is capital cost and Rs. 5.98 million as working capital. The project is financed through 50% debt and 50% equity. The project NPV is around Rs. 96.36 million, with an IRR of 31% and Payback Period of 3.73 years. The legal status of this project is proposed as 'Sole Proprietorship'.

### 3 INTRODUCTION TO SMEDA

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

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out '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 **Cold Storage (Fruits & Vegetables)** business by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

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

All fruits and vegetables require specialized post-harvest treatment, appropriate temperature and relative humidity for their storage. Establishment of cold storage provides refrigerated storage and preservation facilities for different fruits, vegetables as well as flowers. Because of technology advancements and logistic strategies, the cold storage of perishable items has become an important stage in the distribution between manufacturers / processors and retail locations. The cold storage will ensure the increased availability and improved quality of high value perishable fruits and vegetables for both export and local sale, which would otherwise perish or deteriorate.

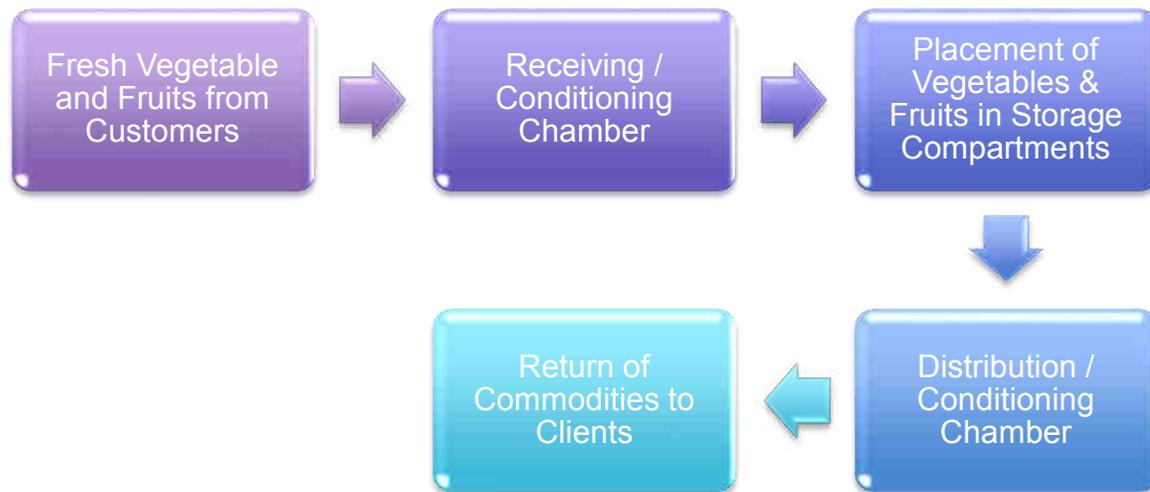
This project is primarily designed for storing of Potatoes, Apples and Kinnoes but it can be used to store multiple products, stored in different compartments of the unit, where relative temperatures for respective products can be maintained. The major clientele of this business will be the local traders, export houses and growers of fresh fruits and vegetables. Storage capacity utilization of different fruits and vegetable will be primarily determined on seasonal basis; however, this facility also aims to cater the off-season fruits and vegetables storage requirements of the traders. The unit will render storage facility services to fruit and vegetable traders (both local and exporter) and growers on market rates.

Cold storage prevents spoilage of perishable commodities like Potato, Apple & Kinno, etc., making them available off-season and in places where they are harvested. This also serves the dual purposes: the growers of the perishable produce don't need to sell out their produce in hurry at throwaway price and protect the nation from shortage of commodities due to spoilage of food during off season.

The proposed project contains racking system build up by using good quality steel and wooden logs. These racks provide space for placing different types of vegetables and fruits. Generally, potatoes / vegetables are stored in bags, whereas fruits are in crates.

### **5.1 Production Process Flow**

The process flow of proposed cold storage facility will be as follow:

**Figure: Process Flow Diagram of Cold Store (Fruit & Vegetable)**

## 5.2 Installed And Operational Capacities

The proposed cold store facility has a maximum storage capacity of storing 60,000 bags of vegetables (i.e. Potato and others) or 180,000 crates of fruits (i.e. Apple, Kinno and others) at a particular time.

The starting capacity utilization is assumed at 70% with 10% accumulated increase in vegetable bags (i.e. Potato and others) and 10% gradual increase in crates of fruits (i.e. Apple, Kinno and others) in subsequent years up to maximum capacity utilization of 100%.

## 6 CRITICAL FACTORS

The most critical considerations / factors for the success of this project are as follows:

- ⇒ Complete adherence to best agronomic practices is critical to the success of this project; therefore, technical knowledge and experience of the entrepreneur in the field of fresh vegetable and fruit is absolutely necessary.
- ⇒ Adaptation of better insulation technology, energy efficient construction techniques and appropriate compartmentalization of the facility.
- ⇒ Appropriate storage arrangement and internal control systems.
- ⇒ Careful selection of good location and purchase of land at competitive price.

- ⇒ Ability to generate work orders through networking, direct marketing and negotiating long term contracts.
- ⇒ Stringent supervision of the production process at every level.
- ⇒ Knowledge about local environmental regulations and compliance requirements.

## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

As per current agricultural practices and availability of fresh vegetables and fruits in abundance, following areas could be the most appropriate locations for the proposed unit:

Okara, Deepalpu, Kasur, Sargodha, Multan, Quetta, Mardan and Swat, etc.

## 8 POTENTIAL TARGET CUSTOMERS / MARKETS

Potential target customers and market for the proposed project mainly comprise of the traders (both local and exporters) and growers of fresh vegetables and fruits.

## 9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Cold Storage (Vegetables & Fruits) Unit. Various cost and revenue related assumptions along with results of the analysis are outlined in this section.

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

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales revenue of Rs. 51.66 million in the year one. The capacity utilization during year one is worked out at 70% with 10% increase in subsequent years up to the maximum capacity utilization of 100%.

The following table shows Internal Rate of Return, Payback Period and Net Present Value of the proposed venture.

**Table 1: Project Economics**

Description	Details
Internal Rate of Return (IRR)	31%

Payback Period (Yrs.)	3.73
Net Present Value (Rs.)	96,357,012

## 9.2 Project Financing

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

**Table 2: Project Financing**

Description	Details
Total Equity (50%)	Rs. 67,891,669
Bank Loan (50%)	Rs. 67,891,669
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 3: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Land	8,000,000
Building	61,771,500
Plant & Machinery	54,497,000
Office Equipment	165,500
Furniture & Fixture	1,304,000
Pre operational expenses, Utilities Installations & contingencies	4,070,062
<b>Total Capital Cost</b>	<b>129,808,062</b>
<b>Working Capital</b>	
Equipment Spare Part Inventory	544,970
Upfront Insurance Payment	2,724,850

Cash	2,705,457
<b>Total Working Capital</b>	<b>5,975,277</b>
<b>Total Project Cost</b>	<b>135,783,338</b>

#### 9.4 Space Requirement

Approximately 1 acres (8 kanals) of land would be required for the establishment of proposed unit. It is suggested to purchase land instead of getting on rent or lease as the project life is very high and plant & machinery used in the project is expensive. The required land should be closely located to agricultural fields or fruits and vegetable markets. The cost of land is estimated at a rate of Rs. 8.00 million per acre; hence total cost of required land is Rs. 8.00 million.

The infrastructural requirements of the project mainly comprises of the construction of Storage Areas, Management Office, Machine Room and other facilities. The cost of construction of building for the proposed unit is provided in the table below:

**Table 4: Building and Infrastructural Requirement**

Description	Area (Sq. Ft.)	Unit Cost / Sq. Ft (Rs.)	Total (Rs.)
Four Cold Storage Rooms (80*57*34)	18,240	2,000	36,480,000
Corridor	3,200	2,000	6,400,000
Machine Room	1,900	2,000	3,800,000
Manager Office	300	2,500	750,000
Accounts and Procurement Office	250	2,500	625,000
Labor Rooms	300	1,800	540,000
Wash Rooms for Labors	200	1,800	360,000
Wapda Meter Room	150	1,500	225,000
Generator Room 450 kva	300	1,500	450,000
Warehouse for Goods Arrival and Packaging	4,500	1,000	4,500,000
Overhead Water Tank			1,500,000
<b>Total Building Area (Sq. Ft.)</b>	<b>29,340</b>		
Parking Sheds / Open Area for Heavy Transports			2,000,000
Boundary Wall	1,000	1,000	1,000,000
Main Gate			200,000

<b>Design &amp; Consultancy Charges @ 5% of Project</b>		5%	2,941,500
<b>Total Infrastructure Cost</b>			<b>61,771,500</b>

The tentative layout of the proposed building and infrastructural requirement is as follows:

Machine Room 80 x 20	Cold Storage 3 80 x 57 x 42	Cold Storage 2 80 x 57 x 42	Cold Storage 1 80 x 57 x 42	Residence 30x10
				Office Block 50 x 10
Corridor 200 x 15				

## 9.5 Machinery & Equipment Requirement

Plant, machinery and equipment required for the proposed project are stated below:

**Table 5: Machinery & Equipment Requirement**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Ammonia Compressor (with Electric Motor, Gauges, Oil Separator, Liquid Receiver, Product Cooler, Section Separator, Electric Motor & Pipes Fitting)	1	16,000,000	16,000,000
Cold Storage Insulation (Thermo pore)	1	7,000,000	7,000,000
Hinged Doors Size (7* 4)	8	75,000	600,000
Installation and Commissioning charges			500,000

<b>Total Imported Machinery Price</b>			<b>24,100,000</b>
GST @ 17 % on the Imported Machinery		17%	4,097,000
<b>Total Cost After Installation</b>			<b>28,197,000</b>
<b>Other Supporting Equipment for Machinery</b>			
Wooden Balaas	60,000	120	7,200,000
Steel Racks (180 tons)	180	90,000	16,200,000
Refrigerant Ammonia and Lube	1	500,000	500,000
GI Ducting for Four Rooms	4	100,000	400,000
Generator set (350 KVA) Caterpillar – Used	1	2,000,000	2,000,000
<b>Total Supporting Machinery &amp; Equipment</b>			<b>26,300,000</b>
<b>Total Machinery and Equipment Cost</b>			<b>54,497,000</b>

## 9.6 Furniture & Fixtures Requirement

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

**Table 6: Furniture & Fixture Requirement**

Description	Quantity	Cost/ unit	Total Cost
Tables	3	15,000	45,000
Chairs for Staff	3	7,000	21,000
Chairs for Visitors	15	5,000	75,000
Sofa Set for Office	1	30,000	30,000
Energy Savers and Electrification Material	1,000	500	500,000
Electric Fittings and Installation	1	150,000	150,000
Security Cameras with DVR Recording and Installation	30	12,000	360,000
Sign Board for Outside	1	35,000	35,000
Ceiling Fans	8	3,500	28,000
Air Conditioners (1.5 ton window)	1	60,000	60,000
<b>Total Furniture and Fixture Cost</b>			<b>1,304,000</b>

## 9.7 Office Equipment Requirement

Following office equipment will be required for the proposed unit:

**Table 7: Office Equipment Requirement**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computers	2	40,000	80,000
Printers	2	15,000	30,000
Telephone Sets	3	3,500	10,500
U.P.S for computers	1	45,000	45,000
<b>Total Office Equipment Cost</b>			<b>165,500</b>

## 9.8 Human Resource Requirement

In order to run operations of Cold Storage Unit smoothly, details of human resources required along with monthly salary are recommended as under:

**Table 8: Human Resource Requirement**

Description	No. of Employees	Monthly Salary Per Person (Rs.)
Cold Store Manager	1	60,000
Shift In charge	2	35,000
Plant Operator	3	25,000
Accountant	1	30,000
Security Guards	2	13,000
Sweepers	2	13,000

## 9.9 Utilities and Other Costs

An essential cost to be borne by the project is the cost of electricity. A three-phase commercial electricity connection and 350 KVA transformer is required for running the cold storage operations. Cost of 350 KVA transformer proposed in this pre-feasibility is Rs. 2 million. Furthermore, promotional expense being essential for marketing of the storage facility is estimated as 2% of revenue.

## 9.10 Revenue Generation

Based on the 70% capacity utilization, sales revenue during the first year of operations is estimated as under:

**Table 9: Revenue Generation – Year 1**

Description	Storage Capacity @ 70%	Storage Rate per Bag or Crate / 6 months	Revenue Generated (Rs. Mn.)
Potato Bags	42,000	600	25.20
Apple Crates	126,000	210	26.46
<b>Total Revenue Generated</b>			<b>51.66</b>

## 10 CONTACT DETAILS

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

### 10.1 Machinery Suppliers

Name of Supplier	Address	Contact Person
Pakistan Air Conditioning Engineering Co. (Pvt) Ltd.	Garden trust building, Naiper road, Lahore Factory: Bund road, Lahore Tel: (042) 37226261-37358497	M. Younas Qureshi (CEO)
Dastgir Engineering Company	12-A, Lahore road, near Jamia Manzoor ul Islamia, Saddar, Cantt, Lahore. Tel: 6665140, 6665202	Mr. Taqi Raza
Madina Engineering Company	Lahore Road, Near Okara Cantt, Okara. Tel: 0300-6963460	Mr. Aslam khan

### 10.2 Major Suppliers of Ammonia Gas Compressor & Wooden Ballas

Name of Suppliers	Address of Supplier	Contact Person
Babar Air Conditioning Engineering Co. (Pvt) Ltd.	Main Multan road, Burewala Tel: (067) 3351918, 0300-6999849	M. Mirza Ashfaq (CEO)

Abdul woods company	Main bund road, Lahore Tel:0300-4185299	M. Gafoor (CEO)
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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>
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.ajk.gov.pk">www.ajk.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Security 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>
Punjab Vocational Training Council (PVTC)	<a href="http://www.pvtc.gop.pk">www.pvtc.gop.pk</a>
Technical Education and Vocational Training Authority (TEVTA)	<a href="http://www.tevta.org">www.tevta.org</a>
Punjab Industrial Estates (PIE)	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>
Pakistan Industrial and Technical Assistance (PITAC)	<a href="http://www.pitac.gov.pk">www.pitac.gov.pk</a>
Cold Storages Chain in Agriculture	<a href="http://www.agribuisness.org.pk">www.agribuisness.org.pk</a>
List of Retail Companies in Pakistan	<a href="http://www.companylist.org">www.companylist.org</a>
Aziz Group of Cold Storages	<a href="http://www.zizgrp.com">www.zizgrp.com</a>



## 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	2,705,457	9,307,490	24,402,355	46,182,384	75,910,178	111,831,123	170,457,244	234,926,709	305,800,436	383,696,336	470,622,065
Equipment spare part inventory	544,970	600,829	662,414	730,312	805,169	887,699	978,688	1,079,003	1,189,601	1,311,535	-
Pre-paid insurance	2,724,850	2,452,365	2,179,880	1,907,395	1,634,910	1,362,425	1,089,940	817,455	544,970	272,485	-
<b>Total Current Assets</b>	<b>5,975,277</b>	<b>12,360,685</b>	<b>27,244,649</b>	<b>48,820,091</b>	<b>78,350,257</b>	<b>114,081,247</b>	<b>172,525,871</b>	<b>236,823,167</b>	<b>307,535,007</b>	<b>385,280,357</b>	<b>470,622,065</b>
<i>Fixed assets</i>											
Land	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000
Building/Infrastructure	61,771,500	58,682,925	55,594,350	52,505,775	49,417,200	46,328,625	43,240,050	40,151,475	37,062,900	33,974,325	30,885,750
Machinery & equipment	54,497,000	49,047,300	43,597,600	38,147,900	32,698,200	27,248,500	21,798,800	16,349,100	10,899,400	5,449,700	-
Furniture & fixtures	1,304,000	1,173,600	1,043,200	912,800	782,400	652,000	521,600	391,200	260,800	130,400	-
Office equipment	165,500	148,950	132,400	115,850	99,300	82,750	66,200	49,650	33,100	16,550	-
<b>Total Fixed Assets</b>	<b>125,738,000</b>	<b>117,052,775</b>	<b>108,367,550</b>	<b>99,682,325</b>	<b>90,997,100</b>	<b>82,311,875</b>	<b>73,626,650</b>	<b>64,941,425</b>	<b>56,256,200</b>	<b>47,570,975</b>	<b>38,885,750</b>
<i>Intangible assets</i>											
Pre-operation costs	4,070,062	3,256,049	2,442,037	1,628,025	814,012	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>4,070,062</b>	<b>3,256,049</b>	<b>2,442,037</b>	<b>1,628,025</b>	<b>814,012</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>135,783,338</b>	<b>132,669,509</b>	<b>138,054,236</b>	<b>150,130,441</b>	<b>170,161,369</b>	<b>196,393,122</b>	<b>246,152,521</b>	<b>301,764,592</b>	<b>363,791,207</b>	<b>432,851,332</b>	<b>509,507,815</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable	-	325,378	378,948	441,204	513,571	571,743	623,656	680,506	742,775	810,995	766,899
<b>Total Current Liabilities</b>	<b>-</b>	<b>325,378</b>	<b>378,948</b>	<b>441,204</b>	<b>513,571</b>	<b>571,743</b>	<b>623,656</b>	<b>680,506</b>	<b>742,775</b>	<b>810,995</b>	<b>766,899</b>
<i>Other liabilities</i>											
Long term debt (Project Loan)	64,904,031	55,265,203	44,186,893	31,454,126	16,819,821	-	-	-	-	-	-
Long term debt (Working Capital Loan)	2,987,638	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>67,891,669</b>	<b>55,265,203</b>	<b>44,186,893</b>	<b>31,454,126</b>	<b>16,819,821</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669	67,891,669
Retained earnings	-	9,187,259	25,596,726	50,343,442	84,936,308	127,929,709	177,637,197	233,192,417	295,156,762	364,148,668	440,849,247
<b>Total Equity</b>	<b>67,891,669</b>	<b>77,078,928</b>	<b>93,488,395</b>	<b>118,235,111</b>	<b>152,827,977</b>	<b>195,821,378</b>	<b>245,528,866</b>	<b>301,084,086</b>	<b>363,048,432</b>	<b>432,040,337</b>	<b>508,740,916</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>135,783,338</b>	<b>132,669,509</b>	<b>138,054,236</b>	<b>150,130,441</b>	<b>170,161,369</b>	<b>196,393,122</b>	<b>246,152,521</b>	<b>301,764,592</b>	<b>363,791,207</b>	<b>432,851,332</b>	<b>509,507,815</b>

## 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
<i>Operating activities</i>											
Net profit		9,187,259	16,409,467	24,746,716	34,592,866	42,993,401	49,707,488	55,555,221	61,964,345	68,991,906	76,700,579
Add: depreciation expense		8,685,225	8,685,225	8,685,225	8,685,225	8,685,225	8,685,225	8,685,225	8,685,225	8,685,225	8,685,225
amortization of pre-operating costs		814,012	814,012	814,012	814,012	814,012	-	-	-	-	-
Equipment inventory	(544,970)	(55,859)	(61,585)	(67,897)	(74,857)	(82,530)	(90,989)	(100,316)	(110,598)	(121,934)	1,311,535
Advance insurance premium	(2,724,850)	272,485	272,485	272,485	272,485	272,485	272,485	272,485	272,485	272,485	272,485
Accounts payable		325,378	53,569	62,256	72,367	58,173	51,912	56,850	62,270	68,219	(44,096)
Cash provided by operations	(3,269,820)	19,228,500	26,173,174	34,512,797	44,362,098	52,740,766	58,626,121	64,469,465	70,873,727	77,895,901	86,925,728
<i>Financing activities</i>											
Project Loan - principal repayment		(9,638,828)	(11,078,310)	(12,732,767)	(14,634,305)	(16,819,821)	-	-	-	-	-
Working Capital Loan - principal repayment		(2,987,638)	-	-	-	-	-	-	-	-	-
Additions to Project Loan	64,904,031	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	2,987,638	-	-	-	-	-	-	-	-	-	-
Issuance of shares	67,891,669	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	135,783,338	(12,626,466)	(11,078,310)	(12,732,767)	(14,634,305)	(16,819,821)	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(129,808,062)	-	-	-	-	-	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(129,808,062)	-	-	-	-	-	-	-	-	-	-
<b>NET CASH</b>	<b>2,705,457</b>	<b>6,602,034</b>	<b>15,094,864</b>	<b>21,780,030</b>	<b>29,727,794</b>	<b>35,920,945</b>	<b>58,626,121</b>	<b>64,469,465</b>	<b>70,873,727</b>	<b>77,895,901</b>	<b>86,925,728</b>

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Office Expenses (Stationery, Entertainment, Janitorial, etc)	1% of administration expense
Machinery & Equipment Maintenance	2% of Machinery Cost
Promotional Expenses	2% of Revenue
Professional Fee	0.5% of revenue
Depreciation Method	Straight Line
Depreciation Rate	
Building & Infrastructure	5%
Machinery & Equipment's	10%
Furniture & Fixtures	10%
Inflation Growth Rate	10%
Electricity Price Growth Rate	10%
Salaries Growth Rate	10%

### 13.2 Production Cost Assumptions

Description	Details
Loading / Unloading Charges per Potato Bag	Rs. 30
Loading / Unloading Charges per Apple Crate	Rs. 8
Electricity Cost per Month during Peak Summer Season	Rs. 1,000,000
Electricity Cost per Month during Off Season	Rs. 400,000
Ammonia Gas Cost per Annum	Rs. 150,000
Water Cost per Annum	Rs. 60,000

### 13.3 Revenue Assumptions

Description	Details
Days Operational / Year for Plant	365
Total Storage Capacity of Potato Bags	60,000
Total Storage Capacity of Apple / Kinno Crates	180,000
Capacity Utilization during 1 <sup>st</sup> Year	70%
Maximum Operational Capacity	100%
Potato Bag Rent per Bag per Month	Rs. 100

Apple / Kinno Crate Rent per Bag per Month	Rs. 35
Sales Price Growth Rate	10%

### 13.4 Financial Assumptions

Description	Details
Project Life (Years)	10
Debt: Equity	50:50
Interest rate on long term debt	14%
Discount rate for calculation of NPV	17%