



**Pre-feasibility Study**

## **MODIFIED CA COLD STORAGE (1000 MT)**

**November 2023**

“ *The figures and financial projections are approximate due to fluctuations in exchange rates, energy costs, and fuel prices etc. Users are advised to focus on understanding essential elements such as production processes and capacities, space, machinery, human resources, and raw material etc. requirements. Project investment, operating costs, and revenues can change daily. For accurate financial calculations, utilize financial calculators on SMEDA’s website and consult financial experts to stay current with market conditions* ”



**Small and Medium Enterprises Development Authority**  
Ministry of Industries and Production  
Government of Pakistan

## Table of Contents

<b>1</b>	<b>DISCLAIMER.....</b>	<b>1</b>
<b>2</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
<b>3</b>	<b>INTRODUCTION TO SMEDA .....</b>	<b>3</b>
<b>4</b>	<b>PURPOSE OF THE DOCUMENT .....</b>	<b>3</b>
<b>5</b>	<b>BRIEF DESCRIPTION OF PROJECT &amp; PRODUCT .....</b>	<b>4</b>
5.1	PRE-PROCESSING AND STORAGE PROCESS FLOW.....	5
5.2	INSTALLED AND OPERATIONAL CAPACITIES .....	6
<b>6</b>	<b>CRITICAL FACTORS.....</b>	<b>6</b>
<b>7</b>	<b>GEOGRAPHICAL POTENTIAL FOR INVESTMENT .....</b>	<b>7</b>
<b>8</b>	<b>POTENTIAL TARGET CUSTOMERS / MARKETS .....</b>	<b>8</b>
<b>9</b>	<b>PROJECT COST SUMMARY .....</b>	<b>8</b>
9.1	PROJECT ECONOMICS .....	8
9.2	PROJECT FINANCING .....	9
9.3	PROJECT COST .....	9
9.4	SPACE REQUIREMENT .....	10
9.5	MACHINERY & EQUIPMENT REQUIREMENT .....	11
9.6	FURNITURE & FIXTURES REQUIREMENT .....	13
9.7	OFFICE EQUIPMENT REQUIREMENT .....	14
9.8	OFFICE VEHICLE REQUIREMENT .....	15
9.9	HUMAN RESOURCE REQUIREMENT .....	15
9.10	UTILITIES AND OTHER COSTS .....	16
<b>10</b>	<b>CONTACT DETAILS.....</b>	<b>16</b>
10.1	MACHINERY SUPPLIERS .....	17
10.2	RAW MATERIAL SUPPLIERS .....	18
10.3	TECHNICAL EXPERTS / CONSULTANTS .....	18
<b>11</b>	<b>USEFUL WEB LINKS .....</b>	<b>20</b>
<b>12</b>	<b>ANNEXURES .....</b>	<b>21</b>
12.1	INCOME STATEMENT .....	21
12.2	BALANCE SHEET.....	22
12.3	CASH FLOW STATEMENT.....	23
<b>13</b>	<b>KEY ASSUMPTIONS .....</b>	<b>24</b>
13.1	OPERATING COST ASSUMPTIONS .....	24
13.2	PRODUCTION COST ASSUMPTIONS .....	24
13.3	REVENUE ASSUMPTIONS.....	24
13.4	FINANCIAL ASSUMPTIONS.....	24

## 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.

For more information on services offered by SMEDA, please contact our website: [www.smeda.org.pk](http://www.smeda.org.pk)

### ***Document Control***

Document No.	PREF-NO: 141
Revision	No. 03
Prepared by	SMEDA-Sindh
Revision Date	November, 2023
For information	Provincial Chief (Sindh) mkumar@smeda.org.pk

## 2 EXECUTIVE SUMMARY

**Modified Controlled Atmosphere (CA) Cold storage** is proposed to be located at in any of the major cities across Pakistan. This project is designed for storing fruits and vegetables using different compartments of the unit for storing multiple products, where relative temperatures for respective products can be maintained

Product(s) include **Apple, Mango Citrus and other fruits and vegetables.**

Capacity; Installed capacity **1000 MT** and initial utilization **500 MT, 50%**

Total Cost Estimates is **Rs.324.59 million** with fixed investment **Rs.320.37 million** and working capital **Rs.4.22 million.**

Given the cost assumptions IRR and payback are **20 %** and **5.42 years** respectively

The most critical considerations or factors for success of the project are:

### **Most significant consideration(s)**

- Selection of advanced controlled atmosphere technology and reliable equipment capable of precise control over environmental conditions.
- Effective marketing and distribution of the product particularly to the exporters, industrial units and super store buyers.
- Complete adherence to best agronomic practices is critical to the success of this project; therefore, technical knowledge & experience of the entrepreneur in the field of horticulture and in fresh fruit processing business is absolutely necessary.
- Design the facility layout with proper insulation, airtight construction, and segmented storage areas to meet the specialized needs of controlled atmosphere storage.

### **Equally important factor(s)**

- Selection of quality fruits on the basis of best analysis of cost and revenues for a given season; cost efficiency through better management.
- Awareness about HACCP standards and Strict Quality assurance of process and products.
- Implement robust monitoring and control systems for real-time data analysis, enabling quick responses to deviations from the desired storage conditions.

### 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 **Modified CA Cold Storage 1000 MT** 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.

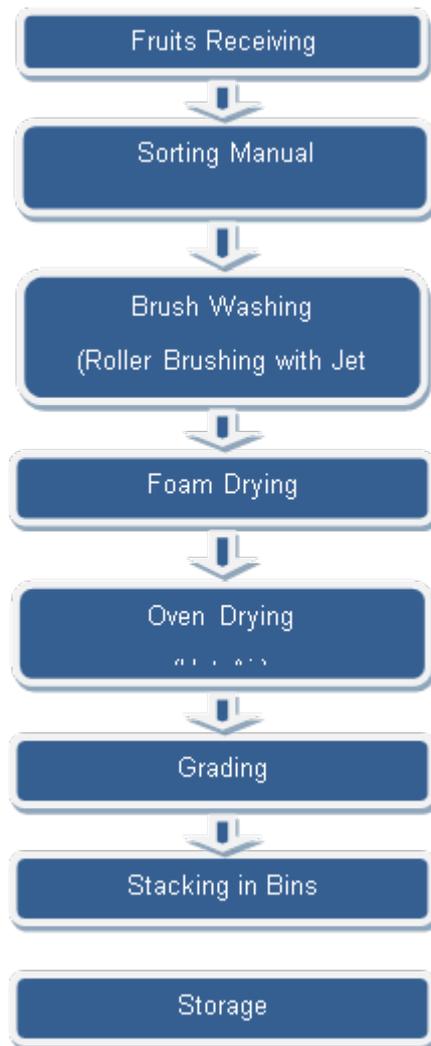
Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

## 5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Establishment of controlled atmosphere cold storage provides refrigerated storage and preservation facilities for several fruits, vegetables & flowers. Because of technology advancements and logistic strategies, the controlled atmosphere cold storage of perishable items has become an important stage in the distribution between manufacturers/processors and retail locations. The controlled atmosphere 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. Following key parameters must be addressed as per pre-feasibility study under preparation

- **Technology:** Cold storage is a used for storing produce such as vegetable and fruits in an atmosphere that is considerably different from normal air with respect to CO<sub>2</sub> and O<sub>2</sub> levels. The CO<sub>2</sub> and O<sub>2</sub> levels within gas tight stores are monitored and adjusted to preserve the storage items. Due to metabolic activity of the respiring fruits and vegetables in the store and leakage of gases through doors and walls, the gas mixture will constantly change. The gases are therefore measured periodically and adjusted to the predetermined level by the introduction of fresh air or nitrogen or passing the store atmosphere through a chemical to remove CO<sub>2</sub>.
- **Location:** CA Cold Storage can be set-up in any major city with significant population such as Karachi, Hyderabad, Lahore, Rawalpindi, Islamabad, Multan, Peshawar and Quetta preferably near *Sabzi Mandi* or fruit & vegetables trading hub. This business can also be done in all small second tier towns in addition to suburban towns of large cities. Moreover, the land will be purchased for the project due to heavy investment.
- **Product:** In the proposed controlled atmosphere cold storage there would be a capacity to store high end imported or local products which can be stored for a duration of about 06 months and more. The proposed products would be Apple and Kinow due to their storage life in CA cold storage up to six months.
- **Target Market:** Target market would be Growers, whole sellers, retailers, hyper stores, Importers and Exporters of fruit and vegetables.
- **Employment Generation:** The proposed project will provide direct employment to 09 people. Financial analysis shows the unit shall be profitable from the very first year of operation.

### 5.1 Pre-processing and storage Process Flow



## 5.2 Installed and Operational Capacities

The proposed cold storage facility has a maximum storage capacity of storing 1,000 metric tons. It will be functional throughout the year. Proposed capacity utilization is 50% with annual growth rate of 10%. This growth rate would be capped at 95% in 5<sup>th</sup> year.

## 6 CRITICAL FACTORS

The main critical success factors that affect the decision to invest in the proposed business setup are:

- Better insulation technology and compartmentalization of cold storage as compared to the rest of the cold storages in Pakistan.
- Energy efficient construction hence low operating/fuel costs due to efficient insulation.
- Compartmentalization i.e. compartments has the provision of storing different commodities at their respective temperatures.
- Complete adherence to best agronomic practices is critical to the success of this project; therefore, technical knowledge & experience of the entrepreneur in the field of horticulture and in fresh fruit processing business is absolutely necessary.
- Awareness about HACCP standards and Strict Quality assurance of process and products.
- Selection of quality fruits on the basis of best analysis of cost and revenues for a given season; cost efficiency through better management.
- Appropriate post-harvest arrangement for transportation of product to the processing unit in case of 'own stock' business model.
- Appropriate storage arrangement and internal control for processed fruits; cold chain refer container arrangements for transportation to local and international markets.
- Properly trained seed staff should be engaged and comprehensive staff training programs to be adopted for capacity building.
- Careful selection of good location and purchase of land at competitive price.
- Effective marketing and distribution of the product particularly to the exporters, industrial units and super store buyers.
- Design the facility layout with proper insulation, airtight construction, and segmented storage areas to meet the specialized needs of controlled atmosphere storage.
- Research market demand and trends for controlled atmosphere storage, and establish collaborations with stakeholders in the cold chain process to optimize supply chain efficiency.
- Understand and adhere to local regulations related to safety standards, environmental considerations, and specific requirements for handling perishable goods.

## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Pakistan produces a variety of fruits and vegetables like potato, apple, mangoes, dates, banana, cherries, kiwi, apricots, pomegranates, peas, carrots, etc. Pakistan's total annual production of fruits amounts to nearly 7 million tons and that of vegetables to approximately 7 million tons with approximately 4 million tons of potato production<sup>1</sup>. However, it is estimated that in Pakistan 35%<sup>2</sup> of fruits & vegetables produced each year are lost because of poor harvest conditions. This loss if calculated approximately amounts to 4.9 million metric tons and its estimated local market value reaches somewhere near US \$ 01 billion. The major reasons for this loss are careless harvesting, rough handling, inadequate transportation, and storage facilities.

Pakistan's Agricultural lands in Punjab, Sindh receive all four seasons and therefore throughout the year cultivation and harvesting of different vegetables, and fruits are scattered evenly across the year. The harvest calendar of various fruits and vegetables is given below

Products	Main Varieties	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Mango</b>	Sindhri												
	Chunsa												
	Dusheri												
	Langra												
	Began Pali												
<b>Citrus</b>	Sweet Orange (Mosumbi, Red Blood)												
	Mandarin (Kino)												
<b>Dates</b>	Halavi												
	Shakar												
	Begum Zangi												
<b>Apple</b>	Tur Kulu												
	Shain Kulu												
	Amri												
	Galas												
<b>Apicort</b>	Nari, Char Maghes, Shakarpara												
<b>Cherry</b>	Black Tatarian, Sunbrust, Van												
<b>Peach</b>	Floridison, Florida King, Robin, 6A, 8A												
<b>Plum</b>	Fazal Manani, Fermusa, Mathleg, Santa Rosa												
<b>Grapes</b>	Bedana, Kishmish, Flame (seed less), Shunda Khani												
<b>Loquat</b>	Matchless, Thompsonpride, Golden Yellow												
<b>Lychee</b>	Gola, Surai, Bedana												
<b>Ber</b>													
<b>Watermelo</b>	Sugar baby, Charles ton												
<b>Meskmelo</b>	T-96, Hales best, Timdew												
<b>Tomato</b>	Roma, Gala, Faisalabad-1												
<b>Potato</b>	Diamond, Cardinal, Faisalabad white												
<b>Onion</b>	Phulkara, Swat-1, Chiltan red, Sariab-86												
<b>Okra</b>	Sabzpari, T-13, Pusa green												
<b>Cucumber</b>	Alpha beta, Japanese long green												

<sup>1</sup> Pakistan Economic Survey, Ministry of finance

<sup>2</sup> Sindh Board of investment

## 8 POTENTIAL TARGET CUSTOMERS / MARKETS

Most of the existing local Cold Storagess are constructed on locally developed methods, which maintain a uniform temperature for all commodities stored. The goods are not stored at their recommended relative storage temperatures and life, and because of this, the quality of stored commodity is badly affected. Vegetables and fruits require specialized post-harvest treatment, appropriate temperature and relative humidity control for their proper & optimum storage, which most of the existing local cold stores lack. Following are the potential customers of cold storage:

- Growers Wholesalers and Traders
- Importers and Exporters
- Retailers and/or Hyper stores

## 9 PROJECT COST SUMMARY

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

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs. - 88.20 million in the year one. The capacity utilization during year one is worked out at 50 % with 10 % increase in subsequent years up to the maximum capacity utilization of 95 %.

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

**Table 9.1: Project Economics**

Description	Details
Internal Rate of Return (IRR)	20%
Payback Period (yrs.)	5.42
Net Present Value (Rs.)	165,752,728

## 9.2 Project Financing

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

**Table 9.2: Project Financing**

Description	Details
Total Equity (100%)	Rs.324,598,589

## 9.3 Project Cost

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

**Table 9.3: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Land (01 acre)	40,000,000
Building/Infrastructure	155,046,291
Machinery & equipment	113,533,392
Furniture & fixtures	1,224,250
Office vehicles	3,200,000
Office equipment	593,250
Pre-operating costs	3,645,000
Misc. & Contingency	3,135,972
<b>Total Capital Cost</b>	<b>320,378,156</b>
<b>Working Capital</b>	
Equipment spare part inventory	2,000,000
Up-front Insurance Payment	720,434
Cash	1,500,000
<b>Total Working Capital</b>	<b>4,220,434</b>
<b>Total Project Cost</b>	<b>324,598,589</b>

## 9.4 Space Requirement

The space requirement for the proposed Modified CA cold storage is approx. 01 acre and estimated by considering various facilities including management office, production hall, storage, open space, etc. Details of space requirement and cost related to land & building is given below:

**Table 9.4: Space Requirement**

Description	Estimated Area (Sq.ft.)	Unit Cost (Rs.)	Total Cost (Rs.)
Office Block	1,000	4,000	4,000,000
Committee Room	500	4,000	2,000,000
Micro Lab, Lab & Office	600	4,000	2,400,000
Sorting & Grading Hall	10,000	4,000	40,000,000
Cold Storage	12,000	4,000	48,000,000
Machine Room	600	4,000	2,400,000
Lobby	480	4,000	1,920,000
Store	3,000	4,000	12,000,000
Dining	500	4,000	2,000,000
Kichen	400	4,000	1,600,000
Masjid	500	4,000	2,000,000
Restrooms	600	4,000	2,400,000
Change Room	250	3,000	750,000
Guard Room	120	3,000	360,000
<b>Total Building Cost</b>	<b>30,550</b>		<b>121,830,000</b>
<b>External Development</b>			

Pavement/driveway	8,000	150	1,200,000
Main Gate	1	500,000	500,000
Grounds Landscaping	5,000	120	600,000
Weighbridge Platform	1	2,000,000	2,000,000
Overhead Water Tank (Gallons)	5,000	2,000	10,000,000
Underground Water Tank (Gallons)	10,000	500	5,000,000
Boundary Wall	836	6,000	5,016,000
Misc. & Contingency	3%		4,384,380
Design & Supervision Charges	3%		4,515,911
<b>Total External Development</b>			<b>33,216,291</b>
<b>Total Building &amp; External Development Cost</b>			<b>155,046,291</b>

## 9.5 Machinery & Equipment Requirement

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

**Table 9.5: Machinery & Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
<b>1.0 INSULATION CHAMBERS</b>			
1.01 Insulation material Polyurethane, CFC Free			23,895,960
1.02 Inter floor of ripening chambers			1,227,435
1.03 Assembling of panels, Inclusive of fitment of profiles, filing and caulking of silicon.			3,661,020

1.04 Sliding Doors	8	212850	1,702,800
1.05 Door for 40 feet container	1	161250	161,250
1.06 Door for Hino	2	90300	180,600
1.07 Humidification System	8	165000	1,320,000
1.08 CO2 exhaust system with fresh air, Air to air heat exchanger including CO2 controller	8	851400	6,811,200
1.09 Ethylene Generator	4	461175	1,844,700
1.10 Dock for Hino	2	92235	184,470
1.11 Dock for 40 feet container	1	141900	141,900
<b>2. REFRIGERATION SYSTEM OF COLD STORE</b>			
2.01 Condensing Unit (15 HP)	8	1109400	8,875,200
2.02 Evaporator Unit	8	657900	5,263,200
2.03 Refrigeration system	8	176730	1,413,840
<b>3. REFRIGERATION SYSTEM OF RIPENING CHAMBERS</b>			
3.01 Condensing Unit (15 HP)	4	176730	706,920
3.02 Evaporator Unit	8	681120	5,448,960
3.03 Refrigeration system	4	354750	1,419,000

<b>SUB TOTAL</b>			<b>64,258,455</b>
Sales Tax		17%	<b>10,923,937</b>
<b>TOTAL COST OF CA COLD STORAGE</b>			<b>75,182,392</b>
<b>B. SORTING &amp; GRADING LINE</b>			<b>10,000,000</b>
Feeder, Brush Washer, Drying, Sorting and Grading			
Fork Lift	1	3500000	3,500,000
Generator 250KVA Turbo Type, 250KVA, 400 Volts, 50 Cycles, 1500 RPM, Power Factor 0.8	1	7,500,000	7,500,000
Weigh Bridge 30 x 10 feet size, 60 tons capacity	1	2,000,000	2,000,000
Drums / Bins	14,000	1,097	<b>15,351,000</b>
<b>Total</b>			<b>113,533,392</b>

## 9.6 Furniture & Fixtures Requirement

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

**Table 9.6: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Managers Tables along with side tables	2	75,000	150,000

Manager / Officers Chairs	2	20,000	40,000
Visitor Chairs	8	15,000	120,000
Officers Tables along with side tables	5	45,000	225,000
File Racks	2	25,000	50,000
Sofa Set	2	100,000	200,000
Split Air-conditioner 1.5 Ton	2	200,000	400,000
Misc. & Contingency		5%	39,250
<b>Total</b>			<b>1,224,250</b>

## 9.7 Office Equipment Requirement

Following office equipment will be required for CA Cold Storage facility.

**Table 9.7: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computers with LCD	2	125,000	250,000
Printer	1	35,000	35,000
Scanner	1	15,000	15,000

Networking Equipment & Accessories			150,000
Telephone Sets	4	5,000	20,000
Water Dispenser	1	35,000	35,000
Electric Water Cooler	1	60,000	60,000
Misc. & Contingency		5%	28,250
<b>Total</b>			<b>593,250</b>

### 9.8 Office Vehicle Requirement

Following office vehicle will be required for the project.

**Table 9.8: Office Vehicle**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Car (1000 cc)	1	3,200,000	3,200,000
<b>Total</b>			<b>3,200,000</b>

### 9.9 Human Resource Requirement

In order to run operations of CA Cold storage smoothly, details of human resources required along with number of employees and monthly salary are recommended as under:

**Table 9.9: Human Resource Requirement**

Description	No. of Employees	Monthly Salary per person (Rs.)	Monthly Salary (Rs.)
Manager Plant	1	150,000	150,000
Manager Finance & Admin	1	100,000	100,000
Cold Store Operator	2	50,000	100,000
Lifter Operator	2	40,000	80,000
Office Boy	1	35,000	35,000
Guard	2	35,000	70,000
<b>Total</b>	<b>09</b>		<b>535,000</b>

### 9.10 Utilities and other costs

An essential cost to be borne by the project is the cost of electricity and fuel. The electricity expenses are estimated to be around Rs. 38.5 mn. per year, whereas, fuel expenses are estimated to be Rs.1.7 mn. per year (for fork lift and burner). Revenue Generation

Based on the capacity utilization of 50 % sales revenue during the first year of operations is estimated as under:

**Table 9.10: Revenue Generation – Year 1**

Description	Average Rental Price Rs. (Incl Sorting and Grading) / kg /month	Rental Revenue (Rs.)
Fruits	15	88,200,000
<b>Total</b>		<b>88,200,000</b>

## 10 CONTACT DETAILS

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

## 10.1 Machinery Suppliers

### Machinery Supplier - 1

<b>Name of Supplier /Organization</b>	Kold Kraft Refrigeration Ltd		
<b>Address</b>	Plot No 83-A, Sector 27 Korangi Industrial Area, Karachi		
<b>Phone</b>	Tel: +92 300-0302887	<b>Fax</b>	Fax: +92-21-35074858
<b>E-mail</b>	fawad.jafri@koldkraft-refrigeration.com		
<b>Website</b>	www.koldkraft-refrigeration.com		

### Machinery Supplier - 2

<b>Name of Supplier /Organization</b>	Frostec		
<b>Address</b>	Suite # 605, Ibrahim Trade Tower, Shahra-e-Faisal, Karachi - Pakistan		
<b>Phone</b>	+92-21-34327620	<b>Fax</b>	92-21-34327619
<b>E-mail</b>	info@frostecint.com		
<b>Website</b>	www.frostecint.com		

### Machinery Supplier - 3

<b>Name of Supplier /Organization</b>	Helperco (Pvt) Limited		
<b>Address</b>	Room # 3, 3rd Floor Al-Hafeez Tower, Shahra-e-Faisal Karachi-75530		
<b>Phone</b>	92-21-35660920-22	<b>Fax</b>	
<b>E-mail</b>	faheem@helperco.com.pk		

<b>Website</b>	<a href="http://www.helpercopvtltd.enic.pk">www.helpercopvtltd.enic.pk</a>
----------------	--

## 10.2 Raw Material Suppliers

### Raw Material Supplier

<b>Name of Supplier /Organization</b>	Wax (Polish) Al-Aziz Enterprises		
<b>Address</b>	10-km,Lahore Road, Sargodha		
<b>Phone</b>	+92-300-9606642	<b>Fax</b>	

## 10.3 Technical Experts / Consultants

### Technical Experts / Consultants - 1

<b>Name of Expert /Organization</b>	Durrani Associates		
<b>Address</b>	Opposite Baqai University, Super Highway, Karachi		
<b>Phone</b>	92-21-34410231	<b>Fax</b>	

### Technical Experts / Consultants - 2

<b>Name of Expert /Organization</b>	Dr. M. Aslam Pervez		
<b>Address</b>	Director Institute of Horticultural Sciences, Facility of Agriculture, University of Agriculture Faisalabad		
<b>Phone</b>	+92-41-9201281	<b>Fax</b>	

**Technical Experts / Consultants - 3**

<b>Name of Expert /Organization</b>	Imtiaz Enterprises		
<b>Address</b>	2 & 3, Karachi Market, New fruit Vegetable Market, Super Highway, Karachi		
<b>Phone</b>	92-21-36870451-3	<b>Fax</b>	

**Technical Experts / Consultants - 4**

<b>Name of Expert /Organization</b>	Pakistan Cold Chain Development Company		
<b>Address</b>	Address: 106 / 3 Block C, Model Town, Lahore Post Code: 54700		
<b>Email</b>	info@ccapak.org		

## 11 USEFUL WEB LINKS

Links of Federal & Provincial Government, Semi Government and other (sector & Cluster based) Development organizations are to be given under this heading so to enable potential investors to get benefit from the services offered. Web links of various organizations are given as example however, links of only relevant organizations should be given;

<b>Small &amp; Medium Enterprises Development Authority (SMEDA)</b>	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
<b>Government of Pakistan</b>	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
<b>Ministry of Industries &amp; Production</b>	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
<b>Ministry of Education, Training &amp; Standards in Higher Education</b>	<a href="http://moptt.gov.pk">http://moptt.gov.pk</a>
<b>Government of Punjab</b>	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
<b>Government of Sindh</b>	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
<b>Government of Khyber Pakhtunkhwa</b>	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
<b>Government of Balochistan</b>	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
<b>Government of Gilgit Baltistan</b>	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>
<b>Government of Azad Jamu Kashmir</b>	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
<b>Trade Development Authority of Pakistan (TDAP)</b>	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
<b>Security Commission of Pakistan (SECP)</b>	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
<b>Federation of Pakistan Chambers of Commerce and Industry (FPCCI)</b>	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
<b>State Bank of Pakistan (SBP)</b>	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
<b>Punjab Small Industries Corporation</b>	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
<b>Sindh Small Industries Corporation</b>	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
<b>Pakistan Horticulture Development and Export Company (PHDEC)</b>	<a href="http://www.phdec.org.pk">www.phdec.org.pk</a>
<b>Punjab Vocational Training Council (PVTC)</b>	<a href="http://www.pvtc.gop.pk">www.pvtc.gop.pk</a>
<b>Technical Education and Vocational Training Authority (TEVTA)</b>	<a href="http://www.tevta.org">www.tevta.org</a>
<b>Punjab Industrial Estates (PIE)</b>	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
<b>Faisalabad Industrial Estate Development and Management Company (FIEDMC)</b>	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>

## 12 ANNEXURES

### 12.1 Income Statement

Calculations											SMEDA
Income Statement											
	50%	60%	70%	80%	90%	95%	95%	95%	95%	95%	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Revenue	88,200,000	116,424,000	149,410,800	187,830,720	232,440,516	269,889,266	296,878,192	326,566,012	359,222,613	395,144,874	
<i>Cost of sales</i>											
	<b>Per month/Kg</b>										
Ripening Cost of Orange	0.04	250,000	327,000	415,835	518,012	635,212	730,846	796,623	868,319	946,467	1,031,649
Ripening Cost of Apple	0.04	250,000	327,000	415,835	518,012	635,212	730,846	796,623	868,319	946,467	1,031,649
Labor Wages for Sorting & Grading	0.18	1,085,595	1,367,850	1,675,616	2,010,739	2,375,186	2,632,497	2,764,122	2,902,328	3,047,445	3,199,817
Production Labor	0.66	3,960,000	4,356,000	4,791,600	5,270,760	5,797,836	6,377,620	7,015,382	7,716,920	8,488,612	9,337,473
Machinery Maintenance	0.09	567,667	624,434	686,877	755,565	831,121	914,233	1,005,657	1,106,222	1,216,845	1,338,529
Electricity Cost	6.43	38,554,082	50,814,388	65,141,214	81,825,262	101,194,708	117,466,984	129,213,682	142,135,051	156,348,556	171,983,411
Fuel Cost	0.29	1,715,958	1,887,554	2,076,309	2,283,940	2,512,334	2,763,568	3,039,924	3,343,917	3,678,308	4,046,139
<b>Total cost of sales</b>	<b>7.73</b>	<b>46,383,302</b>	<b>59,704,225</b>	<b>75,203,286</b>	<b>93,182,289</b>	<b>113,981,608</b>	<b>131,616,594</b>	<b>144,632,012</b>	<b>158,941,075</b>	<b>174,672,699</b>	<b>191,968,668</b>
<b>Gross Profit</b>		<b>41,816,698</b>	<b>56,719,775</b>	<b>74,207,514</b>	<b>94,648,431</b>	<b>118,458,908</b>	<b>138,272,671</b>	<b>152,246,180</b>	<b>167,624,937</b>	<b>184,549,913</b>	<b>203,176,206</b>
		47%	49%	50%	50%	51%	51%	51%	51%	51%	51%
<i>General administration &amp; selling expenses</i>											
Administration expense	0.41	2,460,000	2,706,000	2,976,600	3,274,260	3,601,686	3,961,855	4,358,040	4,793,844	5,273,228	5,800,551
Administration benefits expense	0.02	123,000	135,300	148,830	163,713	180,084	198,093	217,902	239,692	263,661	290,028
Utilities (Electricity, Gas, Water etc)	0.32	1,927,704	2,540,719	3,257,061	4,091,263	5,059,735	5,873,349	6,460,684	7,106,753	7,817,428	8,599,171
Travelling expense	0.08	481,500	529,650	582,615	640,877	704,964	775,461	853,007	938,307	1,032,138	1,135,352
Communications expense (phone, fax, mail, internet, e	0.11	642,000	706,200	776,820	854,502	939,952	1,033,947	1,137,342	1,251,076	1,376,184	1,513,802
Office vehicles running expense	0.04	240,000	264,000	290,400	319,440	351,384	386,522	425,175	467,692	514,461	565,907
Office expenses (stationary, entertainment, janitorial ser	0.11	642,000	706,200	776,820	854,502	939,952	1,033,947	1,137,342	1,251,076	1,376,184	1,513,802
Promotional expense	0.13	770,400	731,880	695,286	660,522	627,496	596,121	566,315	537,999	511,099	485,544
Insurance expense	0.12	720,434	638,790	557,147	475,504	393,860	466,826	373,461	280,095	186,730	93,365
Professional fees (legal, audit, consultants, etc.)	0.05	321,000	353,100	388,410	427,251	469,976	516,974	568,671	625,538	688,092	756,901
Depreciation expense	3.32	19,927,404	19,927,404	19,927,404	19,927,404	19,927,404	20,318,130	20,318,130	20,318,130	20,318,130	20,318,130
Amortization of pre-operating costs	0.12	729,000	729,000	729,000	729,000	729,000	-	-	-	-	-
Amortization of Contingency Cost	0.05	313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597
Miscellaneous expense	0.11	642,000	706,200	776,820	854,502	939,952	1,033,947	1,137,342	1,251,076	1,376,184	1,513,802
<b>Subtotal</b>	<b>4.99</b>	<b>29,940,039</b>	<b>30,988,041</b>	<b>32,196,810</b>	<b>33,586,336</b>	<b>35,179,043</b>	<b>36,508,769</b>	<b>37,867,008</b>	<b>39,374,877</b>	<b>41,047,118</b>	<b>42,899,954</b>
<b>Operating Income</b>		<b>11,876,660</b>	<b>25,731,734</b>	<b>42,010,704</b>	<b>61,062,095</b>	<b>83,279,865</b>	<b>101,763,902</b>	<b>114,379,172</b>	<b>128,250,059</b>	<b>143,502,795</b>	<b>160,276,252</b>
<b>Earnings Before Interest &amp; Taxes</b>		<b>11,876,660</b>	<b>25,731,734</b>	<b>42,010,704</b>	<b>61,062,095</b>	<b>84,559,865</b>	<b>101,763,902</b>	<b>114,379,172</b>	<b>128,250,059</b>	<b>143,502,795</b>	<b>160,276,252</b>
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Earnings Before Tax</b>		<b>11,876,660</b>	<b>25,731,734</b>	<b>42,010,704</b>	<b>61,062,095</b>	<b>84,559,865</b>	<b>101,763,902</b>	<b>114,379,172</b>	<b>128,250,059</b>	<b>143,502,795</b>	<b>160,276,252</b>
<b>Tax</b>		<b>2,375,332</b>	<b>5,146,347</b>	<b>8,402,141</b>	<b>12,212,419</b>	<b>16,911,973</b>	<b>20,352,780</b>	<b>22,875,834</b>	<b>25,650,012</b>	<b>28,700,559</b>	<b>32,055,250</b>
<b>NET PROFIT/(LOSS) AFTER TAX</b>		<b>9,501,328</b>	<b>20,585,388</b>	<b>33,608,563</b>	<b>48,849,676</b>	<b>67,647,892</b>	<b>81,411,122</b>	<b>91,503,338</b>	<b>102,600,048</b>	<b>114,802,236</b>	<b>128,221,002</b>
	<b>12.72</b>	11%	18%	22%	26%	29%	30%	31%	31%	32%	32%
Balance brought forward			7,601,062	22,549,160	44,926,178	75,020,683	114,134,860	156,436,785	198,352,099	240,761,717	284,451,163
Total profit available for appropriation		9,501,328	28,186,450	56,157,723	93,775,854	142,668,575	195,545,982	247,940,123	300,952,146	355,563,953	412,672,165
Dividend		1,900,266	5,637,290	11,231,545	18,755,171	28,533,715	39,109,196	49,588,025	60,190,429	71,112,791	82,534,433
Balance carried forward		7,601,062	22,549,160	44,926,178	75,020,683	114,134,860	156,436,785	198,352,099	240,761,717	284,451,163	330,137,732

## 12.2 Balance Sheet

Calculations											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	1,500,000	29,069,272	70,044,533	115,951,670	165,523,355	218,554,166	277,256,741	335,909,921	395,475,005	456,195,792	521,767,475
Accounts receivable		7,249,315	8,409,205	10,924,718	13,859,241	17,271,421	20,643,690	23,291,813	25,620,995	28,183,094	31,001,404
Equipment spare part inventory	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013	2,552,563	2,680,191	2,814,201	2,954,911	3,102,656	-
Pre-paid insurance	720,434	638,790	557,147	475,504	393,860	466,826	373,461	280,095	186,730	93,365	-
<b>Total Current Assets</b>	<b>4,220,434</b>	<b>39,057,378</b>	<b>81,215,886</b>	<b>129,667,141</b>	<b>182,207,468</b>	<b>238,844,975</b>	<b>300,954,083</b>	<b>362,296,030</b>	<b>424,237,641</b>	<b>487,574,908</b>	<b>552,768,879</b>
<i>Fixed assets</i>											
Land	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000
Building/Infrastructure	155,046,291	147,293,977	139,541,662	131,789,348	124,037,033	116,284,719	108,532,404	100,780,089	93,027,775	85,275,460	77,523,146
Machinery & equipment	113,533,392	102,180,053	90,826,714	79,473,375	68,120,035	56,766,696	45,413,357	34,060,018	22,706,678	11,353,339	-
Furniture & fixtures	1,224,250	1,101,825	979,400	856,975	734,550	612,125	489,700	367,275	244,850	122,425	-
Office vehicles	3,200,000	2,560,000	1,920,000	1,280,000	640,000	5,153,632	4,122,906	3,092,179	2,061,453	1,030,726	-
Office equipment	593,250	533,925	474,600	415,275	355,950	296,625	237,300	177,975	118,650	59,325	-
<b>Total Fixed Assets</b>	<b>313,597,184</b>	<b>293,669,780</b>	<b>273,742,376</b>	<b>253,814,972</b>	<b>233,887,569</b>	<b>219,113,797</b>	<b>198,795,667</b>	<b>178,477,536</b>	<b>158,159,406</b>	<b>137,841,276</b>	<b>117,523,146</b>
<i>Intangible assets</i>											
Pre-operation costs	3,645,000	2,916,000	2,187,000	1,458,000	729,000	-	-	-	-	-	-
Legal, licensing, & training costs	3,135,972	2,822,375	2,508,777	2,195,180	1,881,583	1,567,986	1,254,389	940,792	627,194	313,597	-
<b>Total Intangible Assets</b>	<b>6,780,972</b>	<b>5,738,375</b>	<b>4,695,777</b>	<b>3,653,180</b>	<b>2,610,583</b>	<b>1,567,986</b>	<b>1,254,389</b>	<b>940,792</b>	<b>627,194</b>	<b>313,597</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>324,598,589</b>	<b>338,465,532</b>	<b>359,654,039</b>	<b>387,135,294</b>	<b>418,705,620</b>	<b>459,526,758</b>	<b>501,004,138</b>	<b>541,714,358</b>	<b>583,024,241</b>	<b>625,729,781</b>	<b>670,292,024</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		3,890,549	4,984,611	6,257,187	7,733,008	9,439,969	10,886,092	11,951,667	13,122,599	14,409,361	15,555,703
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities											
<b>Total Current Liabilities</b>	<b>-</b>	<b>3,890,549</b>	<b>4,984,611</b>	<b>6,257,187</b>	<b>7,733,008</b>	<b>9,439,969</b>	<b>10,886,092</b>	<b>11,951,667</b>	<b>13,122,599</b>	<b>14,409,361</b>	<b>15,555,703</b>
<i>Other liabilities</i>											
Deferred tax		2,375,332	7,521,679	11,353,339	11,353,339	11,353,339	9,082,671	6,812,004	4,541,336	2,270,668	(0)
<b>Total Long Term Liabilities</b>	<b>-</b>	<b>2,375,332</b>	<b>7,521,679</b>	<b>11,353,339</b>	<b>11,353,339</b>	<b>11,353,339</b>	<b>9,082,671</b>	<b>6,812,004</b>	<b>4,541,336</b>	<b>2,270,668</b>	<b>(0)</b>
<i>Shareholders' equity</i>											
Paid-up capital	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589	324,598,589
Retained earnings		7,601,062	22,549,160	44,926,178	75,020,683	114,134,860	156,436,785	198,352,099	240,761,717	284,451,163	330,137,732
<b>Total Equity</b>	<b>324,598,589</b>	<b>332,199,651</b>	<b>347,147,749</b>	<b>369,524,768</b>	<b>399,619,273</b>	<b>438,733,449</b>	<b>481,035,375</b>	<b>522,950,688</b>	<b>565,360,306</b>	<b>609,049,752</b>	<b>654,736,321</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>324,598,589</b>	<b>338,465,532</b>	<b>359,654,039</b>	<b>387,135,294</b>	<b>418,705,620</b>	<b>459,526,758</b>	<b>501,004,138</b>	<b>541,714,358</b>	<b>583,024,241</b>	<b>625,729,781</b>	<b>670,292,024</b>

## 12.3 Cash Flow Statement

Calculations											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		9,501,328	20,585,388	33,608,563	48,849,676	67,647,892	81,411,122	91,503,338	102,600,048	114,802,236	128,221,002
Add: depreciation expense		19,927,404	19,927,404	19,927,404	19,927,404	19,927,404	20,318,130	20,318,130	20,318,130	20,318,130	20,318,130
amortization of pre-operating costs		729,000	729,000	729,000	729,000	729,000	-	-	-	-	-
amortization of training costs		313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597	313,597
Deferred income tax		2,375,332	5,146,347	3,831,660	-	-	(2,270,668)	(2,270,668)	(2,270,668)	(2,270,668)	(2,270,668)
Accounts receivable		(7,249,315)	(1,159,890)	(2,515,512)	(2,934,523)	(3,412,180)	(3,372,269)	(2,648,124)	(2,329,181)	(2,562,099)	(2,818,309)
Equipment inventory	(2,000,000)	(100,000)	(105,000)	(110,250)	(115,763)	(121,551)	(127,628)	(134,010)	(140,710)	(147,746)	3,102,656
Advance insurance premium	(720,434)	81,643	81,643	81,643	81,643	(72,966)	93,365	93,365	93,365	93,365	93,365
Accounts payable		3,890,549	1,094,063	1,272,575	1,475,821	1,706,962	1,446,123	1,065,575	1,170,933	1,286,762	1,146,342
Cash provided by operations	(2,720,434)	29,469,538	46,612,551	57,138,681	68,326,856	86,718,158	97,811,772	108,241,204	119,755,513	131,833,578	148,106,116
<i>Financing activities</i>											
Issuance of shares	324,598,589	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	324,598,589	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(320,378,156)	-	-	-	-	(5,153,632)	-	-	-	-	-
Cash (used for) / provided by investing activities	(320,378,156)	-	-	-	-	(5,153,632)	-	-	-	-	-
<b>NET CASH</b>	<b>1,500,000</b>	<b>29,469,538</b>	<b>46,612,551</b>	<b>57,138,681</b>	<b>68,326,856</b>	<b>81,564,526</b>	<b>97,811,772</b>	<b>108,241,204</b>	<b>119,755,513</b>	<b>131,833,578</b>	<b>148,106,116</b>
Cash balance brought forward		1,500,000	29,069,272	70,044,533	115,951,670	165,523,355	218,554,166	277,256,741	335,909,921	395,475,005	456,195,792
Cash available for appropriation	1,500,000	30,969,538	75,681,823	127,183,214	184,278,525	247,087,881	316,365,937	385,497,945	455,665,434	527,308,583	604,301,908
Dividend		1,900,266	5,637,290	11,231,545	18,755,171	28,533,715	39,109,196	49,588,025	60,190,429	71,112,791	82,534,433
Cash balance	1,500,000	29,069,272	70,044,533	115,951,670	165,523,355	218,554,166	277,256,741	335,909,921	395,475,005	456,195,792	521,767,475
Cash carried forward	1,500,000	29,069,272	70,044,533	115,951,670	165,523,355	218,554,166	277,256,741	335,909,921	395,475,005	456,195,792	521,767,475

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
No. of Working Days in One Year	360
No. of Working Hours in One Day	24

### 13.2 Production Cost Assumptions

Description	Details
Starting Storage Capacity Utilization	50%
Maximum Storage Capacity Utilization	95%
Capacity Utilization Growth Rate / Yr.	10%

### 13.3 Revenue Assumptions

Description	Details
Rental Price /kg/month (Incl. sorting & grading)	Rs. 15
Sale Price Growth Rate	10%

### 13.4 Financial Assumptions

Description	Details
Debt	0%
Equity	100%
Required Rate of Return on Equity	10%

## Small and Medium Enterprises Development Authority

### 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

[www.smeda.org.pk](http://www.smeda.org.pk), [helpdesk@smeda.org.pk](mailto:helpdesk@smeda.org.pk)

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3 <sup>rd</sup> 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	5 <sup>TH</sup> 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