

# Prefeasibility Study

## Dates Processing Plant



**Small and Medium Enterprises Development Authority**

**Ministry of Industries & Production**

**Government of Pakistan**

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**(August 2017)**

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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***

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## 2. EXECUTIVE SUMMARY

Dates processing plant is proposed to be located in District Panjgur while considering other mandatory inputs i.e. availability of human resource, electricity and water etc. Product include Processing & Packaging of Dates fruit. The Installed capacity of the plant is 800,000 Kgs per year of Dates and initial utilization is 65%.

Total Cost Estimates is **Rs. 92,998,665** with fixed investment **Rs. 88,435,791** and working capital **Rs. 4,562,874**.

Given the cost assumptions IRR and payback are **21 %** and **5.28 years** respectively

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

- Dates processing units are recommended to be installed next to the growing area while considering other mandatory inputs i.e. availability of human resource, electricity and water etc.
- Easy access to the consumer market is advised to be studied thoroughly and made a key consideration while setting up the project.
- Proper fumigation & maintaining hygiene is of utmost importance.

## 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 **Dates Processing Plant** 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**

Following key parameters must be addressed as per pre-feasibility study under preparation

- **Technology:** The proposed project is about Dates Processing & Packaging. Its processing includes fumigation, sorting washing, drying, grading and finally packaging. The entire process flow is suggested to be semi-automatic requiring both skilled and unskilled workers.
- **Location:** The plant is proposed to be located in District Panjgor while considering other mandatory inputs i.e. availability of human resource, electricity and water etc.
- **Product:** The plant would initially process & pack raw dates fruit from farms & market into hygienically treated & properly packed Dates. The processing date varieties may include Begum Jhangi, Mazawati, Gogna, Jansor, Deshtiari, Basra, Zaidi, Kharaba, Assil, Roghnee and Peshnah etc.
- **Target Market:** In addition to local markets in Quetta, Karachi, Lahore, Peshawar and Islamabad an enormous export market for the Pakistani dates exists in India, Canada, USA, UAE, Germany, UK, Denmark, Australia, Bangladesh, Nepal, Sri Lanka, South Africa, Dubai, Japan and China etc.

- **Employment Generation:** The proposed project will provide employment to 20 people.

## 5.1 Production Process Flow

Dates are processed so as to deliver a clean and sorted healthy product which is free of insects or any harmful bacteria. Primarily, these are picked in such a way that they may not be contaminated with dust or sand from the farm. Then these are kept in clean crates for transportation to the processing plants. Care is also taken during transportation that these Dates are not open to dust or any filthy substances of the road. At the plant site the product is fumigated, sorted, washed, dried and graded before packing. At times, tabling is also carried out with wet towels to clean and produce uniform sizes of Dates. General process is shown in the flow diagram along comprehensive details are furnished.

### 5.1.1 Storage of Raw Material

Before Dates go into processing these have to be stored properly in order to avoid flavor losses, texture modifications, weight loss etc. that can take place over a period of storing.

The following rules are generally observed for the purpose.

- Dates is kept in shade
- Unprocessed Dates are protected from dust, heat and contamination and also protected from attack of rodents, insects etc.
- At each delivery these are checked for color, texture, taste and flavour

### 5.1.2 Fumigation

Dates become infected with insects during transportation and storage, which could result in spoilage of fruit. Fumigation is carried out to prevent fruits from insects and keep the fruit fit for human consumption. The method consists of keeping Dates in an air tight chamber and exposing them to a noxious gas for 72 hours. Amongst various fumigants methyl bromide (CH<sub>3</sub>Br) is most commonly used presently as it is highly noxious to insects.<sup>1</sup> It is also injurious to human beings and proper precautions are to be taken and ensured before entering fumigated chambers. Fumigation by gases can be carried out at atmospheric pressure and under vacuum. The penetration of gases is more intense under vacuum condition and time effective but expensive method.

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<sup>1</sup> <http://www.fumigation-service.com/methyl-bromide.htm>

During last few years, tablets of hydrogen-phosphide, under the trade name Phostoxyn have gained popularity because it is easy to apply and suitable for small rooms or stags covered by polythene plastic sheets and left for about 9 days. These tablets consisting of aluminium phosphide, ammonium carbonate and paraffin, upon contact with air releases hydrogen phosphide, the active component. The ammonium carbonate is decomposed into ammonia and carbon dioxide, jointly acting as a warning and fire suppressing agent. The residue of tablet is a powder which can be removed after treatment.

Fumigation at atmospheric pressure is carried out under enclosures of tarpaulin or plastic or in permanent store room equipped with air tight doors, air circulation system and exhaust fans. 50 to 60 tablets of 3 gms standard are used to fumigate 1000 ft<sup>3</sup> storage space.

The process of dumping/fumigation keeps on going on one hand while from the other side; the fumigated Dates are then passed to the other section, which is initial sorting.

### **5.1.3 Initial Sorting**

The initial sorting is done manually where the workers sort the fumigated Dates according to its condition and size. The rotten ones are separated and rest of sorted stock is further passed on via conveyer belts to the next step that is washing.

### **5.1.4 Conveyer Belt**

The conveyer belt with steel edges is used to transport the Dates to the next section. This special belt is made up of aluminium to keep the quality of Dates consistently good and avoid rust.

### **5.1.5 Washing**

In this section the Dates passes through rotatory washing drums with water showering nozzles. The water is then automatically drained through it from the small pores in the conveyer belt.

### **5.1.6 Drying**

This is the final processing stage where the washed Dates are dried using diesel or gas fired. Ovens by applying heat though blowing hot air on it from different angles. The dried date is then transported through another 15 feet conveyer belt which takes it to the packing section while graded manually on the way.

### 5.1.7 Grading

Dates are graded to produce homogenous quality and size according to the specifications of national / international market or specific standards. Dates are graded manually in shape, size, colour, skin and even flesh. Colour, size and test vary with respect to their varieties. Grading is market driven, this step/stage of processing is done in manner according to market. The rejected Dates have also market i.e. for by-products manufacturing.

### 5.1.8 Packaging

The processed Dates will be packed by the shrink wrap machine in plastic bags for additional protection and preservation of moisture, before being placed in boxes. The boxes could be of different design and weights (1kg, 2kg, 5kg etc) based on consumer's demand. The boxes of half Kg, 01 and 02 kg can be used in this project or as per demand of the customer.

## 5.2 Installed and Operational Capacities

The yearly production capacity of the plant will be 800,000 Kgs of Dates, based on single-shift production. Projection Capacity utilization will be 65% in the first year and increased at a rate of 5% annually and will be capped at 95%.

## 6. CRITICAL FACTORS

An analysis of the Strengths, Weaknesses, Opportunities and Threats is detailed as follows:

### 6.1 Strengths:

- Availability of raw material at low prices.
- Hygienically packed Dates will enhance the shelf life of dates.
- Little competition as no such facility is present in the Dates producing areas
- Date Processing is not too scientific and complicated, local human resource can manage after an on job training.
- Installation of the plant in the growing areas will decrease the transportation and raw material cost.

### 6.2 Weaknesses:

- Poor handling of raw material by the growers.

- Poor infrastructure facilities in the growing areas.

### **6.3 Opportunities:**

- Hygienically treated, packed and high Quality Dates will bring more revenues from exports and also from sale in the local market.
- High demand of Dates throughout the year with exceptionally high demand in holy month of Ramzan.
- Large crop and material base in the country.
- Proper Management with expert human resource will lead to higher results & Profits
- Increasing awareness about hygienic food

### **6.4 Threats:**

- Poor hygiene or miss handling of dates both in raw & processed form may lead to bacteria or fungus accumulation and destroy the entire stock.
- High import of Iranian dates.
- Strong competition from the global players

## **7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT**

The plant is proposed to be located in the District Panjgur, while considering other mandatory inputs i.e. availability of human resource, electricity and water etc.

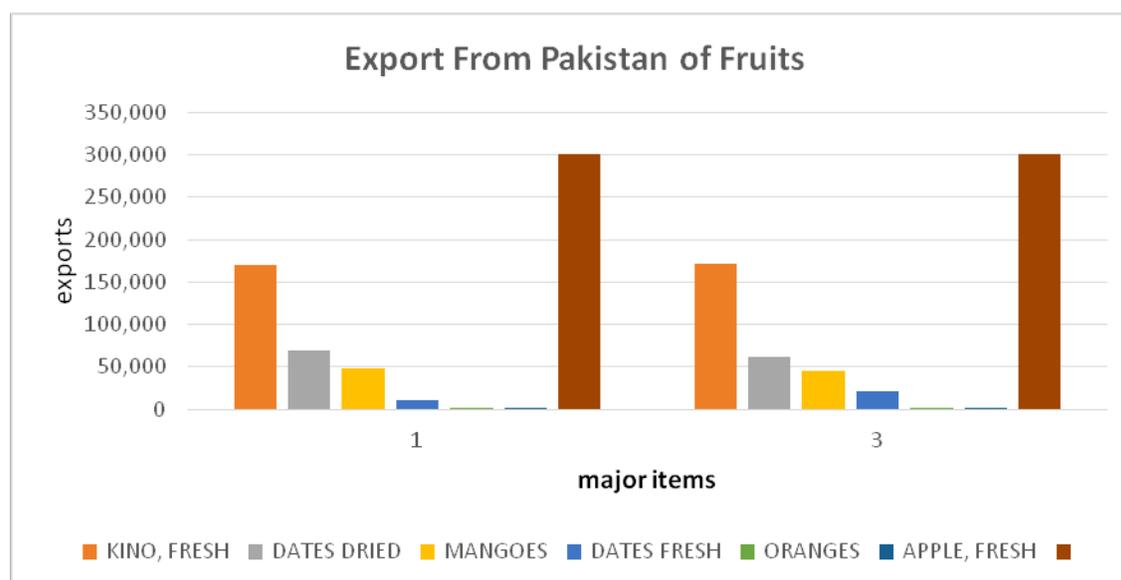
## **8. POTENTIAL TARGET CUSTOMERS / MARKETS**

In addition to local markets in Quetta, Karachi, Lahore, Peshawar and Islamabad an enormous export market for the Pakistani dates exists in India, Canada, USA, UAE, Germany, UK, Denmark, Australia, Bangladesh, Nepal, Sri Lanka, South Africa, Dubai, Japan and China etc.

## Export of dates fresh and dried from Pakistan (2015-17)<sup>2</sup>

### MAJOR ITEMS

<b>KINO, FRESH</b>	170,581		171,627
<b>DATES DRIED</b>	69,966		61,642
<b>MANGOES</b>	48,386		45,677
<b>DATES FRESH</b>	10,509		20,650
<b>ORANGES</b>	466		130
<b>APPLE, FRESH</b>	161		405
	300,068		300,130



## 9. PROJECT COST SUMMARY

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs. 48,587,500 in the year one. The capacity utilization during year one is worked out at 65% with 5% 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.

<sup>2</sup> <http://www.tdap.gov.pk/tdap-statistics.php>

**Table 1: Project Economics**

Description	Details
Internal Rate of Return (IRR)	21%
Payback Period (yrs.)	5.28
Net Present Value (Rs.)	46,021,958

## 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.46,499,332
Bank Loan (50%)	Rs. 46,499,332
Markup to the Borrower (%age / annum)	14 %
Tenure of the Loan (Years)	10

## 9.3 Project Cost

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

Table 3: Project Cost

<b>Capital Investment</b>	<b>Amount (Rs).</b>
Land	2,139,200
Building/Infrastructure	20,488,140
Machinery & equipment	58,256,758
Furniture & fixtures	624,000
Office vehicles	2,472,000
Office equipment	784,000
Pre-operating costs	3,671,693
<b>Total Capital Costs</b>	<b>88,435,791</b>
<b>Working Capital</b>	<b>Amount (Rs).</b>
Equipment spare part inventory	43,333
Raw material inventory	622,917
Upfront insurance payment	3,036,438
Cash	860,187
<b>Total Working Capital</b>	<b>4,562,874</b>
<b>Total Investment</b>	<b>92,998,665</b>

#### 9.4 Space Requirement

The space requirement for the proposed **Date Processing Plant** is estimated to be **43,560 Sq.Ft.** of land considering various facilities including management office, processing hall, Fumigation chamber, warehouse & boundary wall etc. are given below;

**Table 4: Space Requirement**

<b>Description</b>	<b>Area</b>	<b>Cost per Sq.Ft</b>	<b>Total Cost</b>
Management building	1,008	1,800	1,814,400
Fumigation Chamber	2,400	1,800	4,320,000
Foundation for Machinery & building - processing hall	6,000	1,200	7,200,000
Warehouse	2,400	1,800	4,320,000
Boundry wall	1	1,800,000	1,800,000
Restroom	224	1,800	403,200
Grounds/open space	31,527	20	630,540
<b>Total</b>			<b>20,488,140</b>

### 9.5 Machinery & Equipment Requirement

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

**Table 5: Machinery & Equipment**

<b>Description</b>	<b>Quantity</b>	<b>Cost per unit</b>	<b>Total Amount</b>
Fumigation chamber	7	266,250	1,863,750
Sorting tables	6	693,000	4,158,000
Conveyor belts	4	367,500	1,470,000
Washing chamber with conveyor	1	1,470,000	1,470,000
Oven with shelves: oven trays 200 No.	2	6,405,000	12,810,000

Diesel storage tank 1000liters	2	262,500	525,000
Table for packing: (20 feet ) SS	6	693,000	4,158,000
Shrink wrap machine with 4 heaters & conveyor	2	1,050,000	2,100,000
Paste production lines	1	4,200,000	4,200,000
Generator 120Kva	1	3,675,000	3,675,000
O.H tank level switch pump & piping & Tube well	1	2,260,000	2,260,000
Plastic crates	2,800	1,313	3,675,000
Installation & Misc. exp	1	7,000,000	7,000,000
Total machinery cost			49,364,750
GST 17%	17%		0.17
Total			57,756,758
Transportation charges	1	500,000	500,000
Grand Total			58,256,758

## 9.6 Furniture & Fixtures Requirement

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

**Table 6: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Tables	6	25,000	150,000
Executive Chairs	6	20,000	120,000
Visitor Chairs	12	9,500	114,000
Air conditioners (1. ton split)	6	30,000	180,000

Steel safe & other fixtures	1	60,000	60,000
	-		
Total			624,000

### 9.7 Office Equipment Requirement

Following office equipment will be required for Dates processing Plant

**Table 7: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	1	75,000	75,000
Computer	4	60,000	240,000
Computer printer (s)	2	22,000	44,000
Telephone exchange	1	100,000	100,000
Telephones	8	5,000	40,000
Fax machines	1	35,000	35,000
Photo Copier & Projector	1	250,000	250,000
Total			709,000

### 9.8 Human Resource Requirement

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

**Table 8: Human Resource Requirement**

Description	No. of Employees	Monthly Salary per person (Rs.)
Project Manager	1	100,000
Quality Assurance Officer	1	75,000
Assistant Plant Manager	1	85000
Skilled workers	3	25,000
Semi-Skilled Workers	4	20,000
Accounts and Admin	1	40,000
Guards	2	18,000
Plant Operator	1	25000
Telephone operator Cum Receptionist	1	30000
Electrician	1	20000
Mechanic	1	20000
Driver	1	18000
Office Boy	1	18,000
Sweepers	1	18,000
Total	20	

### 9.9 Utilities and other Costs

An essential cost to be borne by the project is the cost of electricity, diesel and water. The electricity expenses are estimated to be around Rs. 182,000 per month, Diesel expense is estimated to be Rs. 72,800 whereas, Water expenses are estimated to be Rs. 2,000 per month. Furthermore, promotional expense being essential for marketing of Dates Processing Plant is estimated as 1% of Revenue which may include printing banners, brochures, cable ads etc.

### 9.10 Revenue Generation

The installed capacity of the plant is 800,000 kgs, and based on the capacity utilization of 65% for processing & packing of Dates respectively, production capacity of

processed & packed dates is 520,000 kgs,. Therefore sales revenue during the first year of operations is estimated as under;

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

Description	Kg of Dates Processed & Packed	Units available for Sale (kg)	Sale Price / unit (Rs.)	Sales Revenue (Rs.)
Dates Processing & Packing	520,000	520,000	93	48,587,500
Total	520,000	520,000	93	48,587,500

### CONTACT DETAILS

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

#### Machinery Suppliers

Name of Supplier	Address	Phone	Fax	E-mail
Advance Engineering Concern Co.	Plot No.-54, Sector-23, Korangi, Karachi	021-35050190	021-35061401	<a href="mailto:Aecc786@live.com">Aecc786@live.com</a>

#### Raw Material Suppliers

Name of Supplier	Address	Phone	E-mail
Muhammad Kashif	Sari Koohraan, Panjgur	0312-9990040	<a href="mailto:K_pk79@yahoo.com">K_pk79@yahoo.com</a>

#### Technical Experts / Consultants

Name of Expert / Organization	Address	Phone	E-mail
Kamran Nadeem –	37-Rohail	+92-300-	<a href="mailto:snimpexglobal@gmail.com">snimpexglobal@gmail.com</a>

M/s S.N. Foods	Khund Society, Karachi- 75400	2219877	
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## 10. USEFUL WEB LINKS

Government of Pakistan	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
Small & Medium Enterprises Development Authority (SMEDA)	<a href="http://www.smeda.org.pk">www.smeda.org.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/">http://www.sindh.gov.pk/</a>
Government of Balochistan	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
Government of KPK	<a href="http://www.khyberpakhtunkhwa.gov.pk/">www.khyberpakhtunkhwa.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>
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
Quetta Chamber of Commerce & Industry	<a href="http://www.qcci.com.pk/">http://www.qcci.com.pk/</a>
Lahore Chamber of Commerce & Industry	<a href="http://www.lcci.com.pk/">www.lcci.com.pk/</a>
Karachi Chamber of Commerce & Industry	<a href="http://www.kcci.com.pk/">http://www.kcci.com.pk/</a>
Khyber Pakhtunkhwa Chamber of Commerce & Industry	<a href="http://www.kpcci.org.pk/">http://www.kpcci.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 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>
Lasbela Industrial Estates Development Authority	<a href="http://www.lieda.gov.pk/">http://www.lieda.gov.pk/</a>
Sindh Industrial & trading Estate	<a href="http://www.site.com.pk/">http://www.site.com.pk/</a>
KPK Small Industries Development Board	<a href="http://www.khyberpakhtunkhwa.gov.pk/Departments/SIDB/Introductions.php">http://www.khyberpakhtunkhwa.gov.pk/Departments/SIDB/Introductions.php</a>
Agriculture department Govt of Sindh	<a href="http://sindhagri.gov.pk/">http://sindhagri.gov.pk/</a>
Agriculture department Govt of Punjab	<a href="http://www.agripunjab.gov.pk/">http://www.agripunjab.gov.pk/</a>
Agriculture department Govt of KPK	<a href="http://khyberpakhtunkhwa.gov.pk/Contacts/index.php">http://khyberpakhtunkhwa.gov.pk/Contacts/index.php</a>

<b>Agriculture department Govt of Balochistan</b>	<a href="http://www.balochistan.gov.pk/index.php?option=com_content&amp;view=category&amp;id=1091&amp;Itemid=52">http://www.balochistan.gov.pk/index.php?option=com_content&amp;view=category&amp;id=1091&amp;Itemid=52</a>
<b>The University of Agriculture, Peshawar</b>	<a href="http://www.aup.edu.pk/">http://www.aup.edu.pk/</a>
<b>University of Punjab, Institute of Agriculture sciences</b>	<a href="http://pu.edu.pk/home/department/53/Institute-of-Agricultural-Sciences">http://pu.edu.pk/home/department/53/Institute-of-Agricultural-Sciences</a>
<b>Sindh Agriculture University Tandojam</b>	<a href="http://www.sau.edu.pk/">http://www.sau.edu.pk/</a>
<b>Balochistan Agriculture College Quetta</b>	<a href="https://www.facebook.com/BalochistanAgricultureCollegeQuetta">https://www.facebook.com/BalochistanAgricultureCollegeQuetta</a>

## 11. ANNEXURES

## 11.1 Income Statement

<b>Statement Summaries</b>										<b>SMEDA</b>
<b>Income Statement</b>										
	Rs. in actuals									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	48,587,500	57,557,500	67,835,625	79,593,800	93,025,254	108,347,060	125,802,976	138,383,273	152,221,600	167,443,760
Cost of goods sold	25,935,600	29,782,379	34,139,212	39,069,648	44,644,844	50,944,454	58,057,617	63,827,440	70,170,746	77,144,543
<b>Gross Profit</b>	<b>22,651,900</b>	<b>27,775,121</b>	<b>33,696,413</b>	<b>40,524,152</b>	<b>48,380,410</b>	<b>57,402,606</b>	<b>67,745,359</b>	<b>74,555,833</b>	<b>82,050,855</b>	<b>90,299,218</b>
<i>General administration &amp; selling expenses</i>										
Administration expense	7,405,200	8,126,181	8,917,357	9,785,564	10,738,300	11,783,796	12,931,083	14,190,072	15,571,637	17,087,714
Rental expense	-	-	-	-	-	-	-	-	-	-
Utilities expense	-	-	-	-	-	-	-	-	-	-
Travelling & Comm. expense (phone, fax, etc.)	67,320	73,874	81,067	88,960	97,621	107,125	117,555	129,001	141,560	155,343
Office vehicles running expense	74,160	81,576	89,734	98,707	108,578	119,435	131,379	144,517	158,969	174,865
Office expenses (stationary, etc.)	67,320	73,874	81,067	88,960	97,621	107,125	117,555	129,001	141,560	155,343
Promotional expense	485,875	575,575	678,356	795,938	930,253	1,083,471	1,258,030	1,383,833	1,522,216	1,674,438
Insurance expense	3,036,438	2,732,794	2,429,150	2,125,507	1,821,863	1,518,219	1,214,575	910,931	607,288	303,644
Professional fees (legal, audit, etc.)	242,938	287,788	339,178	397,969	465,126	541,735	629,015	691,916	761,108	837,219
Depreciation expense	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083
Amortization expense	734,339	734,339	734,339	734,339	734,339	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>19,351,672</b>	<b>19,924,083</b>	<b>20,588,331</b>	<b>21,354,025</b>	<b>22,231,782</b>	<b>22,498,990</b>	<b>23,637,275</b>	<b>24,817,353</b>	<b>26,142,421</b>	<b>27,626,648</b>
<b>Operating Income</b>	<b>3,300,228</b>	<b>7,851,038</b>	<b>13,108,082</b>	<b>19,170,127</b>	<b>26,148,628</b>	<b>34,903,616</b>	<b>44,108,083</b>	<b>49,738,480</b>	<b>55,908,434</b>	<b>62,672,570</b>
Other income	-	-	-	-	-	-	-	-	-	-
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
<b>Earnings Before Interest &amp; Taxes</b>	<b>3,300,228</b>	<b>7,851,038</b>	<b>13,108,082</b>	<b>19,170,127</b>	<b>26,148,628</b>	<b>34,903,616</b>	<b>44,108,083</b>	<b>49,738,480</b>	<b>55,908,434</b>	<b>62,672,570</b>
Interest expense	6,243,421	5,727,547	5,352,531	4,921,510	4,426,119	3,856,746	3,202,341	2,450,206	1,585,746	592,185
<b>Earnings Before Tax</b>	<b>(2,943,193)</b>	<b>2,123,491</b>	<b>7,755,551</b>	<b>14,248,617</b>	<b>21,722,508</b>	<b>31,046,871</b>	<b>40,905,743</b>	<b>47,288,274</b>	<b>54,322,688</b>	<b>62,080,385</b>
Tax	-	272,198	1,936,942	4,209,515	6,825,377	10,088,904	13,539,509	15,773,395	18,235,440	20,950,634
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>(2,943,193)</b>	<b>1,851,293</b>	<b>5,818,609</b>	<b>10,039,102</b>	<b>14,897,131</b>	<b>20,957,967</b>	<b>27,366,233</b>	<b>31,514,879</b>	<b>36,087,248</b>	<b>41,129,751</b>
Balance brought forward		(2,943,193)	(1,091,900)	2,363,354	6,201,228	10,549,180	15,753,573	21,559,903	26,537,391	31,312,320
Total profit available for appropriation	(2,943,193)	(1,091,900)	4,726,709	12,402,456	21,098,359	31,507,146	43,119,806	53,074,782	62,624,639	72,442,071
Dividend	-	-	2,363,354	6,201,228	10,549,180	15,753,573	21,559,903	26,537,391	31,312,320	36,221,035
Balance carried forward	(2,943,193)	(1,091,900)	2,363,354	6,201,228	10,549,180	15,753,573	21,559,903	26,537,391	31,312,320	36,221,035

## 11.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											Rs. in actuals
	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	860,187	1,249,847	8,651,285	17,134,626	25,479,922	33,728,516	41,391,483	49,013,454	54,894,364	59,608,760	69,403,851
Accounts receivable	-	931,815	1,017,829	1,202,400	1,413,707	1,655,251	1,930,967	2,245,274	2,533,293	2,786,622	3,065,284
Finished goods inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	43,333	53,900	66,701	82,176	100,845	123,328	150,357	173,663	200,580	231,670	-
Raw material inventory	622,917	811,708	1,052,322	1,358,197	1,746,132	2,237,103	2,857,278	3,457,306	4,183,340	5,061,841	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	3,036,438	2,732,794	2,429,150	2,125,507	1,821,863	1,518,219	1,214,575	910,931	607,288	303,644	-
<b>Total Current Assets</b>	<b>4,562,874</b>	<b>5,780,065</b>	<b>13,217,288</b>	<b>21,902,905</b>	<b>30,562,469</b>	<b>39,262,416</b>	<b>47,544,660</b>	<b>55,800,628</b>	<b>62,418,865</b>	<b>67,992,538</b>	<b>72,469,135</b>
<i>Fixed assets</i>											
Land	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200	2,139,200
Building/Infrastructure	20,488,140	19,463,733	18,439,326	17,414,919	16,390,512	15,366,105	14,341,698	13,317,291	12,292,884	11,268,477	10,244,070
Machinery & equipment	58,256,758	52,431,082	46,605,406	40,779,730	34,954,055	29,128,379	23,302,703	17,477,027	11,651,352	5,825,676	-
Furniture & fixtures	624,000	561,600	499,200	436,800	374,400	312,000	249,600	187,200	124,800	62,400	-
Office vehicles	2,472,000	2,224,800	1,977,600	1,730,400	1,483,200	1,236,000	988,800	741,600	494,400	247,200	-
Office equipment	784,000	705,600	627,200	548,800	470,400	392,000	313,600	235,200	156,800	78,400	-
<b>Total Fixed Assets</b>	<b>84,764,097</b>	<b>77,526,015</b>	<b>70,287,932</b>	<b>63,049,849</b>	<b>55,811,766</b>	<b>48,573,684</b>	<b>41,335,601</b>	<b>34,097,518</b>	<b>26,859,435</b>	<b>19,621,353</b>	<b>12,383,270</b>
<i>Intangible assets</i>											
Pre-operation costs	3,671,693	2,937,355	2,203,016	1,468,677	734,339	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>3,671,693</b>	<b>2,937,355</b>	<b>2,203,016</b>	<b>1,468,677</b>	<b>734,339</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>92,998,665</b>	<b>86,243,434</b>	<b>85,708,235</b>	<b>86,421,431</b>	<b>87,108,574</b>	<b>87,836,100</b>	<b>88,880,261</b>	<b>89,898,146</b>	<b>89,278,300</b>	<b>87,613,890</b>	<b>84,852,405</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable	-	654,230	778,858	922,934	1,089,359	1,281,481	1,503,169	1,751,049	1,942,175	2,155,757	2,132,037
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>654,230</b>	<b>778,858</b>	<b>922,934</b>	<b>1,089,359</b>	<b>1,281,481</b>	<b>1,503,169</b>	<b>1,751,049</b>	<b>1,942,175</b>	<b>2,155,757</b>	<b>2,132,037</b>
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	-	-	-	-	-	-	-	-	-	-
Long term debt	46,499,332	42,033,063	39,521,944	36,635,810	33,318,654	29,506,107	25,124,187	20,087,862	14,299,402	7,646,481	-
<b>Total Long Term Liabilities</b>	<b>46,499,332</b>	<b>42,033,063</b>	<b>39,521,944</b>	<b>36,635,810</b>	<b>33,318,654</b>	<b>29,506,107</b>	<b>25,124,187</b>	<b>20,087,862</b>	<b>14,299,402</b>	<b>7,646,481</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332	46,499,332
Retained earnings	-	(2,943,193)	(1,091,900)	2,363,354	6,201,228	10,549,180	15,753,573	21,559,903	26,537,391	31,312,320	36,221,035
<b>Total Equity</b>	<b>46,499,332</b>	<b>43,556,140</b>	<b>45,407,432</b>	<b>48,862,687</b>	<b>52,700,561</b>	<b>57,048,512</b>	<b>62,252,906</b>	<b>68,059,236</b>	<b>73,036,724</b>	<b>77,811,652</b>	<b>82,720,368</b>
<b>TOTAL CAPITAL AND LIABILITY</b>	<b>92,998,665</b>	<b>86,243,434</b>	<b>85,708,235</b>	<b>86,421,431</b>	<b>87,108,574</b>	<b>87,836,100</b>	<b>88,880,261</b>	<b>89,898,146</b>	<b>89,278,300</b>	<b>87,613,890</b>	<b>84,852,405</b>

Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0

## 11.3 Cash Flow Statement

Statement Summaries											SMEDA
Cash Flow Statement											Rs. in actuals
	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	-	(2,943,193)	1,851,293	5,818,609	10,039,102	14,897,131	20,957,967	27,366,233	31,514,879	36,087,248	41,129,751
Add: depreciation expense	-	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083	7,238,083
amortization expense	-	734,339	734,339	734,339	734,339	734,339	-	-	-	-	-
Deferred income tax	-	-	-	-	-	-	-	-	-	-	-
Accounts receivable	-	(931,815)	(86,014)	(184,571)	(211,307)	(241,544)	(275,716)	(314,307)	(288,018)	(253,329)	(278,662)
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	(43,333)	(10,567)	(12,801)	(15,475)	(18,669)	(22,483)	(27,029)	(23,305)	(26,918)	(31,090)	231,670
Raw material inventory	(622,917)	(188,792)	(240,614)	(305,875)	(387,935)	(490,971)	(620,175)	(600,028)	(726,034)	(878,501)	5,061,841
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(3,036,438)	303,644	303,644	303,644	303,644	303,644	303,644	303,644	303,644	303,644	303,644
Accounts payable	-	654,230	124,628	144,076	166,425	192,122	221,688	247,880	191,126	213,582	(23,720)
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(3,702,688)	4,855,930	9,912,557	13,732,829	17,863,681	22,610,320	27,798,461	34,218,199	38,206,762	42,679,636	53,662,607
<i>Financing activities</i>											
Change in long term debt	46,499,332	(4,466,269)	(2,511,119)	(2,886,135)	(3,317,156)	(3,812,547)	(4,381,920)	(5,036,325)	(5,788,460)	(6,652,920)	(7,646,481)
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	-	-	-	-	-	-	-	-	-	-
Land lease payment	-	-	-	-	-	-	-	-	-	-	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	46,499,332	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	92,998,665	(4,466,269)	(2,511,119)	(2,886,135)	(3,317,156)	(3,812,547)	(4,381,920)	(5,036,325)	(5,788,460)	(6,652,920)	(7,646,481)
<i>Investing activities</i>											
Capital expenditure	(88,435,791)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by invest	(88,435,791)	-	-	-	-	-	-	-	-	-	-
<b>NET CASH</b>	<b>860,187</b>	<b>389,660</b>	<b>7,401,438</b>	<b>10,846,695</b>	<b>14,546,525</b>	<b>18,797,773</b>	<b>23,416,540</b>	<b>29,181,874</b>	<b>32,418,301</b>	<b>36,026,716</b>	<b>46,016,126</b>
Cash balance brought forward	-	860,187	1,249,847	8,651,285	17,134,626	25,479,922	33,728,516	41,391,483	49,013,454	54,894,364	59,608,760
Cash available for appropriation	860,187	1,249,847	8,651,285	19,497,980	31,681,150	44,277,695	57,145,056	70,573,357	81,431,755	90,921,080	105,624,886
Dividend	-	-	-	2,363,354	6,201,228	10,549,180	15,753,573	21,559,903	26,537,391	31,312,320	36,221,035
Cash carried forward	860,187	1,249,847	8,651,285	17,134,626	25,479,922	33,728,516	41,391,483	49,013,454	54,894,364	59,608,760	69,403,851

## 12. KEY ASSUMPTIONS

### 12.1 Operating Cost Assumptions

Description	Details
Sales Price Growth Rate	10 % per year
Production Capacity Utilization Growth Rate	5 % per year
COGS growth rate	10 % per year
Wage growth rate	10 % per year
Operational cost growth rate	5 % per year

### 12.2 Production Cost Assumptions

Description	Details
Installed Capacity (Kgs)	800,000
Production Capacity utilization in Y1	65%
Production capacity (Kgs)	520,000
Maximum Capacity	95%
COGS	29

### 12.3 Revenue Assumptions

Description	Details
Sales price per unit	93
Sales price growth rate	10%
Total unit sales (Kgs)	520,000
Total revenue	Rs. 48,587,500

### 12.4 Financial Assumptions

<b>Interest rate on long term debt</b>	<b>14%</b>
Project Debt	50%
Project Equity Component	50%
Tax rate (15% sales tax + 7% income tax)	0%
Required rate of return on equity	21%
WACC	17%
Account receivable cycle	7 Days