

Pre-Feasibility Study

FRESH FRUITS PROCESSING

(Kinnow)



Small and Medium Enterprise Development Authority

Government of Pakistan

www.smeda.org.pk

HEAD OFFICE

6th Floor LDA Plaza Egerton Road, Lahore
Tel (042)111 111 456,
Fax: (042) 36304926-7
helpdesk@smeda.org.pk

REGIONAL OFFICE PUNJAB

8th Floor LDA Plaza,
Egerton Road,
Lahore.
Tel: (042) 111 111 456,
Fax: (042) 36370474
helpdesk.punjab@smeda.org.pk

REGIONAL OFFICE SINDH

5TH Floor, Bahria Complex II,
M.T. Khan Road,
Karachi.
Tel: (021) 111-111-456
Fax: (021) 5610572
helpdesk.sindh@smeda.org.pk

REGIONAL OFFICE KHYBER PAKTUNKHWA

Ground Floor
State Life Building The Mall,
Peshawar.
Tel: (091)111 111 456, 9213046-7
Fax: (091) 286908
helpdesk.NWFP@smeda.org.pk

REGIONAL OFFICE BALOCHISTAN

Bungalow No. 15-A Chann
Housing Scheme Airport Road,
Quetta.
Tel: (081) 2831623, 2831702
Fax: (081) 2831922
helpdesk.balochistan@smeda.org.pk

June, 2010

DISCLAIMER

The purpose and scope of this information memorandum is to introduce the subject matter and provide a general idea and information on the said area. All the material included in this document is based on data/information gathered from various sources and is based on certain assumptions. 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 does not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. Therefore, the content of this memorandum should not be relied upon for making any decision, investment or otherwise. The prospective user of this memorandum is encouraged to carry out his/her own due diligence and gather any information he/she considers necessary for making an informed decision.

The contents of the information memorandum do not bind SMEDA in any legal or other form.

DOCUMENT CONTROL

Document No.	PREF-11
Revision	2
Prepared by	SMEDA-Punjab
Issue Date	June, 2005
Last Revision Date	June, 2010
Issued by	Library Officer

1	EXECUTIVE SUMMARY	3
2	INTRODUCTION	4
2.1	PROJECT BRIEF.....	4
2.2	OPPORTUNITY RATIONALE.....	4
2.3	VIALE ECONOMIC SIZE (PROCESSING CAPACITY)	4
2.4	TOTAL PROJECT COST	4
2.5	PROCESS FLOW CHART	5
3	CURRENT INDUSTRY STRUCTURE	5
3.1	PROBLEMS FACED BY CITRUS PROCESSING INDUSTRY	6
4	MARKETING.....	6
4.1	TARGET MARKET	7
5	RAW MATERIAL	8
6	MANPOWER REQUIREMENT	8
7	MACHINERY & EQUIPMENT.....	9
8	LAND & BUILDING	9
8.1	INFRASTRUCTURE REQUIREMENT.....	10
9	PROJECT ECONOMICS	10
10	KEY SUCCESS FACTORS	11
11	FINANCIAL ANALYSIS	12
11.1	PROJECTED INCOME STATEMENT	12
11.2	PROJECTED CASH-FLOW STATEMENT.....	13
11.3	PROJECTED BALANCE SHEET	14
12	KEY ASSUMPTIONS.....	15
12.1	MACHINERY ASSUMPTIONS.....	15
12.2	OPERATING ASSUMPTIONS	15
12.3	ECONOMY RELATED ASSUMPTIONS	15
12.4	CASH FLOW ASSUMPTIONS	15
12.5	REVENUE ASSUMPTIONS	16
12.6	OTHER ASSUMPTIONS	16
12.7	FINANCIAL ASSUMPTIONS.....	16
13	ANNEXURE 1	17
13.1	MAJOR GROWERS.....	17
13.2	MACHINERY MANUFACTURERS	17
13.3	RAW MATERIAL SUPPLIERS	17
13.4	COST OF GOOD SOLD AND OPERATING EXPENSE	18

1 EXECUTIVE SUMMARY

The project involves setting up a plant for processing of fresh kinnows for export from Pakistan. The process would include undertaking value-added activity(s), which will increase the quality and shelf life of Pakistani kinnows for the international market. The selected target market is the Middle East, Europe, Russia and Ukraine. Pakistani kinnows have huge demand in the international market due to its rich flavour, aroma. It has been observed that in order to enter into the international markets with longer shelf life, good quality kinnows will require physical infrastructure facilities like modern processing and logistics.

The major scope of processing activities will include post harvest sorting, washing, waxing, drying, grading, packing and logistics. The produce is brought to kinnow processing factories generally in small trucks of 5 metric tonne capacity. After unloading, the produce is washed, waxed, dried, graded, packed and labelled in the processing plant. After packing (cardboard and wooden boxes), fruit is transported to Karachi Port either in open-top trucks or refrigerated containers. Then it is shipped to different countries.

The problems associated with Kinnow export include low produce quality, lack of storage facilities, non-availability of quality packing, poor transportation facilities, high freight charges, weak role of export promoting agencies and inconsistent government policies. This project introduces a feasible process for export of fresh kinnows.

The total project cost for setting up this processing plant is estimated at Rs. 67.09 million. The project is financed through 50% debt and 50% equity. The project NPV is around Rs. 206.115 million, with an IRR of 74.84% and payback period of 4.39 years. The legal business status of this project is proposed as 'Sole Proprietorship'.

The overall proposed processing capacity of the plant is 17,280 metric ton kinnows per year. However, the plant will operate at 50% capacity in the first year and at 95% capacity in the tenth year, as the number of shifts will increase annually. The 12.5% of the total production is used for local sales and the remaining is exported to the international market.

2 INTRODUCTION

2.1 Project Brief

The scope of the project includes processing of fresh citrus fruit locally known as "Kinnow". Kinnow fruit is a hybrid of Mandarins. There is huge demand for processed Pakistani kinnows in the international markets. The major operational activities of the project include following processes:

- Sorting
- Washing
- Waxing
- Drying
- Grading
- Packaging

2.2 Opportunity Rationale

Agriculture is one of the thriving industries of Pakistan. Pakistan's agriculture has been growing rapidly, playing an important role in development of agriculture and the rural economy. Over a long period in the future, agriculture will continue to be a key industry in the national economy, and active, rational and effective utilization of foreign capital will also continue to serve as a practical and important approach to enhance agricultural productivity, increase the farmers' income, and establish the commercialized distribution system of agricultural commodities.

With 2.294 million tons (Economy survey of Pakistan 2007-08), Pakistan is the 10th largest producer of kinnow (mandarin hybrid) and oranges in the world. kinnow is only grown in Pakistan and its aroma and taste has obtained a good reputation and acceptability in the international markets. Pakistan's world mandarin and orange market share is 8 percent. Above state of affairs provide Pakistani kinnow with an opportunity to compete in the international markets.

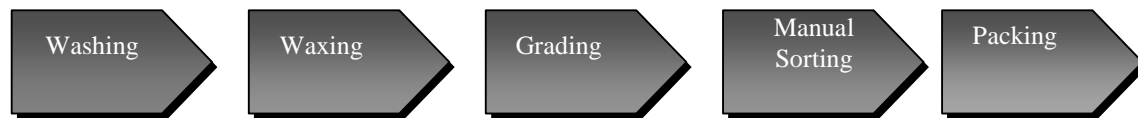
2.3 Viable Economic Size (Processing Capacity)

A plant having a capacity of processing 8 tons of Kinnow per hour is considered to an economically viable plant. This means, that for a total season of 135 days, a total of 8,640 tons of Kinnow can be processed, if the plant runs at 8 hours per day.

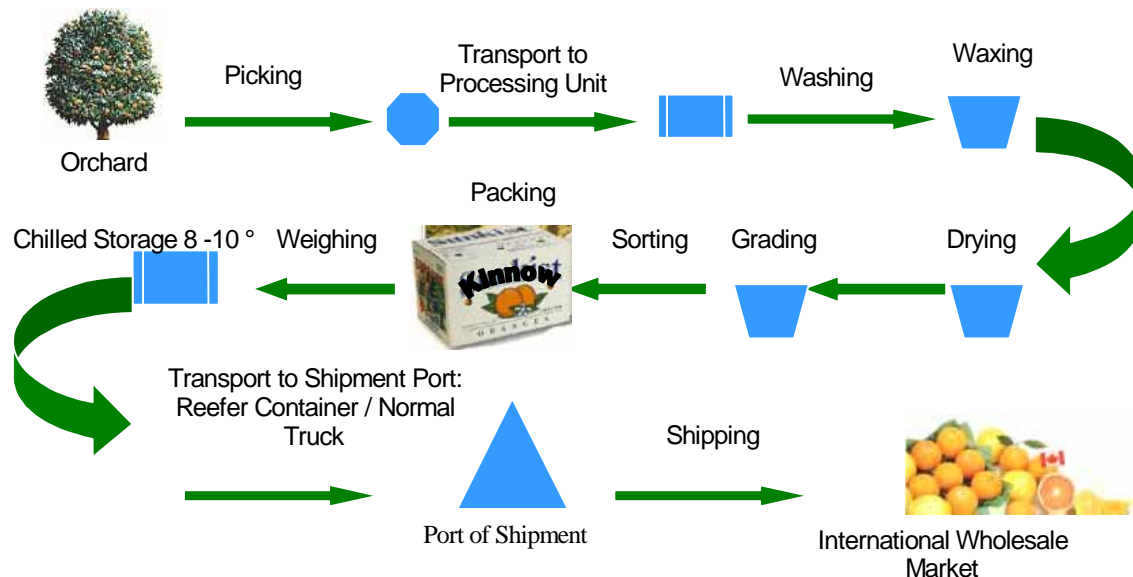
2.4 Total Project Cost

The total cost of project is Rs. **67.09** million

2.5 Process Flow Chart



Total Flow System



3 CURRENT INDUSTRY STRUCTURE

Kinnow Processing Industry of Sargodha has a vast potential to grow. There is an enormous demand for Pakistani fruits in the international market but our exporting potential is merely 10 percent. This is mostly because of the waste production of 40 percent due to poor management during harvesting, transportation, packaging, and storage. There is a need to follow the well established production technology, improve post harvesting, packaging, transportation, and storage facilities. There is an urgent need to move the industry towards automation to compete with rapidly changing environment of world in technology and regulatory framework. Simultaneously, there is also need to comply with the international environmental, management, safety and sanitary standards. The growers suffer from poor quality and low producing seedlings purchased from the unspecified nurseries using inferior and infected budwood.

Table 3-1: Major Citrus Producing Countries - Production¹

Country	Production (000 Tons)	Utilization for processing (000 Tons)
China	14985	505
United States	10451	7310
Mexico	6030	831

¹ FAO Stats 2007 (<http://faostat.fao.org/>)

Spain	5378	883
Italy	3525	1581
Egypt	3050	0
Turkey	2499	175
Japan	1378	148
Morocco	1245	23

3.1 Problems faced by Citrus Processing Industry

The expanding exports are facing some inherent problems like yield fluctuations, commonly known as alternate bearing phenomenon (low yield in alternate year). The citrus industry as a whole is still underdeveloped with lack of competitiveness. Poor management during harvesting, transportation, packaging, and storage are major causes to the small export market. Pakistani kinnow has a great demand in international market but a higher number of seeds are one of big constraint. Moreover kinnow has the longest growing period and is a late maturing variety with short crushing and processing period. The growers suffer from poor quality and low producing seedlings purchased from the unspecified nurseries. Inadequate research and development facilitates and unavailability of internationally accredited labs is a major drawback to the fruit export market of Pakistan. The Citrus Processing Industry is labour intensive and facing critical labour shortage of skilled workers. Increasing attacks of various fruit diseases also hinder the production of quality fruit. Load shedding and high tariff of electricity is also a major obstacle in citrus fruit processing.

Table 3-2: Existing Capacity of Kinnow Processing in Pakistan

Item	Total	Working	Idle
Processing Plant (08ton per hour) (Local Manufactured)	200	200	0
Processing Plant (10 ton per hour) (Imported)	1	1	0
Processing Plant (5 ton per hour) (Imported)	2	2	0

Table 3-3: Major Players in Pakistan

Name	Location
National Fruit Processing Factory	Bhalwal
Zahid Kinnow Grading & Waxing Plant	Bhalwal
Mateela Kinnow Factory	Sargodha
Chase International	Karachi
Sadrrudin & Company	Karachi.

4 MARKETING

The tables below give a picture of the major exporting and importing countries of the world.

Table 4-1: Exporters²

Country	Export (000Tons)
World	10980
Spain	3238
South Africa	1213
Turkey	948
United States	930
Egypt	650
Morocco	543
Mexico	399
China	380
Pakistan	151

Table 4-2: Importers²

Country	Importers (000 Tons)
World	10636
USSR	1348
Germany	1226
Russian Federation	952
UK	813
Netherland	693
USA	503
Saudi Arabia	453
Belgium	395
Poland	377
Pakistan	0
Others	1047

4.1 Target Market

The traditional buyers of Pakistani kinnow include Middle Eastern countries, Iran, Bangladesh, Eastern Europe, Russia and Ukraine while Indonesia and Malaysia have recently emerged as strong buyers of local kinnows on account of its flavour and unmatched taste. The target market chosen for this particular pre-feasibility is the Middle East, Europe, Russia and Ukraine.

² FAO Stats 2007 (<http://faostat.fao.org/>)

5 RAW MATERIAL

The raw material required for this project is given in the table below:

Table 5-1: List of Raw & Processing Material

Description	Price (Rs)	Availability (Local or Imported)
Kinnow average price per season (per kg)	10	Local
Medicated Wax (per litre)	425	Imported
Hi speed diesel (per Litre)	78	Local
Cardboard carton for packaging (each)	62	Local
Dividers – 3 ply water proof for packing (each)	2.25	Local

Cold Storage facility/rental charges

Cold Treatment is the part of kinnow processing. In context of WTO regime, the exporters/processors have to comply with the sanitary or phyto-sanitary standards for fruit export. However at least 72 hrs is mandatory or recommended under the temperature of 2d to 4d to increase the shelf life of kinnow or to sustain the quality of kinnow for a stipulated period. All the exporters do not have the cold storage facility in their premises so they need to avail the rental facility for cold treatment. Rent for cold storage is Rs. 2 per kg.

6 MANPOWER REQUIREMENT

Table 6-1: Number of People Required

Positions	Number	Salary/Month (Rs)	Annual Salary (Rs)
Production Staff (for 5 months)			
Processing Plant Operator	1	15,000	75,000
Helper	5	7,000	175,000
Direct Labour (skilled)	40	8,500	1,700,000
Supervisor	1	10,000	50,000
Total Payroll (Production Staff)	47		
Administrative Staff (for 12 months)			2,000,000
Skilled machine mechanic	1	8,000	96,000
Accounts/store clerk	1	10,000	120,000
Security Guards	2	8,500	204,000
Total Payroll (Admin Staff)	4		
Total	51		420,000

The fresh Kinnow processing plant does not require highly specialised operating skills. However, a trained plant machine foreman/mechanic is required to prevent accidental shutdowns and to carry out routine daily maintenance. The larger part of the manpower accounts for unskilled labour. The labour is required for manual sorting, loading and packing jobs etc.

7 MACHINERY & EQUIPMENT

Table7-1: Machinery & Equipment List

Processing Machinery	Quantity	Cost/Machine	Total
Kinnow Washing, Waxing & Grading Plant ³	1	2,700,000	27,00,000
Plastic Baskets	3,600	430	1,548,000
Generator 50 KVA	1	750,000	750,000
Machine installation cost (per machine)			10,000
Electric Wiring			10,000
Total Cost of Processing Machinery			5,018,000

8 LAND & BUILDING

Table 8-1: Total Land Required (Area) & Building Construction Costs

Building and Civil Works	Area (Sq. Ft)	Construction Cost	Total Cost
Main Factory Building			
Production Hall	9,600	850	8,160,000
Stores	225	350	78,750
Labour living Rooms	1,140	400	456,000
Store cum Generator Room	100	350	35,000
Total	11,065		8,729,750
Office Block			
Management Office	150	1000	150,000
Toilets	240	350	84,000
Total	390		234,000
Total Cost of Building	11,455		8,963,750
Free Space			
Total Cost of Land	85,913	@ Rs 200,000/5440 sq.ft	3,200,000

The processing plant is proposed to be set-up within or in the vicinity of Sargodha district. The requirement of land is 85,913 Sq. ft (approximately 16 Kanals). The land cost has been estimated as Rs. 200,000/Kanal. The land requirement has been proposed

³ Includes ad valorem sales tax and income tax

keeping in view the future expansion needs (if any) for example installation of cold storage facility etc.

8.1 Infrastructure Requirement

Following essential utilities and infrastructure required for the operations of processing plant:

- Electricity (3 Phase)
- Water connection
- Telephone facility
- Access roads
- Drainage

9 PROJECT ECONOMICS

Table 9-1: Project Economics

Account Head	Total Cost (Rs)
Land	3,200,000
Building and Civil Works	8,963,750
Plant and Machinery	5,018,000
Furniture/Fixture & Equipment	51,800
Pre-operational Expenses ⁴	405,500
Total Fixed Cost	17,639,050
Cash	960,000
Raw Material Inventory	589,786
Accounts Receivable	47,124,000
Up-Front Insurance Payment (year 1)	775,510
Total Working Capital	49,449,295
Total Project Cost	67,088,345

Table 9-2: Financing Plan

Financing		Rs.
Equity	50%	33,544,173
Debt	50%	33,544,173

Table 9-3: Project Return

Internal Rate of Return (IRR)	67.69%
Net Present Value (NPV) @ 20%	Rs. 170,521,017
Payback period (years)	4.39

⁴ Includes salaries and utility expenses

10 KEY SUCCESS FACTORS

The commercial viability of the venture totally depends upon the regular and consistent supply of Kinnow. Although, Kinnow is available in abundance but regular and consistent supply of high quality Kinnow during the season is of vital importance. The cost of purchase of Kinnow involves heavy cash outlays, which would have to be met from working capital. Working capital requirement is controlled from suppliers' credit of 45 days.

The other important aspect is the need for strong linkage with the progressive fruit and vegetable exporters. These exporters are of two types, those who outsource their production along-with their own in-house production and those which do not have in-house production facility and purchase processed Kinnow from processing plants ready for export.

11 FINANCIAL ANALYSIS

11.1 Projected Income Statement⁵

	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9	Year-10
Sales	424,116,000	512,556,660	614,370,582	731,350,528	865,514,251	1,017,078,747	1,194,754,634	1,395,251,650	1,623,844,631	1,884,151,459
COST OF GOODS SOLD										
Raw Material	145,895,904	169,333,053	193,963,315	220,633,271	249,485,314	280,670,979	314,351,496	350,698,388	389,894,090	432,132,617
Raw Material Transport Rental	1,728,000	1,995,840	2,286,144	2,600,489	2,940,553	3,308,122	3,705,096	4,133,498	4,595,477	5,093,321
Raw Material Transport Diesel	3,888,000	4,490,640	5,143,824	5,851,100	6,616,244	7,443,274	8,336,467	9,300,371	10,339,824	11,459,972
Export & Freight charges	213,798,692	258,656,708	310,348,339	369,791,730	438,548,856	516,778,095	606,267,694	708,487,431	825,088,439	957,924,774
Payroll (Production Staff)	2,160,000	2,540,869	2,965,587	3,426,425	3,925,933	4,135,152	4,690,167	5,304,593	5,968,735	6,686,031
Machine Maintenance	100,360	105,378	110,647	116,179	121,988	128,088	134,492	141,217	148,277	155,691
Direct Electricity	355,920	430,663	473,729	521,102	573,212	630,533	693,587	762,945	839,240	923,164
Total	367,926,876	437,553,150	515,291,586	602,940,296	702,212,100	813,094,243	938,178,999	1,078,828,443	1,236,874,083	1,414,375,569
Gross Profit	56,189,124	75,003,510	99,078,996	128,410,232	163,302,151	203,984,505	256,575,635	316,423,207	386,970,548	469,775,889
OPERATING EXPENSE										
Payroll (Admin)	420,000	441,000	463,050	486,203	510,513	536,038	562,840	590,982	620,531	651,558
Fixed electricity	6,546	7,772	8,343	8,915	9,487	10,058	10,630	11,201	11,773	12,344
Insurance Expense	775,510	732,527	689,545	646,562	603,580	560,597	517,615	474,632	431,649	388,667
Administrative & Factory Overheads	1,908,522	2,319,319	2,795,540	3,346,479	3,982,673	4,706,557	5,560,150	6,530,250	7,643,667	8,919,975
Amortization (Pre-operational Expenses)	81,100	81,100	81,100	81,100	81,100					
Depreciation	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168
Total	4,146,845	4,536,886	4,992,745	5,524,426	6,142,519	6,768,418	7,606,401	8,562,233	9,662,788	10,927,711
Operating Profit	52,042,279	70,466,624	94,086,251	122,885,805	157,159,632	197,216,086	248,969,233	307,860,974	377,307,760	458,848,178
NON-OPERATING EXPENSE										
Financial Charges on Long-term Loan	1,411,124	1,205,933	967,912	691,808	371,526	0	0	0	0	0
Financial Charges on Running Finance	3,461,451	3,358,167	0	0	0	0	0	0	0	0
Export Development fund/WHT (1.3%)	5,415,228	6,552,426	7,862,911	9,369,969	11,099,809	13,081,918	15,349,451	17,939,671	20,894,440	24,260,766
Total	10,287,803	11,116,526	8,830,823	10,061,777	11,471,336	13,081,918	15,349,451	17,939,671	20,894,440	24,260,766
PROFIT BEFORE TAX	41,754,476	59,350,098	85,255,428	112,824,029	145,688,297	184,134,168	233,619,783	289,921,304	356,413,320	434,587,412
Tax	10,438,619	14,837,524	21,313,857	28,206,007	36,422,074	46,033,542	58,404,946	72,480,326	89,103,330	108,646,853
PROFIT AFTER TAX	31,315,857	44,512,573	63,941,571	84,618,022	109,266,222	138,100,626	175,214,837	217,440,978	267,309,990	325,940,559

⁵ See Annexure 2 (13.4) for CGS and O.E

11.2 Projected Cash-flow Statement

	Const Year	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9	Year-10
Operating activities											
Net profit		31,315,857	44,512,573	63,941,571	84,618,022	109,266,222	138,100,626	175,214,837	217,440,978	267,309,990	325,940,559
Amortization (Pre-operational Expenses)		81,100	81,100	81,100	81,100	81,100	0	0	0	0	0
Depreciation		955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168
Accounts receivable		(94,248,000)	(19,653,480)	(22,625,316)	(25,995,544)	(29,814,161)	(33,680,999)	(39,483,530)	(44,554,892)	(50,798,440)	(57,845,962)
Equipment Spare Parts Inventory		(8,363)	(418)	(439)	(461)	(484)	(508)	(534)	(560)	(588)	(618)
Up-Front Insurance payment	(775,510)	42,983	42,983	42,983	42,983	42,983	42,983	42,983	42,983	42,983	42,983
Stocks-RM	(589,786)	0	(182,893)	(112,390)	(121,697)	(131,654)	(142,302)	(153,687)	(165,853)	(178,853)	(192,737)
Accounts payable		16,297,438	2,616,662	2,750,266	2,978,008	3,221,648	3,482,207	3,760,767	4,058,478	4,376,559	4,474,144
Cash provided by operations	(1,365,295)	(45,563,818)	28,371,694	45,032,943	62,557,578	83,620,822	108,757,173	140,336,004	177,776,300	221,706,817	273,373,536
Financing activities											
Long term debt principal repayment		(1,282,442)	(1,487,632)	(1,725,654)	(2,001,758)	(2,322,039)	0	0	0	0	0
Addition to long term debt	8,819,525										
Running finance repayment		(24,724,648)	(23,986,907)	0	0	0	0	0	0	0	0
Issuance of share	33,544,173										
Cash provided by/ (used for) financing activities	42,363,698	(26,007,089)	(25,474,539)	(1,725,654)	(2,001,758)	(2,322,039)	0	0	0	0	0
Total	40,998,402	(71,570,907)	2,897,155	43,307,289	60,555,820	81,298,782	108,757,173	140,336,004	177,776,300	221,706,817	273,373,536
Investing activities											
Capital expenditure	(17,639,050)										
Cash (used for)/ provided by investing activities	(17,639,050)										
Net Cash	23,359,352	(71,570,907)	2,897,155	43,307,289	60,555,820	81,298,782	108,757,173	140,336,004	177,776,300	221,706,817	273,373,536

11.3 Projected Balance Sheet

	Const Year	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9	Year-10
Current Assets											
Cash	48,084,000	500,000	3,397,155	46,704,444	107,260,264	188,559,046	297,316,219	437,652,223	615,428,523	837,135,340	1,110,508,876
Equipment Spare Parts Inventory	0	8,363	8,782	9,221	9,682	10,166	10,674	11,208	11,768	12,356	12,974
Up-Front Insurance payment	775,510	732,527	689,545	646,562	603,580	560,597	517,615	474,632	431,649	388,667	345,684
Stocks and Inventory	589,786	589,786	772,678	885,068	1,006,765	1,138,419	1,280,721	1,434,407	1,600,261	1,779,114	1,971,851
Receivable	0	94,248,000	113,901,480	136,526,796	162,522,340	192,336,500	226,017,499	265,501,030	310,055,922	360,854,362	418,700,324
Total	49,449,295	96,078,676	118,769,640	184,772,091	271,402,630	382,604,728	525,142,728	705,073,500	927,528,123	1,200,169,840	1,531,539,710
Gross Fixed Assets											
Less: Accumulated depreciation	0	955,168	1,910,335	2,865,503	3,820,670	4,775,838	5,731,005	6,686,173	7,641,340	8,596,508	9,551,675
Net Fixed Assets	17,233,550	16,278,383	15,323,215	14,368,048	13,412,880	12,457,713	11,502,545	10,547,378	9,592,210	8,637,043	7,681,875
Intangible Assets											
Pre-operational Expenses	405,500	324,400	243,300	162,200	81,100	0	0	0	0	0	0
Total	405,500	324,400	243,300	162,200	81,100	0	0	0	0	0	0
Total Assets	67,088,345	112,681,459	134,336,155	199,302,338	284,896,610	395,062,441	536,645,273	715,620,877	937,120,333	1,208,806,882	1,539,221,585
Current Liabilities											
Running Finance	24,724,648	23,986,907	0	0	0	0	0	0	0	0	0
Accounts payable		16,297,438	18,914,100	21,664,367	24,642,375	27,864,022	31,346,229	35,106,996	39,165,474	43,542,033	48,016,177
Total	24,724,648	40,284,345	18,914,100	21,664,367	24,642,375	27,864,022	31,346,229	35,106,996	39,165,474	43,542,033	48,016,177
Long-term liabilities											
Long-term Loan	8,819,525	7,537,083	6,049,451	4,323,797	2,322,039	(0)	(0)	(0)	(0)	(0)	(0)
Total	8,819,525	7,537,083	6,049,451	4,323,797	2,322,039	(0)	(0)	(0)	(0)	(0)	(0)
Equity											
Paid-up Capital	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173	33,544,173
Retained Earnings	0	31,315,857	75,828,431	139,770,002	224,388,023	333,654,246	471,754,872	646,969,709	864,410,686	1,131,720,677	1,457,661,235
Total	33,544,173	64,860,030	109,372,603	173,314,174	257,932,196	367,198,418	505,299,044	680,513,881	897,954,859	1,165,264,849	1,491,205,408
Total Liabilities And Equity	67,088,345	112,681,459	134,336,155	199,302,338	284,896,610	395,062,441	536,645,273	715,620,877	937,120,333	1,208,806,882	1,539,221,585

12 KEY ASSUMPTIONS

12.1 Machinery Assumptions

Capacity of processing plant (Tons/Hour)	8.0
Waste production (% of production)	12.5%
First Year Production (Increasing @ 5% each successive Year)	50%
Machine maintenance cost (% of machine cost)	2.0%
Machine maintenance growth rate	5.0%
Seasonal production capacity (100%)	8,100

12.2 Operating Assumptions

Production In First year (excluding waste) Tons	7560
First year capacity utilization	50%
Tenth year capacity utilization	95%
Hours operational per day (½ an Hour Break Included)	8
Days operational per month	27
Day operational per season	135

12.3 Economy Related Assumptions

Electricity growth rate	10%
Wage growth rate	10%
Factory overhead growth rate	1.0%
Interest rate on export re-finance	9.0%
Raw material price growth rate	5.0%
Kinnow purchase price growth rate	5.0%
Waste price growth rate	3.0%
Gas price growth rate	10%
Insurance rate	4.5%

12.4 Cash Flow Assumptions

Accounts receivable cycle (in days)	30
Accounts payable cycle (in days)	15
Raw material inventory (in days)	15
Kinnow purchase inventory (in days)	1
Kinnow purchase price (Rs./Metric Tons)	10,000
Equipment spare part inventory (in days)	1

12.5 Revenue Assumptions

Production capacity annual growth rate	5%
First yr Sales Price/MT (Rs)	
Gulf & UAE	35,000
EU	52,000
Russia/Ukraine	60,000
Waste Product	7,000
First yr Raw Material Cost/MT (Rs)	10,000
Sales price growth rate per annum	10%

12.6 Other Assumptions

Raw material consumption per Mt	
Kinnows (Mt)	1.00
Wax Polish (Litres)	0.76
Packaging (box)	100
Price of Raw material(Rs/Mt)	
Kinnow	10,000
Wax Polish	485
Packaging	66

12.7 Financial Assumptions

Project life (Years)	10
Debt	50%
Equity	50%
Interest rate on long-term debt	16%
Interest rate on short term debt	14%
Debt tenure (Years)	5
Debt payments per year	1
Discount rate (weighted Avg. cost of capital for NPV)	25%
Minimum Cash Balance	500,000

13 ANNEXURE 1

13.1 Major Growers

Name	Location
Mr. Hamid Saleem Warraich	Bhalwal
Mr. Iftikhar Ahmad Kahloon	Bhalwal.
Mr. Khair Muhammad Tiwana	Bhalwal
Mr. Shaukat Mahmood Maken	Shapur
Muhammad Nawaz Mela	Kotmomen

Source: Kinnow Growers Association, Sargodha.

13.2 Machinery Manufacturers

Name	Location
M/s Al-Aziz Enterprises 10-km, Lahore Road, Sargodha Contact: 0300-9606642	Sargodha
M/s Zalazar Engineering Works Opp. Commerce College, Bhalwal. Contact: 0300-9603209	Bhalwal
M. Yousaf Kinoo Factory Lahore Road, Sargodha Contact: 0301-6743914	Sargodha.

13.3 Raw Material Suppliers

Wax (Polish)	Location
M/s Al-Aziz Enterprises 10-km, Lahore Road, Sargodha Contact: 0300-9606642	Sargodha
Packaging	Location
M/s Zahid Packages 4-km, Kot-Momin Bhalwal Road, Bhalwal. Tel: 0486-892245-46 Fax: 0486-892247	Bhalwal
M/s Roshan Packages 71-A, Ahmad Block, New Garden Town, Tel: 042-5855324 Fax: 042-5855331 E-mail: sales@roshanpackages.com.pk www.roshanpackages.com.pk	Lahore

Annexure 2

13.4 Cost of Good Sold and Operating Expense

COST OF GOODS SOLD										
Raw Material	145,895,904	169,333,053	193,963,315	220,633,271	249,485,314	280,670,979	314,351,496	350,698,388	389,894,090	432,132,617
Raw Material Transport Rental	1,728,000	1,995,840	2,286,144	2,600,489	2,940,553	3,308,122	3,705,096	4,133,498	4,595,477	5,093,321
Raw Material Transport Diesel	3,888,000	4,490,640	5,143,824	5,851,100	6,616,244	7,443,274	8,336,467	9,300,371	10,339,824	11,459,972
Export & Freight charges	213,798,692	258,656,708	310,348,339	369,791,730	438,548,856	516,778,095	606,267,694	708,487,431	825,088,439	957,924,774
Payroll (Production Staff)	2,160,000	2,540,869	2,965,587	3,426,425	3,925,933	4,135,152	4,690,167	5,304,593	5,968,735	6,686,031
Machine Maintenance	100,360	105,378	110,647	116,179	121,988	128,088	134,492	141,217	148,277	155,691
Direct Electricity	355,920	430,663	473,729	521,102	573,212	630,533	693,587	762,945	839,240	923,164
Total	367,926,876	437,553,150	515,291,586	602,940,296	702,212,100	813,094,243	938,178,999	1,078,828,443	1,236,874,083	1,414,375,569
Gross Profit	56,189,124	75,003,510	99,078,996	128,410,232	163,302,151	203,984,505	256,575,635	316,423,207	386,970,548	469,775,889
OPERATING EXPENSE										
Payroll (Admin)	420,000	441,000	463,050	486,203	510,513	536,038	562,840	590,982	620,531	651,558
Payroll (Marketing and Sale)	0	0	0	0	0	0	0	0	0	0
Fixed electricity	6,546	7,772	8,343	8,915	9,487	10,058	10,630	11,201	11,773	12,344
Insurance Expense	775,510	732,527	689,545	646,562	603,580	560,597	517,615	474,632	431,649	388,667
Administrative & Factory Overheads	1,908,522	2,319,319	2,795,540	3,346,479	3,982,673	4,706,557	5,560,150	6,530,250	7,643,667	8,919,975
Amortization (Pre-operational Expenses)	81,100	81,100	81,100	81,100	81,100					
Depreciation	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168	955,168
Total	4,146,845	4,536,886	4,992,745	5,524,426	6,142,519	6,768,418	7,606,401	8,562,233	9,662,788	10,927,711