
Pre-Feasibility Study

FRUITS & VEGETABLES PULPING UNIT (MANGO, GUAVA & TOMATO)

April 2017

Table of Contents

1	DISCLAIMER.....	3
2	EXECUTIVE SUMMARY	4
3	INTRODUCTION TO AGRICULTURE DEPARTMENT ERROR! BOOKMARK NOT DEFINED.	
4	PURPOSE OF THE DOCUMENT.....	5
5	BRIEF DESCRIPTION OF PROJECT & PRODUCT.....	5
5.1	PROVINCE WISE PRODUCTION OF MANGO, GUAVA & TOMATO	7
5.2	PRODUCTION PROCESS FLOW	9
5.3	INSTALLED AND OPERATIONAL CAPACITIES	11
6	CRITICAL FACTORS	12
7	GEOGRAPHICAL POTENTIAL FOR INVESTMENT	12
8	POTENTIAL TARGET CUSTOMERS / MARKETS.....	13
9	PROJECT COST SUMMARY.....	13
9.1	PROJECT ECONOMICS.....	13
9.2	PROJECT FINANCING	14
9.3	PROJECT COST.....	14
9.4	SPACE REQUIREMENT.....	15
9.5	MACHINERY & EQUIPMENT REQUIREMENT.....	16
9.6	FURNITURE & FIXTURES REQUIREMENT.....	22
9.7	OFFICE EQUIPMENT REQUIREMENT	22
9.8	VEHICLES REQUIREMENT.....	23
9.9	RAW MATERIAL REQUIREMENT	24
9.10	HUMAN RESOURCE REQUIREMENT	25
9.11	UTILITIES AND OTHER COSTS	26
9.12	REVENUE GENERATION.....	26
10	USEFUL WEB LINKS.....	27
11	ANNEXURES	29
11.1	INCOME STATEMENT	29
11.2	BALANCE SHEET.....	30
11.3	CASH FLOW STATEMENT	31
12	KEY ASSUMPTIONS.....	32
12.1	OPERATING COST ASSUMPTIONS.....	32
12.2	RAW MATERIAL COST ASSUMPTIONS	32
12.3	REVENUE ASSUMPTIONS	33
12.4	FINANCIAL ASSUMPTIONS.....	33

1 DISCLAIMER

This document has been prepared with the objective to provide basic information about the subject business proposition. The content of the document has been derived from data and information collected from various reliable secondary and primary sources and is based on certain assumptions. While reasonable due diligence has been carried out during information collection and working out the presented calculations, the reader is strongly encouraged to carry out any further scrutiny and diligence to collect any other information that may be deemed necessary to take an informed decision. Professional advice from qualified technical expert/consultant should preferably be sought before taking any decision to act upon the information presented in the document. Department of Agriculture, Government of Punjab does not assume any liability for any financial or other loss in consequence of undertaking any activity on the basis of the information provided in the document.

2 EXECUTIVE SUMMARY

Nature has blessed Pakistan with an ideal climate for growing a large variety of fruits, most notably Mango, Citrus, Guava, Apple and etc. The growing demand of fruit drinks, juices, processed fruit and value added fruit products in local / international market provides ample opportunities for investment in fresh fruit & vegetable processing on commercial basis.

This particular pre-feasibility study is for setting up a Fruits & Vegetables Pulping Unit mainly for Mango, Guava & Tomato. The proposed unit is a large size business venture and assumed to be located in the cities nearby to Mango, Guava and Tomato producing areas, such as Multan, Khanewal and Muzaffargarh where basic infrastructure is available for easy transportation of raw material and finished goods. The finished product is pulp of Mango and Guava (i.e. used as basic raw material for juices, ice creams and other value added fruit products) along with Tomato paste (i.e. used mainly for tomato ketchup production and cooking).

The unit will have the installed capacity of producing 17,280 tons of Mango Pulp, 14,720 tons of Guava Pulp and 2,170 tons of Tomato Paste per year on seasonal basis. The unit will process Mango Pulp for 60 days, Guava Pulp for 50 days and Tomato Paste for 40 days. The maximum operational time of plant is assumed as 16 hours however, initial operational capacity is assumed at 50% while maximum operational capacity utilization is considered as 100%. This production capacity is estimated to be economically viable and justifies the huge capital as well as operational costs of the project. However, complete adherence to best fruit & vegetable pulping practices is critical to the success of this project. Therefore, technical knowledge and experience to setup and run this plant is absolutely necessary.

The Total estimated cost for setting up the proposed Fruits & Vegetables Pulping Unit is Rs. 1,745.36 million with fixed investment of Rs. 1,473.38 million and working capital Rs. 271.98 million. The project NPV is around Rs. 1,224.73 million, with an IRR of 30% and Payback Period of 4.84 years. The project will provide employment opportunities to 56 people.

3 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 **Fruits & Vegetables Pulping Unit (Mango, Guava & Tomato)** 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.

4 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Nature has blessed Pakistan with an ideal climate for growing a large variety of fruits & vegetables, most notably Mango, Citrus, Guava, Apple and Tomato etc. It has been observed that demand of value added fruits products, especially pulps, has increased tremendously due to its use as raw material for juices, ice cream, fruits yogurts and other similar items in both local and international markets.

Pakistan is the 5th largest fresh mango exporter of the world and has huge demand in the international market due to rich flavor, aroma, and health value, i.e., nutrients and minerals contents. However, we are no where in the export of mango

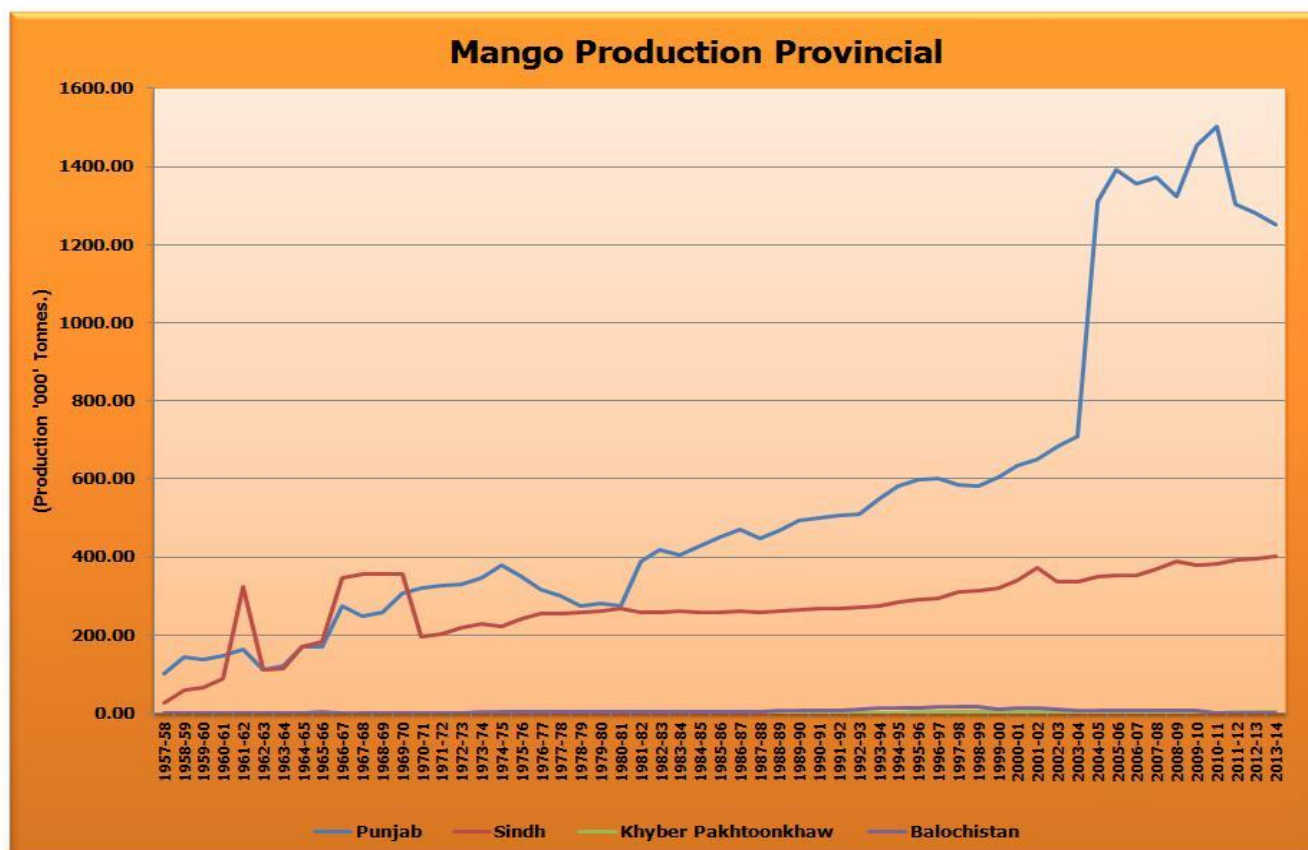
pulp that has huge exporting potentials. Similarly, fruit juices and beverages industry is recognized as the leading industries, which also requires adequate supply of fruit pulp from the local market. Additionally, in order to cater for the demand of local / international markets our fruit processors requires modern processing facilities.

According to the proposed business model, fresh fruits & vegetables will be purchased either directly from farmers or distributors, pulping will be carried out and finished good will be sold both in local and international markets.

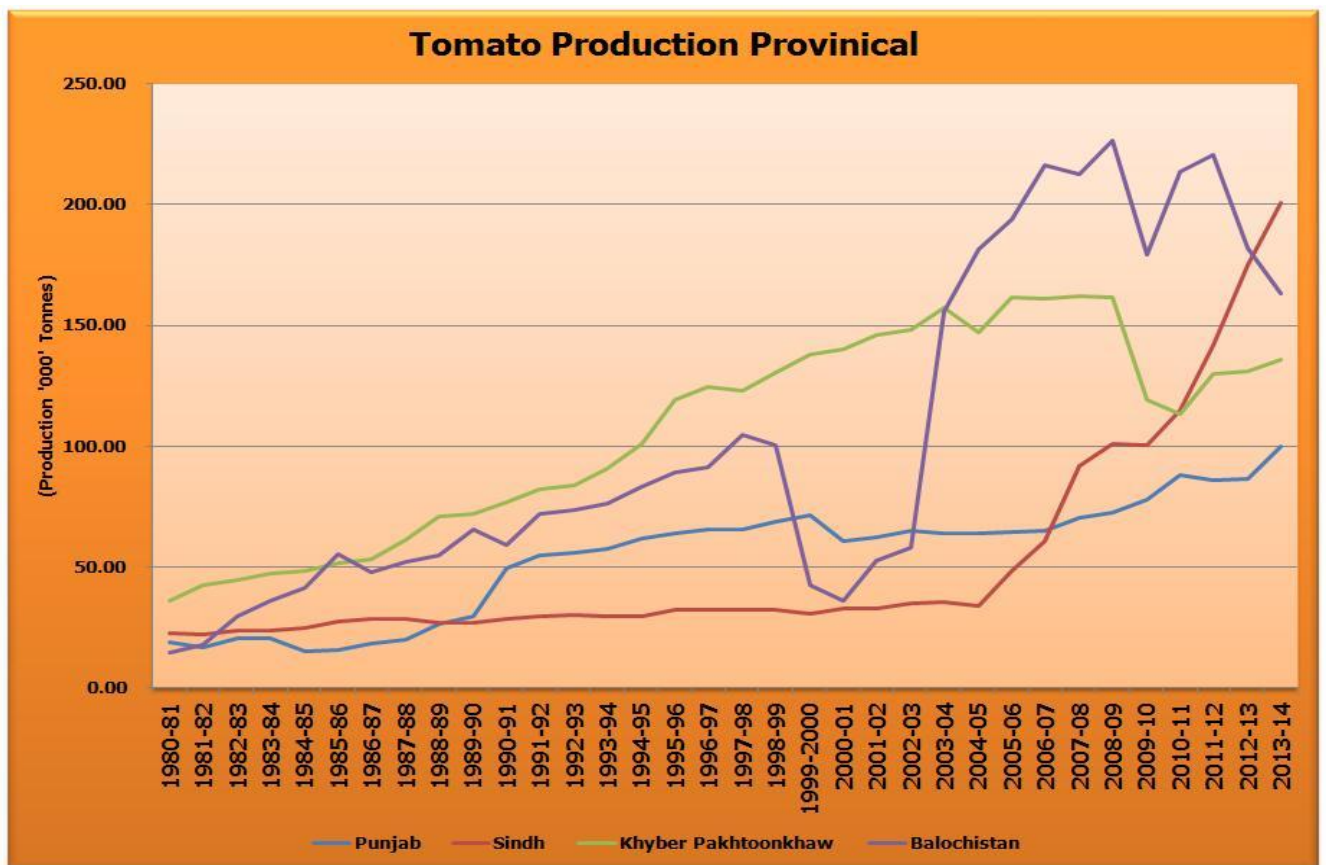
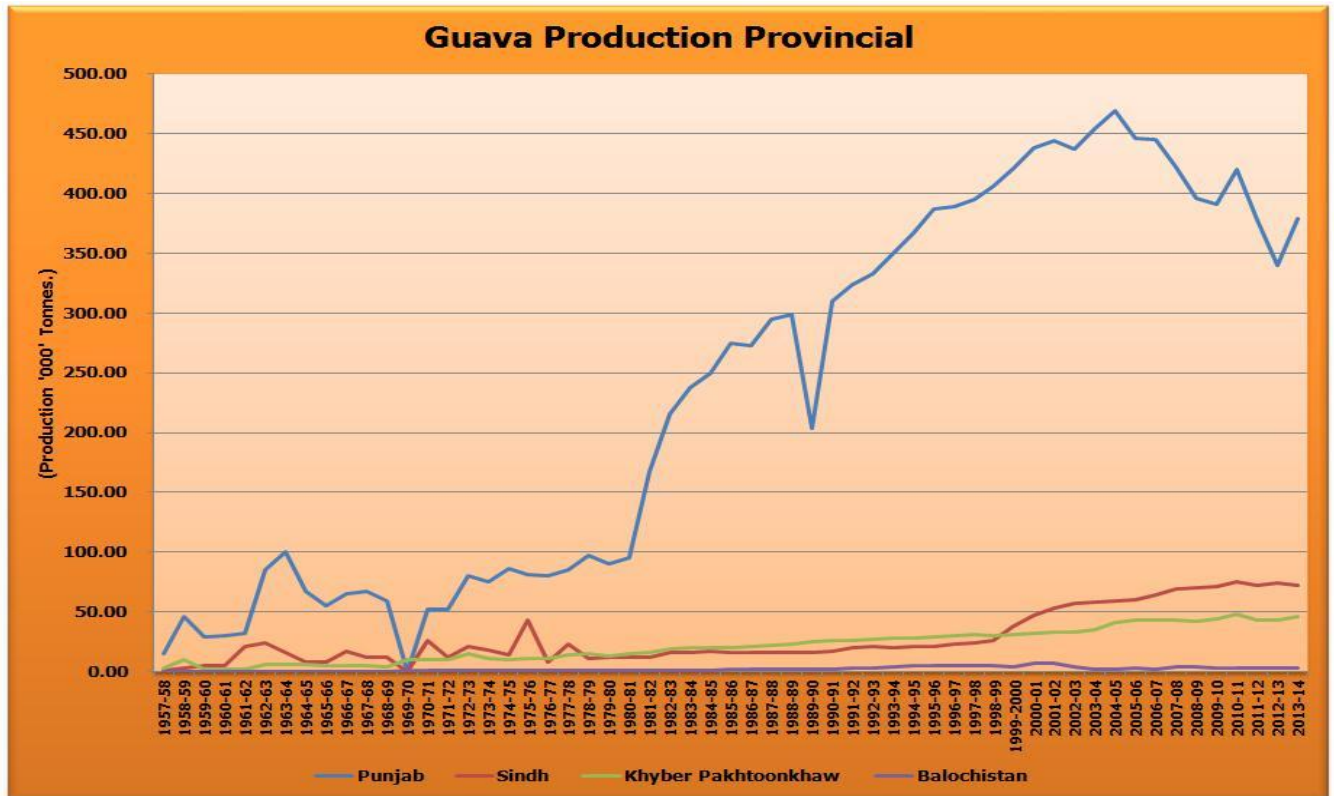
The major scope of processing activities will include post-harvest handling, ripening, sorting, pulping, packing and logistics. For that purpose, fully automatic imported machinery / plant comprising of Washing, Sorting, Pulping and Packing facilities will be installed. It is recommended to acquire Chinese or Italian technology, which is more durable and reliable.

4.1 Province Wise Production of Mango, Guava & Tomato

Following graphs show province wise production trends of Mango, Guava and Tomato. It also shows that these fruits & vegetable are produced in abundance.¹



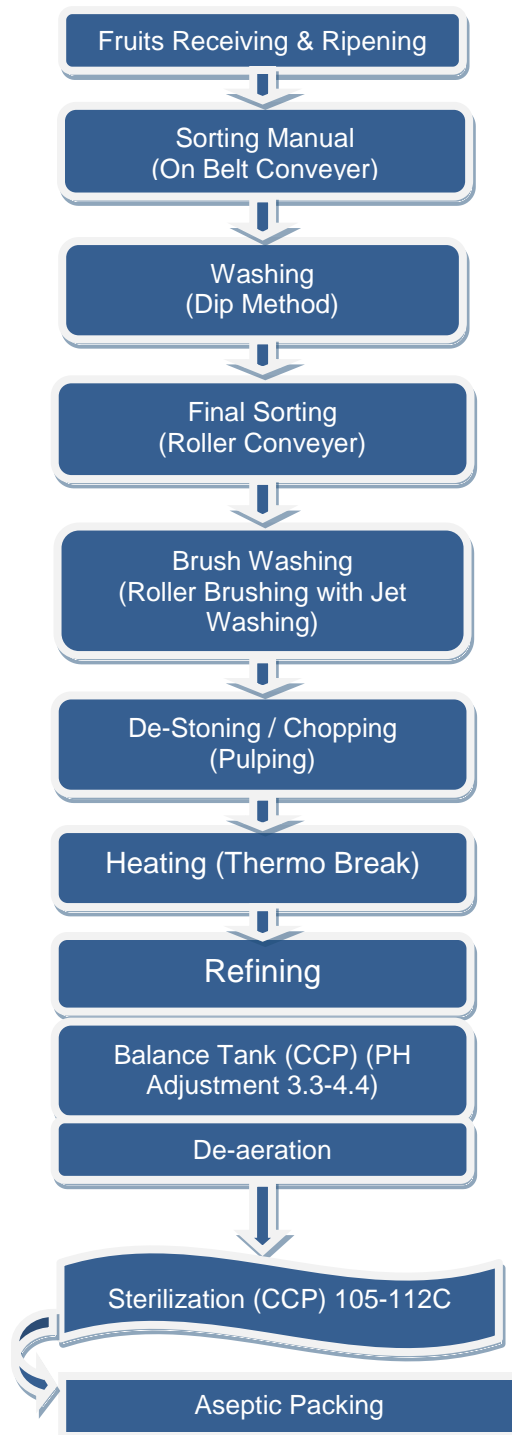
¹ <http://www.amis.pk/Agristatistics/production.aspx>

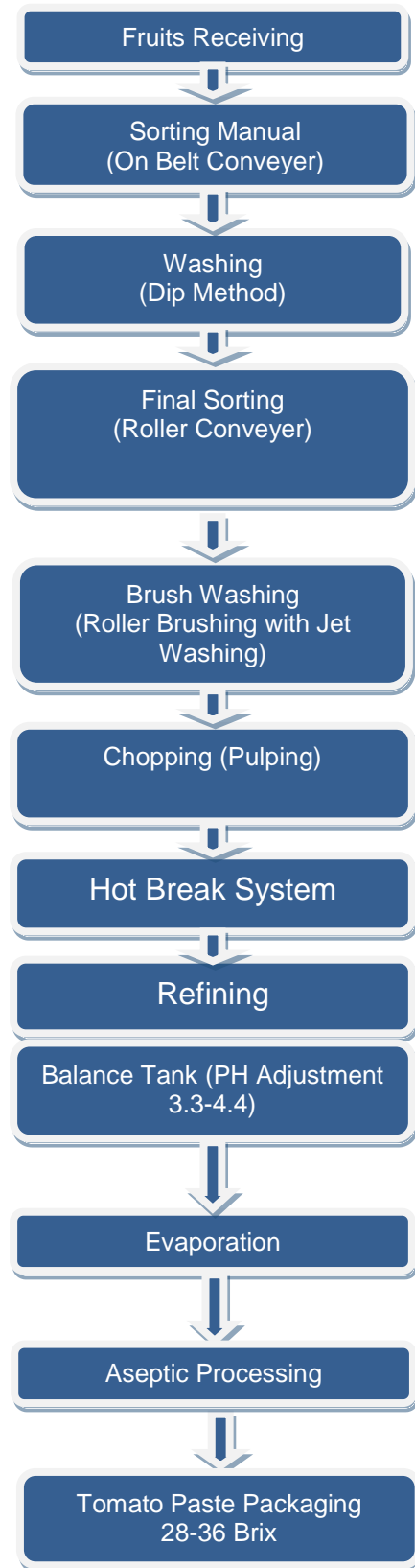


4.2 Production Process Flow

The production process flow of the proposed venture mainly comprises of Pulping unit. The process flow for Tomato slightly differs from Mango & Guava and are presented in the following diagrams:

Process Flow for Fruit Pulping (Mango and Guava)



Process Flow for Vegetable Pulping (Tomato Paste)

4.3 Installed and Operational Capacities

The proposed Fruits & Vegetables Pulping Unit has an installed input capacity of processing 30 tons of Mango, 23 tons of Guava and 20 tons of Tomato per hour. The unit has the maximum capacity of producing 17,280 tons of Mango Pulp, 14,720 tons of Guava Pulp and 2,170 tons of Tomato Paste annually based on 16 hours of plant operations. As the fruits (i.e. Mango and Guava) and vegetable (i.e. tomato) are seasonal commodities, therefore, pulping of fruits and vegetables will be done on seasonal basis. Following is the pulp processing calendar indicating the duration and months:

	Fruits & Vegetables Pulp Processing Calendar																							
CROP	JAN			FEB			MAR			APR			MAY			JUN			JUL			AUG		
Guava																								
Tomato																								
Mango																								

The unit will process Mango Pulp for 60 days, Guava Pulp for 50 days and Tomato Paste for 40 days. The maximum operational time of plant is assumed as 16 hours however, initial operational capacity is assumed at 50% with an annual growth rate of 10% up to maximum level of 100% capacity utilization in 6th year of operation. This production capacity is estimated to be economically viable and justifies the capital as well as operational costs of the project.

Details of operational and installed capacity according to product mix are provided in the table below:

Table 1: Installed and Operational Capacities – Fruit Pulping

Description	Production Capacity Per hour (tons)	Total Input Capacity of Fruit in tons (16 hour shift basis)	Total Output Capacity of Pulp in tons (16 hour shift basis)	Operational Output Capacity (50%) of Pulp - in tons (Year 1)
Guava	23	18,400	14,720	7,360
Tomato	20	12,800	2,170	1,085
Mango	30	28,800	17,280	8,640

5 CRITICAL FACTORS

- ⇒ Complete adherence to technical knowledge & experience in the field of horticulture and in fresh fruit processing business is absolutely critical to the success of this project.
- ⇒ Awareness about HACCP standards and strict quality assurance of process and products
- ⇒ Selection of quality fruits and vegetable on the basis of best analysis of cost and revenues for a given season; cost efficiency through better management of the supply chain.
- ⇒ Appropriate post-harvest arrangement for transportation of product to the processing unit.
- ⇒ Appropriate storage arrangement and internal control for processed pulp; cold chain refer container arrangements for transportation to local and international markets.
- ⇒ Properly trained 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 importing countries, industrial units and foreign store chains.
- ⇒ International certifications and knowledge about food product regulations in the importing Countries.

6 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The unit can be installed anywhere in Pakistan where the raw materials (fresh fruits i.e. Mango & Guava and vegetable i.e. Tomato) are easily accessible with minimal transportation cost.

As per available fruit production data, major mango orchards are in South Punjab and Rural Sindh, while orchards of guava are mainly in upper Punjab, Hyderabad, Larkana, Moro, Haripur, Kohat and Bannu. Therefore, following urban areas could be the most appropriate locations for the proposed unit:

Multan, Muzaffargarh and Khanewal.

7 POTENTIAL TARGET CUSTOMERS / MARKETS

The proposed unit will produce pulp of Mango, Guava and paste of Tomato. All of these products are not directly catered to general consumers but target the industrial consumers. For instance, pulp is used as basic raw material for production of juices, ice creams, frozen deserts, flavoured yogurts, jelly, jams and many others. And Tomato paste is used as raw material for cooking & tomato ketchup production. Accordingly, the main buyers of fruit pulp will be manufacturing concerns of stated value added fruit products and fruit juice producers both in local and international markets. On the other hand, major buyers of tomato paste are either export markets or local tomato ketchup producers.

The main export markets for Pakistani processed fruits / pulp are including USA, Europe, Middle East, Far East, Canada, Africa and Sri Lanka.

8 PROJECT COST SUMMARY

8.1 Project Economics

All the figures in this financial model have been calculated for installed capacity of 17,280 tons of Mango Pulp, 14,720 tons of Guava Pulp along with 2,170 tons of tomato paste (28 - 32 Brix) per year with an initial operating capacity of 50% (for both Pulping & Paste).

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

Table 2: Project Economics

Description	Details
Internal Rate of Return (IRR)	30%
Payback Period (Yrs.)	4.84
Net Present Value (Rs. Millions)	1,224.73

8.2 Project Financing

It is assumed that the project will be financed through 100% Equity.

8.3 Project Cost

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

Table 3: Project Cost

Description	Amount Rs. Million
Capital Cost	
Land	60.000
Building / Infrastructure	187.793
Plant and Machinery	1,150.575
Furniture and Fixtures	1.547
Office Vehicles	6.215
Office Equipment	2.370
Pre-operating Cost	36.709
Misc. and Contingency	28.170
Total Capital Cost	1,473.379
Working Capital	
Equipment Spare Part Inventory	3.000
Upfront Insurance Payment	6.515
Cash	43.009
Raw Material Inventory	219.452
Total Working Capital	271.976
Total Project Cost	1,745.355

8.4 Space Requirement

Approximately 6 acres of land would be required for establishment of proposed unit, it is recommended that required land should be procured in the industrial estates of identified potential cities. The cost of land is estimated at a rate of Rs. 10 million per acre within the vicinity of Multan, Muzaffargarh & Khanewal; hence total cost of required land is Rs. 60 million.

The infrastructural requirements of the project mainly comprises of the construction of Management Building, Sorting, Processing Hall, Cold Store, Fruit Ripening Area and other facilities. The cost of construction of building for the proposed unit is provided in the table below:

Table 4: Space Requirement

Description	Unit	Quantity	Unit Cost (Rs.)	Total Cost (Rs. Million)
Office Block	sq. ft.	2,500	3,000	7.500
Committee Room	sq. ft.	1,500	3,000	4.500
Micro Lab, Lab & Office	sq. ft.	1,300	3,000	3.900
Processing Hall	sq. ft.	10,000	1,500	15.000
Sorting Hall	sq. ft.	2,500	1,500	3.750
Cold Storage	sq. ft.	12,000	1,500	18.000
Machine Room	sq. ft.	1,000	2,000	2.000
Lobby	sq. ft.	750	2,000	1.500
Store	sq. ft.	2,000	2,000	4.000
Shed	sq. ft.	4,500	1,500	6.750
Fruit Ripening Area	sq. ft.	54,000	1,000	54.000
Utility Hall	sq. ft.	3,000	1,500	4.500
Dining	sq. ft.	1,200	2,000	2.400
Kitchen	sq. ft.	400	2,000	0.800

Masjid	sq. ft.	1,500	2,500	3.750
Toilets	sq. ft.	600	2,000	1.200
Change Room	sq. ft.	500	1,800	0.900
Guard Room	sq. ft.	120	1,800	0.216
Total Building Cost	sq. ft.	99,370		134.666
External Development				
Pavement / Driveway	sq. ft.	25,200	150	3.780
Main Gate	no.	1	300,000	0.300
Grounds Landscaping	sq. ft.	50,000	25	1.250
Overhead Water Tank	gallons	10,000	400	4.000
Under Ground Water Tank	gallons	20,000	70	1.400
External Development	lumpsum			3.000
Plant Electrification	lumpsum			20.000
Boundary Wall	r. ft.	3,000	1,000	3.000
Misc. & Contingency (% of total construction cost)	%	3%		5.112
Design & Supervision Charges (% of total construction cost)	%	7%		12.285
Total External Development Cost				54.127
Total Building and External Development Cost				187.793

8.5 Machinery & Equipment Requirement

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

Table 5: Machinery & Equipment

Sr. #	Description	Total Cost Rs. Mn.
A	Fruit & Vegetable Pulping Plant	856.007

B	Utilities Machinery and Equipment	183.320
C	Laboratory Equipment – Microbiological Lab	4.254
D	Laboratory Equipment – Analytical Lab	1.994
E	Cold Store	45.000
F	Plastic Crates	60.000
	Total Machinery & Equipment Cost	1150.575

Detailed Machinery Specifications are mentioned in the following tables:

A - Fruit Pulping Plant

Sr. #	Description	Unit	Qty	Total Cost Rs. Mn.
A	Fresh fruits treatment and tomato juice / fruit puree extraction line			
1	Extraction elevator	pcs	1	
2	Washer inoxall	pcs	2	
3	Sorting line selinox roller type	pcs	2	
4	Brusher with by pass	pcs	2	
5	Distribution belt conveyor	pcs	2	
6	Elevator	pcs	3	
7	Maxi mango destoner	pcs	3	
8	Monoscrew pump with hopper	pcs	3	
9	Hammer chopper	pcs	2	
10	Dosing group	pcs	2	
11	Hot break/cold break group 20.000	pcs	1	
12	Pulper/refiner turbomax	pcs	2	
13	Monoscrew pump with hopper	pcs	2	
14	Pulper/refiner turbomax	pcs	2	
15	Monoscrew pump with hopper	pcs	2	
16	Insulated mixing tank 10.000	pcs	1	
17	Monoscrew pump	pcs	1	
18	Centrifuge for mango and guava puree	pcs	2	
19	Monoscrew pump for waste	pcs	2	
20	Mixing tank 10,000	pcs	1	

21	Monoscrew pump for waste	pcs	1	
22	Scaffolding	pcs	1	
23	Accessories	set	1	
B	Concentration and aseptic line			
1	Forced circulation evaporator Frumaco 17,000-3e	pcs	1	
2	Mixing tank 6.000	pcs	1	
3	Monoscrew pump	pcs	1	
4	Tubular sterilizer STTH 6000-dea	pcs	1	
5	Tubular sterilizer STTC-DEA 9.000	pcs	1	
6	Aseptic filler 2h/1" - Magna	pcs	2	
7	Accessories	set	1	
C	Electric board with PLC			
1	Electric board with PLC	pcs	1	
D	Cleaning of the plant			
1	Centrifugal pump	pcs	8	
Z	Waste elimination system	set	1	
1	Screw conveyor			
	Recommended spare parts for one year	set	1	
	Technical assistance to supervise plant erection and commissioning and to train the Customer personnel			
	Total CIF Karachi port price, packing, recommended spare parts and technical assistance			652.687
	Custom duty	5%		32.634
	Sales tax	17%		110.957

	Withholding tax	5.5%		35.898
	Additional sales tax	3.0%		19.581
	Clearance & port charges			1.500
	Loading / unloading charges			0.250
	Local freight & lifting of machinery			2.500
	Total A (Cost of Imported Machinery)			856.007

B - Utilities Machinery and Equipment

Sr. #	Machinery / Equipment	Description	Qty.	Unit Cost Rs. Mn.	Total Cost Rs. Mn.
1	Boiler	Smoke tube packaged boiler, 15 ton/hr	1	35.000	35.000
2	Water Treatment Plant (Water Softener)	To convert hard water in soft water by Zeolite ion exchange process, required degree of hardness after treatment is 0.	1	5.000	5.000
3	Potable Water Treatment Plant	20 Cu. M / hr			1.500
4	Belt Conveyer	To Convey fruit @ 30 ton/hr from sorting area to washing unit, belt made in reinforced rubber 2 ply belt thickness 2mm Drive: geared with starter and safety interlocking system supporting structure in MS	1	1.800	1.800
5	Stainless steel tanks with agitators	3,000 L	2	0.550	1.100
		4,000 L	2	0.650	1.300
6	Generator 1500KVA	1500KVA, 400 Volts, 50 Cycles, Power Factor 0.8	1	36.000	36.000
7	Water Chiller with Pumps	Chilled Water 60,000 Ltr/hr	1	35.000	35.000
8	Piping, and valves for water, steam and air	-			12.400

9	Fuel tank for generator	-	1	0.500	0.500
10	Fans	Industrial	25	0.080	2.000
11	Fork lift truck	Battery operated with solid rubber tires, capacity 2.5 tons, fork length 4 ft, stacking height 12 ft	1	4.000	4.000
12	Waste Hopper Bin	MS Sheet hopper with the stand. Bottom height 12 ft, bottom opening gate 2x 2 ft with hydraulic controlled opening. 10-12 tons holding of solid waste of fruit processing	3	1.300	3.900
13	Air Compressor	With dryer and filter oil free screw type capacity 08 bar consumption 300-350 ltr/min. storage tank for air 1000 Ltr	1	1.500	1.500
14	Weigh Bridge	30 x 10 feet size, 60 tons capacity	1	2.100	2.100
15	Cooling Tower	Tower water 570 Cu. Mt./hr	1	9.720	9.720
16	Effluent Water Treatment Plant		1	15.000	15.000
17	Workshop Items		-		3.500
18	Electrical Panels		-		5.000
19	Others (Installation, Labor charges, welding plants, tools etc.)		-		7.000
Total - B					183.320

C - Laboratory Equipment - Microbiological Lab

Sr. #	Equipment	Description	Qty.	Unit Cost Rs. Mn.	Total Cost Rs. Mn.
1	Water Bath	6-8 holes with adjustable temperature	1	0.150	0.150
2	Spirit Lamp	burner with stand and stainless steel tongs	2	0.001	0.002
3	Oven	incubator with 3-5 shelves	1	0.150	0.150
4	Auto Clave	Electric autoclave, temperature range 125-135 C	1	0.310	0.310
5	Colony Counter	With adjustable magnifying glass	1	0.050	0.050
6	Microscope	4, 10, 40 and 100X binocular	1	0.062	0.062

7	Lab ware	Autoclavable and non auto cleavable	-		0.210
8	Media	Different types of medias	-		1.100
9	Incubator	3-5 Shelves, Temp range 10 - 60 C	1	0.580	0.580
10	Laminar Air Flow Cabinet		1	0.140	0.140
11	Misc.		-		1.500
Total - C					4.254

D - Laboratory Equipment - Analytical Lab

Sr. #	Equipment	Description	Qty.	Unit Cost Rs. Mn.	Total Cost Rs. Mn.
1	Weigh Balance	0.1g readability and capacity of 600-1200g	1	0.022	0.022
2	pH meter	Bench type with pH and temperature probes	1	0.037	0.037
3	Conductivity meter	Portable with multiple probe including conductivity / TDS / Salt and Temperature	1	0.041	0.041
4	Viscometer	Spindle Type	1	0.570	0.570
5	Viscometer	Time / Flow Type	1	0.260	0.260
6	Centrifuge	General Purpose variable speed with 15ml conical test tubes	1	0.290	0.290
7	Refractometer Hand type	0-32 brix and 0-53 brix	2	0.014	0.028
8	Refractometer Abbe's	0-95 brix	1	0.300	0.300
9	Thermometer	Digital probe type with wide temperature range	1	0.046	0.046
10	Magnifying glass	General Purpose	1	0.005	0.005
11	Desiccator	-	3	0.002	0.006
12	Stirrer	Hot plate type magnet stirrer	1	0.021	0.021
13	Burette	Digital auto burette	2	0.060	0.120
14	Glass ware	-	-		0.150
15	Refrigerator	12 Cubic Feet Size	1	0.040	0.040
16	Misc.		-		0.058
Total - D					1.994

E – Cold Store

Sr. #	Description	Total Cost Rs. Mn.
1	Cold Store 1500 Tons	45.000
Total - E		45.000

F – Plastic Crates

Description	Quantity	Unit Rate	Total Cost Rs. Mn.
Plastic Crates	100,000	600	60.000
Total - F			60.000

8.6 Furniture & Fixtures Requirement

Details of the furniture and fixture required for Fruit & Vegetable Pulping unit are given below:

Table 6: Furniture & Fixture

Description	Quantity	Unit Cost Rs.	Total Cost Rs. Mn.
Managers Tables	12	25,000	0.300
Manager / Officers Chairs	12	10,000	0.120
Visitor Chairs	24	7,500	0.180
Officers Tables	10	20,000	0.200
File Racks	12	15,000	0.180
Sofa Set	2	30,000	0.060
Split AC 1.5 Ton	7	65,000	0.455
Misc. & Contingency		5%	0.052
Total Furniture & Fixtures Cost			1.547

8.7 Office Equipment Requirement

Following office equipment will be required for Fruit & Vegetable Pulping unit.

Table 7: Office Equipment

Description	Quantity	Unit Cost Rs.	Total Cost Rs. Mn.
Laptop	1	150,000	0.150
Computers With LCD	18	75,000	1.350
Printer	3	25,000	0.075
Scanner	1	15,000	0.015
Networking Equipment & Accessories			0.150
Telephone Exchange	1	125,000	0.125
Telephone Sets	15	2,500	0.037
Fax Machine	1	25,000	0.025
Photo Copy Machine	1	200,000	0.200
Water Dispenser	2	20,000	0.040
Refrigerator	1	50,000	0.050
Electric Water Cooler	2	20,000	0.040
Misc. & Contingency		5%	0.113
Total Office Equipment Cost			2.370

8.8 Vehicles Requirement

Following vehicles will be required for the proposed unit:

Table 8: Vehicle Requirement

Description	Quantity	Unit Cost Rs. Mn.	Total Cost Rs. Mn.
1300 CC Car (for CEO)	1	1.659	1.659
1000 CC Car for Managers	3	1.050	3.150
800 CC Car (Pool)	1	0.900	0.900
70 CC Motorcycle	3	0.070	0.210
Registration Fee			0.296
Total Office Equipment Cost			6.215

8.9 Raw Material Requirement

Mango, Guava and Tomato are the main raw material for the proposed business, which will be procured either directly from fruit farms or from distributors of local fruit market. After that, fresh fruit & vegetable will be processed and marketed through distributors and retailers in local market and through exporters in international market. According to the estimated installed and operational capacity of the proposed plant, following table provides the details of seasonal requirements of fresh fruits & vegetable as a raw material:

Table 9: Raw Material Requirement during Year 1

Description	Cost / Kg (Rs.)	Raw Material Quantity (tons)	Total Cost (Rs. Mn.)
Mango Pulping			
Cost of Mango	30	14,400	432.000
Aseptic Bag	6	8,640	51.840
Chemical + Polythene Bag	1.5	8,640	12.960
Ripening & Unloading of Fruit	0.5	8,640	4.320
Metal Drum	17.5	8,640	151.200
Total Mango Pulping			652.320
Guava Pulping			
Cost of Guava	18	9,200	165.600
Aseptic Bag	6	7,360	44.160
Chemical + Polythene Bag	1.5	7,360	11.040
Ripening & Unloading of Fruit	0.5	7,360	3.680
Metal Drum	17.5	7,360	128.800
Total Guava Pulping			353.280
Tomato Paste			
Cost of Tomato	10	6,400	64.000

Aseptic Bag	6	1,085	6.509
Chemical + Polythene Bag	1.5	1,085	1.627
Ripening & Unloading of Fruit	0.5	1,085	0.542
Metal Drum	17.5	1,085	18.984
Total Tomato Paste			91.662

The above raw material requirement is based on 50% capacity utilization and raw material requirement in subsequent years will be determined according to the capacity utilization of the unit. The raw material cost is assumed to increase at 10% annually. However, it is only estimated, as the market price of fruits & vegetables may vary due to market / seasonal fluctuations.

8.10 Human Resource Requirement

To smoothly run the operations of the proposed Fresh Fruits & Vegetable Processing Unit, details of required human resource along with their monthly salaries are recommended as under:

Table 10: Human Resource Requirement

Description	No. of Employees	Monthly Salary per Person (Rs.)
CEO	1	250,000
Plant Manager	1	150,000
Manager Finance & Admin	1	150,000
Manager Marketing	1	100,000
Marketing Executives	2	40,000
Manager Procurement	1	100,000
Purchase Officers	3	30,000
Assistant Manager – Plant	1	60,000
Quality Assurance Manager	1	75,000
Electrical In charge	1	40,000
Plant Supervisors	3	40,000

Mechanical Foreman	1	40,000
Boiler Engineer	1	40,000
Accounts officer	2	35,000
Store Keeper	2	30,000
Quality Assurance Officer	3	30,000
Assistant to Admin & HR	1	35,000
Office coordinator	1	25,000
Filler Operator	2	35,000
Supervisor	1	25,000
Boiler Operator	1	30,000
Cold Store Operator	2	35,000
Mechanic / Fitter	3	25,000
Electrician	1	25,000
Assistant Operator to Cold Store	3	20,000
Weigh Bridge Operator	1	18,000
Driver	2	20,000
Lifter Operator	2	20,000
Office Boy	4	15,000
Gardener	1	15,000
Sweeper	2	15,000
Guards	4	15,000
Total	56	26,316,000

8.11 Utilities and other costs

During the first year at 50% capacity utilization the electricity expenses are estimated to be around Rs. 40.234 million whereas, gas expenses are estimated to be Rs. 35.878 million and fuel expense is around Rs. 114.810 million. Furthermore, promotional expense being essential for marketing of Fruit & Vegetable Pulping unit is estimated as 0.25% of revenue.

8.12 Revenue Generation

Based on the assumed capacity utilization for pulping Mango, Guava and Tomato, sales revenue during the first year of operations is estimated as under:

Table 11: Revenue Generation – Year 1

Description	No. of units sold (tons)	Sale Price / Tons (Rs.)	Sales Revenue (Rs. Mn.)
Mango Pulping	8,640	115,000	993.600
Guava Pulping	7,360	70,000	515.200
Tomato Paste	1,085	130,000	141.024
Total			1649.824

9 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Ministry of Education, Training & Standards in Higher Education	http://moptt.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.phdec.org.pk
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Livestock & Dairy Development Department,	www.livestockpunjab.gov.pk

Government of Punjab.	
Punjab Industrial Estates (PIE)	www.pie.com.pk
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	www.fiedmc.com.pk
Pakistan Horticulture Development Export Company (PHDEC)	ww.phdec.org
Ministry of National Food Security and Research (MNFSR)	www.mnsfr.gov.pk
Pakistan Agriculture Research Council (PARC)	www.parc.gov.pk
National Agriculture Research Council (NARC)	www.narc.gov.pk
Agriculture University of Faisalabad (UAF)	www.uaf.edu.pk

10 ANNEXURES

10.1 Income Statement

Income Statement										
	50%	60%	70%	80%	90%	100%	100%	100%	100%	100%
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	1,649,824,000	2,177,767,680	2,794,801,856	3,513,465,190	4,347,913,173	5,314,116,100	5,845,527,711	6,430,080,482	7,073,088,530	7,780,397,383
Cost of sales										
Raw Material Cost of Mango Pulp	652,320,000	821,923,200	1,006,855,920	1,208,227,104	1,427,218,267	1,665,087,978	1,748,342,377	1,835,759,495	1,927,547,470	2,023,924,844
Raw Material Cost of Guava Pulp	353,280,000	445,132,800	545,287,680	654,345,216	772,945,286	901,769,501	946,857,976	994,200,875	1,043,910,918	1,096,106,464
Raw Material Cost of Tomato Paste	91,662,400	115,494,624	141,480,914	169,777,097	200,549,196	233,974,062	245,672,765	257,956,404	270,854,224	284,396,935
Labor Wages for Pulp	13,682,722	17,240,230	21,119,282	25,343,138	29,936,582	34,926,012	36,672,313	38,505,928	40,431,225	42,452,786
Production Labor	12,336,000	16,283,520	20,897,184	26,270,746	32,510,048	39,734,503	43,707,953	48,078,748	52,886,623	58,175,285
Machinery & Generator Maintenance	2,000,000	2,200,000	2,420,000	2,662,000	2,928,200	3,221,020	3,543,122	3,897,434	4,287,178	4,715,895
Electricity Cost	40,234,704	53,109,809	68,157,589	85,683,826	106,033,734	129,596,786	142,556,465	156,812,111	172,493,323	189,742,655
Gas Cost	35,878,080	47,359,066	60,777,468	76,405,959	94,552,374	115,564,013	127,120,415	139,832,456	153,815,702	169,197,272
Fuel Cost	114,809,856	151,549,010	194,487,896	244,499,069	302,567,598	369,804,842	406,785,327	447,463,859	492,210,245	541,431,270
Total cost of sales	1,316,203,762	1,670,292,259	2,061,483,932	2,493,214,155	2,969,241,285	3,493,678,717	3,701,258,711	3,922,507,311	4,158,436,907	4,410,143,406
Gross Profit	333,620,238	507,475,421	733,317,924	1,020,251,035	1,378,671,888	1,820,437,383	2,144,268,999	2,507,573,171	2,914,651,623	3,370,253,977
General administration & selling expenses										
Administration expense	13,980,000	15,378,000	16,915,800	18,607,380	20,468,118	22,514,930	24,766,423	27,243,065	29,967,372	32,964,109
Administration benefits expense	699,000	768,900	845,790	930,369	1,023,406	1,125,746	1,238,321	1,362,153	1,498,369	1,648,205
Utilities (Electricity, Gas, Water etc)	2,011,735	2,655,490	3,407,879	4,284,191	5,301,687	6,479,839	7,127,823	7,840,606	8,624,666	9,487,133
Travelling expense	1,973,700	2,171,070	2,388,177	2,626,995	2,889,694	3,178,664	3,496,530	3,846,183	4,230,801	4,653,881
Communications expense (phone, fax, mail, internet, etc.)	2,631,600	2,894,760	3,184,236	3,502,660	3,852,926	4,238,218	4,662,040	5,128,244	5,641,068	6,205,175
Office vehicles running expense	1,125,000	1,237,500	1,361,250	1,497,375	1,647,113	1,811,824	1,993,006	2,192,307	2,411,537	2,652,691
Office expenses (stationary, entertainment, janitorial services, etc.)	2,631,600	2,894,760	3,184,236	3,502,660	3,852,926	4,238,218	4,662,040	5,128,244	5,641,068	6,205,175
Promotional expense	4,124,560	3,918,332	3,722,415	3,536,295	3,359,480	3,191,506	3,031,931	2,880,334	2,736,317	2,599,502
Insurance expense	6,514,610	5,844,504	5,174,398	4,504,292	3,834,187	3,464,358	2,771,486	2,078,615	1,385,743	692,872
Professional fees (legal, audit, consultants, etc.)	789,480	868,428	955,271	1,050,798	1,155,878	1,271,465	1,398,612	1,538,473	1,692,320	1,861,553
Depreciation expense	126,081,879	126,081,879	126,081,879	126,081,879	126,081,879	126,840,737	126,840,737	126,840,737	126,840,737	126,840,737
Amortization of pre-operating costs	7,341,750	7,341,750	7,341,750	7,341,750	7,341,750	-	-	-	-	-
Amortization of Contingency Cost	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001
Miscellaneous expense	2,631,600	2,894,760	3,184,236	3,502,660	3,852,926	4,238,218	4,662,040	5,128,244	5,641,068	6,205,175
Subtotal	175,353,515	177,767,134	180,564,319	183,786,303	187,478,968	185,410,724	189,467,990	194,024,205	199,128,068	204,833,208
Operating Income	158,266,723	329,708,287	552,753,605	836,464,732	1,191,192,920	1,635,026,659	1,954,801,010	2,313,548,966	2,715,523,554	3,165,420,769
Gain / (loss) on sale of office vehicles	-	-	-	-	2,485,980	-	-	-	-	-
Earnings Before Interest & Taxes	158,266,723	329,708,287	552,753,605	836,464,732	1,193,678,900	1,635,026,659	1,954,801,010	2,313,548,966	2,715,523,554	3,165,420,769
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	158,266,723	329,708,287	552,753,605	836,464,732	1,193,678,900	1,635,026,659	1,954,801,010	2,313,548,966	2,715,523,554	3,165,420,769
Tax	55,393,353	115,397,900	193,463,762	292,762,656	417,787,615	572,259,331	684,180,353	809,742,138	950,433,244	1,107,897,269
NET PROFIT/(LOSS) AFTER TAX	102,873,370	214,310,387	359,289,843	543,702,076	775,891,285	1,062,767,328	1,270,620,656	1,503,806,828	1,765,090,310	2,057,523,500

10.2 Balance Sheet

Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
<i>Current assets</i>											
Cash & Bank	43,009,041	110,534,211	455,683,560	799,709,047	1,257,563,412	1,889,591,533	2,815,107,150	3,934,975,392	5,287,905,167	6,867,888,717	10,483,937,130
Accounts receivable		203,402,958.90	235,947,432	306,528,259	388,865,777	484,605,516	595,604,544	687,923,249	756,715,573	832,387,131	915,625,844
Equipment spare part inventory	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519	3,828,845	4,020,287	4,221,301	4,432,366	4,653,985	-
Raw material inventory	219,452,480	304,161,137	409,857,132	541,011,415	702,976,707	902,153,441	1,041,987,224	1,203,495,244	1,390,037,007	1,605,492,743	-
Pre-paid insurance	6,514,610	5,844,504	5,174,398	4,504,292	3,834,187	3,464,358	2,771,486	2,078,615	1,385,743	692,872	-
Total Current Assets	271,976,131	627,092,811	1,109,970,023	1,655,225,889	2,356,886,601	3,283,643,692	4,459,490,692	5,832,693,800	7,440,475,857	9,311,115,447	11,399,562,974
<i>Fixed assets</i>											
Land	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000
Building/Infrastructure	187,793,432	178,403,760	169,014,088	159,624,417	150,234,745	140,845,074	131,455,402	122,065,731	112,676,059	103,286,387	93,896,716
Machinery & equipment	1,150,574,796	1,035,517,316	920,459,837	805,402,357	690,344,878	575,287,398	460,229,918	345,172,439	230,114,959	115,057,480	(0)
Furniture & fixtures	1,547,000	1,392,300	1,237,600	1,082,900	928,200	773,500	618,800	464,100	309,400	154,700	-
Office vehicles	6,214,950	4,971,960	3,728,970	2,485,980	1,242,990	10,009,239	8,007,391	6,005,543	4,003,696	2,001,848	-
Office equipment	2,370,375	2,133,338	1,896,300	1,659,263	1,422,225	1,185,188	948,150	711,113	474,075	237,038	-
Total Fixed Assets	1,408,500,553	1,282,418,674	1,156,336,795	1,030,254,917	904,173,038	788,100,398	661,259,662	534,418,925	407,578,189	280,737,452	153,896,716
<i>Intangible assets</i>											
Pre-operation costs	36,708,750	29,367,000	22,025,250	14,683,500	7,341,750	-	-	-	-	-	-
Legal, licensing, & training costs	28,170,011	25,353,010	22,536,009	19,719,008	16,902,007	14,085,006	11,268,004	8,451,003	5,634,002	2,817,001	-
Total Intangible Assets	64,878,761	54,720,010	44,561,259	34,402,508	24,243,757	14,085,006	11,268,004	8,451,003	5,634,002	2,817,001	-
TOTAL ASSETS	1,745,355,445	1,964,231,495	2,310,868,077	2,719,883,313	3,285,303,396	4,085,829,096	5,132,018,358	6,375,563,729	7,853,688,048	9,594,669,901	11,553,459,689
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		60,609,327	77,537,623	96,703,679	118,421,686	143,056,101	166,748,153	179,942,985	194,530,595	210,692,255	152,228,661
Total Current Liabilities	-	60,609,327	77,537,623	96,703,679	118,421,686	143,056,101	166,748,153	179,942,985	194,530,595	210,692,255	152,228,661
<i>Other liabilities</i>											
Deferred tax		55,393,353	170,791,254	201,350,589	201,350,589	201,350,589	161,080,471	120,810,354	80,540,236	40,270,118	-
Total Long Term Liabilities	-	55,393,353	170,791,254	201,350,589	201,350,589	201,350,589	161,080,471	120,810,354	80,540,236	40,270,118	-
<i>Shareholders' equity</i>											
Paid-up capital	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445	1,745,355,445
Retained earnings		102,873,370	317,183,757	676,473,600	1,220,175,676	1,996,066,961	3,058,834,289	4,329,454,945	5,833,261,773	7,598,352,084	9,655,875,583
Total Equity	1,745,355,445	1,848,228,815	2,062,539,201	2,421,829,045	2,965,531,121	3,741,422,405	4,804,189,734	6,074,810,390	7,578,617,218	9,343,707,528	11,401,231,028
TOTAL CAPITAL AND LIABILITIES	1,745,355,445	1,964,231,495	2,310,868,077	2,719,883,313	3,285,303,396	4,085,829,096	5,132,018,358	6,375,563,729	7,853,688,048	9,594,669,901	11,553,459,689

10.3 Cash Flow Statement

Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		102,873,370	214,310,387	359,289,843	543,702,076	775,891,285	1,062,767,328	1,270,620,656	1,503,806,828	1,765,090,310	2,057,523,500
Add: depreciation expense		126,081,879	126,081,879	126,081,879	126,081,879	126,081,879	126,840,737	126,840,737	126,840,737	126,840,737	126,840,737
amortization of pre-operating costs		7,341,750	7,341,750	7,341,750	7,341,750	7,341,750	-	-	-	-	-
amortization of training costs		2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001	2,817,001
Deferred income tax		55,393,353	115,397,900	30,559,336	-	-	(40,270,118)	(40,270,118)	(40,270,118)	(40,270,118)	(40,270,118)
Accounts receivable		(203,402,959)	(32,544,473)	(70,580,827)	(82,337,518)	(95,739,739)	(110,999,029)	(92,318,704)	(68,792,325)	(75,671,557)	(83,238,713)
Equipment inventory	(3,000,000)	(150,000)	(157,500)	(165,375)	(173,644)	(182,326)	(191,442)	(201,014)	(211,065)	(221,618)	4,653,985
Raw material inventory	(219,452,480)	(84,708,657)	(105,695,995)	(131,154,282)	(161,965,292)	(199,176,734)	(139,833,783)	(161,508,020)	(186,541,763)	(215,455,736)	1,605,492,743
Advance insurance premium	(6,514,610)	670,106	670,106	670,106	670,106	369,829	692,872	692,872	692,872	692,872	692,872
Accounts payable		60,609,327	16,928,295	19,166,057	21,718,007	24,634,416	23,692,052	13,194,832	14,587,610	16,161,660	(58,463,593)
Cash provided by operations	(228,967,090)	67,525,170	345,149,349	344,025,487	457,854,364	642,037,361	925,515,617	1,119,868,241	1,352,929,776	1,579,983,550	3,616,048,412
<i>Financing activities</i>											
Issuance of shares	1,745,355,445	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	1,745,355,445	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(1,473,379,314)	-	-	-	-	(10,009,239)	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(1,473,379,314)	-	-	-	-	(10,009,239)	-	-	-	-	-
NET CASH	43,009,041	67,525,170	345,149,349	344,025,487	457,854,364	632,028,121	925,515,617	1,119,868,241	1,352,929,776	1,579,983,550	3,616,048,412

11 KEY ASSUMPTIONS

11.1 Operating Cost Assumptions

Description	Details
Administration Benefit Expenses	5% of admin. expense
Traveling Expenses	7.5% of admin. expense
Communication Expenses	10% of admin. expense
Office expenses (stationary, entertainment, janitorial services, etc.)	10% of admin. expense
Office vehicles insurance rate	3%
Machinery & equipment insurance rate	1%
Promotional expense	0.25% of revenue
Operating costs growth rate	10%
Raw material cost growth rate	5%
Depreciation on Building and Infrastructure	5%
Depreciation on Machinery	10%
Depreciation on Furniture and Fixture	10%
Depreciation on Office Equipment	10%
Depreciation on Office Vehicle	20%

11.2 Raw Material Cost Assumptions

Description	Cost Rs. / Kg
Mango Pulping	
Cost of Mango	30
Aseptic Bag	6
Chemical + Polythene Bag	1.5
Ripening & Unloading of Fruit	0.5
Metal Drum	17.5
Guava Pulping	
Cost of Guava	18
Aseptic Bag	6
Chemical + Polythene Bag	1.5
Ripening & Unloading of Fruit	0.5

Metal Drum	17.5
Tomato Paste	
Cost of Tomato	10
Aseptic Bag	6
Chemical + Polythene Bag	1.5
Ripening & Unloading of Fruit	0.5
Metal Drum	17.5

11.3 Revenue Assumptions

Description	Details
Mango Pulp Price Per Kg (Rs.)	115
Guava Pulp Price Per Kg (Rs.)	70
Tomato Paste Price Per Kg (Rs.)	130
Growth in Sales Price	10%
Mango Processing (in days)	60
Guava Processing (in days)	50
Tomato Processing (in days)	40
Days Operational / Year	300
Mango Pulping during first year (Tons)	8,640
Guava Pulping during first year (Tons)	7,360
Tomato Paste production during first year (Tons)	1,085
Per Day Production Hours	16
Production Capacity in First Year	50%
Increase in Production Capacity every Year	10%
Maximum Production Capacity	100%

11.4 Financial Assumptions

Description	Details
Equity	100%