
Pre-Feasibility Study

Olive Oil Extraction Units

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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

Olive Oil Extraction Units are proposed to be located in Pothohar region which is a large plateau region in north-eastern Pakistan covering an area of 8,592 square miles. It has been identified as suitable for olive production because of its favorable climate and ideal topography. The proposed planting area covers 15,100 acres, where 2,038,500 olive saplings will eventually be planted under the five-year project running till 2020.

This Pre-feasibility study has been developed keeping in view the forecast yield from olive cultivation in future. Hence, the machinery and equipment to be procured is also suggested as per the forecasting of the future yield. The proposed units will extract Olive Oil from the olive fruits, and cake will be sold to local market. The units will extract olive oil through centrifugation process of olives. The product will be sold in 3 different packages of 0.5, 1.0 and 4.0 liter.

Each processing facility has capacity to process 200 kgs of olive fruit per hour which will produce 40 liters of Olive Oil under ideal conditions and produce 57,600 liters of virgin oil per annum based on 60 working days (1,440 hours a season, working three shifts per day). Total 30 facilities will be installed in next 10 years. The proposed Olive Oil Extraction Units comprise a total investment of PKR 462,143,227 with fixed investment of PKR 459,957,856¹ and working capital of PKR 2,185,372. The Net Present Value (NPV) of the project is PKR 281,801,919 with an Internal Rate of Return (IRR) of 39% and a payback period of 6.53 years.

The project will provide employment opportunity to 20 people at the head office as well as 3 plant operator and 3 helpers at each processing facility will be hired on seasonal basis. Additionally, 2 guards for each processing facility will be hired on permanent basis. Higher return on investment and a steady growth of business is expected with the entrepreneur having some prior experience or education in the related field of business.

¹ Capital Expenditures are accumulated for next 10 years

3 INTRODUCTION

With a population of over 190 million people, Pakistan is the sixth most populous country and the 43rd largest economy in the world. In the current global economic scene, Pakistan is being seen as the top emerging market economy in South Asia that is progressing towards a more advanced stage through rapid growth and industrialization. Pakistan is being classified as one of the Next Eleven (N-11) countries that have the potential to become one of the world's large economies in the 21st century. Economic growth of the country has been on a rise during recent years; being 4.0% in 2014 and 4.2% in 2015. The IMF projects that the growth trend will continue and reach 5.2% by the year 2020. The World Bank projects that by 2018, Pakistan's economic growth will increase to 5.4% due to greater inflow of foreign investment from China-Pakistan Economic Corridor (CPEC). The present government is fully committed to capitalize on the emerging growth trend and is working hard to ensure implementation of all the necessary steps in the right direction to increase the flow of private sector investment. Strengthened macroeconomic outlook, improved law and order situation and facilitative government policies are contributing to improve the investment climate for foreign and local investors.

For private sector investment to flow, identifying and providing information about the feasible business opportunities is an important starting point. Investment promotion materials are developed to introduce the investors to potential business opportunities, provide basic information about the projects' capital and operational costs and work out basic financial feasibility of the presented propositions. Agriculture, being the mainstay of Pakistan's economy, offers host of attractive opportunities which can be converted into profitable businesses by mobilizing private sector investment. The current document discusses the pre-feasibility of one such option.

4 PURPOSE OF THE DOCUMENT

The purpose of this document is to facilitate potential investors in establishing **Olive Oil Extraction Units** 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 reveals 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 setup and its successful management.

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

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Pakistan is predominantly an agrarian economy, yet it is unable to fulfill the demand of edible oil for domestic requirements. One of the challenges to the economy of Pakistan is the edible oil deficit. Edible oil is considered as a necessity and not a luxury product and hence its demand is relatively inelastic and grows with time. There are many reasons behind the shortcomings such as lack of awareness of farmers and technological deficiency in oilseed production etc.

5.1 Project Description

The demand for olive oil is increasing day by day due to eating habits of people of Pakistan. Local production does not meet the demand which indicates a huge potential for growing olive trees. Currently in Pakistan about 6 to 8 olive oil extraction units having capacity to process 750 to 1,000 kgs of olive fruit per hour are installed which cannot meet the local demand of Olive Oil². In 2015, Pakistan imported 2,706 tons of Olive Oil worth 7.38 million US dollars³. Like Pakistan, China is also new in Olive cultivation and currently has 25 oil mills. In 2015-16, it produced approximately 5,000 tons of olive oil from 86,000 hectares. China is continuously importing Olive Oil and Pomace Olive Oil from the world especially from European countries which is 96% of their total import. In 2014-15 china imported 35,899 tons of olive oil⁴.

This Pre-feasibility study is about setting up “Olive Oil Extraction Units” in different areas of Potohar region in Punjab. The Barani Agriculture Research Institute (BARI) located in Punjab’s Chakwal district, has already planted 473,265 olive trees in the region so far⁵. The BARI reveals that the massive Olive Valley Project

² Undocumented data, collected from industry experts

³ Trade Map (Product: 1509, 151000)

⁴ www.oliveoilmarket.eu/olive-growing-in-china/

⁵ Director Olive BARI, Chakwal

is not only providing olive saplings to local farmers, but also technical support on olive grove management and financial support for water resource development and drip irrigation.

It is estimated that in next 10 years BARI, with the help of Government of Punjab, will plant 3.16 million trees in the area covering 23,400 acres that give 21,000 tons of olive fruit which will be available in market for further processing⁶. The long-term objectives of the project are to produce olive oil for export while creating a sustainable olive oil economy which will also benefit the rural communities of the region. Pakistan presently produces 34 percent of the edible oils it consumes domestically and is forced to spend significant foreign exchange on the import of edible oil to meet domestic demand. The future and yield of olive plantation in this region is given in table 1⁷;

Table 1: Future Plantation and Yield in Punjab Region

Years	Estimated Plantation Plan (Acres)	Planted Area (Acres) Accumulated	Planted Trees (Nos)	Planted Trees (Accumulated)	Expected Yield of Olive Fruits (Tons) ⁸
Current		4,045	473,265		6
Year 1	2,100	6,145	283,500	756,765	189
Year 2	2,500	8,645	337,500	1,094,265	607
Year 3	2,100	10,745	283,500	1,377,765	1,412
Year 4	2,100	12,845	283,500	1,661,265	2,650
Year 5	2,100	14,945	283,500	1,944,765	3,961
Year 6	2,500	17,445	337,500	2,282,265	5,844
Year 7	2,500	19,945	337,500	2,619,765	8,576
Year 8	2,500	22,445	337,500	2,957,265	12,188
Year 9	2,500	24,945	337,500	3,294,765	16,711
Year 10	2,500	27,445	337,500	3,632,265	21,249
Total	23,400	27,445	3,159,000	3,632,265	73,387

⁶ Calculated keeping in view the olive tree age and yield.

⁷ Data provided by Director BARI, Chakwal.

⁸ The expected yield from Olive Trees are given in Assumptions after discussion with industry experts / consultants.

5.2 Product Description

The proposed processing facilities will extract Olive Oil from the olive fruits and remaining cake will be sold to local market. The olive cakes are used for different purposes, such as in cosmetics, recipes, medicines, animal feed, etc.

There are many types of olive oil, some of them are described below;

- **Virgin Olive Oil:** The most popular variety, virgin olive oil is a well-known cooking oil with a surprisingly low acid content. It is best suitable for people who want to enjoy the benefits of olive oil.
- **Extra Virgin Olive Oil:** “Extra” is the highest grade for olive oil, made by cold pressing olive fruit, this oil is considered to be the best for human body and it is very expensive. The virgin oil produced from the mechanical pressing described above may be called “extra” if it has less than 1% free oleic acid, and if it exhibits superior taste, color and aroma. Thus, the “extra” in extra virgin olive oil means “premium,” or simply, “the best.”
- **Pure Olive Oil:** This oil is actually an amalgamation of refined and virgin olive oils. It has a high acidic content.
- **Lampante Oil:** This type of oil is used only as a fuel and is not suitable for cooking.

The proposed processing facilities will extract virgin olive oil through centrifugation process. The benefits of olive oil are given below;

- The Vitamin E available in Olives is the body's primary fat-soluble antioxidant. Anti-oxidants help to strengthen the body's immune system; reducing the severity of asthma, cancer, osteoarthritis, and rheumatoid arthritis, premature ageing, as well as delaying the effects of ageing.

- Used as a balm, it fortifies and moisturizes the skin, combating dry skin and softening it. It also combats acne.
- Helps against wrinkles and delays the effects of old age.
- Helps combat strokes, heart-disease, high blood pressure and diabetes.
- The decoction of olive leaves in water is effective against mouth and lip ulcers and allergic dermatitis also.
- Tea of Olive leaves helps against high blood pressure.

5.3 Installed And Operational Capacities

One facility will have the capacity to process 200 kgs / hour of olives which brings 20% of the olive oil out of those fruits. Total 30 units will be installed in next 10 years keeping in view the future yield and need. The year wise expansion in processing facilities along with recovery of Olive Oil is given in table 2;

Table 2: Installed and Operational Capacity (Year Wise)

Years	Processing Facilities Required	Processed by this Facility 40% of Expected Yield (Tons)	Olive Oil to be Extracted @20% Recovery (Liters)
Year 1	1	76	15,125
Year 2	-	243	48,557
Year 3	1	565	112,921
Year 4	2	1,060	212,023
Year 5	2	1,584	316,898
Year 6	3	2,338	467,512
Year 7	3	3,430	686,098
Year 8	5	4,875	975,078
Year 9	7	6,684	1,336,878
Year 10	6	8,500	1,699,908
Total (Accumulated for 10 Years)	30	29,355	5,870,999

5.4 Demand and Supply Forecast

Currently in Pakistan there is no state of the art facility to extract olive oil as not much fruit is available for processing. The future demand and availability of Olive Oil to be processed in Pakistan is given in table 3;

Table 3: Demand and Supply Analysis

Upcoming Years	Future Demand of Olive Oil (Tons) Estimated ⁹	Processed by these Units (000 liters)	Percentage of Demand Meet
Year 1	3,118	15	0.49%
Year 2	3,592	49	1.35%
Year 3	4,138	113	2.73%
Year 4	4,768	212	4.45%
Year 5	5,493	317	5.77%
Year 6	6,329	468	7.39%
Year 7	7,292	686	9.41%
Year 8	8,401	975	11.61%
Year 9	9,680	1,337	13.81%
Year 10	11,152	1,700	15.24%

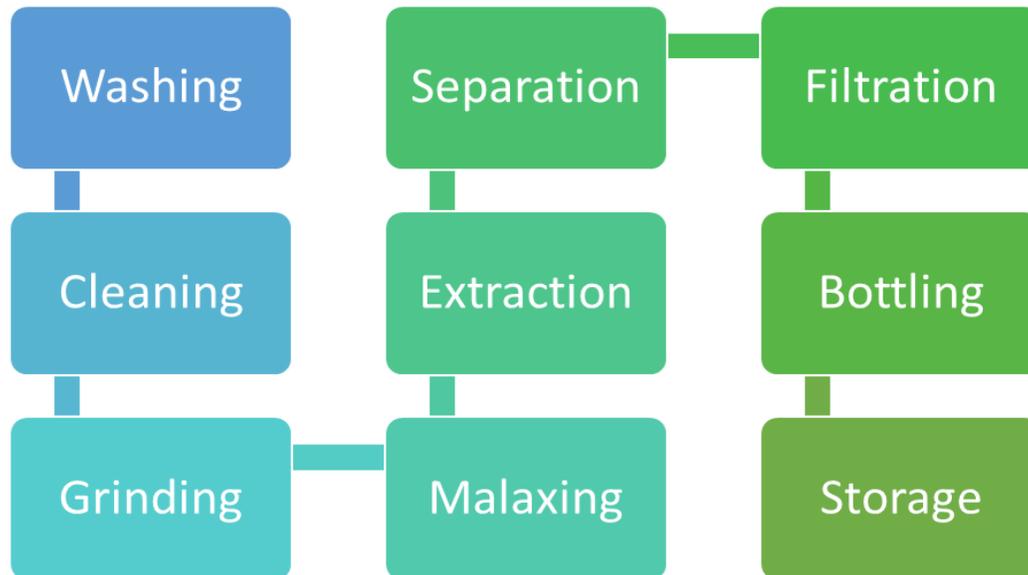
After 10 years, the project will be meeting 15.24% of the demand in Pakistan.

⁹ Took average of last 5 years' growth in Olive Oil import and apply to find the next 10 years demand.

6 PRODUCTION PROCESS FLOW

Extraction Process of Olive Oil is given below in detail:

Figure 1: Extraction Process Flow



I. SORTING & CLEANING

After the ripe olives have been combed from the trees, they are picked over by hand to weed out unsound olives. The olives are divided into categories according to their plumpness, state of ripeness, and quality. Then the olives are taken to the press and stored for a short period of time. The period is short enough to prevent fermentation but long enough to allow the olives to get warm so that they release their oil easily.

The first step after the Sorting & Grading is cleaning the olives and removing the stems, leaves, twigs, and other debris left with the olives. The olives should be washed with water to remove pesticides, dirt, etc. Rocks and sand will damage a hammer mill and quickly wear out a centrifugal decanter or oil separator, reducing life span from 25 to as little as 5 years.

II. GRINDING & PASTE FORMATION

In ancient times, the olives were mashed into a paste with a simple mortar and pestle. This principle was expanded upon until the stone mortars were large enough to require slaves or pack animals to operate them. In the modern process, the milled olives travel from the mill into vats in which slowly turning blades mash the olives into a homogenized paste. The purpose of crushing is to tear the flesh cells to facilitate the release of the oil from the vacuoles. This step can be done with stone mills, metal tooth grinders, or various kinds of hammer mills.

III. MALAXING (MIXING THE PASTE)

Malaxing (mixing) the paste for 20 to 45 minutes allows small oil droplets to combine into bigger ones. It is an indispensable step. The paste can be heated or water added during this process to increase the yield, although this generally results in lowering the quality of the oil. The most common mixer is a horizontal trough with spiral mixing blades. Longer mixing times increase oil yield but allows a longer oxidation period that decreases shelf life.

IV. SEPARATING / EXTRACTION

The next step is separating the oil from the rest of the olive components. This used to be done with presses, but is now done by centrifugation. Some centrifuges are called three-phase because they separate the oil, the water, and the solids separately. The two-phase centrifuges separate the oil from a wet paste. In most cases, the oil coming out of the first centrifuge is further processed to eliminate any remaining water and solids by a second centrifuge that rotates faster. The oil is then left in tanks or barrels where a final separation, if needed, happens through gravity. This is called racking the oil.

Finally the oil can be filtered, if desired. Centrifugation methods are becoming more popular for the pressing process as well as for separating the oil from the vegetable water. Although centrifugation requires more energy and water, the method takes up less space in the factory and requires a shorter set-up time. Centrifugation also eliminates the need for pressing bags, which must be washed after each pressing.

Lastly, possible additional processing steps include refining the oil to reduce its acidity and improve flavor (in defective oils) by alkali (chemical reaction with an

alkali – caustic soda) or steam processing; bleaching the oil to reduce chlorophyll, carotenoids, residual fatty acids, and pesticides using diatomaceous earth, activated carbon, or synthetic silica treatment, and deodorization to reduce odors with the use of activated carbon. Needless to say, these steps are only used for low quality oil.

V. STORAGE & PACKAGING

The oil is stored in underground vats until it is ready to be transported. Then the oil is canned or bottled on an assembly line. Cans or dark-tinted bottles will keep the deep-green color of the olive oil intact. Oil placed in clear-glass bottles will fade to a yellowish-green. However, the flavor is not affected. In many cases, olive oil distributors purchase the olive from the producers and rebottle it. Packaging has become more ornate as the popularity of olive oil has grown. It is not unusual to purchase olive oil in unusually shaped bottles topped with netting or rope. Some packagers also hire professional artists to design their labels.

7 CRITICAL FACTORS

Following principles need to be pursued for the best extraction of Olive Oil;

- For best quality Olive Oil, fruit should be transported to facility within 24 hours and if extra virgin Olive Oil is to be extracted, the transportation time should be less than 6 hours.
- As this project is designed for future yield of olives and extraction units, the expansion will be done in the years later so future contract with machinery suppliers, farm owners, should be placed keeping in view the inflationary effect.
- When choosing storage location, remember that heat, air, and light are the adversaries of oil. These elements help create free radicals, which eventually lead to excessive oxidation and rancidity that will develop bad taste in the oil. Even worse, oxidation and free radicals contribute to heart disease and cancer.
- For best flavor, olive oil should be stored in a cool, dark place. Properly stored olive oil can be used for at least two years. It is, however, at its peak within a year of production, and is most flavorful for the first two months.

- Heat, light and air are not good for Olive Oil, hence it is ideal to store Olive Oil in either metal tins or dark colored glass bottles. These steps should be taken to protect the oil from the light in order to preserve the quality. The olive oil should be stored in a cool, dark place at home with the cap tightened when not in use.
- Enhancing the skill of the contract farmers and the process relevant staff and management should be ensured.
- Effective marketing and distribution of Olive Oil should be ensured keeping in view the international food safety and hygiene standards.

8 GLOBAL MARKET OF OLIVE OIL¹⁰

Demand for Olive Oil is increasing. Information about the major importing and exporting countries of Olive Oil is given in the tables 4, 5 and 6.

Table 4: Top Importing Countries

Rank	Top Importing Countries	2011	2012	2013	2014	2015
<i>(Import Quantity in Tons)</i>						
1	Italy	625,425	599,335	481,746	666,240	581,365
2	United States of America	292,908	323,002	289,890	312,106	313,168
3	Spain	63,965	95,281	164,509	80,863	249,646
4	France	114,912	116,541	113,572	115,292	113,953
5	Portugal	90,463	105,958	120,576	109,933	105,507
<i>(Import Value in Thousand US \$)</i>						
1	Italy	1,682,252	1,485,096	1,626,066	2,006,442	2,053,702
2	United States of America	996,618	1,008,960	1,150,239	1,171,550	1,260,180
3	Spain	136,688	164,438	436,943	192,104	699,603
4	France	421,678	377,548	473,075	431,908	481,352
5	Portugal	232,809	261,826	394,766	321,787	347,861

¹⁰ Source: Trademap (Product: 1509, Olive oil and its fractions obtained from the fruit of the olive tree; 151000, other oils and their fractions, obtained solely from olives, whether or not refined).

China and Pakistan have imported 1.90% and 0.13% of the World's Olive Oil in 2015 respectively which is worth 184 million US dollars. Spain and Italy are the major exporters to China and Pakistan. In 2015, Spain met 77% of China's and 84% of Pakistan's demand and Italy met 12% of China's and 10% of Pakistan's demand. Details of China's and Pakistan's trade partners are given in the table below.

Table 5: China and Pakistan Import Trade Partners

Rank	Countries	2011	2012	2013	2014	2015
Top Importing Countries by China		<i>(Import Quantity in Tons)</i>				
	World	35,973	46,151	40,027	35,782	38,645
1	Spain	20,688	28,042	24,488	23,054	29,862
2	Italy	9,480	10,313	9,301	7,133	4,823
3	Greece	2,041	2,958	2,050	1,114	999
4	Morocco	-	53	311	950	749
5	Australia	746	802	727	628	646
		<i>(Import Value in Thousand US \$)</i>				
	World	148,759	170,892	191,405	153,044	176,696
1	Spain	84,436	100,667	117,720	94,188	134,829
2	Italy	37,063	36,942	43,093	31,012	21,948
3	Greece	9,225	12,906	10,730	6,611	5,470
4	Morocco	-	216	1,463	4,218	3,469
5	Australia	4,972	5,723	5,218	4,648	3,680
Top Importing Countries by Pakistan		<i>(Import Quantity in Tons)</i>				
	World	1,496	1,922	1,683	2,427	2,706
1	Spain	1,136	1,573	1,277	1,905	2,283
2	Italy	298	230	211	363	274
3	Turkey	48	85	88	72	57
4	Tunisia	3	-	72	48	47
5	China	-	-	-	-	13
		<i>(Import Value in Thousand US \$)</i>				
	World	4,303	5,181	4,892	7,400	7,383
1	Spain	3,132	4,134	3,611	5,815	6,021
2	Italy	1,017	695	765	1,126	979
3	Turkey	78	247	239	195	151
4	Tunisia	6	-	169	137	118
5	China	1	-	-	-	29

Spain, Italy, and Tunisia are the main exporters of Olive Oil; these 3 countries are exporting 74% of the world export. Details are given in the table below.

Table 6: Top Exporting Countries (Export Quantity in Tons)

Rank	Top Exporting Countries	2011	2012	2013	2014	2015
1	Spain	914,826	909,079	771,636	1,212,917	842,184
2	Italy	402,106	416,773	385,937	408,959	361,288
3	Tunisia	104,988	167,817	156,829	88,664	307,295
4	Greece	135,276	150,516	195,897	87,710	203,412
5	Portugal	85,515	101,714	108,073	135,243	130,157
	Other Countries	112,427	99,643	124,210	121,722	84,175

9 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Pothohar is a large plateau region in north-eastern Pakistan covering an area of 8,592 square miles. It has been identified as suitable for olive production because of its favourable climate and ideal topography. The proposed planting area covers 15,100 acres, where 2,038,500 olive saplings will eventually be planted under the five-year project running until 2020¹¹.

The Barani Agricultural Research Institute reports that the climate, temperature, soil, average rainfall and other factors in Sialkot, Narowal, Gujrat, Jhelum, Rawalpindi, Islamabad, Attock, Chakwal and Khushab suit olive cultivation. Punjab government has declared the Pothohar region as 'Olive Valley.' It recently distributed olive plants to farmers, and organised training of olive growers in the region. The objective is to increase the domestic production of virgin olive oil and reduce its import, to improve the living and economic standards of farmers and encourage private investment in rural areas, especially in infrastructure.

The proposed units may be installed at any of these areas especially Attock and Chakwal regions near the orchards.

¹¹ Olive Oil Times

10 POTENTIAL TARGET CUSTOMERS / MARKETS

As stated above, China and Pakistan are importing large quantities of Olive Oil and it is estimated that in next 10 years these two countries will be importing 126,000¹² tons of Olive Oil from the world. These units and similar ones to these will help reduce the import of such products and make us capable of exporting Olive Oil and its related products to the world.

The targeted customers of these products are food, cocktails / juices, agriculture / animal feed, and various other industries. The main export markets for Pakistani Olive Oil are Afghanistan and other neighbouring countries. However, majority of the produce will be consumed locally because most of the local demand is currently met by the imports.

11 PROJECT COST SUMMARY

11.1 Project Economics

All the figures in this financial model have been calculated for estimated processing of 15,125 liters of olive oil which will be extracted from 76 tons of fruit in year 1. Detail of processing facilities required in later years along with calculation of cost of goods sold and revenue generation are attached in annexure.

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

Table 7: Project Economics

Description	Details
Internal Rate of Return (IRR)	39%
Payback Period (Years)	6.53
Net Present Value (@20%)	PKR 281,801,919

¹² Forecasted as per data available on the trade map, by taking average of last 5 years import trends of China and Pakistan.

11.2 Project Financing

The project will be financed through 100% Owner's equity, however, short term debt would be generated to meet its cash requirement in case of loss / negative cash flows.

11.3 Project Cost

Following fixed and working capital requirements have been identified for operations of the proposed business in initial year, however as the processing facilities will increase in later years, capital cost will also increase. The details of these increased capital costs are given in annexure.

Table 8: Project Cost (Initial Year)¹³

Description	Amount PKR
Land	10,000,000
Building/Infrastructure	22,742,192
Machinery & equipment	4,555,625
Furniture & fixtures	2,010,000
Office vehicles	4,697,875
Office equipment	3,852,500
Pre-operating costs ¹⁴	2,462,000
Training costs	700,000
Total Capital Costs	51,020,192
Working Capital	
Equipment spare part inventory	18,907
Raw material inventory	666,465
Cash	1,500,000
Total Working Capital	2,185,372
Total Investment	53,205,563

11.4 Space Requirement

Approximately, 3 kanal¹⁵ of land would be required for establishment of head office and 0.5 kanal of land is required for each processing facility. It is recommended that required land should be acquired near the Olive orchards. The cost of land is

¹³ The cost includes for Head Office and 1 processing facility in initial year.

¹⁴ Includes salaries, utility connection charges, etc., occurred before business start of operations.

¹⁵ 1 kanal is equal to 4,500 square feet.

estimated at the rate of PKR 3.00 million per kanal for head office and PKR 2.00 million for processing facilities.

The infrastructural requirements of the project mainly comprise the construction of Management Building, Sorting, Processing Hall, Store and other facilities. The cost of construction of building for the proposed unit is provided in the table 9 and 10:

Table 9: Building / Infrastructure Requirement (Head Office)

Description	Area (Sq.ft)	Cost (PKR /Sq. ft.)	Amount (PKR)
Office	1,000	2,200	2,200,000
Laboratory	1,500	2,000	3,000,000
Storage Facility	6,000	1,800	10,800,000
Meeting Room	1,000	2,200	2,200,000
Open Area	4,000	25	100,000
Boundary Wall (Running Feet)	465	1,600	743,613
Total			19,043,613

Table 10: Building / Infrastructure Requirement (Processing Facilities)

Description	Area (Sq.ft)	Cost (PKR /Sq. ft.)	Amount (PKR)
Processing and Packaging Area	800	1,600	1,280,000
Raw Material Store	700	1,300	910,000
Finish Good Store	400	1,500	600,000
Mini Laboratory	100	2,000	200,000
Office	225	1,800	405,000
Boundary Wall (Running Feet)	190	1,600	303,579
Total			3,698,579

11.5 Machinery & Equipment Requirement

Plant, machinery and equipment for each processing facility is given in table 11;

Table 11: Machinery & Equipment

Description	Amount (PKR)
Olive Oil Extraction Unit (200 Kgs Processing Capacity Per Hour) including Custom duty, Sales Tax, other taxes, etc.	3,205,625
Port Clearance Charges	50,000
Lifting and Freight Charges to facility	50,000
Other Allied Machinery including Generator, Mini Lab, Packaging Machine and other	1,000,000
Installation Charges (Plant, Utilities, other)	250,000
Total Machinery & Equipment Cost¹⁶	4,555,625

11.6 Furniture & Fixtures Requirement

Details of the furniture and fixture required for the Head Office and Processing Facilities are given below;

Table 12: Furniture & Fixture Requirement

Description	Quantity	Unit Cost (PKR)	Amount (PKR)
Head Office			
Furniture for CEO	1	100,000	100,000
Furniture for Meeting Room	1	250,000	250,000
Furniture for Other Office Staff	13	50,000	650,000
Electric Fitting	1	300,000	300,000
Air conditioners (1.5 ton split)	5	65,000	325,000
Misc.	1	250,000	250,000
Total			1,875,000
Processing Facilities			
Furniture	1	60,000	60,000
Electric Fitting	1	50,000	50,000
Misc.	1	25,000	25,000
Total			135,000
Total Furniture & Fixture			2,010,000

¹⁶ The cost of Plant and Machinery may be reduced as Government of Pakistan has announced the tax holidays for foreign investor under Special Economic Zones

11.7 Office Equipment Requirement

Following office equipment will be required for Head Office and Processing Facilities;

Table 13: Office Equipment Requirement

Description	Quantity	Unit Cost (PKR)	Amount (PKR)
Head Office			
Laboratory Equipment	1	2,500,000	2,500,000
Laptop	2	100,000	200,000
Computers	12	60,000	720,000
Computer printer (s)	3	20,000	60,000
Telephone exchange	1	75,000	75,000
Telephones	14	1,500	21,000
Fax machines	2	20,000	40,000
LED for Presentation	1	60,000	60,000
Misc.	1	100,000	100,000
Total			3,776,000
Processing Facility			
Computers	1	30,000	30,000
Computer printer / Fax Machine	1	20,000	20,000
Telephones	1	1,500	1,500
Misc.	1	25,000	25,000
Total			76,500

11.8 Office Vehicle Requirement

Following office vehicles are required;

Table 14: Office Vehicle Requirement

Description	Quantity	Unit Cost (PKR)	Amount (PKR)
1300 CC Car (For CEO)	1	1,650,000	1,650,000
800 CC Carry	1	900,000	900,000
Vehicle for Transportation of oil	1	2,000,000	2,000,000
Registration fee and other		3.25%	147,875
Total Office Vehicle Cost			4,697,875

11.9 Human Resource Requirement

To run operations of Olive Oil Extraction Units smoothly, details of human resources required along with number of employees and monthly salary are recommended as under;

Table 15: Human Resource Requirement

Description	No. of Employees	Salary Per Month (PKR)
Head Office		
CEO	1	125,000
Marketing Manager	1	70,000
Asst. Marketing Manager	2	35,000
Quality Control Officer	2	35,000
Procurement Officer	1	50,000
Assistant Procurement Officer	1	25,000
Lab Assistant	2	25,000
Production Supervisor	1	60,000
Assistant Production Supervisor	1	30,000
Account Officer/Manager	1	30,000
Admin Officer	1	30,000
Driver	2	16,000
Guards	2	16,000
Office Boy	2	14,000
Total	20	
Processing Facilities		
Plant Operator*	3	25,000
Helper*	3	15,000
Guard	2	16,000
Seasonal Staff**		
Total	8	

* Plant operators and helpers will be hired for 2.5 months. 1 Production Supervisor and 1 Assistant at head office will provide training to operate plant during the season and provide assistance, if needed.

** For loading / unloading of olive fruit and olive oil.

Salaries of Head Office and Processing Facility staff will be raised by 10% each year, Seasonal labor will be hired on daily wages. In year 1, the seasonal labor cost will be around PKR 56,720.

11.10 Utilities and other costs

An essential cost to be borne by the project is the cost of electricity both in Head Office and Processing Facilities. The utility expenses are estimated to be around PKR 1,477,222 for head office and PKR 88,318 for Processing Facility in year 1¹⁷. Furthermore, promotional expenses are essential for marketing of this unit, and are estimated as 0.25% of revenue each year.

11.11 Revenue Generation

Based on the availability of Olive Fruit for processing, the revenue for the 1st year is calculated as under;

¹⁷ Processing facilities load is 13 kilo watts per hour (9 kilo watt for Plant and 5 for other equipment) while head office load is estimated at 19 kilo wats per hour.

Table 16: Revenue Generation – Year 1

Product Mix	Percentage Production	Quantity	Sales Price Per Unit (PKR)	Revenue (PKR)
0.5 Liter Packing (No)	50%	15,125	375	5,672,040
1.0 Liter Packing (No)	40%	6,050	650	3,932,614
4.0 Liter Packing (No)	10%	378	2,100	794,086
Total from Olive Oil	100%	21,554		10,398,740
Olive Cake (Kgs)		60,502	10	605,018
Total Revenue from Oil and Cake				11,003,758

11.12 Raw Material Requirement

Fresh Olives are the main raw material for the proposed facility, which will be procured either directly from the farms or from distributors.

Table 17: Raw Material Requirement – Year 1

Description	Quantity (Tons)	Purchase Price Per Ton (PKR)	Total Cost (PKR)
Olive Fruit	76	95,000	7,184,584
Freight	76	5,000	378,136
Daily Wages*	76	750	56,720
Total			7,619,440

* Daily wages are for loading / unloading of olive fruit and olive oil

12 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
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
Securities and Exchange 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.qos.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
Punjab Industrial Estates (PIE)	www.pie.com.pk
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
Agriculture Marketing Information Service	www.amis.pk
Barani Agricultural Research Institute (BARI), Chakwal	barichakwal.org

13 ANNEXURES

13.1 Income Statement

Calculations										SMEDA
Income Statement										Amount in PKR
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	11,003,758	38,857,579	99,401,357	205,301,975	337,538,694	547,759,045	884,250,909	1,382,359,978	2,084,808,915	2,916,034,676
<i>Cost of sales</i>										
Olive Fruit Cost , Freight In, Seasonal Labor	7,619,440	25,692,617	62,759,969	123,779,566	194,335,786	301,162,228	464,276,732	693,141,900	998,335,277	1,333,589,039
Packing Cost	378,136	1,274,616	3,112,380	6,136,065	9,629,795	14,916,936	22,985,937	34,300,817	49,379,442	65,927,897
Operation costs 1 (direct labor)	684,000	752,400	1,655,280	3,641,616	6,008,666	9,914,300	14,540,973	22,659,682	35,189,154	48,385,087
Operating costs 2 (machinery maintenance)	75,627	254,923	622,476	1,227,213	1,925,959	2,983,387	4,597,187	6,860,163	9,875,888	13,185,579
Operating costs 3 (direct electricity)	88,318	311,879	797,815	1,647,794	2,709,152	4,396,422	7,097,173	11,095,094	16,733,089	23,404,671
Total cost of sales	8,845,522	28,286,435	68,947,920	136,432,254	214,609,358	333,373,274	513,498,001	768,057,657	1,109,512,850	1,484,492,273
Gross Profit	2,158,236	10,571,145	30,453,438	68,869,721	122,929,336	214,385,771	370,752,908	614,302,321	975,296,065	1,431,542,403
<i>General administration & selling expenses</i>										
Administration expense	8,424,000	9,266,400	10,193,040	11,212,344	12,333,578	13,566,936	14,923,630	16,415,993	18,057,592	19,863,351
Administration benefits expense	1,263,600	1,389,960	1,528,956	1,681,852	1,850,037	2,035,040	2,238,544	2,462,399	2,708,639	2,979,503
Electricity expense	1,477,222	1,624,944	1,787,439	1,966,183	2,162,801	2,379,081	2,616,989	2,878,688	3,166,557	3,483,213
Water expense	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Travelling expense	1,263,600	1,389,960	1,528,956	1,681,852	1,850,037	2,035,040	2,238,544	2,462,399	2,708,639	2,979,503
Communications expense (phone, fax, mail, internet, etc.)	1,263,600	1,389,960	1,528,956	1,681,852	1,850,037	2,035,040	2,238,544	2,462,399	2,708,639	2,979,503
Office vehicles running expense	1,409,363	1,550,299	1,705,329	1,875,861	2,063,448	2,269,792	2,496,772	2,746,449	3,021,094	3,323,203
Office expenses (stationary, entertainment, janitorial services, etc)	631,800	694,980	764,478	840,926	925,018	1,017,520	1,119,272	1,231,199	1,354,319	1,489,751
Promotional expense	27,509	97,144	248,503	513,255	843,847	1,369,398	2,210,627	3,455,900	5,212,022	7,290,087
Professional fees (legal, audit, consultants, etc.)	55,019	194,288	497,007	1,026,510	1,687,693	2,738,795	4,421,255	6,911,800	10,424,045	14,580,173
Depreciation expense	3,503,747	3,503,747	3,503,747	4,278,536	5,905,591	7,417,120	10,107,864	12,933,144	17,859,674	25,090,514
Amortization of pre-operating costs	492,400	492,400	492,400	492,400	492,400	-	-	-	-	-
Amortization of legal, licensing, and training costs	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Subtotal	20,001,860	21,790,082	23,981,111	27,460,484	32,180,348	37,086,918	44,842,853	54,199,222	67,468,514	84,314,960
Operating Income	(17,843,624)	(11,218,938)	6,472,327	41,409,236	90,748,987	177,298,853	325,910,055	560,103,099	907,827,550	1,347,227,442
Gain / (loss) on sale of office equipment	-	-	-	-	1,541,000	-	-	35,423	74,389	-
Gain / (loss) on sale of office vehicles	-	-	-	-	1,879,150	-	-	-	-	-
Earnings Before Interest & Taxes	(17,843,624)	(11,218,938)	6,472,327	41,409,236	94,169,137	177,298,853	325,910,055	560,138,522	907,901,939	1,347,227,442
Interest on short term debt	1,248,117	3,681,089	5,039,612	2,606,641	-	-	-	-	-	-
Subtotal	1,248,117	3,681,089	5,039,612	2,606,641	-	-	-	-	-	-
Earnings Before Tax	(19,091,742)	(14,900,026)	1,432,715	38,802,595	94,169,137	177,298,853	325,910,055	560,138,522	907,901,939	1,347,227,442
Tax	-	-	-	2,185,240	32,959,198	62,054,599	114,068,519	196,048,483	317,765,679	471,529,605
NET PROFIT/(LOSS) AFTER TAX	(19,091,742)	(14,900,026)	1,432,715	36,617,356	61,209,939	115,244,254	211,841,536	364,090,039	590,136,261	875,697,838

13.2 Balance Sheet

Calculations											SMEDA
Balance Sheet											Amount in PKR
	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	1,500,000	-	-	-	156,630	20,330,503	24,665,062	42,880,687	69,858,684	120,154,224	435,857,146
Accounts receivable		452,209	1,024,548	2,840,937	6,261,027	11,154,260	18,191,049	29,424,862	46,574,196	71,243,196	102,757,060
Finished goods inventory		384,588	1,179,800	2,875,683	5,690,191	8,950,532	13,903,427	21,415,148	32,030,798	46,249,987	61,853,845
Equipment spare part inventory	18,907	66,917	171,570	355,163	585,254	951,911	1,540,168	2,413,235	3,647,796	5,113,790	-
Raw material inventory	666,465	2,359,633	6,052,022	12,532,799	20,660,120	33,617,168	54,414,882	85,298,746	128,995,985	180,925,843	-
Total Current Assets	2,185,372	3,263,347	8,427,940	18,604,582	33,353,222	75,004,374	112,714,587	181,432,678	281,107,459	423,687,041	600,468,051
<i>Fixed assets</i>											
Land	10,000,000	10,000,000	10,000,000	11,157,625	13,588,638	16,141,201	20,161,488	24,382,789	31,770,066	42,629,364	52,402,731
Building/Infrastructure	22,742,192	21,605,082	20,467,972	23,612,430	31,252,533	38,892,636	51,489,188	64,085,740	87,611,263	122,612,205	151,588,551
Machinery & equipment	4,555,625	4,100,063	3,644,500	8,462,643	18,554,491	28,092,600	43,154,257	57,300,167	83,946,010	123,043,709	152,247,231
Furniture & fixtures	2,010,000	1,809,000	1,608,000	1,563,279	1,674,838	1,769,988	2,028,820	2,260,516	2,862,630	3,833,740	4,511,648
Office vehicles	4,697,875	3,758,300	2,818,725	1,879,150	939,575	7,565,975	6,052,780	4,539,585	3,026,390	1,513,195	-
Office equipment	3,852,500	3,082,000	2,311,500	1,629,558	1,027,319	397,184	610,776	778,234	1,123,304	1,638,670	1,942,010
Total Fixed Assets	47,858,192	44,354,444	40,850,697	48,304,686	67,037,394	92,859,583	123,497,308	153,347,031	210,339,664	295,270,882	362,692,171
<i>Intangible assets</i>											
Pre-operation costs	2,462,000	1,969,600	1,477,200	984,800	492,400	-	-	-	-	-	-
Legal, licensing, & training costs	700,000	630,000	560,000	490,000	420,000	350,000	280,000	210,000	140,000	70,000	-
Total Intangible Assets	3,162,000	2,599,600	2,037,200	1,474,800	912,400	350,000	280,000	210,000	140,000	70,000	-
TOTAL ASSETS	53,205,563	50,217,392	51,315,838	68,384,067	101,303,016	168,213,957	236,491,895	334,989,709	491,587,123	719,027,923	963,160,222
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		575,329	1,832,644	4,349,742	8,350,039	13,175,924	20,548,910	31,757,361	47,503,927	68,144,123	77,408,357
Short term debt	-	15,528,242	30,269,399	32,430,081	-	-	-	-	-	-	-
Other liabilities											
Total Current Liabilities	-	16,103,571	32,102,043	36,779,823	8,350,039	13,175,924	20,548,910	31,757,361	47,503,927	68,144,123	77,408,357
<i>Other liabilities</i>											
Deferred tax		-	-	-	1,720,133	3,658,220	5,533,764	8,579,428	11,785,347	17,330,712	25,256,474
Long term debt (Project Loan)	-	-	-	-	-	-	-	-	-	-	-
Long term debt (Working Capital Loan)	-	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	-	-	-	-	1,720,133	3,658,220	5,533,764	8,579,428	11,785,347	17,330,712	25,256,474
<i>Shareholders' equity</i>											
Paid-up capital	53,205,563	53,205,563	53,205,563	64,163,298	87,174,542	118,745,693	136,470,034	151,762,559	178,807,649	211,739,858	211,739,858
Retained earnings		(19,091,742)	(33,991,768)	(32,559,054)	4,058,302	32,634,121	73,939,188	142,890,362	253,490,200	421,813,231	648,755,534
Total Equity	53,205,563	34,113,821	19,213,795	31,604,245	91,232,844	151,379,813	210,409,222	294,652,921	432,297,849	633,553,088	860,495,392
TOTAL CAPITAL AND LIABILITIES	53,205,563	50,217,392	51,315,838	68,384,067	101,303,016	168,213,957	236,491,895	334,989,709	491,587,123	719,027,923	963,160,222

13.3 Cash Flow Statement

Calculations											SMEDA
Cash Flow Statement											Amount in PKR
	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		(19,091,742)	(14,900,026)	1,432,715	36,617,356	61,209,939	115,244,254	211,841,536	364,090,039	590,136,261	875,697,838
Add: depreciation expense		3,503,747	3,503,747	3,503,747	4,278,536	5,905,591	7,417,120	10,107,864	12,933,144	17,859,674	25,090,514
amortization of pre-operating costs		492,400	492,400	492,400	492,400	492,400	-	-	-	-	-
amortization of training costs		70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Deferred income tax		-	-	-	1,720,133	1,938,087	1,875,544	3,045,664	3,205,920	5,545,365	7,925,761
Accounts receivable		(452,209)	(572,339)	(1,816,389)	(3,420,090)	(4,893,233)	(7,036,789)	(11,233,813)	(17,149,334)	(24,669,000)	(31,513,864)
Finished goods inventory		(384,588)	(795,213)	(1,695,882)	(2,814,508)	(3,260,341)	(4,952,894)	(7,511,721)	(10,615,651)	(14,219,189)	(15,603,858)
Equipment inventory	(18,907)	(48,011)	(104,653)	(183,593)	(230,091)	(366,657)	(588,257)	(873,067)	(1,234,562)	(1,465,994)	5,113,790
Raw material inventory	(666,465)	(1,693,168)	(3,692,389)	(6,480,776)	(8,127,321)	(12,957,048)	(20,797,714)	(30,883,865)	(43,697,238)	(51,929,858)	180,925,843
Accounts payable		575,329	1,257,315	2,517,098	4,000,298	4,825,885	7,372,985	11,208,451	15,746,566	20,640,196	9,264,234
Cash provided by operations	(685,372)	(17,028,242)	(14,741,158)	(2,160,682)	32,586,711	52,964,624	98,604,250	185,771,049	323,348,884	541,967,455	1,056,970,259
<i>Financing activities</i>											
Short term debt principal repayment		-	(15,528,242)	(30,269,399)	(32,430,081)	-	-	-	-	-	-
Issuance of shares	53,205,563	-	-	10,957,735	23,011,244	31,571,150	17,724,342	15,292,525	27,045,090	32,932,209	-
Purchase of (treasury) shares		-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	53,205,563	-	(15,528,242)	(19,311,664)	(9,418,837)	31,571,150	17,724,342	15,292,525	27,045,090	32,932,209	-
<i>Investing activities</i>											
Capital expenditure	(51,020,192)	-	-	(10,957,735)	(23,011,244)	(31,727,781)	(38,054,845)	(39,957,587)	(69,925,777)	(102,790,892)	(92,511,803)
Acquisitions		-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by investing activities	(51,020,192)	-	-	(10,957,735)	(23,011,244)	(31,727,781)	(38,054,845)	(39,957,587)	(69,925,777)	(102,790,892)	(92,511,803)
NET CASH	1,500,000	(17,028,242)	(30,269,399)	(32,430,081)	156,630	52,807,993	78,273,747	161,105,987	280,468,197	472,108,771	964,458,456

13.4 Expected Yield of Olive Fruit (Year Wise)

Estimated Production	Expected Yield Tons	Tree Age (1 Year)	Tree Age (2 Year)	Tree Age (3 Year)	Tree Age (4 Year)	Tree Age (5 Year)	Tree Age (6 Year)	Tree Age (7 Year)	Tree Age (8 Year)	Tree Age (9 Year)	Tree Age (10 Year)	Tree Age (11 Year)	Tree Age (12 Year)	Tree Age (13 Year)	Tree Age (14 Year)	Tree Age (15 Year)	Tree Age (16 Year)
Current	6.15	-	-	-	-	-	6,152	-	-	-	-	-	-	-	-	-	-
Year 1	189.07	-	-	-	-	-	173,688	15,380	-	-	-	-	-	-	-	-	-
Year 2	606.96	-	-	-	-	-	141,980	434,220	30,760	-	-	-	-	-	-	-	-
Year 3	1,411.51	-	-	-	-	-	141,980	354,950	868,440	46,140	-	-	-	-	-	-	-
Year 4	2,650.28	-	-	-	-	-	236,632	354,950	709,900	1,302,660	46,140	-	-	-	-	-	-
Year 5	3,961.23	-	-	-	-	-	246,098	591,580	709,900	1,064,850	1,302,660	46,140	-	-	-	-	-
Year 6	5,843.91	-	-	-	-	-	567,000	615,245	1,183,160	1,064,850	1,064,850	1,302,660	46,140	-	-	-	-
Year 7	8,576.23	-	-	-	-	-	675,000	1,417,500	1,230,490	1,774,740	1,064,850	1,064,850	1,302,660	46,140	-	-	-
Year 8	12,188.48	-	-	-	-	-	567,000	1,687,500	2,835,000	1,845,735	1,774,740	1,064,850	1,064,850	1,302,660	46,140	-	-
Year 9	16,710.98	-	-	-	-	-	567,000	1,417,500	3,375,000	4,252,500	1,845,735	1,774,740	1,064,850	1,064,850	1,302,660	46,140	-
Year 10	21,248.86	-	-	-	-	-	567,000	1,417,500	2,835,000	5,062,500	4,252,500	1,845,735	1,774,740	1,064,850	1,064,850	1,302,660	61,520

13.5 Processing Facilities Requirement

Processing Facilities Requirement	Initial Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Expected Available Fruit (Tons)		189.07	606.96	1,411.51	2,650.28	3,961.23	5,843.91	8,576.23	12,188.48	16,710.98	21,248.86
Processed by this Facility (Tons) for Oil		75.63	242.78	564.60	1,060.11	1,584.49	2,337.56	3,430.49	4,875.39	6,684.39	8,499.54
Facilities According to Capacity (accumulated)	1	1	1	2	4	6	9	12	17	24	30
Facilities Required (Year Wise)	1	-	-	1	2	2	3	3	5	7	6

13.6 Projected Capital Expenditure

Capital Expenditure	Capital Cost Growth Rate	Accumulated (PKR)	Initial Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land	5%	52,402,731	10,000,000	-	-	1,157,625	2,431,013	2,552,563	4,020,287	4,221,301	7,387,277	10,859,298	9,773,368
Building/Infrastructure	5%	179,572,029	22,742,192	-	-	4,281,567	8,991,291	9,440,856	14,869,347	15,612,815	27,322,426	40,163,966	36,147,570
Machinery & equipment	5%	197,726,568	4,555,625	-	-	5,273,705	11,074,781	11,628,520	18,314,920	19,230,666	33,653,665	49,470,887	44,523,799
Furniture & fixtures	5%	7,734,369	2,010,000	-	-	156,279	328,187	344,596	542,739	569,876	997,282	1,466,005	1,319,405
Office vehicles	10%	12,263,850	4,697,875	-	-	-	-	7,565,975	-	-	-	-	-
Office equipment	5%	7,096,309	3,852,500	-	-	88,558	185,972	195,271	307,552	322,930	565,127	830,736	747,663
Pre-operating costs		2,462,000	2,462,000	-	-	-	-	-	-	-	-	-	-
Training costs		700,000	700,000	-	-	-	-	-	-	-	-	-	-
Total Capital Costs		459,957,856	51,020,192	-	-	10,957,735	23,011,244	31,727,781	38,054,845	39,957,587	69,925,777	102,790,892	92,511,803

13.7 Projected Revenue

Description	Basis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Expected Fruit Available for Processing (Tons)		189.07	606.96	1,411.51	2,650.28	3,961.23	5,843.91	8,576.23	12,188.48	16,710.98	21,248.86
Processed by these Facilities for Oil (Tons)	40%	75.63	242.78	564.60	1,060.11	1,584.49	2,337.56	3,430.49	4,875.39	6,684.39	8,499.54
Olive Oil to be Extracted (Liters)		15,125	48,557	112,921	212,023	316,898	467,512	686,098	975,078	1,336,878	1,699,908
Revenue Calculation	Production Percentage										
0.5 Liter Packing	50%	15,125	48,557	112,921	212,023	316,898	467,512	686,098	975,078	1,336,878	1,699,908
1.0 Liter Packing	40%	6,050	19,423	45,168	84,809	126,759	187,005	274,439	390,031	534,751	679,963
4.0 Liter Packing	10%	378	1,214	2,823	5,301	7,922	11,688	17,152	24,377	33,422	42,498
Total No. of Bottles / Packing		21,554	69,193	160,912	302,132	451,580	666,205	977,690	1,389,486	1,905,051	2,422,369
Sale Price per Bottle / Packing	Growth in Sale Price										
0.5 Liter Packing	10%	375	413	454	499	549	604	664	731	804	884
1.0 Liter Packing	10%	650	715	787	865	952	1,047	1,152	1,267	1,393	1,533
4.0 Liter Packing	10%	2,100	2,310	2,541	2,795	3,075	3,382	3,720	4,092	4,502	4,952
Revenue from Olive Oil											
0.5 Liter Packing		5,672,040	20,029,680	51,237,813	105,825,760	173,989,017	282,350,023	455,799,438	712,556,690	1,074,643,770	1,503,110,658
1.0 Liter Packing		3,932,614	13,887,245	35,524,884	73,372,527	120,632,385	195,762,683	316,020,944	494,039,305	745,086,347	1,042,156,723
4.0 Liter Packing		794,086	2,804,155	7,173,294	14,815,606	24,358,462	39,529,003	63,811,921	99,757,937	150,450,128	210,435,492
Revenue from Sale of Olive Oil Packing (A)		10,398,740	36,721,080	93,935,991	194,013,894	318,979,865	517,641,709	835,632,303	1,306,353,931	1,970,180,246	2,755,702,872
Revenue from Olive Cake (Waste)	Basis										
Olive Cake to be Sold (Kgs)	80%	60,501.76	194,227.20	451,683.20	848,090.24	1,267,592.96	1,870,049.60	2,744,393.60	3,900,312.00	5,347,512.00	6,799,633.60
Sale Price per Kg of Olive Cake	10%	10.00	11.00	12.10	13.31	14.64	16.11	17.72	19.49	21.44	23.58
Revenue from Sale of Olive Cake (B)		605,018	2,136,499	5,465,367	11,288,081	18,558,829	30,117,336	48,618,607	76,006,047	114,628,669	160,331,803
Total Revenue in PKR (A+B)		11,003,758	38,857,579	99,401,357	205,301,975	337,538,694	547,759,045	884,250,909	1,382,359,978	2,084,808,915	2,916,034,676

13.8 Projected Cost of Goods Sold

Description	Basis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Facilities Required according to Capacity (accumulated)		1	1	2	4	6	9	12	17	24	30
Expected Fruit Available for Processing (Tons)		189.07	606.96	1,411.51	2,650.28	3,961.23	5,843.91	8,576.23	12,188.48	16,710.98	21,248.86
Processed by these Facilities for Oil (Tons)	40%	75.63	242.78	564.60	1,060.11	1,584.49	2,337.56	3,430.49	4,875.39	6,684.39	8,499.54
Raw Material Cost / Unit	Growth in Cost										
Olive Fruit Purchase Price (PKR/Ton)	5%	95,000	99,750	104,738	109,974	115,473	121,247	127,309	133,675	140,358	147,376
Transportation Cost - Freight in (PKR/Ton)	5%	5,000	5,250	5,513	5,788	6,078	6,381	6,700	7,036	7,387	7,757
Daily Wages - Seasonal (PKR/Ton)	10%	750	825	908	998	1,098	1,208	1,329	1,462	1,608	1,768
<i>Packing Cost (PKR/Packing)</i>											
0.5 Liter Packing	5%	12.50	13.13	13.78	14.47	15.19	15.95	16.75	17.59	18.47	19.39
1.0 Liter Packing	5%	25.00	26.25	27.56	28.94	30.39	31.91	33.50	35.18	36.94	38.78
4.0 Liter Packing	5%	100.00	105.00	110.25	115.76	121.55	127.63	134.01	140.71	147.75	155.13
Per Processing Facility Human Resource Cost (P)	10%	684,000	752,400	827,640	910,404	1,001,444	1,101,589	1,211,748	1,332,922	1,466,215	1,612,836
Cost of Goods Sold (Year Wise)											
Olive Fruit Cost		7,184,584	24,217,704	59,135,211	116,585,243	182,966,101	283,421,792	436,732,801	651,715,516	938,209,397	1,252,630,036
Transportation Cost - Freight in		378,136	1,274,616	3,112,380	6,136,065	9,629,795	14,916,936	22,985,937	34,300,817	49,379,442	65,927,897
Daily Wages - Seasonal		56,720	200,297	512,378	1,058,258	1,739,890	2,823,500	4,557,994	7,125,567	10,746,438	15,031,107
Packing Cost		378,136	1,274,616	3,112,380	6,136,065	9,629,795	14,916,936	22,985,937	34,300,817	49,379,442	65,927,897
Processing Facilities Human Resource Cost		684,000	752,400	1,655,280	3,641,616	6,008,666	9,914,300	14,540,973	22,659,682	35,189,154	48,385,087
Total HR and Raw Material Cost (PKR)		8,681,576	27,719,633	67,527,629	133,557,247	209,974,247	325,993,464	501,803,641	750,102,399	1,082,903,873	1,447,902,023

14 KEY ASSUMPTIONS

14.1 Operating Cost Assumptions

Description	Details
Administration Benefit Expenses	15% of admin. expense
Traveling Expenses	15% of admin. expense
Communication Expenses	15% of admin. expense
Office expenses (stationery, entertainment, janitorial services, etc.)	7.5% of admin. expense
Promotional expense	0.25% of revenue
Office Vehicle Running Expenses	30% of the Vehicle Cost
Professional fee (Legal, Audit, etc.)	0.5% of revenue
Operating costs growth rate	5%
Depreciation on Building and Infrastructure	5%
Depreciation on Machinery	10%
Depreciation on Furniture and Fixture	10%
Depreciation on Office Equipment	20%
Depreciation on Office Vehicle	20%
Capital Cost Growth Rate	5%

14.2 Production Cost Assumptions

Description	Detail
Olive Fruit Per Ton	PKR 9,500
Transportation Cost Per Ton	PKR 5,000
Packaging Cost (Per Unit)	
0.5 Liter Packing	PKR 12.5
1.0 Liter Packing	PKR 25
4.0 Liter Packing	PKR 100
Daily / Seasonal Wages Per Ton	PKR 750
Production Cost Growth Rate	5%

14.3 Revenue Assumptions

Description	Detail
0.5 Liter Packing	PKR 375
1.0 Liter Packing	PKR 650
4.0 Liter Packing	PKR 2,100
Growth in Sales Price	10%
Days Operational / Year for Head Office	330
Days Operational / Year for Processing Facilities	60
Hours Operational / Day for Processing Facility	24
Operational Hours of the Season for Processing Facility	1,440

14.4 Cash Flow Assumptions

Description	Detail
Accounts receivable cycle (in days)	15
Accounts payable cycle (in days)	20
Raw material inventory (in days)	30
Finished goods inventory (in days)	15

14.5 Olive Trees Yield

Life of Olive Tree	Expected Yield (Kgs/Plant)
Year 1 ~5	-
Year 6	2.00
Year 7	5.00
Year 8	10.00
Year 9 ~16	15.00
Year 17 ~25	20.00

15 SENSITIVITY ANALYSIS

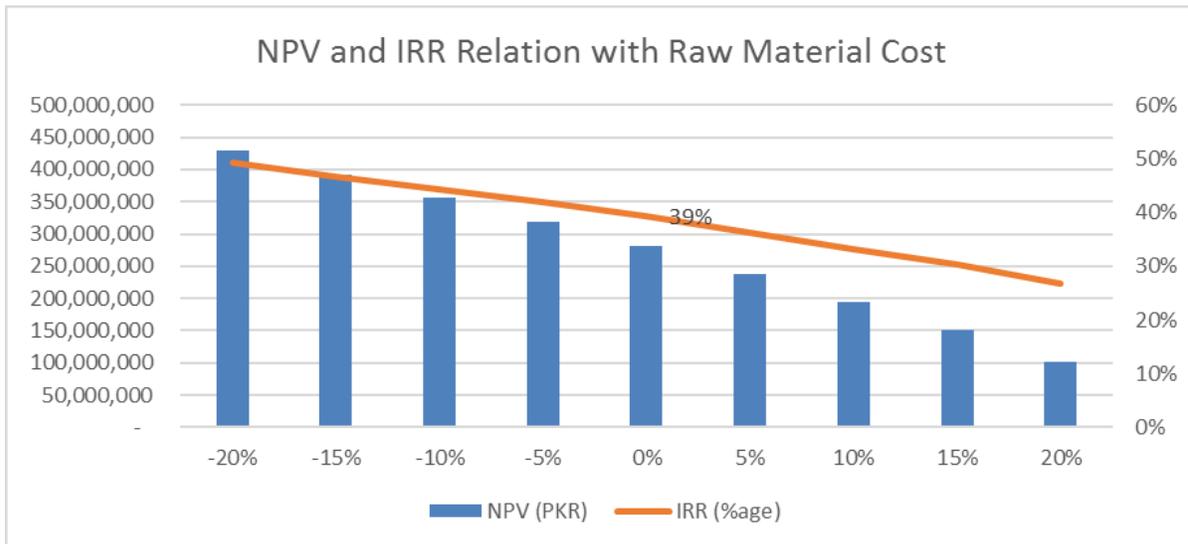
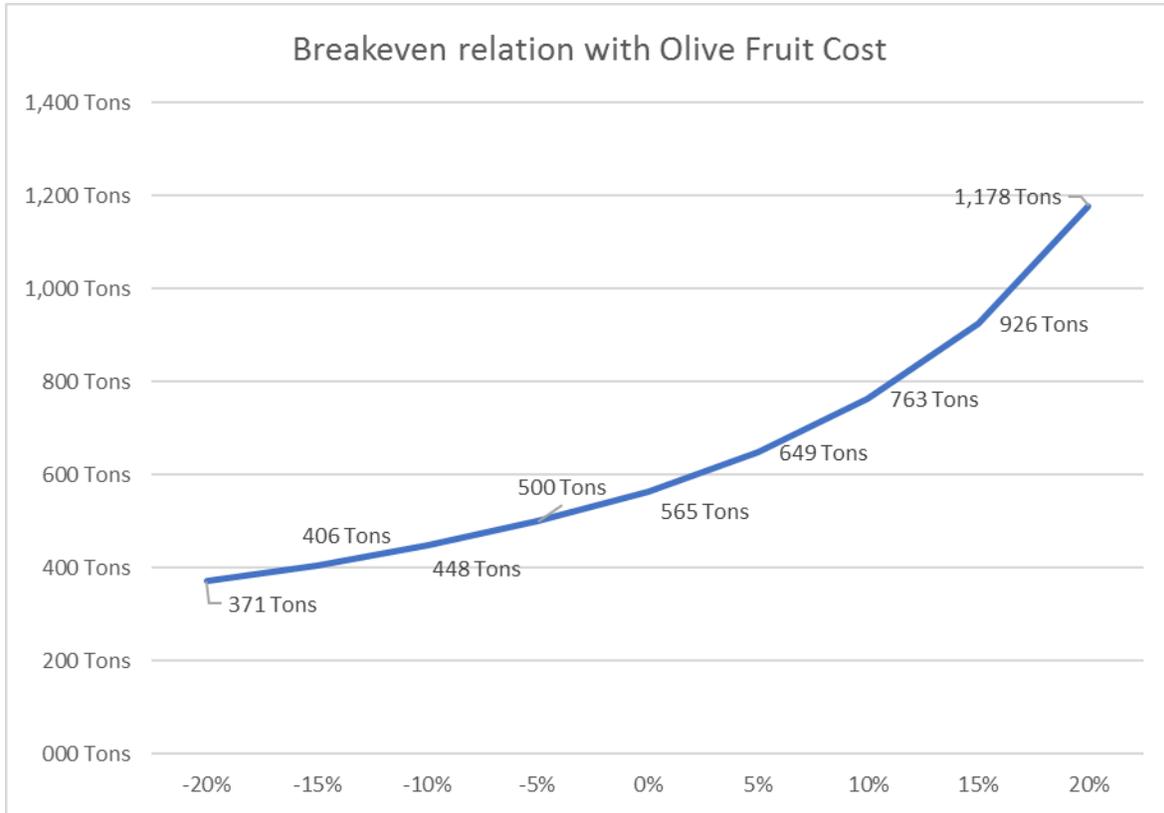
Sensitivity analysis determines how much the output is expected to change due to change in a variable. It refers to an analysis of how each of the input variables in a capital budgeting decision (such as discount rate, cash flows growth rate, tax rate, raw material cost, sale price, etc.) affect the net present value, IRR, payback, breakeven or any other output. In other words, sensitivity analysis finds out how sensitive an output is to any change in an input while keeping other inputs constant.

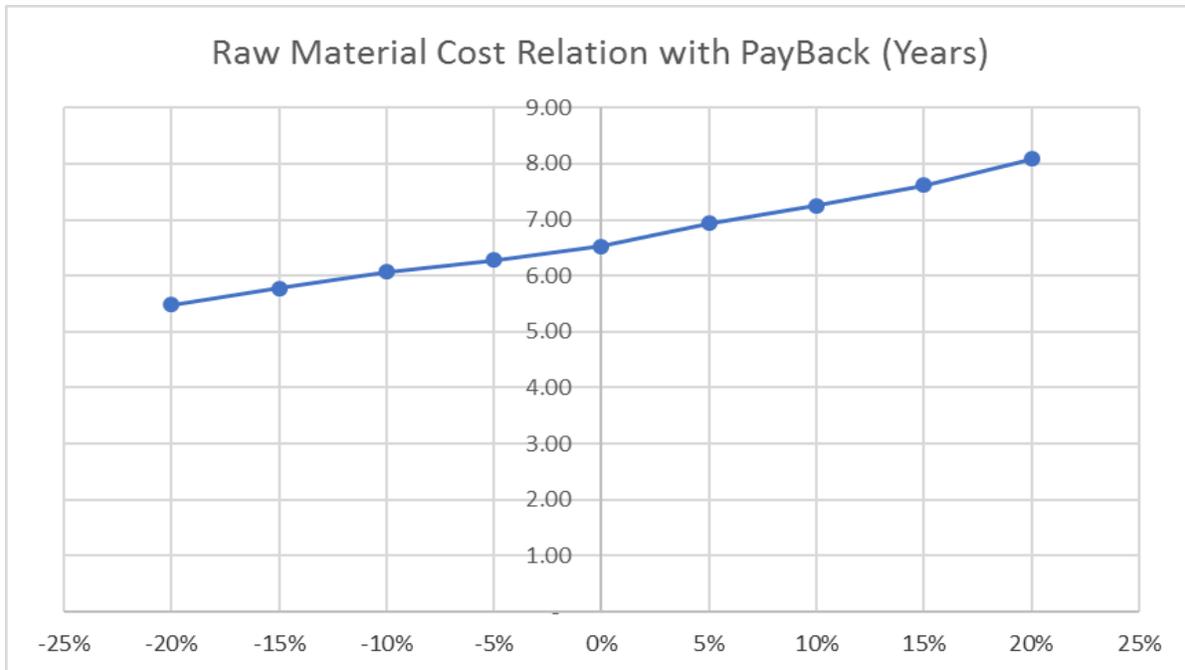
For the sake of this Pre-feasibility study, sensitivity analysis for change in raw material cost and sale price is tested in the following sections, to see the projected outcomes so that appropriate decisions or actions could be taken before investing in this project.

15.1 Raw Material Cost Sensitivity Analysis

The following sensitivity analysis is done with the assumption that all other factors will be constant except Raw Material Cost (Olive Fruit). The results are given in the table below;

Changes in Cost	Raw Material (Olive Fruit) Price (Rs. / Kg)	Breakeven (Quantity)	NPV (PKR)	IRR (%age)	Pay Back (Years)
-20%	76	371 Tons	429,481,089	49%	5.48
-15%	81	406 Tons	392,561,296	47%	5.78
-10%	86	448 Tons	355,641,504	44%	6.07
-5%	90	500 Tons	318,721,712	42%	6.28
0%	95	565 Tons	281,801,919	39%	6.53
5%	100	649 Tons	238,349,951	36%	6.94
10%	105	763 Tons	194,533,030	33%	7.25
15%	109	926 Tons	150,716,108	30%	7.62
20%	114	1,178 Tons	101,372,005	27%	8.09





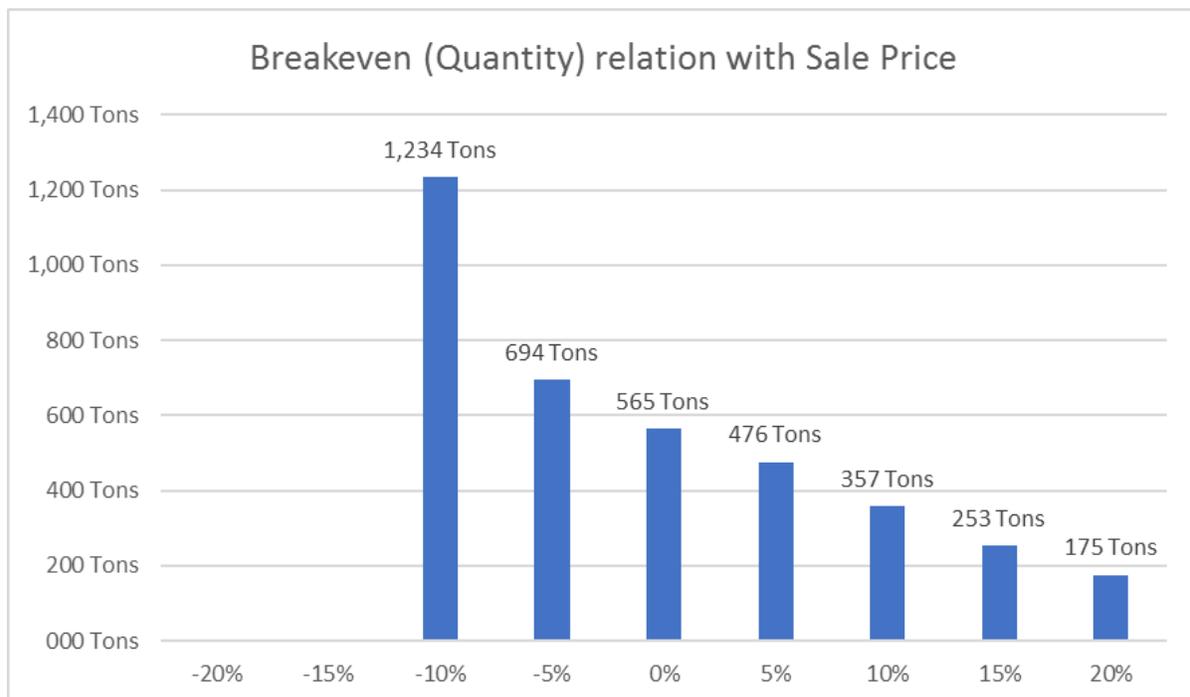
The above table and graphs show that if the raw material (olive fruit) cost decreases by 5% upto 20%, on average, project IRR, NPV and Payback will improve by 6%, 11% and 4% respectively. On the other hand if the raw material cost increases by the same rate, there will be a decrease in IRR and NPV by 9% and 22% respectively whereas Payback will be increased by 6%. If the raw material cost increases by 20% from its current cost, the project needs to process 1,178 tons of olive fruit in order to achieve its breakeven, otherwise, there is a chance that cash flows would be negative for next 5 years which means that project has to arrange additional funds in shape of equity or debt financing.

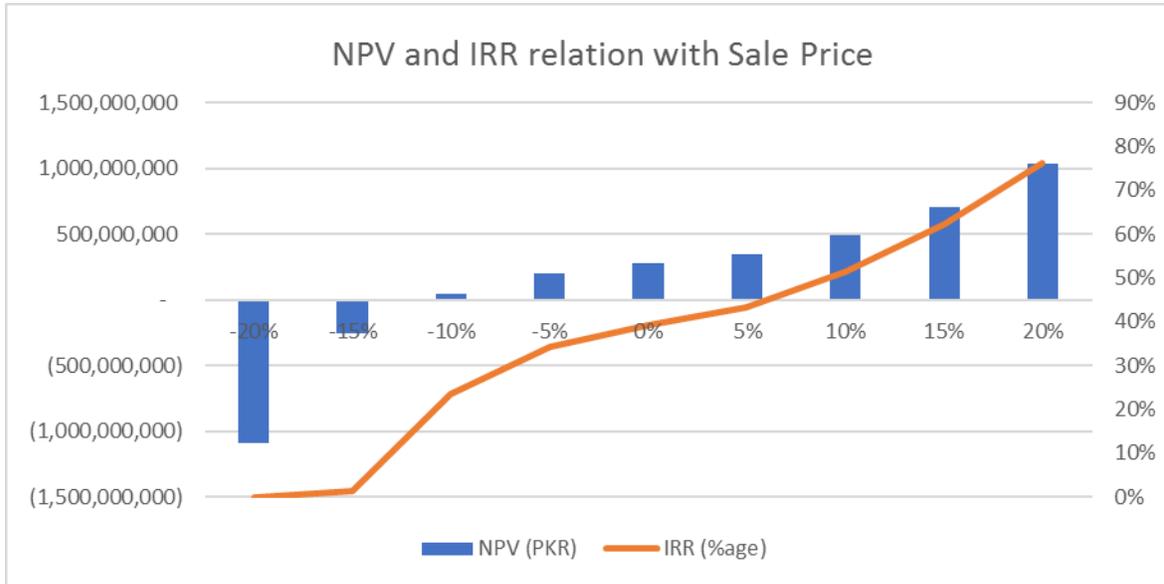
Hence, it is better to procure the raw material on cheaper prices in order to achieve sustainable profitability from the project.

15.2 Sale Price Sensitivity Analysis

The sensitivity analysis is done with the assumption that all other things will be the same except Sale Price of the product. The results are given in the table below;

Changes in Price	Sale Price (Rs./ Liter)	Breakeven (Quantity)	NPV (PKR)	IRR (%age)	Pay Back (Years)
-20%	582	Not Suitable	(1,088,746,804)	0%	10.00
-15%	618	Not Suitable	(255,298,568)	1%	9.90
-10%	655	1,234 Tons	49,933,335	24%	8.36
-5%	691	694 Tons	205,605,170	34%	7.12
0%	728	565 Tons	281,801,919	39%	6.53
5%	764	476 Tons	348,297,849	43%	6.17
10%	800	357 Tons	487,939,300	51%	5.35
15%	837	253 Tons	706,048,767	62%	4.42
20%	873	175 Tons	1,032,952,117	76%	3.51





The above table and graphs show that if the sale price of the olive oil decreases to 15%, the project NPV will be negative and payback will also be too high. Therefore, it is better to ensure the quality of olive oil in order to be competitive in the market, hence enabling to keep the sale price constant. On the other hand, if the sale price is increased, it will be good for the project. Under the ideal circumstances, if the price increases by 20%, IRR will be 76% and the project will return its whole investment in just 3.51 years.