



Islamic Republic of Iran

Ministry of Economic Affairs and Finance

General Department of Economic Affairs and Finance of North Khorasan



# Rapeseed oil in Shirvan Industrial Park

Center of Investment Services of North Khorasan

2021 April

# Summary of Technical-Economical Pre-Feasibility Study

The Name: Rapeseed Oil

Sector: Agricultural

Subsector: Alterant Industries

ISIC Code: 1514412306, 1514512428

The owner of:

Organization of Economic Affairs and Finance (North Khorasan)



The ADDRESS:

Iran, North Khorasan, Shirvan

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# 1 Abstract

## 1.1 Project Profile

Table 1: Summary Sheet

Project Introduction			
<b>Project Title</b>	Rapeseed Oil		
<b>Sector</b>	Agricultural		
<b>Sub Sector</b>	Alterant Industries		
<b>Location</b>	Iran, North khorasan, Shirvan		
<b>The County</b>	Shirvan		
<b>Products / Services</b>	Crude colza oil, Colza cake		
<b>Annual Nominal Capacity</b>	700		
<b>The Raw Material</b>	Rapeseed		
<b>Employment</b>	23		Person
<b>Land Area</b>	3,360		$m^2$
<b>Floor Area</b>	1,999		$m^2$
<b>Energy and Water Consumption</b>	Water Consumption	5,000	$m^3$ in year
	Electricity Consumption	670	KW
	Gas Consumption	200,000	$m^3$ in year
<b>Fixed Capital</b>	112,830		Million Rial
<b>Working Capital (The First Year)</b>	27,830		Million Rial
<b>Payback Period</b>	2.93		Year
<b>Net Present Value (NPV)</b>	240,119		Million Rial
<b>Internal Rate Of Return (IRR)</b>	60		%
<b>Modified Internal Rate of Return (MIRR)</b>	29		%
<b>Break Even Point</b>	26		%
<b>The Exchange Rate (Dolar)</b>	240,000		Rial
<b>Description</b>	In this project, all the materials related to the study of the rapeseed oil market are examined.		

*Table 2: Legal Authorizations*

Licensure Status:	
Descriptions	Issuance Status
Principal Agreement (Establishment licensure)	☒
Land Allocation	☒
Environmental Inquiry	☒
Possibility of Water Supply	☒
Possibility of Electricity Supply	☒
Possibility of Electricity Supply	☒
Possibility of Gas Supply	☒

*Table 3: Total Investment*

Descriptions	Local Currency Required			Foreign Currency Required (Million Euro)	Total (Million Euro)
	(Million Rial)	Rate	Equivalent in (Million Euro)		
Fixed Capital	114056.4	240,000	0.4752	0	0.4752
Working Capital	27830		0.1159	0	0.1159
<b>Total Investment</b>	<b>141886.4</b>	<b>240,000</b>	<b>0.5911</b>	<b>0</b>	<b>0.5911</b>

- Value of foreign equipment / machinery: 0 Million Euro
- Value of local equipment / machinery: 0.0243 Million Euro
- Net present value (NPV): 1 Million Euro in 15 years
- Internal Rate of Return (IRR) (for 15 years): 60%
- Payback period: 2.93 years

Table 4: General Information

Company Profile	
Project Type	Establishment <input checked="" type="checkbox"/>
Company Name	North Khorasan Organization of Agriculture Jihad
Contact Person (Name and Position)	Mr Rezvan Nikbakht
Email	et.1383@yahoo.com
Mobile	+989379094738
Tel	+9858-32257990
Website	http://portal.nkj.ir
Address	North Khorasan Province, Bojnurd, Chehelodometri Kamarbandi Blvd, North Khorasan Organization of Agriculture Jihad
Company's Legal Structure	Government <input checked="" type="checkbox"/>

## 2 Project Location

### 2.1 Province: North khorasan

### 2.2 The County: Shirvan

Shirvan is a city and capital of Shirvan County, North Khorasan Province, Iran. The history of Shirvan is more than 7000 years old, as archaeologists found some graves in Gelian an Khanlogh (Villages of Shirvan) which are related to Achaemenid Empire era. The city has been significant industrially with sugar beet factories. It is also significant historically (Nader hill), geographically (Honame), and anthropologically (caves around the city).

This project will be construct in part 246 and 247 and 248 with coordinates (4135058,590215) in shirvan industrial park. Proposed location of project is shown in Figure 1.



Figure 1: Location of Proposed Land in Shirvan Industrial Park

### 2.3 The Project: Rapeseed Oil

### 2.4 Access to the Infrastructures

Table 5: Access to Infrastructures

No.	Needed Infrastructures	Distance to the Project	The Supply Infrastructures
1	Water	0	not specified
2	Electricity	0	not specified
3	Gas	0	not specified
4	Telecommunications	0	not specified
5	High way	<1 km	is provided
6	Sub way	0	is provided
7	Airport	74	is provided
8	Amirabad Port (Behshahr)	491	is provided
9	Bandar Abbas Port	1,559	is provided
10	Rail way station of Joveyn	236	is provided
11	Rail way station of Jajarm	266	is provided



### 3 Technical Specifications of Plan

#### 3.1 Product

Table 6: Project Specifications Based on ISIC Code

The Product	ISIC Code	Customs Tariff	Environmental Category
Crude colza oil	1514412306	15141100	4
Colza cake	1514512428	23064100	4

In this project, all the materials related to the study of the rapeseed oil market are examined. The purpose of the project is to strengthen the export sector, replace imports, etc. According to studies on the supply and demand of rapeseed oil, the production of this product from 2021 to 2025 will have an increasing trend that reassures new investors. Also, the import chart is declining and from 2021 to 2025 is predicted to be around zero, and its interpretation is self-sufficiency despite the domestic production capacity for this product. The export of the product has been zero since 2015, so there is a pristine ground for new factories to enter this wonderful market. Finally, domestic demand for rapeseed oil is increasing from 2021 to 2025. Also, between 2020 and 2023, there is a shortage of about 100,000 tons, which must be compensated by the construction of new factories. It should be noted that the factory under discussion of this project has an annual capacity of 700 tons, so it can be claimed that the investor of this project can act without concern. Undoubtedly, the most important reasons for justifying a project are based on its economic considerations. Gaining a suitable share of the domestic or foreign market, expanding the target market, and having appropriate financial and economic indicators (NPVR, IRR), and so on are among the most important goals of an economic enterprise to create or develop an industrial plan. In addition, the national and macroeconomic aspects of the project should be considered. Also, the study of the effect of project implementation on social and cultural indicators at the national and regional levels such as unemployment, labor migration, cultural effects, and finally the political considerations of the feasibility study, both nationally and internationally, can justify the necessity of implementing a project. Getting out of dependence on the outside, increasing domestic production, etc. can be studied and analyzed in this section.



### 3.2 Project's Requirements

Studies conducted by the Institute of Standards and Industrial Research of Iran indicate that the standard of the product of this project, due to the lack of active producers in the country, no standard has been set. But for similar products of this project, standards have been developed, and some of which are as follows:

### 3.3 Space and Infrastructure Required

*Table 7: Land Purchase Costs (Million Rial)*

Specifications	Area ( $m^2$ )	Price per $m^2$	Cost		
			Paid Cost	Needed Fund	Total
A piece of land in Maneh & Samalghan	4,500	0.75	0	0	3,375

*Table 8: Site Preparation and Development Costs (Million Rial)*

Description	Working Capacity	Unit	Unit Price	Paid Cost	Needed Fund	Total
Excavation	1,800	cm	0.3	0	0	540
Wall Construction and Door	540	Sm	9	0	0	4,860
Street construction (5% of the amount of land)	225	Sm	7	0	0	1,575
Green space and Lighting (1% of the amount of land)	45	No	8	0	0	360
<b>Total</b>				<b>0</b>	<b>0</b>	<b>7,335</b>

*Table 9: Civil Works, Structures and Buildings Costs (Million Rial)*

Description	Area ( $m^2$ )	Unit Price	Paid Cost	Needed Fund	Total
Production Hall	825	25	0	0	20,625
Raw Material Warehouse	450	30	0	0	13,500
Product Warehouse	450	25	0	0	11,250
Office Building	174	45	0	0	7,830
Guardroom	100	45	0	0	4,500

Description	Area (m <sup>2</sup> )	Unit Price	Paid Cost	Needed Fund	Total
Infrastructure (of raw material silos and crude oil)	450	10	0	0	4,500
<b>Total</b>			<b>0</b>	<b>0</b>	<b>62,200</b>

Table 10: Infrastructures

No	Description	Unit	Annual Consumption	Unit Cost (Rial)	Total (Million Rial)
1	Water Consumption	m <sup>3</sup>	5,000	7,000	35
2	Electricity Consumption	Kw	1,500,000	1,100	1650
3	Gas Consumption	m <sup>3</sup>	200,000	1,200	240
4	Communications	-		120,000,000	120
<b>Total</b>					<b>2,176</b>

### 3.3.1 Equipment and Machinery

Table 11: Plant Machinery and Equipment Costs (Million Rial)

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Silo	400	800	240,000	0.0032	0	800
conveyor belt	110	330		0.0013	0	330
Sieve machine	160	160		0.0006	0	160
Silo	150	150		0.0006	0	150
Baking tower	200	200		0.0008	0	200
Press	3,220	3220		0.0129	0	3,220
Reservoir	40	80		0.0003	0	80
Tanker	15	15		0.0001	0	15
oil pump	44.5	89		0.0004	0	89
Filter press	130	130		0.0005	0	130

Description	Unit Cost	Costs Required			Total	
		Local Costs	Costs of Currency			Cost to Complete
			Rate	(Million Euro)		
Reservoir	340	680		0.0027	0	680
Silo	150	150		0.0006	0	150
Pipes and fittings	80	80		0.0003	0	80
<b>Total Cost of Machinery</b>		<b>6,084</b>	<b>240,000</b>	<b>0.0243</b>	<b>0</b>	<b>6,084</b>

The exchange rate is: 1 € = 240,000 Rial

### 3.3.2 Raw Material and Intermediate Components

*Table 12: Raw Material and Intermediate Components (Million Rial)*

Description	Unit	Total Consumption of the Raw Material	Price per Unit of Raw Material	Annual Cost of Providing Material
Raw material & Packaging	<i>ton</i>	-	-	24943
Salary	<i>Rial</i>	-	-	2655
Energy costs(fuel, electricity and water)	<i>L/KW/CM</i>	-	-	2176.2
Repair & maintenance	<i>Rial</i>	-	-	3393.56
<b>Total</b>				<b>33,167.76</b>

### 3.3.3 Management and Human Resources

*Table 13: Salary of Administrative Staff (Million Rial)*

No.	Position	Number of Shifts	Personnel per Shift (No.)	Total Staff (People)	Monthly Salary (per Person)	Annual Salary
1	manpower (in Administrative sector)	-	-	6	60	4,320
2	manpower (in Production sector)	-	-	17	56.9	11,610
<b>Total</b>				<b>23</b>		<b>15,930</b>

## 4 Market Study and Competition

### 4.1 Examining Supply And Demand Trends

The amount of rapeseed oil products supply based on production licenses (according to the information of the ministry of industry, mine and trade) inside the country from 2015 up to 2020 is shown in Table 14.

*Table 14: The Amount of Rapeseed oil Domestic Supply*

Year	Nominal Capacity (Ton)
2015	388,380
2016	533,931
2017	651,914
2018	949,852
2019	1,118,682
2020	1,552,801

The real production capacity of active units in 2015 up to 2019 is shown in Table 15.

*Table 15: The Real Production Capacity of Active Units in 2015 up to 2019*

Year	Nominal Capacity (Tons)
2015	94,393
2016	129,769
2017	158,444
2018	230,856
2019	271,889
2020	377,399

The following chart shows the prediction of production according to the Table 15 based on linear regression.

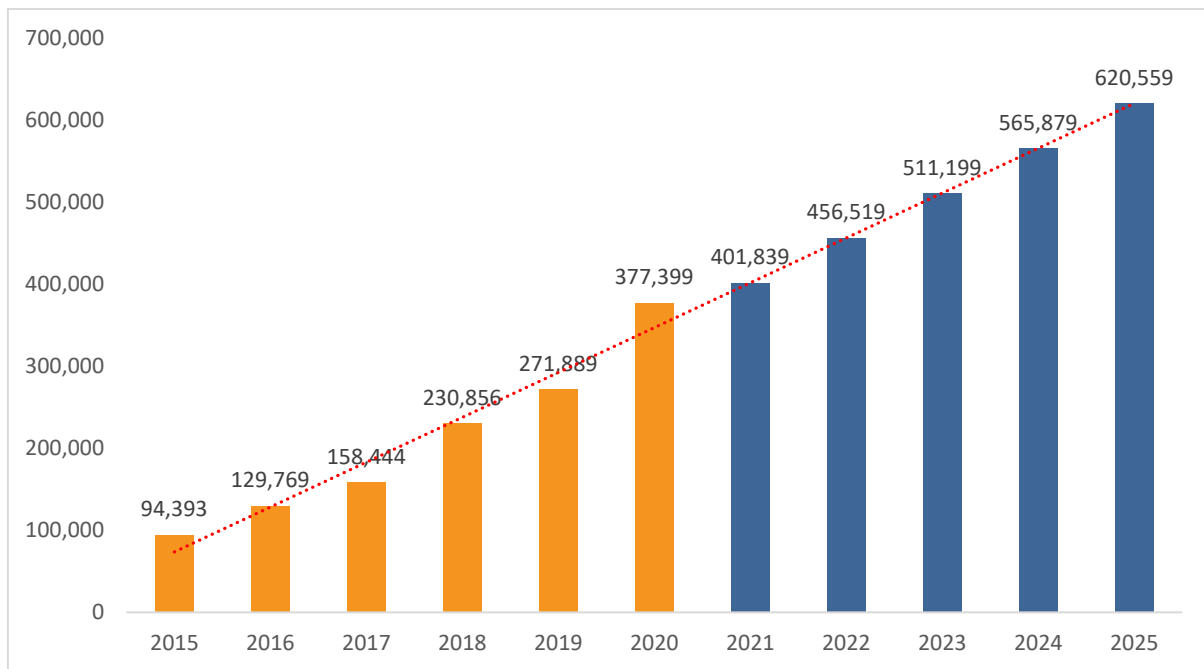


Figure 2: The Prediction of Production

. As the Figure 2 shows, the amount of rapeseed oil production is increasing  
 The amount of imports to the country is based on the information of the Tehran Chamber  
 .of Commerce, Industries, Mine and Agriculture at <http://tccim.ir> is presented in Table 16

Table 16: The Amount of Imports

Year	Customs Tariff	Weight (Tons)	Major Countries
2015	15141100	0	-
2016	15141100	19,000	Swiss
2017	15141100	1,776	Spain
2018	15141100	437	Spain

The following chart shows the prediction of imports according to the Table 16 based on linear regression.

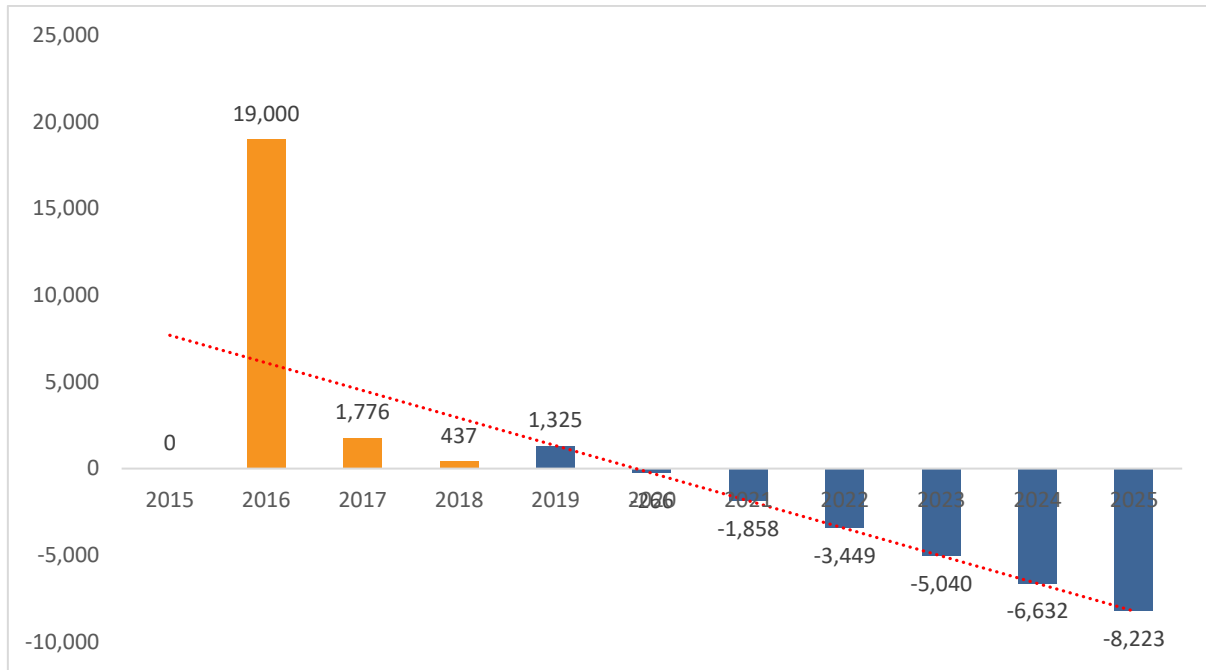


Figure 3: The Prediction of Imports

. As the Figure 3 shows, the amount of imports is decreasing

The amount of exports from the country is based on the information of the Tehran Chamber of Commerce, Industries, Mine and Agriculture at <http://tccim.ir> is presented in Table 17

Table 17: The Amount of Exports

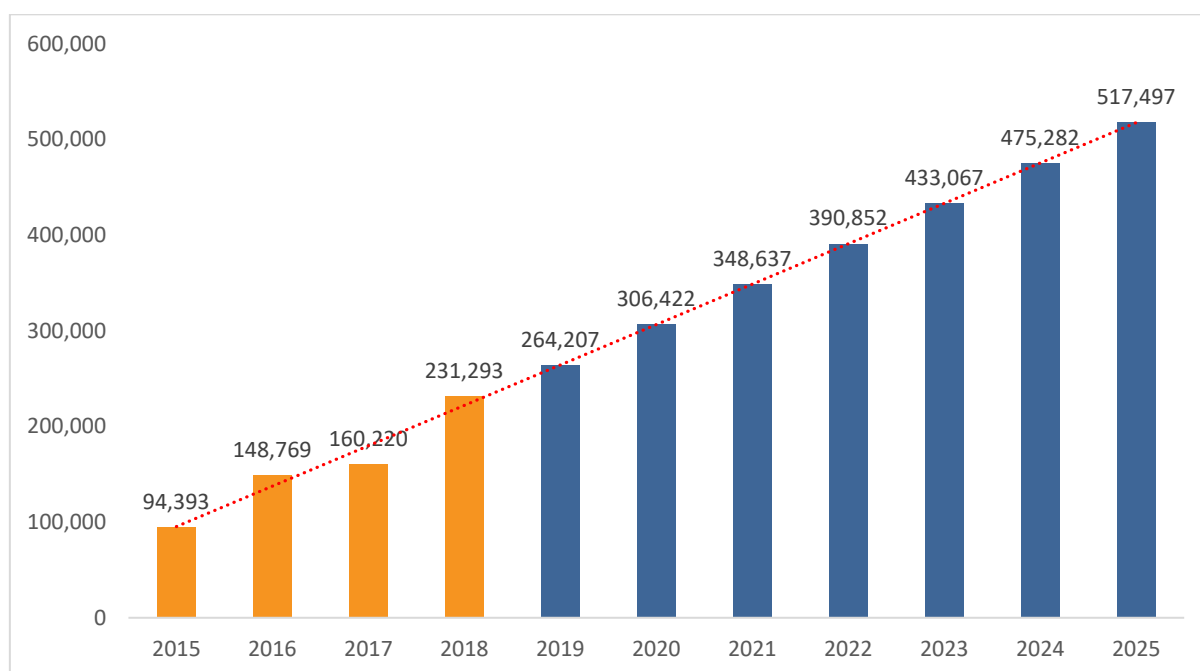
Year	Customs Tariff	Weight (Tons)	Major Countries
2015	15141100	0	-
2016	15141100	0	-
2017	15141100	0	-
2018	15141100	0	-

The amount of domestic demand, which is equal to the amount of domestic production plus the amount of imports minus the amount of exports, for the three products is given in the Table 18.

*Table 18: The Amount of Domestic Demand*

Year	The Amount of Domestic Demand of rapeseed oil (Tons)
2015	94,393
2016	148,769
2017	160,220
2018	231,293

The following chart shows the prediction of domestic demand according to the Table 18 based on linear regression.



*Figure 4: The Prediction of Domestic Demand*

As the Figure 4 shows domestic demand of rapeseed oil is increasing. So it can be claimed that the factory can be established without the concern of selling the product. In the Table 19, the information of the units that have obtained license is presented based on the amount of progress.



Table 19: The Information of The Units that have Obtained License

Progress Percent	Capacity (Tons)
0% - 25%	417,540
25% - 50%	3,000
50% - 75%	1,129,490
75% - 100%	10

## 5 Financial Projection

### 5.1 The Cost Estimate

Table 20: Total Investment (Million Rial)

No.	Subject	Cost
1	Fixed Capital	114,056.4
2	Working Capital	27,830
<b>Total Investment</b>		<b>141,886.4</b>

Table 21: Fixed Capital (Million Rial)

Subject	Paid Cost	Cost Required			Total Cost	
		Local Cost	Foreign Exchange Cost			Needed Fund
			Rate	(€)		
land purchase	0	3,375	240,000	0.0135	0	3,375
Landscaping	0	7,335		0.0293	0	7,335
Building	0	62,200		0.2488	0	62,200
equipment and machinery	0	6,084		0.0243	0	6,084
Laboratory and workshop supplies and equipment	0	4,850		0.0194	0	4,850
Facilities	0	11,525		0.0461	0	11,525

Subject	Paid Cost	Cost Required			Total Cost	
		Local Cost	Foreign Exchange Cost			Needed Fund
			Rate	(€)		
Transportation	0	330		0.0013	0	330
Office and services equipment	0	460		0.0018	0	460
Pre-operation costs	0	7,428.6		0.0297	0	7,428.6
Unforeseen (10% of the above items)	0	10,368.76		0.0415	0	10,368.76
<b>Total Fixed Investment</b>	<b>0</b>	<b>114,051.4</b>		<b>0.4562</b>	<b>0</b>	<b>114,051.4</b>

Table 22: Working Capital (Million Rial)

Subject	Day	Total
Packaging material (2 months raw materials and packaging)	60	24,943
Salary (2months salary)	60	2,655
Imprest fund (15 days of water, electricity, fuel and repair costs)	15	232
<b>Total</b>		<b>27,830</b>

Table 23: Fixed and Variable Costs

No.	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
1	Raw material	0	0	100	149,656
2	Energy & utility	20	435	80	1,741
3	Repair & Maintenance	20	679	80	2,715
4	Production salary	70	11,151	30	4,779
5	Depreciation	100	8,263	0	0
<b>Total Production Costs</b>			<b>20,528</b>		<b>158,891</b>

## 5.2 Break-Even Analysis

*Table 24: Break-even Analysis*

Period	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Break-even ratio (%)	26.23	25.27	24.40	23.61	22.78	22.08	21.50	20.97	20.49	20.05

## 5.3 Sensitivity Analysis of IRR

*Table 25: Sensitivity Analysis of IRR*

Variation (%)	Sales Revenue	Increase in Fixed Assets	Operating Costs
-20.00%	18.01%	72.41%	89.23%
-16.00%	26.95%	69.46%	83.36%
-12.00%	35.38%	66.76%	77.49%
-8.00%	43.62%	64.28%	71.62%
-4.00%	51.77%	62.00%	65.76%
0.00%	59.90%	59.90%	59.90%
4.00%	68.02%	57.94%	54.03%
8.00%	76.14%	56.12%	48.16%
12.00%	84.28%	54.43%	42.26%
16.00%	92.42%	52.84%	36.32%
20.00%	100.56%	51.36%	30.29%

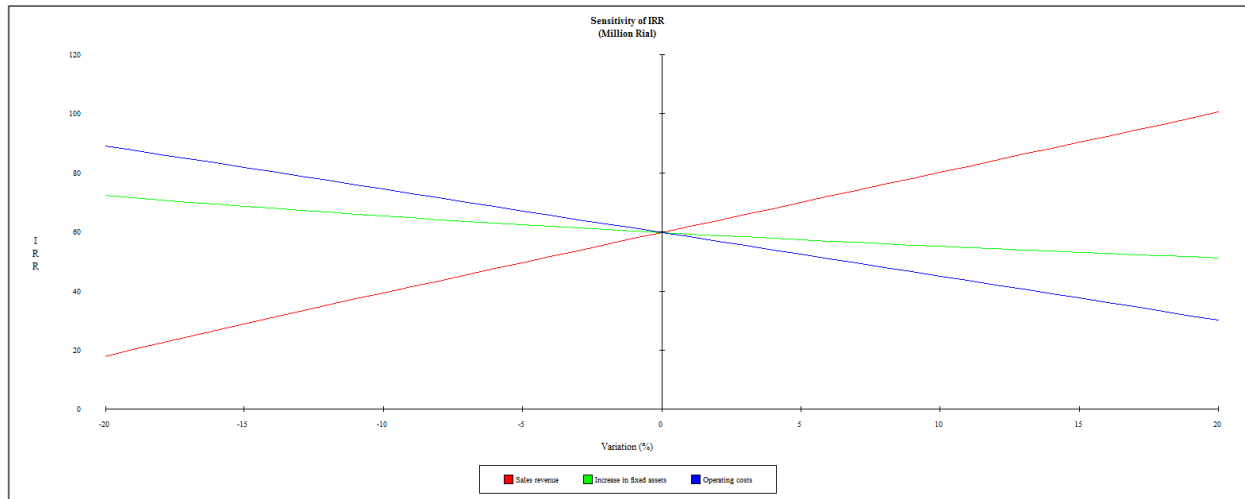


Figure 5: Sensitivity Analysis of IRR

## 6 Duration of Project Operation

The time of doing early stages and completing its process is about 16 months.

Table 26: Action Plan and Implementaion Schedule

Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Land Purchase	█																								
Constructing Buildings		█	█	█	█	█	█	█	█	█															
Execution of Facilities					█	█	█	█	█	█	█														
Order, Purchase of Machinery							█	█	█	█	█	█	█												
Landscaping											█	█	█	█	█										
Machinery Strat-up and Trial Production													█	█	█	█									

## 7 Incentives, Features and Advantages of Project

North Khorasan Province is a province located in northeastern Iran. Bojnord is the capital of the province. This province contains many historical and natural attractions, such as mineral water springs, small lakes, recreational areas, caves and protected regions, and various hiking areas. Advantages of the agriculture of this province involves favorable and diverse climatic conditions and other parameters affecting growth.