

General Department of Economic and Financial Affairs of Khuzestan

Preparation and Compilation of Investment Opportunities in The Province
Investment Opportunity Studies Report

"Beet sugar production plan"

(Attachment Number 1)

Date: 2023/07/20

V2

In the name of God
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1) Location of the project

1-1- Province

Khuzestan province is located in the southwest of Iran (in 47° 42' to 50° 39' east of the Greenwich meridian and 29° 58' to 32° 58' north of the equator). The area of Khuzestan province is 63,238 square kilometers. With a population of 4,994 thousand people in 1400SH, it is the fifth most populous province in Iran (after Tehran, Khorasan Razavi, Isfahan and Fars provinces). **Ahvaz** is the capital of Khuzestan province and is located in the 880km of Tehran. This province is bordered by ILAM province from the northwest, Lorestan province from the north, CHAHARMAHAL and BAKHTIARI, KOHGILUYEH and BOYERAHMAD provinces from the northeast and east, the Persian Gulf (330km long) from the south and Iraq (330km long) from the west. The location of Khuzestan is in the west of Zagros mountains. Due to the vastness of its plains, the border with Iraq and the Persian Gulf, and the distance from other provincial centers have placed this province in a strategic position.

1-2- County

The ancient city of SHUSH was the center of the civilization of ILAM, which is located one hundred and fifty kilometers east of the Tigris River in Khuzestan province. Shush was the capital since about 2700 BC and this capital continued until the end of the Achaemenid Empire, which is more than 3000 years.

The area of Shush is 5.6 square kilometers and it is located 115 kilometers northwest of Ahvaz between 32 degrees and 2 minutes north latitude and 47 degrees and 1 minutes east longitude compared to the Greenwich meridian. The height of the city of Shush above the sea level is 87 meters and the air distance to Tehran is 479 kilometers. The land distance from Shush to Tehran is 766 km, to Ahvaz 115 km, to DEZFUL 24 km and to ANDIMESHK 38 km. The ancient city of Shush was one of the centers of ancient civilization, one of the most famous cities in the world, the capital of Elam for several thousand years, and also the winter capital of the Achaemenid Empire.

The air in Shush is hot and dry. In the center of this city, the highest temperature in the summer is above 67 degrees Celsius and the lowest temperature is 1 degree above zero. The climate of this city is affected by the high-pressure effect of the tropical cyclone, which causes some days of summer to be humid. Out of 219 villages of this city, only 155 The village has water. Out of 4015 villages in Khuzestan, 1118 villages lack water and only 302 villages are supplied with water by tankers.

The economic life of the city of Shush began with the construction of the main Tehran-Khorramshahr Road and the national railway. Its historical importance has also attracted the attention and attraction of tourists and those who are interested in visiting Danyal Nabi's court. The construction of the Dez dam, the network of energy transmission lines, the modern irrigation system, the creation of agriculture and industries, especially HAFT TAPEH, and numerous industrial units in the northern region of Khuzestan, especially the surrounding area, the city of Shush, has caused the economic transformation of Shush region. The provision of suitable fields for investment, development of new economic activities, provision of special services for trade and exchange of goods, and banking and administrative services have led to the growth and prosperity of Shush city.

The presence of three rivers, Karkheh, DEZ and SHAVOOR, has made Shush city special in terms of agriculture, and the presence of vegetation around Karkheh and Dez rivers has made it possible to create recreational areas in the region. Lands suitable for agriculture, rivers full of permanent water, underground water tables, a relatively large surface of the forest on the banks of the river, numerous beaches and dams, pastures and agricultural centers in Shush city have made agriculture (farming, animal husbandry and fishing) the most important economic activity in the region be considered.

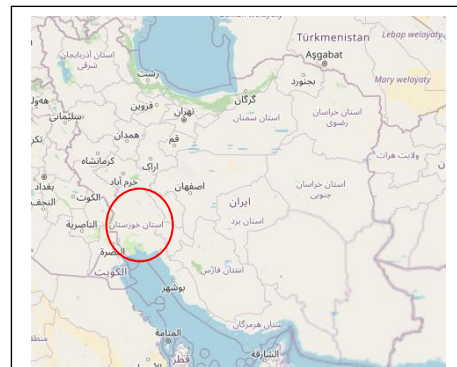


Figure (1): The Province location in Iran



Figure (2): Shush location in Khuzestan province

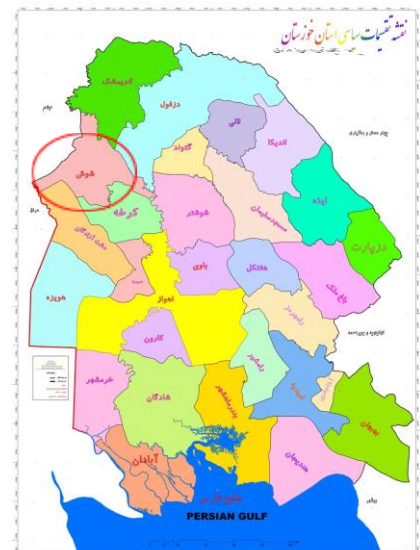


Figure (3): Political divisions of Khuzestan province

2) Project Status

The location of this project is proposed in Shush city and from national or private land with an area of about 320,000 square meters. Considering the required area and the lack of enough land in the industrial towns of Shush city, it is suggested to choose this place in the national or private lands in the west of the KARKHEH river in such a way that in terms of the distance with the agriculture and industries located in this city (such as HAFT TAPE Agriculture and Industry) should be established in a suitable place. According to the laws and regulations, taking land from national lands requires the approval of the Natural Resources Organization of the province and the permits of the Agricultural Jihad Organization or the Industry, Mining and Trade Organization of Khuzestan Province and the approval of the environment of SHUSH.

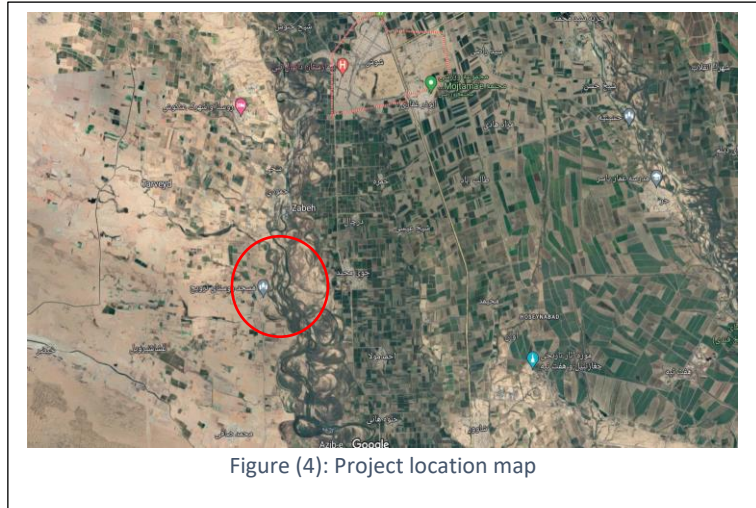


Figure (4): Project location map

2-1- Access to infrastructures

Due to the impossibility of determining the exact location for the implementation of the project regarding the electricity and gas infrastructures, the project cannot be reviewed. What is clear is that access roads and water and electricity facilities are facing limitations in the west of Karkheh River.

Table (1): access to infrastructures

No.	Required Infrastructure	Distance From Project Status(km)	Location Of Infrastructure Provision
1	Water	0	Unforeseen
2	Electricity	0	Unforeseen
3	Gas	0	Unforeseen
4	Telecommunication	0	Unforeseen
5	Main road	Not checked	-
6	Side road	Not checked	-
7	Airport	Not checked	-
8	Port	Not checked	-
9	Railway Station	Not checked	-



Figure (5): Access routes to the project

3) Technical specifications of the project

3-1- Product

Sugar beet is one of the main cultivated agricultural products in the world. This plant belongs to the spinach family and is cultivated as an annual plant. Sugar beet usually has good growth and quality in mountainous climate. The length of the sugar beet growth period is estimated to be 6 to 9 months in order to extract sugar.

Sugar beet with its side products has many uses in other industries. Some of the by-products of sugar beet are: pomace, molasses, silage and cellulose.

Sugar beet pomace and molasses are byproducts of sugar production. In the process of producing sugar from sugar beet roots, two valuable edible substances are obtained, namely sugar beet pomace and molasses. These two side products are used in the preparation of animal feed due to their high fiber content. Slag and molasses can be used separately or mixed with other foods, dried or processed, in the preparation of all kinds of animal feed.

Dry pomace is prepared in two ways, impregnated with molasses or without molasses, which is suitable for feeding ruminants. Because of its high energy content, sugar beet pomace is used for feeding dairy cows and also for rearing lambs. Molasses is the juice that remains after processing sugar beets. Molasses is usually diluted to 75% dry matter and then sold in the market. One of the important substances that can be extracted from beet molasses is sugar, alcohol and disinfectant.



Figure (6): Sugar from sugar beet



Figure (7): sugar beet plant



Figure (8): Sugar beet pomace for animal feed

3-2- Project Requirement

3-2-1- Land And Required Infrastructure

For the production of beet sugar, land with an area of 320,000 thousand square meters and construction infrastructure (sole and other buildings) of production amounting to 20,600 meters are needed. The specifications of the land, main buildings and other required side buildings and investment in them are as described in the table below.

Table (2): Amount of investment in land, landscaping and building

No.	Requirements	Description	Investment Required		Total Cost (Million Rials)
			Required Area	Unit Price of Purchase/Construction	
1	Land purchase 800 * 400	32 hectares of national lands or private sector lands	320,000	0	0
2	Site preparation and development	According to relative calculations	299,400	4,870,407	1,458,200
3	Civil works, structures and buildings	Production building(height12)	9,900	150,000,000	1,485,000
		Office and management building	700	120,000,000	84,000
		Other buildings (warehouse, etc.)	10,000	120,000,000	1,200,000
Total			-	-	4,227,700

3-2-2- Plant Machinery and Equipment

Table (3): Plant Machinery and Equipment

No.	Equipment/ Machinery	Electricity consumption (kWh)	Total	working day of the year	The function of the aperture	Required investment			Total cost (Million Rials)
						Amount	Purchase Price	Currency	
1	Sugar production line from sugar beet	1,500	1	300	24	1	7,000,000	euro	3,808,000
Total		1,500		10,800,000		-	-	-	3,808,000

Table (4): Auxiliary and service plant Equipment

No.	Equipment/Machinery	Unit of measurement	Type of equipment	Required investment		Total cost (Million Rials)
				Amount	Unit Price (Million Rials)	
1	Distribution Of Electricity / Demand Price	Kw	Facility	2,500	6	15,000
2	Several Electrical Cables	M	Facility	4,000	4.0	16,000
3	Electrical equipment of the lighting system	Amount	Facility	825	40	33,000
4	The Cost of Panel Boards and Related Electrical Equipment	Amount	Facility	60	320	19,200
5	Water Branch	-	Facility	1	30,000	30,000
6	Other Water Conveyance Equipment	Amount	Facility	1	20,000	20,000
7	Piping for drinking water, fire water and...	M	Facility	3,000	8	24,000
8	Other plumbing (electricity, etc.)	M	Facility	1,500	3	4,500
9	Firefighting, Safety and Health Equipment, etc.	Capsule	Facility	150	30	4,500
10	Gas Piping	M	Facility	4,500	5	22,500
11	Gas Branching	-	Facility	1	60,000	60,000
12	Air conditioning equipment	Fan	Facility	60	36	2,160
12	Gas cooler	Set	Facility	20	700	14,000
13	Cooling tower	Set	Facility	2	50,000	100,000
14	3ton forklift	Machine	vehicle	1	17,500	17,500
15	5ton forklift	Machine	Vehicle	1	2,600	2,600
19	truck	Machine	Vehicle	1	25,000	25,000
20	pickup truck	Machine	Vehicle	2	8,000	16,000
21	car	Machine	Vehicle	3	7,000	21,000
22	Operation & laboratory Equipment	Machine	Equipment	1	50,000	50,000
23	safety equipment and CCTV System	Set	Facility	1	10,000	10,000
24	Office Equipment	Set	Office Equipment	9	800	7,200
25	Restaurant Equipment	Set	Office Equipment	254	30	7,620
27	Other Facilities	-	Facility	1	26,220	26,220
Total				-	-	548,000

3-2-3- Raw Materials

In the current plan, the main raw material for the production of products is sugar beet.

Table (5): Costs of Raw Material for Production

No.	Title	Production quantity at the practical maximum	Average price of unit (Rials)	Unit	the amount of Consumption	consumption coefficient unit	Amount of consumption in nominal capacity	The cost of materials at the nominal capacity (Million Rials)
1	Sugar beet	75,500	28,000,000	ton	7	ton	528,500	14,798,000
Total		-	-	-	-	-	-	14,798,000

3-2-4- Management and human resource

For the production of beet sugar, 264 human resources will be needed in the production, management and support department as described in Table (6).

Table (6): Management and Human Resource

No	Level of skill	Number of staff	Average basic salary
1	Senior	40	230,000,000
2	Mid-level	33	150,000,000
3	Junior	191	85,000,000

Number Of Direct Mid-Level Staff Required	33	Person
Number Of Direct Junior Staff Required	191	Person
Number Of Direct Senior Staff Required	40	Person
Total	264	person

4) Ownership and legal permissions

4-1- land ownership

The suitable place for the implementation of the project is in Shush city. The land purchase cost is not included in the current plan. Land ownership is subject to legal terms and conditions and will be available to investors after exploitation. In order to take the land in the desired location, it is necessary for the investors to obtain the legal permits mentioned in paragraph 3-4.

4-2- Intellectual Property and Concessions

In order to produce beet sugar, it is not necessary to use high knowledge and the relevant technical knowledge is available in the country. Of course, production must be in accordance with domestic standards.

4-3- Legal permissions

In order to produce this product, legal licenses such as (establishment license and exploitation license) are required from the Agricultural Jihad Organization or the Industry and Mining Organization of Khuzestan province, and an environmental license.

5) market research and competition

5-1- Target market introduction

The products of this plan include cube sugar (or sugar) from sugar beet. The total sugar beet produced in the country was 4.7 million tons in 1401. The total area under beet cultivation in the country was 92 thousand hectares this year. Meanwhile, the total area under sugar beet cultivation in Khuzestan province is 25,234 hectares and the total production of sugar beet in the province is over 1.5 million tons, and this shows that a major part of the area under cultivation and production is in Khuzestan province.

In the processing sector, the nominal capacity of two Khuzestan beet sugar factories (Ahvaz sugar factory (2.5 thousand tons), DEZFUL sugar factory (5 thousand tons)) is equivalent to 7,500 tons per year. In 1401, the total sugar produced by these two factories (from sugar beet) was a little over 33 thousand tons.

The total amount of sugar produced by sugarcane and beet factories in Khuzestan province is 2.2 million tons. In the table below, firstly, the area under cultivation and the amount of sugar beet production in the cities of Khuzestan province are shown.

Table (7): Characteristics of sugar beet production in Khuzestan province

province	city	Product	level	Production
KHUZESTAN	ANDIMESHK	Sugar beet	1,355.3	81,760
	BEHBAHAN	Sugar beet	14.4	1,087
	DEZFUL	Sugar beet	2,031.1	121,927
	SHADEGAN	Sugar beet	91.3	5,554
	SHUSH	Sugar beet	7,865.7	481,189
	SHUSHTAR	Sugar beet	1,259.2	70,897
Total			25,234.0	1,524,830

Table (8): active units that produce products of the plan

province	Unit Name	Capacity
Western Azerbaijan	AZAR GHAND NAGHADE	40,000
	SHAHD	45,000
	QAND PANIZ FAM (QAND MIANDOAB FACRORY)	25,200
	QAND HABE NEGIN CHAIPAREH	1,500
	QAND ORUMIEH	57,000
	QAND PIRANSHAHR Factory	45,000
	Food and souvenirs of SHAHIN DEJ	120,000
ISFAHAN	AGHAJANI PUSHARAKI - HOSSEIN	160
	QAND ISFAHAN	14,000
	QAND KARKAS KAVIR- COMPANY	1,250
	QAND NAGHSHE JAHAN	30,000
ALBORZ	MOHAMMAD TAQI SHEIKH ALISHAHI VA MOHAMMAD HOSSEIN KAZEMPOUR	1,000
TEHRAN	Development and trade of QAND KHARAZMI	16,500
CHAHARMAHAL VA BAKHTIARI	FARAVARDE GHAZAYI VA QAND CHAHARMAHAL	20,000
South Khorasan	QAND GHAHESTAN JOINT STOCK	13,115
	QAND TORBAT HEYDARIEH STOCK (JOINT STOCK)	59,000
KHORASAN RAZAVI	FARAQVARDE GHAZAYI VA GHAND TORBAT JAM	20,000
	QAND CHENARAN	6,500
	QAND SHIRIN	46,000
	QAND NEISHABOUR	52,200
	SABET KHORASAN	50,000
	JOVIN Agriculture and industry	67,000
	North Khorasan	QAND SHIRAVAN, GHUCHAN, BOJNURD
KHUZESTAN	ASAL QAND ABADAN	3,250
	PADIDE BAZARGANI ARVAND	10,400
	KARKHANE QAND VA TASFIE SHEKAR AHVAZ	45,000
	IMAM KHOMEINI	100,000
	HAKIM FARABI KHUZESTAN	100,000
	DANIAL TAMIN SEPEHR	37,500
	SALMAN FARSI	100,000
	KARUN	380,000
	MIRZA KUCHAK KHAN	107,000
	NEYSHEKAR DEHKHODA	1,100,000
	AMIRKABIR	100,000
DEBEL KHOZAEI	100,000	
ZANJAN	RASOOL AND MOHAMMAD HOSSEIN ROSTAMKHANI complete	3,500

province	Unit Name	Capacity
	GOLPAK GHONCHE	1,600
SEMNAN	SHEKAR	54,750
FARS	BITA QAND KAZERUN	900
	QAND EGHOLID	547,500
	QAND PARS	14,000
	QAND HABE SETARE KAZERUN	8,250
	QAND MARVDASHT	602,250
	QAND MAMSANI ROSTAM	50,000
	QAND MINO FESA	10,000
	QANDKALLE VA HABE MORVARID BEIRAM EAHAMTOLLAH	150
	SHRAF	300
QAZVIN	QAND QAZVIN	36,000
	KIMIA QAND AZAR	3,120
	ZIYAODIN AL ESHAQ	50
QOM	ZIYAODIN AL ESHAQ	50
KERMAN	AHMAD KALANTARI POUR	1,750
KERMANSHAH	QAND PANIZ PHAM- QAND ISLAMABAD QARB FACTORY	14,000
	QAND BISTUN	37,500
KOHGELOYE VA BOYER AHMAD	QAND YASUJ	9,000
LORESTAN	QAND LORESTAN	26,600
MAZANDARAN	QAND SAVAD KUH 775	18,000
	SHEKAR SORKH MAZANDARAN	60,000
HAMEDAN	QAND HEGMATAN	50,000
YAZD	QAND VA SHEKAR MEYBOD	82,000
Total		4,604,795

Table (9): active units producing plan products

province	Unit Name	Capacity
Western Azerbaijan	SHEKAR KHAM DERAKHSHAN	600,000
	ALAN SARSABZ SARDASHT	56,000
ILAM	QAND MORVARID MAHABAD	56,000
	QAND MORVARID KHALIJ FARS	280,000
CHAHATMAHAL VA BAKHTIARI	QAND CHARMAHAL	180,000
KHORASAN RAZAVI	KAMELAN	2,000
NORTH KHORASAN	HOSEIN KAMALI	3,000
	SHAHRAM ZAKARIYAYI SANI	3,000
	ESMAT KALATE ARABI	3,000
	MOHAMMAD REZA GHARAYI	3,000
KHUZESTAN	EHSAN ASGARI POUR	1,000
	TAFAKOR DERAKHSHAN KHAVARMIANEH	1,000
	SRAMAD QAND KHUZESTAN	3,000
	SHAHD AFARIN NITA	600
	FANI GOSTAR KHUZESTAN	70,000
	QAND SHOHADEYE DEZFUL	195,000
	MIAN AB	40,000
FARS	HAMIDREZA ARMAN	500
QAZVIN	QAND QAZVIN	2,000
KORDESTAN	PEIMAN ABDOLLAHI	3,500
	SHORESH SAHRAE ALI VARDI	2,000
KERMANSHAH	CHAHAR FASL KALHAR	50,000
	SAJAD RAHIMI	20,000
	MOHAMMAD TANHA	80,000
MAZANDARAN	SHAYAN GHORBAN ZADEH	1,000
YAZD	QAND VA SHEKAR MEYBOD	6,000
Total		1,605,600

8) Financial Plan

8-1- Cost Estimation

Generally, there are two ways to fundraise for this project, fixed capital and initial working capital. The required investment before utilization is provided through fixed capital. Initial working capital will be used during utilization. Fixed capital includes, purchasing land, construction and landscaping, machinery and equipment, facilities, office stuff and pre-production costs. These types of costs are incurred at the beginning and before operation and are consumed during the life of the project according to their service life. Working capital includes the capital required during the operation of the project. The working capital of a production unit is the set of facilities, inventories and work in progress, as well as the liquidity required for the exploitation of fixed capital in order to maintain the operation.

Determining the basic amount for inventories, work in progress and claims depends on the supply, production and sales capacity and business environment. In this section, the evaluation and estimation of the required investment (based on the price of the base year 1402 SH) is proposed.

Table (11): Cost Estimations

No.	Subject	Amount (Million Rials)
1	Total Fixed Investment Costs	8,482,490
2	Total Net Working Capital Requirements	1,189,829
3	Total Production Costs (Annual)	16,671,508
4	Depreciation	735,230
5	Total Investment	9,672,319

Table (12): Fixed Capital Estimations (Capital Costs)

No.	Subject	Cost (Million Rials)	
1	Purchasing land	0	
2	Landscaping and land improvement	1,458,200	
3	Civil operations and construction of buildings	2,769,000	
4	Production machinery and equipment	3,160,717	
5	Service equipment	548,000	
6	Protection and environmental equipment	0	
7	Overhead costs	0	
8	Pre-production costs as described in Table (14).	Pre-investment studies	12,650
		Project management and organization	107,462
		Technology education	29,578
9	Unexpected costs	396,883	
Total		8,482,490	

The primary items included in working capital are:

- Raw materials (local and foreign): To prevent any interruptions in production process, production capacity, source and method of supplying materials, length of time during ordering and receiving materials, time of delivery and transportation, the amount of required raw materials, auxiliary materials and packaging are determined as one of the working capital items for one period. In this project, the material inventory coverage period is equal to 30 days.
- Finished product and work in progress: Considering the steps and methods of production, the required time for production and storage has been determined and the related costs are considered as working capital. In this plan, the coverage period for finished product and work in progress are 3 and 5 days, respectively. With this in mind, the total stock in hand is equal to 38 days.
- Claims of expected funds from sold products that are collected in a short period of time. The duration for expected funds must be determined. According to the economic condition of Iran, cash is preferred.
- Revolving fund to finance the company's current expenses is considered as cash balance or revolving fund for a period of time in working capital based on production costs (without considering the cost of raw material production and depreciation). 60 days is considered in this plan.

Table (13): Total Net Working Capital Requirements (Production Costs)

No.	Subject	Amount (Million Rials)
1	Raw Materials Inventory	1,027,639
2	Work In Progress	0
3	Finished Product	0
4	Accounts Receivable	0
5	Cash-In-Hand	162,191
6	(Commercial Accounts Payable)	0
Total Net Working Capital Requirements		1,189,829

Table (14): Pre-Production Expenditure

No.	Subject	Description	Total (million Rials)
1	Incorporation	-	150
2	Obtaining Licenses / Production License	-	3,000
3	Studying, Consulting, Research and Development, Traveling, Visiting and Participating in Local Exhibitions, etc.	1.5 thousandth of the investment costs of the project	12,650
4	Property Insurance	2 thousandth of depreciable fixed assets	16,670
5	Survey Fee, Financing, Contract and So On	Survey fee 0.5 thousandth, other 2.5 thousandth	0
6	Cartography, Supervising	2 thousandth of contract expenses	14,780
7	Other's	Staff Training	Equivalent to 7 days of Staff salary
		Wages And Salaries During the Construction	Equivalent to the salary of 7 personnel in 24 months
		Other Expenses	≈2.0
Total			149,690

8-2- Sales Revenue

In the current plan, the total sales amount of the plan in 1406 at the fixed prices of 1402 is estimated to be 16,916 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 21,158 billion Rials.

Table (15): Project Revenue in The First 5 Years of Production Phase (Billion Rials)

No.	Subject	Q ₁	Q ₂	Q ₃	Q ₄	Total 1 st Year	Total 2 nd Year	Total 3 rd Year	Total 4 th Year	Total 5 th Year
1	Sugar loaf from sugar beet	330	330	330	330	1,320	1,485	1,650	1,650	1,650
2	Sugar from sugar beet	3,570	3,570	3,570	3,570	14,280	16,065	17,850	17,850	17,850
3	dry waste	42	42	42	42	166	187	208	208	208
4	molasses	288	288	288	288	1,150	1,300	1,450	1,450	1,450
Total		4,229	4,229	4,229	4,229	16,916	19,037	21,158	21,158	21,158

8-3- Length of Production Phase

The construction period of the plan is 36 months and it is considered to start from April 1403. The duration of the project is considered to be 5 years.

Table (16): Planning Horizon

Title	Month	-	year	Length of construction phase (months)	Start of phase (months)	Length of production phase (years)
Project identification	1	/	1402	36	12	5
Beginning of construction phase	1	/	1403			
Beginning of production phase	1	/	1406			
End of production phase	12	/	1410			

8-4- Break-Even Analysis

From an economic point of view, break-even point analysis is an important technique that is used to study the relationship between costs, income and profit. The break-even point is the point at which total cost and total revenue are equal. In other words, it is used to analyze the effect of product volume change on the profit. The break-even point is calculated for 100% of practical capacity (year 1408SH onwards) below.

$$\text{Break-even sales value (Rials)} = \frac{\text{Total fixed costs}}{1 - \frac{\text{Total variable costs}}{\text{Sales value}}}$$

$$\text{The number of sales at the break-even point} = \frac{F_c}{S - V_c}$$

FC = Total Costs VC= Average Variable Costs Q = Quantity of Sales S = Unit Price

$$\text{Break-even sales value} = \frac{1,243,983}{1 - \frac{15,431,130}{21,158,000}} = 4,595,912 \text{ (Million Rials)}$$

$$\text{The number of sales at the break-even point} = \frac{1,243,982,811,000}{313,451,852 - 228,609,339} \approx 14,662 \text{ kilos}$$

$$\text{Break-even ratio (\%)} = \frac{4,595,912}{21,158,000} = 21.7\%$$

Table (17): Project break-even point estimation (Million Rial)

Title	Production 1406	Production 1407	Production 1408	Production 1409	Production 1410	Production 1411
Sales revenue	16,916,400	19,037,200	21,158,000	21,158,000	21,158,000	325,350
Variable costs	12,385,848	13,908,489	15,431,130	15,431,130	15,431,130	229,986
Variable margin	4,530,552	5,128,711	5,726,870	5,726,870	5,726,870	95,364
Variable margin ratio (%)	27	27	27	27	27	29
Fixed costs	1,197,912	1,220,948	1,243,983	1,235,773	1,221,976	63,113
Break-even sales value	4,472,825	4,532,021	4,595,912	4,565,580	4,514,607	215,320
Break-even ratio (%)	26.4	23.8	21.7	21.6	21.3	66.2

- According to COMFAR Results

Based on the calculations of COMFAR software, the break-even point including operating and non-operating costs, is 4.85 thousand billion Rials and it will be achieved in the 21.7% of the practical capacity.

In the mentioned formula, the break-even point is determined by the relationship between fixed costs and the difference between unit sales price and unit variable costs. Therefore, three practical results are obtained from it:

- The higher the fixed costs, the higher the break-even point.
- The greater the difference between unit sales price and variable operating costs, the lower the break-even point. In this case, fixed costs are absorbed faster through the difference between unit sales price and unit variable costs.
- One of the break-even points is disproportionate. Since it makes the company vulnerable to changes in production (sales) levels.

8-5- Cost-Benefit Analysis

In project analysis, one of the most common methods is the **Benefit-Cost Ratio**. In this method, the ratio of the current value of possible benefits to the current value of costs is obtained. If this ratio is greater than one, the plan has economic justification for implementation. In terms of this index, the plan has favorable conditions.

Net Present Value is one of the other evaluation methods which is calculated according to the following relationship:

$NPV = \text{The Present Value of The Total Cost of The Period of Construction Phase and Production Phase} - \text{The Present Value of The Total Income of Construction Phase and Production Phase}$

$NPV = \text{The Present Value of The Fixed Assets Depreciation} + \text{Initial Investment} - \text{The Present Value of The Future Cash Flows}$

The **net current value** of the project at a discount rate of 20% is over 5,892 billion Rials, which shows that the project is economically feasible.

One of the other methods of evaluating investment plans **internal rate of return**. In fact, the internal rate of return is the interest rate or the discount rate in which the current value of all the plan benefits is equal to the current value of its expenses.

According to the calculations, the internal rate of return of the project is estimated at 31.1% and compared to the Minimum Attractive Rate of Return, it is favorable.

Table (18): Project Return Index

Index	Amount	Unit of measurement
The Present Value of The Total Cost of The Period of Construction Phase and Production Phase	38,313,999	Million Rials
The Present Value of The Total Income of Construction Phase and Production Phase	45,016,709	Million Rials
NET PRESENT VALUE (NPV)	6,702,710	Million Rials
Cost-benefit RATIO (B/C)	1.17	-
INTERNAL RATE OF RETURN (IRR)	33.3%	Percent
NPV RATIO (PI)	0.50	Rial per Rial of investment
NORMAL PAYBACK	2.17	Year

Profitability Index (PI) indicates how much economic profit will be obtained for each unit of money invested during the lifetime of the project.

Project Investment payback is the period of time required to recover the project investment from net income, measured in years. In other words, it shows the length of time taken for the initial investment to be returned. This index shows the speed of investment return and the amount of project risk coverage. The ROR (simple) of the plan is estimated to be 2.17 years (equal to the year 1410) according to the calculations.

8-6- Sensitive Analysis

In the sensitivity analysis of the plans, the percentage of changes in the internal rate of return (IRR) is measured in relation to the change in some basic parameters and variables. In this plan, the analysis has been carried out by major variables such as sales, fixed and operating costs. Table (19) shows the results of the sensitivity analysis regarding the variables of sales income, fixed assets and operating costs.

8-7-1- Sales Revenue

Changes in sales revenue are mainly caused by alteration in two variables: planned sales amount and product sales price. The results of the sensitivity analysis regarding sales income show; 4% increase in sales revenue of the plan, the internal rate of return will increase from 33.3% to 36%. On the contrary, in the case of a 4% decrease in sales revenue, the internal rate of return of the project will decrease to 26%.

Table (19): Sensitivity Analysis (Percentage of IRR changes caused by sales revenue, fixed assets and operating costs alteration)

Variation (%)	Sales revenue	Increase in fixed assets	Operating costs
20%-	1%	39%	48%
4%-	26%	32%	35%
0%	33.3%	33.3%	33.3%
4%	36%	30%	27%
20%	52%	26%	10%

8-7-2- Fixed Assets

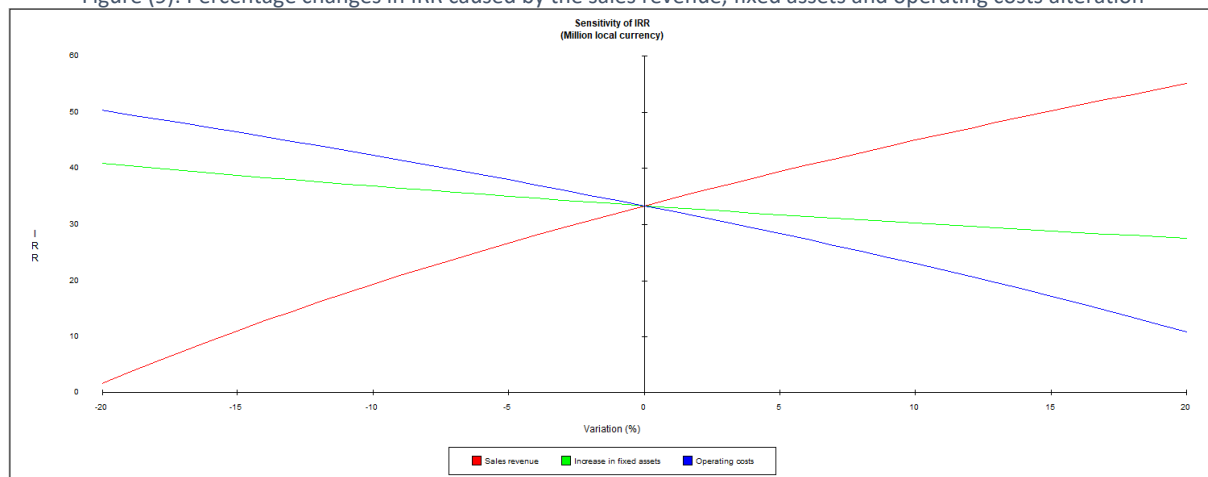
The change in the fixed assets is due to the fixed costs of the initial investment alterations. The results of the sensitivity analysis according to the fixed costs of the plan have been done and it shows that in case of an unexpected 20% increase in the fixed capital costs of the project, the internal rate of return will decrease from 33.3% to 26%. Conversely, if there is a 20% reduction in the fixed capital costs, the internal rate of return will increase and reach 39%.

8-7-3- Operating Costs

The operating costs of the plan is one of the crucial items in terms of sensitivity analysis regarding its changes. Therefore, unexpected and possible changes should be investigated.

The change in project operating costs is mainly caused by changes in raw material, supply, human resource and finally changes in other overhead costs of projects. If these parameters change, it can be as a result of the change in the technical coefficients of product production or the change in their purchase price. The sensitivity analysis indicates that in case of a 20% increase in the operating costs, the efficiency rate of the plan will decrease to 10%. On the contrary, if the total operating costs of the project are reduced by 20%, the internal rate of return will increase to 48%. Finally, the results of the sensitivity analysis show that the current project has a very high sensitivity to changes in sales revenue (changes in sales amount or sales price) and more considerations should be taken in this regard.

Figure (9): Percentage changes in IRR caused by the sales revenue, fixed assets and operating costs alteration



As you can see, the slope of the IRR change curve is higher relative to the changes in sales revenue compared to other items while the slope of the IRR change curve is lower relative to the changes in fixed assets, which indicates the greater sensitivity of the plan's internal rate of return to sales revenue and its lower sensitivity relative to operating costs and fixed assets.

8-7- Conclusion

The implementation of the project is planned by acquiring a land with an area of 320,000 square meters and carrying out construction in the substructure of 20,600 square meters. The total investment in land and building is estimated at 4,227 billion Rials and the total investment in main and auxiliary equipment is estimated at 4,785 billion Rials. The total costs before operation are estimated at 153 billion Rials. Including this, the total fixed capital required amounts to 9,166 billion Rials and the total working capital required for the plan is 1,192 billion Rials. The total investment of the project is expected to come from the sources of the company's shareholders.

The project is expected to be sold in 1406 at fixed prices equal to 16,916 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 21,158 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1406 is equivalent to 3,258 billion. The profit will increase in the following years and will reach a maximum of 4,429 billion Rials. The average annual profit of the plan is 2,855 billion Rials and the average profit margin is expected to be 20.4%. The internal rate of return (IRR) of the project is estimated at 31.1% and the payback period (PBP) is estimated at a maximum of 5.30 years. Also, the net present value of the project's cash flows (NPV) is positive and, considering the expected interest rate of 20%, is equal to 5,893 billion Rials.

The liquidity status of the plan and the payment of dividends to the shareholders from the company's funds are also suitable. Therefore, if the assumptions and predictions are fulfilled, the plan under consideration has favorable profitability and according to the financial results obtained, its implementation is recommended. The economic discussions of the plan are summarized as follows.

Table (20): Summary of Economic Features

Nominal Capacity and Unit of Measurement	Product Name	Title Of the Project with ISIC Code	Title Of the Project
75000 Ton	Refined sugar from sugar beet - sugarloaf from refined beet sugar - dry beet pomace, beet molasses	70,000 tons of refined sugar from sugar beet with code (1542412308) 5,000 tons of refined sugar from beet sugar with code (1542512321) 26,000 tons of dry beet pomace with code (1542512336) 29,000 tons of beet molasses with code (1542512332)	Beet sugar production plan
Required Human Resource (Person)	Equity Shares (Million Rials)	Total Fixed Capital (Million Rials)	Project Duration
254	1,189,829	8,482,490	36
B/C	Applicant Available Cash (Million Rials)	Net Present Value (NPV) (Million Rials)	IRR (%)
1.2	9,672,319	6,702,710	33.3%
ROI (%)	NPV Ratio / Profitability Index (Rial per Rial invested)	Dynamic Payback Period (Year)	Normal Payback Period (Year)
32	0.50	3.58	2.17
Average Assets Turnover Ratio	Average Net Profit Margin (%)	Average Annual Profit (Million Rials)	Maximum Annual Sales (Million Rials)
1.01	20.8%	2,966,808	21,158,000

8-8- Estimation of currency rate fluctuation during the project implementation

The currency rate at the time of evaluation is included as described in Table (21). The purchase and sale prices are determined with the energy exchange transactions and are adjusted to a large extent under the influence of the currency rate increase.

Therefore, currency rate fluctuations regarding the purchase of foreign equipment will be compensated to some extent by the income from sales which will have a little effect on the evaluation results. So, in the construction and implementation phase, if the financing of the project provided through foreign currency sources, the amount of required investment will not change much.

Table (21): Currencies exchange Rate

Unit of Measurement	Unit Price	Currency
Rials	413,204	USD
Rials	451,531	EURO

Exchange rate of Central Bank, Exchange Trading System (ETS) dated 05/25/1402

9) Investment Required, method of fundraising and guarantees

9-1- Foreign Currency Required

The total fixed capital of the plan is Riyal. The total investment of the project is estimated at 21.4 million euros. From this figure, 7 million euros is expected in foreign currency, which is planned to be paid within three years (36 months according to the physical progress of the project).

Table (22): Foreign (Fixed) Currency Required

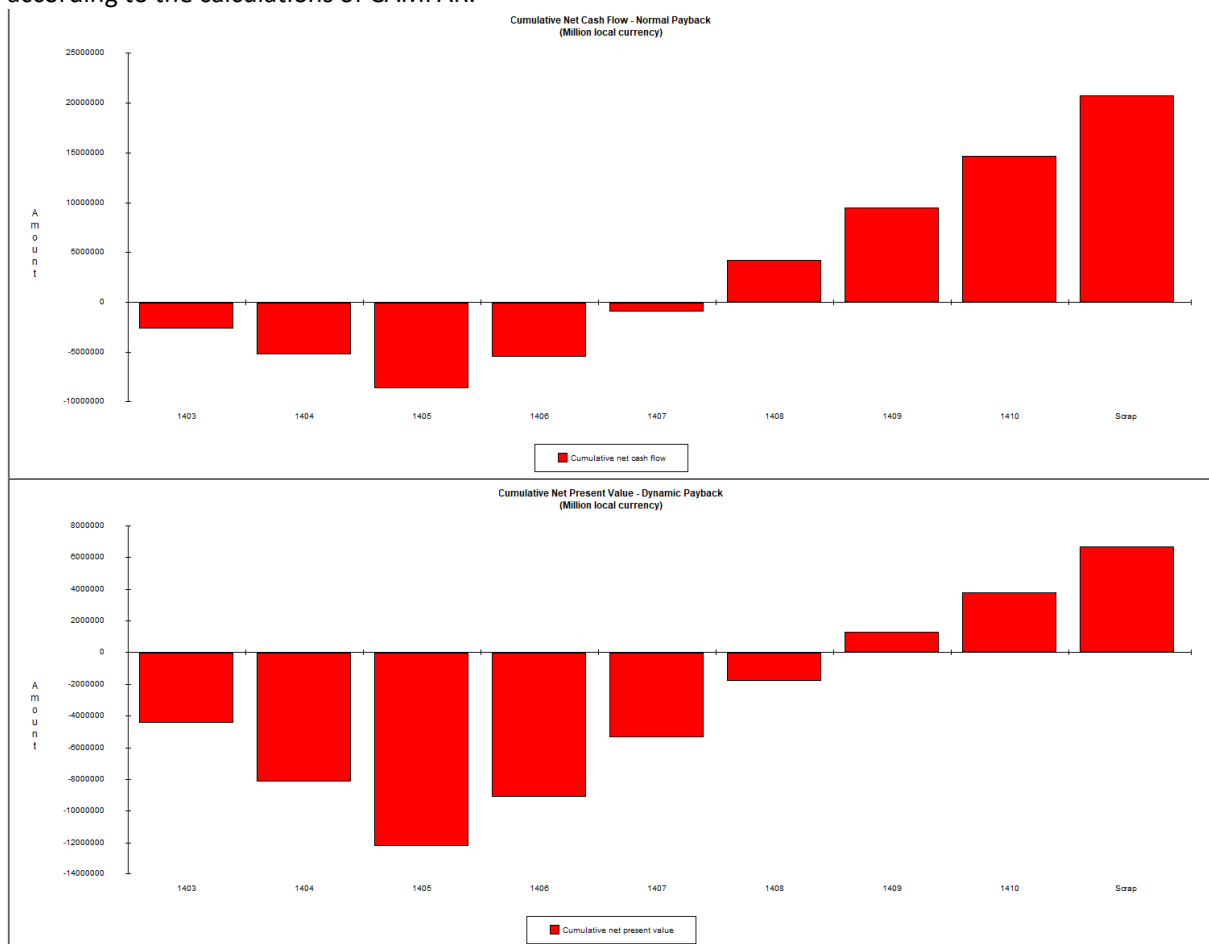
No.	Year	Required Investment
1	Year 1	2,100,000
2	Year 2	2,100,000
3	Year 3	2,800,000
4	Year 4	0
5	Year 5	0

9-2- Model Of Partnership and Fundraising

Participation in the present project and its financing is foreseen in the form of establishing a company inside the country. The total financial resources needed are predicted through the investor's contribution and have not been included in order to implement the facility plan of domestic banks.

9-3- Payback Period

The payback period is the period of time when the initial investment of the plan is compensated from the annual cash funds. The payback period (simple) of the plan is estimated to be 2.17 years (equal to 1410) according to the calculations of CAMFAR.



Dynamic Payback Period of the plan is also estimated at 3.58 years.

10) Incentives, features and benefits of the plan

Some of the financial supports for production companies are loans and bank facilities and tax exemptions which can facilitate the project implementation and provide the favorable condition for investment. In the following, some of these supports will be discussed.

One of the important bank facilities for production units is the long-time repayment period loans up to 70% of fixed capital by the Iran's state banks. This amount can be increased up to 90% for deprived areas if foreign machinery is used. The interest rate of long-term facilities in the industry sector is 23%, which in case of financial prudence, only a part of the interest can be repaid. The repayment period of long-term bank facilities is up to 8 years according to the production plan, the type of technology and the possibility of product exportation.

Another important bank facility is short-term bank loans (6 to 12 months) to use as working capital needed to carry out production processes, which will be provided up to 70% by bank communities. Obtaining short-term facilities to this extent depends on gaining the trust of the operating banks and having an acceptable financial history.

Tax exemption is another incentive for investors to establish factories. To name a few;

- Tax exemption for up to 10 years for implementation in deprived areas
- Tax exemption for up to 4 years for implementation in industrial towns

Investments in the project during implementation is of the investments in developed towns with industrial and mining activities. Since it is located within 30 kilometers of cities with more than 300,000 people, it doesn't have any tax exemption. But if it establishes in another industrial town within a range of more than 30 kilometers from cities with a population of more than 300 thousand people, it can get exempted from Article 132 of the Direct Taxes Law and up to 80% until four years after the date of operation from Article 105 (Direct Taxes Law)¹.

So, the effective performance tax rate (annual profit) can be reduced to 4% in the first 4 years, and then it will be considered on the basis of 20%. Obviously; If the project location is in one of the deprived areas, it will be subject to 10 years of 100% exemption.

If the produced Manufactured products (provided that it is in excess of the local market) can be exported to foreign markets, it can be exempted from Article 141 and 100% of the income from exports is exempt from taxes.

Obviously, If the legal personality of the partnership is defined as a public company accepted in the stock exchange market during its operation (in such a way that its shares can be traded with stock brokers), this type of company is subject to Article 143 of the Direct Taxes Law and up to 10% of the company's tax will be exempted.

1 - The exemptions of this article will not include the income of production and mining units located within a radius of 120 kilometers from the center of Tehran and 50 kilometers from the center of Isfahan, 30 kilometers from the centers of provinces and cities with more than 300 thousand people (according to the latest census).

(Attachment Number 2)

Summary Sheet

Project introduction	
1. Project Title:	Beet sugar production plan
2. Sector:	Production sub-sector: agriculture
3. Products/services:	Beet sugar production
4. Location:	Khuzestan province- Shush - Shush Industrial Estate
5. Project description:	<p>The implementation of the project is planned by acquiring a land with an area of 320,000 square meters and carrying out construction in the substructure of 20,600 square meters. The total investment in land and building is estimated at 4,227 billion Rials and the total investment in main and auxiliary equipment is estimated at 4,106 billion Rials. The total costs before operation are estimated at 150 billion Rials. Including this, the total fixed capital required amounts to 8,482 billion Rials and the total working capital required for the plan is 1,190 billion Rials. The total investment of the project is expected to come from the sources of the company's shareholders.</p> <p>The project is expected to be sold in 1406 at fixed prices equal to 16,916 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 21,158 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1406 is equivalent to 3,333 billion. The profit will increase in the following years and will reach a maximum of 4,505 billion Rials. The average annual profit of the plan is 2,906 billion Rials and the average profit margin is expected to be 20.4%. The internal rate of return (IRR) of the project is estimated at 33.3% and the payback period (PBP) is estimated at a maximum of 2.17 years. Also, the net present value of the project's cash flows (NPV) is positive and, considering the expected interest rate of 20%, is equal to 6,703 billion Rials.</p>
6. Annual Capacity:	75000 ton

Project Status	
7. Local/internal raw material access:	100%
8. Sales:	21,158 billion Rials
Anticipated local market:	100%
Anticipated export market:	0%
9. construction period:	36 months
10. project status:	<ul style="list-style-type: none"> - Feasibility study available? Yes. The feasibility of the project has been evaluated from different aspects and the results of the feasibility study are favorable in terms of market, engineering, financial and economic indicators. - Required land provided? Yes. Currently, there is industrial land in Shush Industrial Estate, and it has been selected based on geospatial criteria for the implementation of the project. - Legal permission (establishment license, foreign currency quota, environment) taken? Currently, in order to settle in the industrial estate, it is necessary to obtain legal permits from the Organization of Industry, Mining, Trade and Environment of Shush city. - Partnership agreement concluded with local/foreign investor? No. So far, no partnership agreement has been prepared for the implementation of the plan. This plan has the necessary features to attract shareholders' financial resources. - Agreement with local/foreign contractor(s) concluded? No. so far, no agreement or contract has been concluded for the purpose of manufacturing domestic and foreign machinery. - Infrastructural utilities procured? If the project is established in Shush Industrial Estate, infrastructure facilities such as water and electricity, roads, etc. are available. - List of know-how, machinery and equipment concluded? In order to produce beet sugar, it is not necessary to use high knowledge and the relevant technical knowledge is available in the country. Production must be in accordance with domestic standards. - Financing agreement for machinery, equipment and know-how concluded? No

Financial structure

11. Financial table:

Description	Local Currency Required			Foreign Currency Required	Total Euro
	Million Rial	Exchange Rate	Euro		
Total Fixed Investment Costs	5,321,773	451,531	11,786,063	7,000,000	18,786,063
Total Net Working Capital Requirements	1,189,829	451,531	2,635,100	0	2,635,100
Total Investment	6,511,602	-	14,421,164	7,000,000	21,421,164

- Value Of Foreign Equipment/Machinery:	7,000,000	Euro		
- Value Of Local Equipment/Machinery:	1,213,649	Euro		
- Value Of Foreign Technical Know-How:	0	Euro		
- Value Of Local Technical Know-How:	0	Euro		
- Net Present Value (NPV):	14,844,407	Euro	Net present values discounted to:	1403
- Internal Rate of Return (IRR):	33.3%	%		
- Normal Payback:	2.17	year	Equivalent to	26.04 months
- Minimum Attractive Rate of Return:	20%	%		

General information

12. Project Type: new Project Explanation / Rehabilitation project
 Name / Company name: -
 Address: Khuzestan province- Shush - Shush Industrial Estate
 Tel: 00989166035912 Fax:
 Email: a.taheri58@gmail.com Website:
 Local entrepreneur: Private Sector government /public sector