

Islamic Republic of Iran
Organization for investment economic and technical assistance of Iran

"Summary of technical-economical prefeasible study"

The name:

Preliminary Feasibility study of greenhouse products production in Ghasr-shirin district of
Gandam- Ban

Sector: Agriculture

subsector: Greenhouse

ISIC code: 07020020

The owner of:

Ministry of economic affair and finance

Counselor plan:

Razi University

The ADDRESS:

Ghasre -Shirin, Kermansh province, Iran.

Date of P.F.S:

6th, September, 2024

**Manager of Iran Investment
Opportunities
SHAHRIG Engineering Company**

shahrig.comwww.



Abstract:

PROJECT PROFILE - SUMMARY SHEET

Project Introduction			
1- Project title: Preliminary Feasibility study of greenhouse products production in Ghasr-shirin district of Gandam - Ban			
2- Sector: Agriculture		Sub Sector: Greenhouse	
3- Products / Services: Tomato, Pepper and cucumber.			
4- location (address):			
Free Zone <input type="checkbox"/>	Economic Special Zone <input type="checkbox"/>	Industrial Estate <input type="checkbox"/>	Main Land <input checked="" type="checkbox"/>
5- Project description:			
<p>This project is considered as the largest greenhouse town in the west of the Iran. The total area of the land is 487 hectares, of which 300 hectares are cultivated, which will be implemented in three phases, the first phase of which is 100 hectares, which is intended to cultivate three crops: tomatoes, bell peppers, and cucumbers with a capacity of 70,000 tons of products. The employment rate of people in this project is considered to be about 3000 thousand people. Currently, some of the required infrastructure, including water storage pool, pumping station, water distribution network, and access roads for part of the project have been provided, and the issue of constructing a guard building and fencing the project is currently being implemented. About 7.5 megawatts of electricity are planned, of which 2.5 megawatts are enough for the first phase. This project does not have a gas license yet. Access to the main electricity and gas line is about 15 km. Due to the proximity to customs and border markets, it is expected that 60% of the produced products will be exported and 40% will be used domestically. All the raw materials needed for the project, including galvanized iron in different dimensions and sizes, UV nylons, greenhouses, skeleton parts and connections, and water supply for the project can be provided in the country. The ownership of the land belongs to the Agricultural Settlements Company affiliated to the Ministry of Agricultural Jihad, and if the plan is fully implemented, the ownership will be transferred to the investor in the form of a lease agreement on the condition of ownership. The investor can pay the initial price of the transferred land in 6 installments. monthly and within 3 years, and in case of implementation of the project and its exploitation in the form of a lease contract, on the condition of acquiring the ownership of the</p>			

land. There is an environmental limitation of air heat in the summer for the implementation of this project, so the investor should consider the costs related to the cooling of the greenhouses under cultivation in case of cultivation in the summer.

Project Status

6- Local / internal raw material access : Yes

7- Sale: 7,503,450 million Rial

- Anticipated local market: 40% of products are sold in the domestic markets of the Kermanshah and neighboring provinces

- Anticipated export market: 60% of production are export in the foreign market like Iraq, U.A.E., Russia, Armenia, ...

8 – Project total time (from start of activities to start of commercial operation in years) :38 months

Schedule	Start of activities: 2024
	Start of works at site: 2024
	End of Works: 2025
	Start of commercial operation: 2026

9- Project status :

- Feasibility study available?	<u>Yes</u>	No
- Required land provided?	<u>Yes</u>	No
- Legal permissions (establishment license, foreign currency quota, environment, etc) taken?	<u>Yes</u>	No
- Partnership agreement concluding with local /foreign investor?	Yes	<u>No</u>
- Financing agreement concluding?	Yes	<u>No</u>
- Agreement with local /foreign contractor(s) concluding?	Yes	<u>No</u>
- Infrastructural utilities (electricity water supply, telecommunication, fuel, road, etc) procured?	<u>Yes</u> , except fuel	No
- List of know- how, machinery, equipment, as well as seller /builder companies defined?	<u>Yes</u>	No
- Purchases agreement machinery, equipment and know-how concluded?	Yes	<u>No</u>

Financial Table

10- Financial structure :

Descriptions	Local Currency Required			Foreign Currency Required Million Euro	Total Million Euro
	Million Rials	Rate	Equivalent in Million Euro		
Fix Capital	3,758,593.5	700000	5.369	5.369	5.369
Current Capital	528,570	700000	0.755	0.755	0.755
Total Investment	4,287,163	700000	6.124	6.124	6.124

- Value of foreign equipment / machinery0..... Million Euro
- Value of local equipment / machinery0.380..... Million Euro
- Value of foreign technical know-how.....0..... Million Euro
- Value of local technical know-how.....0.30..... Million Euro
- Net present value (NPV):14.86..... Million Euro
- Internal Rate of Return (IRR):63.38.... %
- Capital Rate of Return:29.92.... %
- Payback Period : 4 years and one month

General Information11 - Project type : Establishment ☒Expansion and completion ☐**12- Company Profile**

- Name (Legal/Natural persons) : Razi University
- Company's current activities
- Address : Razi University, Taq-e Bostan, Kermanshah, Iran
- Tel : 988334277605-6
- E-mail : nfo@razi.ac.ir
- Web Site : <https://en.razi.ac.ir/home>
- Company's legal structure :
- Government ☒ Non-Governmental ☐ Public non-governmental ☐

1- Project's location:

2-1- Province: Kermanshah

Kermanshah province, centered on the city of Kermanshah in the west of Iran, with an area



of 24,434 square kilometers, is about 1.5% of the total area of the country (Figure 1). This province has 939,000 agricultural lands, 42,000 garden lands, and 1,720,000 forest lands. In terms of climate, the province has four seasons. This has made it susceptible to cultivation of all kinds of crops and gardens. Nearly 5 million tons of agricultural products are produced in this province every year, which is about 4.5% of the entire country. Kermanshah province is located in the middle of the western side of the country between

33 degrees 40 minutes to 35 degrees 18 minutes north latitude from the equator and 45 degrees 24 minutes to 48 degrees 7 minutes east longitude from the Greenwich meridian and from the north to Kurdistan province. It is bordered by

Fig. 2-1. Kermanshah province in Iran

Lorestan and Ilam provinces from the south, Hamadan province from the east, and a 330 km common border with Iraq from the west.

Its average height above sea level is about 1200 meters. The cities of Kermanshah province are: Islamabad Gharb, Paveh, Javanrud, Sarpol Zahab, Sanghar, Sahne, Qasr Shirin, Kermanshah, Ravansar, Salas Bawjani, Dalahu, Kangavar, Gilan Gharb and Hersin.

According to the census of Iran Statistics Center, the population of Kermanshah province in 1400 was equal to 2,152,000 people.

2-2- the County: Ghasre - Shirin

Kermanshah province has 14 counties and 31 districts, of which Qasr-e Shirin county is located in the westernmost part of the province. This city is near the Khosravi border, 15 kilometers long from the Iraqi border. Being close to Iraq, which is one of the main sources

of export of Iranian agricultural products, has created the potential to reach foreign consumers with the least amount of time and cost, and by maintaining its quality, it can compete with foreign products such as turkey in the Iraqi market. According to the official meteorological website of Kermanshah province, the minimum temperature in winter for Qasr-e Shirin is two degrees Celsius, and in the summer, the maximum temperature is recorded at 48 degrees Celsius above zero. Therefore, this city is very hot in terms of climate, which allows off-season producers of greenhouse products to need the least amount of fuel and energy to heat their production units at times of the year when the weather is very cold.

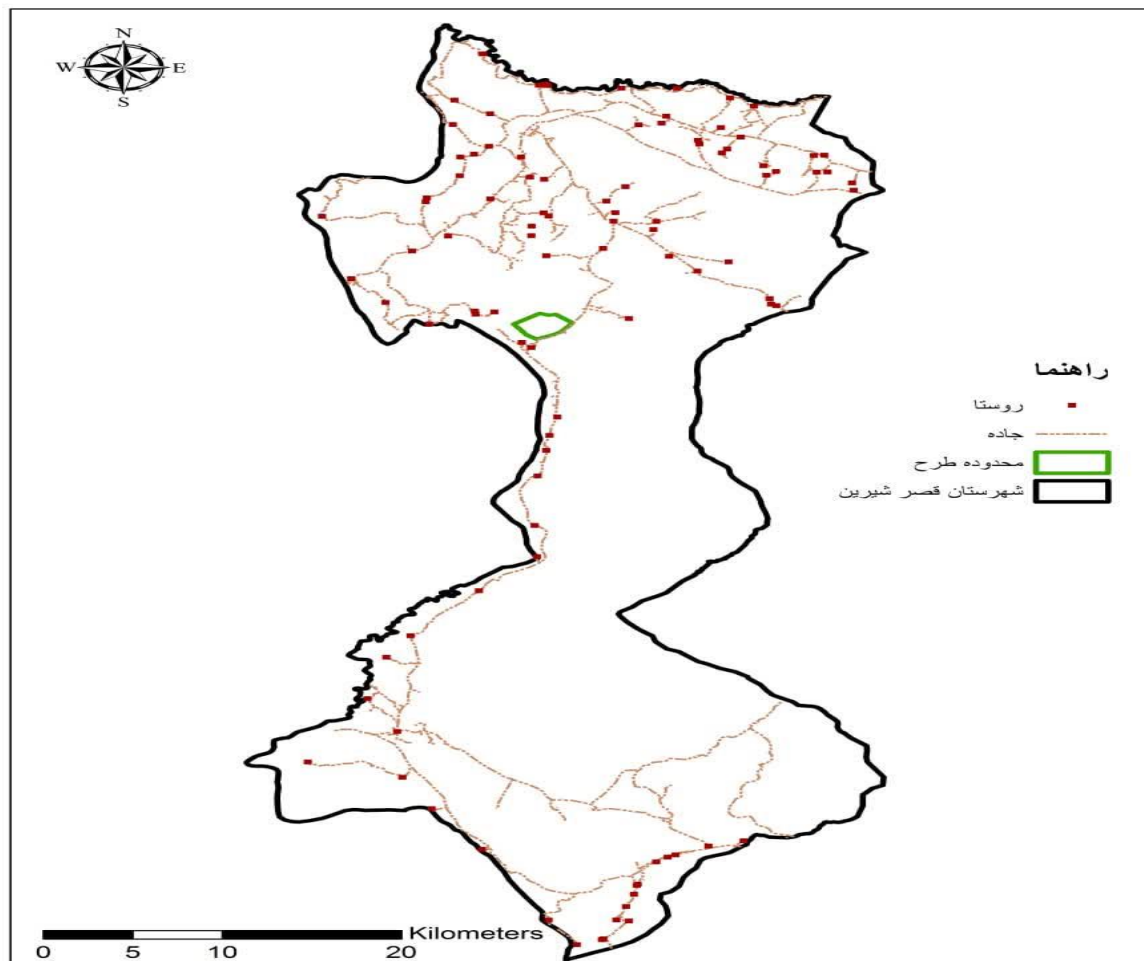


Fig2-2. Ways access to the project

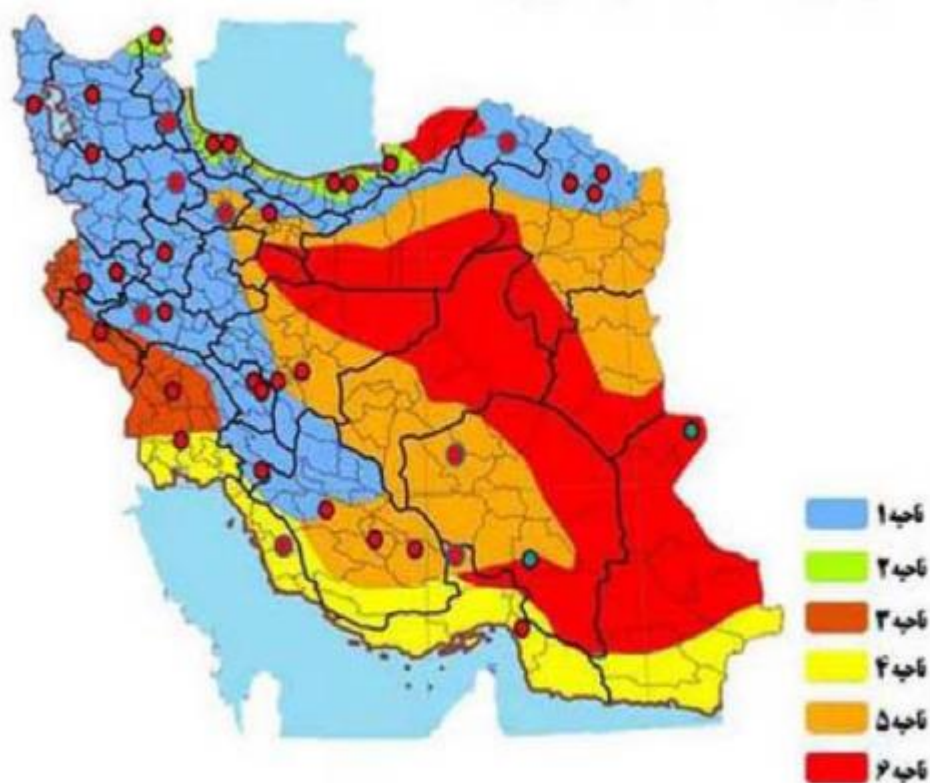


Fig 2-4. The six regions of agricultural meteorology (source: Meteorological website of the country)

2-3- the project:

The location of the project is in Iran, Kermanshah province, Ghasre- Shirin city, Naft -Shahr road, Gandam- Ban area with an area of 478 hectares. The location maps of the project are below.

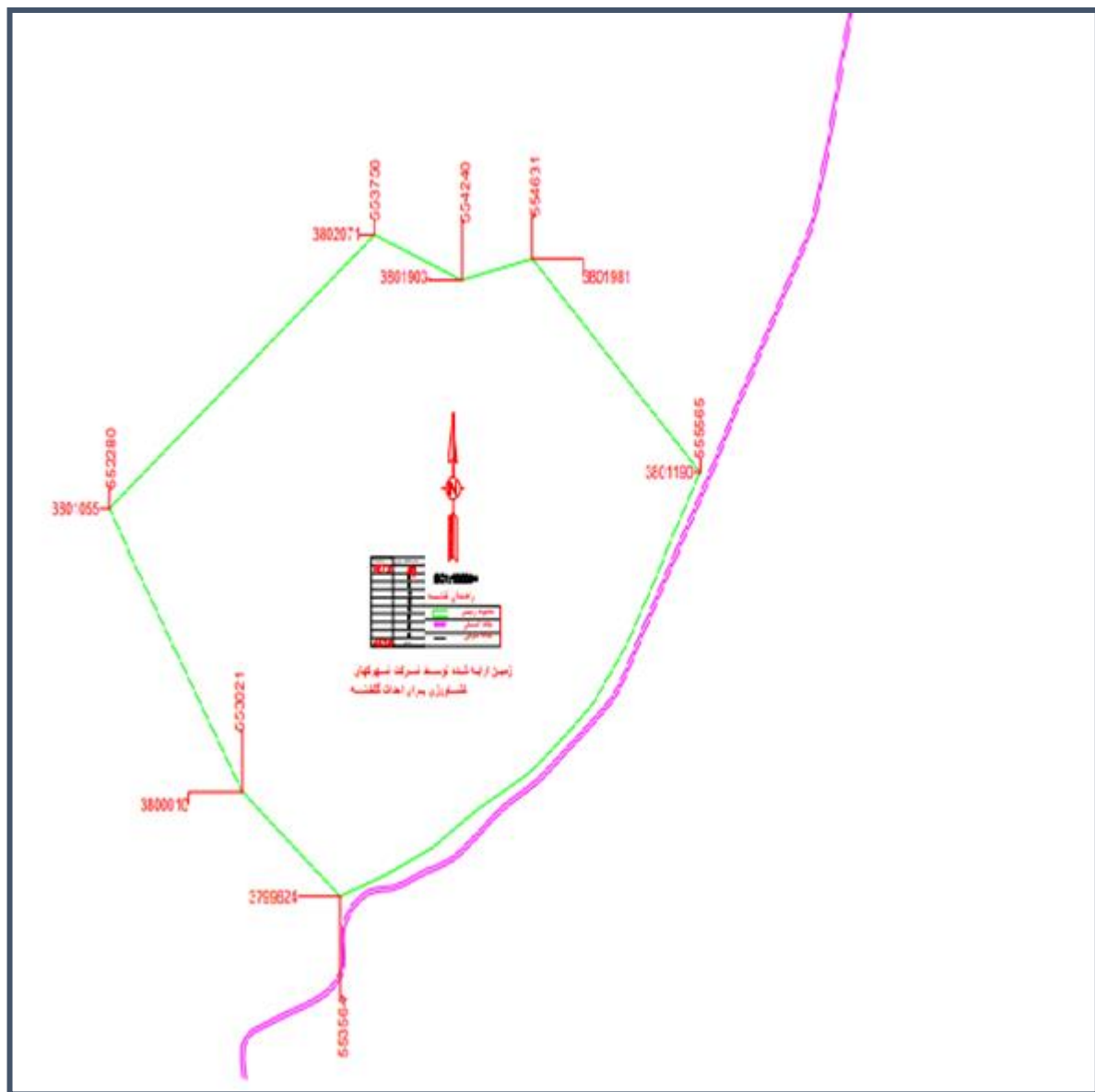


Fig. 2-3. The project location

2-4-access to the infrastructures:

Tab. 2-4. access to the infrastructures

No.	Needed infrastructures	distance to the project	The supply infrastructures
1	water	-	License from the tropical system
2	electricity	15 km	7.5 MW
3	gas	15	-
4	Telecommunications	-	-
5	High way	100m	The main road from ghasre- shirin to Naft-

			Sahahr
6	Sub way	-	-
7	airport	200 Km	Shohadaie Illam International Air port
8	port	664 Km	Mah- Shahr port
9	Rail way	200Km	Kermanshah rail way station

2- Technical Specifications of plan:

3-1 –product:

This project examines the cultivation of tomatoes, bell peppers and cucumbers in a greenhouse environment, which will further introduce the characteristics of tomato plants. Tomato is one of the great flowering plants of the order of Dicotyledons, of the Solonaceae family, of the genus *Lyopersicon*. This plant has many varieties that may be cultivated for the use of its fruit or as an ornament. Its roots are deep and sometimes reach a length of one meter, which, if transplanted, will produce strong lateral roots. The young stem of the tomato is herbaceous, round, smooth, brittle and hairy, which becomes hard and almost woody as a result of aging. The creeping and branched stem reaches a length of 1.5 meters, but some of its varieties, called *Validum*, have a stem It is short, strong, and stands in the air without the help of a guardian. The leaves of this plant are alternate and compound, and their size is not the same compared to different varieties. The color of the leaves is light gray and their back is usually fluffy. The small flowers of tomato appear in clusters on the stem between two nodes. It has 5 interconnected yellow veins that are separated at the end. The glans are broad and lance-shaped. The calyx has 5 long and elongated or lance-shaped glans, which are smaller than the glans at first, but increase in length as the fruit grows. There are 5 stamens or large stamens that are placed on a short rod. The tomato fruit is set and consists of 2 to several

holes. The fruits are fleshy and have many small heart-shaped eggs. The color and shape of the fruit, late or early ripening of the fleshy fruit or whether the fruit is firm and finally whether the fruit is smooth or wrinkled are different in different tomato varieties. Tomato seeds are small, wide and white in color and retain their viability for about 4 to 5 years. The formation of fruit in



a tomato plant depends on several factors that interact with each other. These factors include nutrients, temperature. And the length of the day, on the other hand, inoculation in tomato flowers is very difficult, high air humidity or water falling on the flowers during inoculation greatly lowers the amount of fruiting. Nutritional value of tomatoes Tomatoes are very low in calories (20 kcal per 100 grams) and rich in various vitamins C, A and E and minerals. 93 to 95% of it is water, as well as the sugars glucose and fructose, which are 3 It consists of 4. The most important minerals in tomatoes, which depend on the type of soil and fertilizer, include potassium, chlorine, and phosphorus. Tomatoes also contain lycopene, one of the strongest types of natural antioxidants, and several types of seed pigments from the family. Carotenoids include beta-carotene.

Another product that has received attention is sweet pepper. Bell pepper is native to Central and South America and belongs to the Solanaceae family. The fruit is formed in the corner of the leaf and stands opposite to other cultivars, that is, the fruit is facing upwards. All varieties, except grossum, have the spicy substance Capsaicin, which is produced in the wall of the ovary and causes their spicy taste. Bell pepper lacks this spicy substance, its seeds are concentrated in the tail area of the fruit, while in the pen varieties, the seeds are scattered along the length of the fruit. Most of the capsaicin is in the cytoplasm and a small amount is in the seeds and the walls of the mesocarp.

In pepper, at high temperature with low light, the formation of flowers and fruits is reduced. The growth of pepper seeds is Epigious. Color Red pepper is due to capsanthin and capsorubin. The optimum temperature for pepper is 20-22 degrees. If low humidity and degree If the temperature is high, pepper fruit will fall. Pepper is sensitive to salt. The best soil temperature for pepper seed germination is 25 degrees Celsius and the seedlings are transferred at the stage of 4 to 6 leaves and it is better if they have a flower bud.

The importance of pepper is in the amount of salts and vitamin C, after parsley it has the most vitamin C Alan, in most sources, green pepper has more vitamin C (so that if nitrogen feeding pepper is done in every 100 grams of sweet pepper contains up to 150 milligrams of vitamin C.

Finally, one of the products that has received attention in the greenhouse cultivation of this project is the triploid cucumber, each plant of which produces an average of more than twentytwo kilograms of product in one cultivation period. The seed of this cucumber is a hybrid and the resulting cucumber is It will be parthenocarp (without eggs) and a pen, because the environment is closed, it is easy to control the climatic conditions such as

temperature and humidity, and pests and diseases, and the growth period of the product lasts about six months. During this period, the product can be harvested once every three days. Cultivation of summer vegetables in the greenhouse in rows and irrigation by drip method, the seed planting distance on the rows is 15 to 20 cm and the distance between the rows is 80 to 100 cm. The suitable temperature of the greenhouse for the optimal growth of the plants It is up to 28 degrees Celsius and it should be noted that an excessive increase in relative humidity in the greenhouse causes an increase in the incidence and spread of various fungal diseases. It is obvious that if you see the signs of the disease, you should immediately spray and control it with appropriate fungicides.

The most common cultivation in modern and standard greenhouses is hydroponic cultivation. In this cultivation method, soil is not used, but the roots of plants are kept in the air or in solid materials other than soil with proper humidity. In this plan, because 60% of the products must be exported and it is necessary to provide high-quality products to the market, it is necessary to use hydroponic cultivation.

The reason why hydroponic cultivation is used and its advantages include:

1. Elimination of soil pests and diseases, especially nematodes
2. Save water
3. The possibility of more quantitative and qualitative production of products
4. The possibility of controlling nutrients
5. Saving labor time
6. Better management of watering plants based on exact volume

3-2-project's requirements:

3-2-1-Space and infrastructure required:

One of the important and necessary infrastructures that have priority in greenhouse complexes is water, electricity, gas, telecommunications, and main and secondary roads are needed. If the goal is to export the product, access to ports, railways, airports, and ports should also be examined. But because in this plan, the target market is primarily the United Arab Emirates, other Gulf countries, and then Iraq. Therefore, using ventilated refrigerated machines is the possibility of sending products through 618 kilometers to the port of Imam and then by sea to other countries. Sending products to Iraq is also through the Khosravi border with a very short distance of 15 kilometers in the shortest possible time and at the lowest possible cost.

The water factor is one of the main pillars of agricultural production. This main axis of production should be examined in terms of quantity and quality at the moment, and it is also necessary to predict a small amount of it in the future to some extent so that the project does not face water shortage, which should be used from other water sources such as water from open dams or the possibility of drilling new wells. After confirming the small amount of water required based on the discharge (the water flow rate of this project is liters per second), the water quality analysis is also performed by analyzing it in a reputable laboratory.

Cooling systems such as fans and pads, heating systems such as heaters, electric motors for foggers, circulating fans or electric pumps for the power system, etc. Each system needs electricity for energy, and the output power of these devices must be determined and the input electricity should be supplied based on them. In addition, it is necessary to provide most of the devices with three-phase electric pumps so that their life and efficiency are at their best. Therefore, it is necessary that the electricity coming to the town should be from three-phase electricity.

Due to the fact that the golden fruit plant is one of the products of tropical fruits, it should not be placed at low temperatures during the night or cold seasons, especially in the second half of the year, in which case the quantity and quality of the product will be reduced. Therefore, it is necessary to use gas energy to heat the cultivation hall.

In the case of telecommunications, in addition to providing antennas for mobile phones to coordinate between people, access to internet services should also be possible. At present, most of the climate control systems of the greenhouse are online, so that the user is like his work.

3-2-2-Equipment and machinery:

Since the products specified in this plan need to be cared for at least ten months of the year during the cultivation period. So, for more productivity and production throughout the year, it is necessary to use a greenhouse that can control the climatic conditions. These fixed greenhouses are made of stable and durable materials so that this equipment can be used for many years. It is definitely necessary to use modern and advanced greenhouses so that the production efficiency is high and the maximum amount of product is produced with the least amount of energy. The precise design and engineering of the structure optimizes the structure so that the cooling, heating, humidification, shading and intelligent system of climate control and feeding and even Co₂ injection can be optimally used. (The two main factors in the

photosynthetic reaction of plants are light and carbon dioxide. In Qasr Shirin region, because of the good light, it reduces the possibility of using the necessary lighting equipment for the greenhouse, but in the cold days of the year, when there is not enough ventilation, it is possible In the next phases, it is necessary to consider the carbon dioxide injection system in the installation).

Since the produced products need a cold storage for storage, so that the fruit can be stored for a while so that the product can be delivered to the target markets. In addition to this, the collection must be equipped with refrigerated machines so that the product can be sent to domestic and foreign markets in the best possible condition.

3-2-3- Raw materials and intermediate components:

The basic materials of the plan are defined as the basic inputs of the plan, which include seedlings, cultivation medium, substrate, poison, fertilizer, strengthening solutions, which can be supplied internally from the agricultural service units in the country. The propagation of tomato, pepper and cucumber plants is through seeds. Cultivation beds are in the form of gravels which are a mixture of coco peat and perlite. Plant seeds should also be used from cultivars that lead to high quality crops. In addition to these cases, the climatic conditions of cultivation in the greenhouse are also important, if it spends cold nights without ventilation in the greenhouse environment, it will suffer from fungal diseases, and in addition to controlling the climate, fungicides must be used at certain times to prevent damage to the product. reduced to the minimum. According to the soil and water analysis of the region, the amount of fertilizer required by the plant is calculated during different periods and is given to the plant in the form of water fertilizer or foliar spraying.

3-2-4-management and human resources:

- Number of Adviser required: 3
- number of production manager required: 10
- number of non- skilled required: 700 (Out of these 7000 people, 30% of them are used seasonally and when there is a lot of work)

Tab3-1. Prices

No.	Chapter	Price (Euro)
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3-2-1	106.6 hectares of greenhouses from 487.6 hectares of total area	
3-2-1.1	Area	365006.3
3-2-1.2	Construction of roads and surface water collection	228571.4
3-2-1.3	Construction and transmission of electricity	1285491
3-2-1.4	Gas Distribution	857142.9
3-2-1.5	Water Distribution	285714.3
3-2-1.6	Water tank	1285714
3-2-2	Total greenhouse and building	
3-2-2.1	Administrative & Security Building	114285.7
3-2-2.2	Greenhouse structure, covering, heating and cooling system	380714.3
3-2-3	Necessary Machinery and Their Cost	
3-2-3.1	Car	10714.29
3-2-3.2	pickup	17142.86
3-2-3.3	Leaf truck	28571.43
3-2-3.4	Refrigerated Truck	11428.57
3-2-4	The necessary manpower and their annual salary	
3-2-4.1	Managing Director	7042.8
3-2-4.2	Town manager	21085.7
3-2-4.3	Production manager	151817.14
3-2-4.5	non-skilled	1968085.7
3-2-4.6	Guardian	17571.43
3-2-4.7	Chief Financial Officer	7028.571
3-2-4.8	Sales Manager	7028.571
3-2-4.9	Accounting Expert	4217.143
3-2-4.10	Sales Expert	4217.143
3-2-4.11	Driver	14057.14
3-2-4.12	Leaf truck drive	10777.14
3-2-4.13	Refrigerated Truck driver	12651.43
487 hectares in total, of which 106.6 hectares will be greenhouses in the		2272351.6

3- Ownership and legal permission:

4-1- ownership of land:

This project is considered as the largest greenhouse project in the west of the country. The area under its foundation is 487 hectares. About 320 hectares of which are useful for building a galvanized structure on it. The implementation of these 320 hectares is in three phases, one, two and three (each phase is 106.6 ha). If the first phase is successful, the other phases will continue. The ownership of the land belongs to the Agricultural Settlements Company affiliated to the Ministry of Agricultural Jihad, and if the plan is fully implemented, the ownership will be transferred to the investor in the form of a lease agreement on the condition of ownership. The investor can pay the initial price of the transferred land in 6 installments. monthly and within 3 years, and in case of implementation of the project and its exploitation in the form of a lease contract, on the condition of acquiring the ownership of the land.

4-2- Intellectual property and incentives:

Intellectual property and patents are the exclusive right granted to an individual or organization to protect their intellectual and intangible assets, such as inventions, industrial designs, application models, trademarks, trade names, geographical indications, and copyrights. Strong intellectual property, in addition to helping to increase brand value and product credibility, can be attractive to attract investors. It is possible to earn money by granting licenses to use intellectual property to others. In creating a greenhouse unit, this concept is very important and can have a significant impact on the success and growth of the business.

4-3-legal permission:

The proposed plan has a license to use the water of the tropical system. It is emphasized that in addition to the quantity of water, the quality of the water should also be suitable for cultivation and the amount of growth-limiting elements such as sodium, chlorine, and boron should be within the normal range of tomato, bell pepper, and cucumber plants. Because these waters are river and surface, they are qualitatively suitable for the cultivation of tomatoes, peppers and cucumbers, and the amount of growth-limiting elements such as sodium, chlorine and boron is within the normal range of tomato, bell

pepper and cucumber plants. It is possible that the amount of calcium bicarbonate is high, which causes dandruff when the pads are cooled, which can be solved by washing the pad with a car wash and taking care of it monthly. Using this water as water fertilizer for feeding in this project in the first phase is not a problem and can be used. But as mentioned in the previous sections, one of the advantages of hydroponics is that water can be returned to the system and used again. If in the future, in the next phases of the project, the owners of the project decide to use a closed hydroponic system, it is necessary to use an industrial purifier with reverse osmotic (R.O). Currently, it does not have a license for electricity and gas, which are 15 kilometers away from the mentioned project. The necessary follow-up has been done for its electricity license, and 7.5 megawatts of electricity are supposed to be allocated to this town, which has considered 2.5 megawatts for each phase. So, the first phase of this project needs 2.5 megawatts of electricity.

There is a TBS gas reduction station on the eastern side of the town. which is the closest point for gas extraction for the Gandamban greenhouse, the 48-inch transmission line exported to Iraq (with a pressure of 100 pascals and a distance of about 40 km), which extraction depends on the approval of the board of directors of the Iranian National Gas Company.

4- Market study and Competition:

The growing need for vegetables during their off-season has made the cultivation of these products in the greenhouse become one of the most profitable sectors of agriculture. Currently, there are about 200 thousand hectares of greenhouses around the world. The share of our country, Iran, is about 9,856 hectares based on the statistics of the agricultural jihad in 2019. Kermanshah province also has about 30 hectares of greenhouses, and about 50% of this area is related to the cultivation of annual crops, which includes greenhouse crops of tomatoes, peppers, cucumbers, eggplants, etc. According to the website of the Ministry of Agricultural Jihad in 1401, Kermanshah province had about 13.6 hectares of fertile tomato greenhouses, which produced about 2452 tons. For sweet pepper product, in 1401, about 1 hectare and 32 tons were produced, which ranked 29th in terms of production in the country. Also, about 21.93 hectares with 2888 tons of production has been reported for the cucumber crop. If the population of the province over one year is about one million nine hundred thousand million people. Per capita consumption for tomatoes is about 50 kg per year, pepper

20 kg and cucumber 30 kg. Based on the diagram below, it can be concluded that there is a huge imbalance between the production of these three products and their actual need in the province, and to solve this imbalance, these products must be imported from the neighboring provinces, which will require relocation and eventually increase the price, which is the same. The case makes families have to remove these products from their food basket in some seasons of the year.

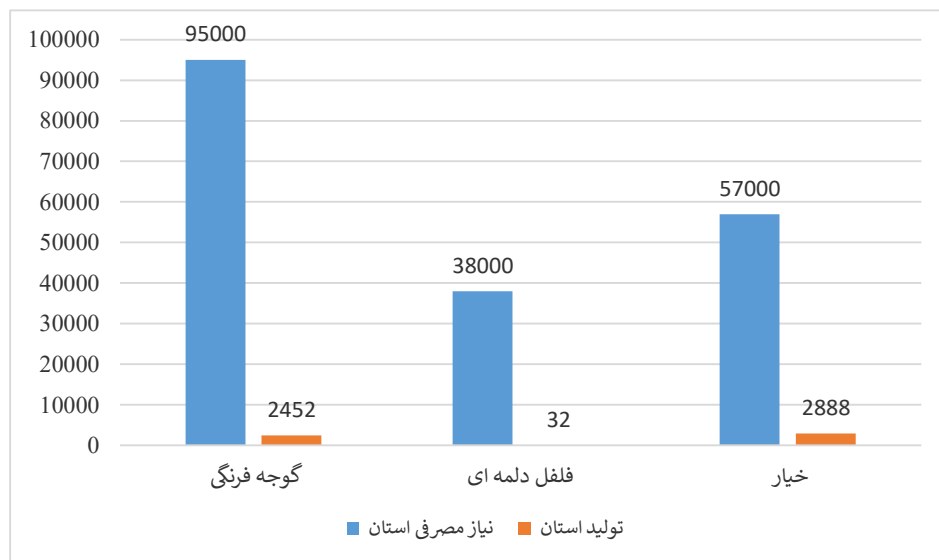


Fig5-1. Comparison of production and demand of three summer crops in Kermanshah province in 1401 based on official statistics

The pillars of the market include current supply and demand, supply and demand forecast, and finally balance analysis to forecast supply and demand possibilities. The demand for fruits and vegetables such as tomatoes, peppers and cucumbers has always been domestic and foreign.

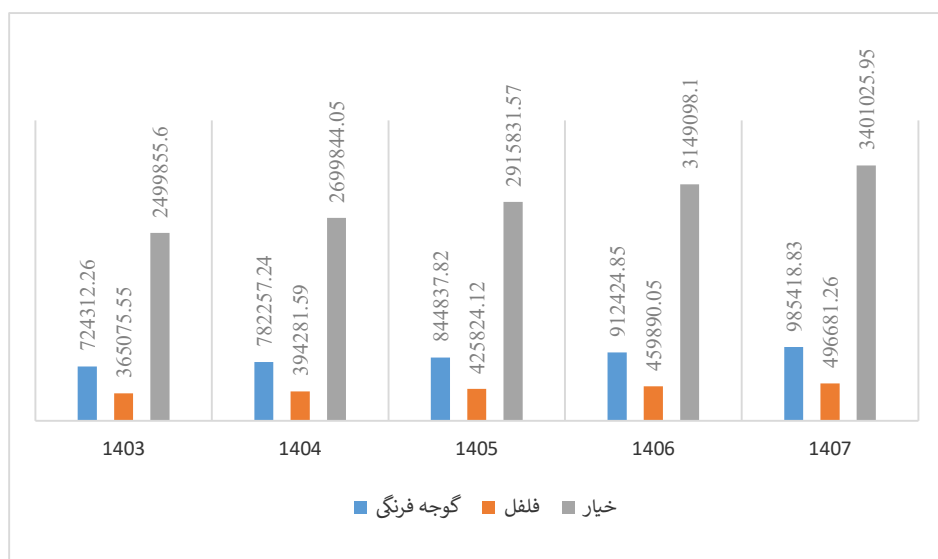


Fig 5-2. Forecast production of three greenhouse summer crops in the next few years (tons)



fig5-3. Expert tomato, pepper and cucumber

According to the estimates of the Food and Agriculture Organization of the United Nations, Mexico, Italy, the Netherlands, and Turkey are the main tomato exporting countries in 2021. In contrast to the United States of America, Germany and England are the biggest importers of this product.

Regarding the pepper product, Spain, Mexico and the Netherlands are respectively the largest exporters of this product, and the largest importer of this product is the United States of America.

The amount of global sales resulting from cucumber exports in 2022 was about 3.3 billion dollars. The five countries of Spain, Mexico, Holland, Canada and Turkey are the five main exporters of cucumber products to the world.

Finally, we can conclude that Turkey is one of the main competitors of our country for exporting summer vegetable products to other countries.

5-1- Introduce target market:

According to the statistics of the Agricultural Industries and Mines Organization of Iran, most of the summer vegetable products are exported to Iran's neighboring countries. The countries of Iraq, United Arab Emirates, Oman, Armenia, Azerbaijan and Russia are among the target markets to which Iran's summer vegetable products are exported. Sometimes it happens that Turkish products replace Iranian products in these markets. Non-observance of poisons with long shelf life and low quality of products makes most of the buyers to buy Turkish products. In order to overcome this problem, the supervisions by the relevant government organizations should be increased and the producers should increase the sensitivity in the production and use modern equipment during the cultivation of the crop.

5- General risk management plan for the production of greenhouse products in Qasr Shirin city, Gandamban region

The product risk is the probability of an incident occurring in its results for a certain period of time. Any type of activity in the implementation process faces the possibility of risks that can prevent the realization of the expected demand or a part of it. Below, some of the risks of the production plan of greenhouse products in Qasr Shirin city of Gandamban region have been investigated and some coping strategies are proposed. In short, regarding the strategy of facing the risks of this plan, it can be said that some risks that are very small and scattered and have a very low probability of occurrence or cannot be transferred will be preserved; Regarding some risks, the 'avoidance' strategy is used; Some risks will be eliminated or reduced and some risks will be transferred.

6-2. Risk related to the business idea

Considering the nature of the greenhouse products production plan in Qasr Shirin city of Gandamban region, the risk of disclosure significantly threatens the idea of this business.

6-3. Financial risk of the plan

Financial risk is one of the most obvious risks facing the project. In this regard, the study and calculations related to the production plan of greenhouse products in Qasr Shirin city of Gandamban region show the fact that to reach the break-even point, the amount of 23.733.856.072.32 rials of goods or services should be sold. This amount is 31.63% of the total sales in nominal capacity. According to this index, the risk of this project is evaluated as low; Although, in the analysis of the above number, it should be noted that the estimated utilization of the nominal capacity of the collection in the first, second and third year is 30, 30 and 60% respectively, and taking these numbers into account, it is necessary to analyze the level of this more precisely. Payment risk. Specifically, for the first three years of the project, the safety margin is 0.16, 0.1, and 30.1 percent, respectively, which indicates a very high risk level for the first year, a very high risk level for the second year, and a high risk level for the year is the third.

On the other hand, the sensitivity analysis of net profit due to sales changes is also noteworthy. The calculations show the fact that the compound leverage for the first, second, and third years is 8.25, 2.61, and 1.29, respectively, which indicates that for a 10% decrease in estimated sales; Net profit in the first year is 141.04%; the second year is 28.69%; the third year is 12.94%; decreases, which can indicate the risk level of the project. The simultaneous analysis of this index with the safety margin index of the plan can provide more useful data.

The investment return period of this plan is 4 years and one month. The independent analysis of the risk level of this index also shows that this plan has an average risk. On the

other hand, the examination of the company's credit sales situation, which confirms the risk of debt collection, shows that this project is facing a medium risk. In terms of pricing risk, the pricing risk of the products/services produced by this business is also evaluated considering the nature of the products in question.

6-4. Innovation and technology risk

Considering that the level of technology of this business is such that this business is considered to be risky according to this index. In terms of risk in the innovation level index, it is also based on the fact that the product/service in question is therefore the risk level of this business based on the index. It is innovation. In terms of 'type of innovation', it can be said that the project has a medium to low risk level.

6-5. Risk of not completing the project

In terms of the source of funding, calculations have shown that a total of 428,715,0871,947 rials of capital is required for this project, 100% of which will be provided by the investor and 0% by the bank. The data of this section indicates that the level of risk of completing the project is very low due to the possibility of not being able to receive financial facilities, lack of credit, complicated banking process and other factors. However, one should not ignore the risks related to construction, such as land acquisition, delays in building construction, purchase of machinery, and other related unexpected events.

6-6. Risk related to human capital

Considering that a total of 757 people will be employed in this project, we will witness a potential risk in this sector as well. To reduce the risk, while providing practical training and social security insurance, appropriate accident insurance coverage, employer's liability insurance, etc. will be collected. On the other hand, the group may face other risks in different fields of human resources (such as: recruitment, motivation, leaving jobs, etc.) have knowledge

6-7. Risk threatening fixed assets

To use this project, the amount of 5365027.1 Euro will be invested in fixed assets (building, machinery, equipment, etc.); Therefore, these assets are exposed to several risks. In order to manage this risk, in addition to numerous internal measures to reduce and eliminate it, necessary measures are taken to obtain appropriate insurance coverage such as theft, fire, machinery failure, etc.

6-8. Current asset threat risk

A total of 759474.18 Euro are invested in fixed assets (buildings, machinery, equipment, etc.); Therefore, these assets are exposed to several risks. In order to manage this risk, in addition to numerous internal measures to reduce and eliminate it, necessary measures are taken to obtain appropriate insurance coverage such as theft, fire, machinery failure, etc.

6-9. Project operational risk

One of the risks that may challenge the production plan of greenhouse products in Qasr Shirin city of Gandamban region is the operational risk. The risk related to work and administrative procedures is called operational risk. Such risk includes challenges in choosing and exploiting technology, outdated information systems, weak supply chain, improper maintenance, problems related to human capital management and internal coordination, etc. These problems cause the potential profit of the business to be jeopardized and create a poor record of the company in the minds of the audience. Management mistakes, lack of experience and sufficient knowledge in the field of business, lack of information, difficulty in data processing, etc., can all be considered as the main sources of operational risks. To face it, the group plans to implement appropriate control programs by constantly identifying the sources of risks.

6-10. strategic risk

One of the risks that may challenge the production plan of greenhouse products in Qasr Shirin city of Gandamban region is the operational risk. The risk related to work and administrative procedures is called operational risk. Such risk includes challenges in choosing and exploiting technology, outdated information systems, weak supply chain, improper maintenance, problems related to human capital management and internal coordination, etc. These problems cause the potential profit of the business to be jeopardized and create a poor record of the company in the minds of the audience. Management mistakes, lack of experience and sufficient knowledge in the field of business, lack of information, difficulty in data processing, etc., can all be considered as the main sources of operational risks. To face it, the group plans to implement appropriate control programs by constantly identifying the sources of risks.

6-10. other risk

Other risks, such as market risk, economic risks, political-legal risks, etc., threaten this group, which the appropriate identification and exposure and control plan to deal with it is considered in the company's management structure.

7. The effect of competitive forces on the profit margin

Investigating the effect of competitive forces on the profit margin of the greenhouse production plan in Qasr Shirin city, Gandamban region.

Competitive forces are very important in examining the profit margin of the industry and determine its attractiveness. The strength of these forces should be examined and analyzed in the formulation of business plans. Under the status of competitive forces, the production plan of greenhouse products in Qasr-Shirin city of Gandamban region has been investigated separately by five competitive forces.

1. - The threat of newcomers (entry walls):

The data of the greenhouse products production plan in Qasr Shirin city of Gandamban region shows the fact that the threat of new entrants is moderate for this business. The score obtained for this threat is average. . The score obtained for this threat is 462.5 out of a thousand (1000) and among the investigated variables; Limited need for capital; The lack of serious dependence of successful sales on a specific location and the lack of exclusive technology in production are the most important factors that have provided the basis for the aggravation of this threat.

2. - Competitive strength of existing competitors

Competition between businesses operating in the market is the most important factor determining the overall level of profitability and determining the attractiveness of an industry. In some business areas, players compete aggressively. In some cases, they even reduce the prices below the cost price level and make the entire industry suffer losses. Of course, competition may not focus solely on price, and competitors may focus on advertising, innovation, and other non-price dimensions. The intensity of competition between existing businesses depends on the variety and number of competitors and possible reactions to each other's competitive behavior. Examining the indicators of this field for the production plan of greenhouse products in Qasr Shirin city of Gandamban region shows the fact that this plan has actual competitors who are operating in the market and produce similar goods. These competitors are the strongest force that forms the structure of competition in an industry and They are in the field of business. their action and reaction to attract customers; Recruitment of specialized personnel; access to raw materials; Ownership of the distribution network and... It creates certain behavioral rules that make it necessary to know their current power and estimate the future situation.

The data of the greenhouse products production plan in Qasr Shirin city of Gandamban region shows the fact that this business is faced with an average score. The score obtained for this threat is 500 out of one thousand (1000) and among the investigated variables; A large number of competing companies; Low switching costs (transfer costs) and; Limited loyalty to existing brands is more intense

3. - Examining the bargaining power of customers (buyers)

Bargaining power of buyers means whether buyers can put pressure on businesses in the industry to reduce their profits and provide a better or cheaper product to customers. By examining the "bargaining power of customers" index in the production plan Greenhouse products in Qasr Shirin city of Gandamban region, it was found that the bargaining power of the buyers of this industry in imposing their demands and conditions on businesses active in this field is average. The score obtained for this threat is 550 out of one thousand (1000) and among the investigated variables is bargaining on the price and terms of payment; The large volume of customers' purchases and the repetition of customers' purchases from businesses are the most important factors that provide and will intensify this threat.

4. Examining the bargaining power of suppliers

Suppliers are all companies, organizations, industries and businesses that provide the raw materials, facilities and equipment needed for the production and supply of the product to this business. Suppliers can exert their bargaining power on industry players by increasing prices or reducing the quality of inputs. Examining the bargaining power index of suppliers in the production plan of greenhouse products in Qasr Shirin city of Gandamban region shows the fact that the bargaining power of suppliers of this business is average. The score obtained for this threat is 500 out of one thousand (1000) and among the investigated variables; the number of suppliers; The lack of alternative raw materials and monopoly in supply are the most important factors that have provided the basis for the escalation of this threat.

5. The threat of substitute goods and services

Among other important factors affecting the determination of the attractiveness level of the industry; The threat of substitute goods or services. A substitute product is a product whose benefits are similar to the current product (not competitors' products). The degree of willingness of buyers to buy a new product and the price they are willing to pay for a product depends to some extent on the availability of substitute products. The absence of close substitutes for a product means that there is not much

competition in the market for similar products and consumers They are not very sensitive to the price, and the presence of close substitutes makes customers switch to alternative products in response to the increase in the price of the product.

Examining the index of threat of substitute goods and services in the plan shows the fact that the bargaining power of the customers of this business is average. The score obtained for this threat is 500 out of one thousand (1000) and among the investigated variables; existence of substitute product; The approach of the product life curve towards the decline and the more suitable conditions of substitute goods are the most important factors that have provided the basis for the escalation of this threat.

6- Physical Progress of project: yes ☐ No ☐

Due to the fact that the water required for the project is supplied from the tropical system, some of the required infrastructures such as water storage pool, pumping station, water distribution network and access roads have been provided for part of the project and the matter of constructing a guard building and the fencing of the plan is in progress.

7- Action plan and Implementation schedule:

In this program, the basic activities of project implementation start with obtaining permission from the relevant departments and end with obtaining the exploitation permit. The time to perform each activity is also estimated according to the volume of activities and problems of delay in completing the activity on time. The implementation of the project until the time of exploitation has been evaluated for about 33 months and the operator can start cultivation from the beginning of August 2027.

The timetable

	Done	2024				2025				2026				2027			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Suitable land and mapping																	
Construction of security infrastructure and access roads																	
Water supply of the tropical system																	
Electrical license																	

P.F.S																	
Investor																	
Fuel license																	
Banking license																	
Land purchase																	
Contractor selection																	
Workplace prepare																	
Installation order																	
Installation																	
facilities																	
Employee training																	
Seedling order																	
Commercial production																	

8- Financial projection:

8-1- The cost estimate:

In general, according to the stages of implementation and operation, the investment of the project is in two forms: fixed investment and initial working capital, and the necessary capital during the period before operation and creation of the plan is through fixed capital and the necessary capital during the operation period is through capital in Circulation is provided. The fixed investment of the project includes investment costs in land, landscaping and building, machinery and equipment, facilities, office equipment and pre-production expenses. These types of costs are incurred at the beginning of the project and before operation and are depreciated during the life of the project according to their useful life. Working capital includes the capital needed 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 liquidity is required for the use and exploitation of fixed investment in order to maintain, continue and continue operations. Determining the basis of inventory, work in progress and receivables depends on the conditions of supply, production and sales processes and the business environment. In this section, the evaluation and estimation of the investment required to carry out the project (based on the price of the base year) has been estimated and calculated.

Tab. 8-1. The cost estimate

No.	subject	costs (Euro)
1	Fix Capital	3,758,593.5
2	Current Capital	528,570
3	Total Investment	4,287,163

*According to Table 3-10, the operating cost related to the entire operation period of the project is equal to 4,935,013.29 million Rials, which is not the correct basis for the working capital in this table, and the working capital of the first year of operation should be the criterion of action.

Tab. 8-2. Fixed investment

No.	Title	Euro	Rate	Explanation
1	Land	105648292	0.07	
2	Site preparation	2021760	0.80	
3	Construction	80,000	0.02	
4	Machinery and equipment	384600	0.08	
5	General facilities	1000	0	
6	Transportation	2000	0.03	
7	Unpredicted equipment	0	0	Based on the defined assumptions, a percentage of the building investment
8	Intangible assets	70916848	0	
9	Total	3758593495	100	

Tab8-3. Operating cost

current	sunbect		million rial
curent cost			8/3838689
1	primary material		7/2285491
2	humen resources		6/934701
3	marketing		1/341819
4	other cost	repairing and	1/61404
		insurance	92/1772
		not predicted	3/117500
		energy cost	96,000
fix cost			4/1096323
5	primery		0
6	humen resources		4/623134
7	marketing without humen		7/85454
8	deprection		4/197197
9	other cost	repairing and keeping	04/15351
		insurance	5/33685
		not pridedted	3/117500
		energy	24,000
total			29/4,935,013

Description:

- The cost of raw materials is calculated as 100% except for the variable cost
 - The cost of salaries and wages is calculated as 40% of fixed costs and 60% of variable costs
 - Energy cost is calculated as 20% of fixed cost and 80% of variable costs
 - Maintenance cost is calculated as 20% of fixed cost and 80% of variable costs
 - Insurance cost (equivalent to 1% of the total investment value) is calculated as 95% fixed cost and 5% variable costs.
 - Depreciation cost is calculated as 100% except for fixed cost (depreciation rate of building 2%, machinery and equipment 4%, facilities 10%, transportation means 20% and office supplies 10% is considered)
- Administrative and sales costs (equivalent to 10% of total costs) are calculated as 20% of production and 80% of non-production costs.
- Unforeseen cost (equivalent to 5% of total costs) is calculated as 50% of fixed costs and 50% of variable costs.

Tab 8-4. Estimation of working capital

Title	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412
primary material	34,282,375,800.00	34,282,375,800.00	68,564,751,600.00	68,564,751,600.00	114,274,586,000.00	114,274,586,000.00	114,274,586,000.00	114,274,586,000.00	114,274,586,000.00	114,274,586,000.00
salary	38,945,900,000.00	38,945,900,000.00	77,891,800,000.00	77,891,800,000.00	129,819,666,666.67	129,819,666,666.67	129,819,666,666.67	129,819,666,666.67	129,819,666,666.67	129,819,666,666.67
fund	9,000,000,000.00	9,000,000,000.00	18,000,000,000.00	18,000,000,000.00	30,000,000,000.00	30,000,000,000.00	30,000,000,000.00	30,000,000,000.00	30,000,000,000.00	30,000,000,000.00
demand	337,655,250,000.00	337,655,250,000.00	675,310,500,000.00	675,310,500,000.00	1,125,517,500,000.00	1,125,517,500,000.00	1,125,517,500,000.00	1,125,517,500,000.00	1,125,517,500,000.00	1,125,517,500,000.00
Inventory of manufactured goods	108,686,437,793.77	121,326,161,872.57	252,052,305,802.18	326,733,610,159.12	642,382,033,239.71	737,260,357,487.41	846,370,430,372.26	971,847,014,189.84	1,116,145,085,580.06	1,282,087,867,678.80
total	528,569,963,593.77	541,209,687,672.57	1,091,819,357,402.18	1,166,500,661,759.12	2,041,993,785,906.38	2,136,872,110,154.08	2,245,982,183,038.93	2,371,458,766,856.51	2,515,756,838,246.72	2,681,699,620,345.47
Increase or decrease in working capital	528,569,963,593.77	12,639,724,078.80	550,609,669,729.62	74,681,304,356.93	875,493,124,147.26	94,878,324,247.70	109,110,072,884.85	125,476,583,817.58	144,298,071,390.22	165,942,782,098.75

8-2- Estimated revenues:

Tab 8-4. Project revenues

No	subject	season 1	season 2	season 3	season 4	total first year	2th yar	3th yaer	4th year	5th year
1	tomato	341705	341705	341705	341705	1025115	1025115	2050230	2050230	3,417,050
2	bell pepper	231140	231140	231140	231140	693420	693420	1386840	1386840	2,311,400
3	cucumber	177500	177500	177500	177500	532500	532500	1065000	1065000	1,775,000
	Total	750,345	750,345	750,345	750,345	2,251,035	2,251,035	4,502,070	4,502,070	7,503,450

Tab 8-4. Project revenues with and without inflation in the first 10 years after operation
(Euro)

years	Swelling	Capacity utilization percentage	Income adjusted for inflation	Income considering the capacity percentage
1403	0.30	30	13934979	418049.29
1404	0.30	30	18115472	5434641.6
1405	0.30	30	23550114	14130068
1406	0.30	60	30615148	18369089
1407	0.30	100	39799692	39799692
1408	0.15	100	45769646	45769646
1409	0.15	100	55530357	55530357

1410	0.15	100	60530357	60530357
1411	0.15	100	69609911	69609911
1412	0.15	100	80051397	80051397

8-3-Duration of project operation:

The construction period of the plan is equivalent to 30 months and the beginning of its preliminary studies is considered from April 1403. The duration of the project is considered to be at least 15 years.

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, and according to the definition, break-even point is the point where the exploitation of the plan creates neither profit nor loss. In other words, the break-even point analysis determines the point at which the sales revenue is equal to the production costs, and thus it is used to analyze the effect of changing the volume of the product on the profit; The percentage of sales at the break-even point is 29.92%, which means that in this project, to reach a point where we have neither profit nor loss, we must use 29.92% of the nominal capacity.

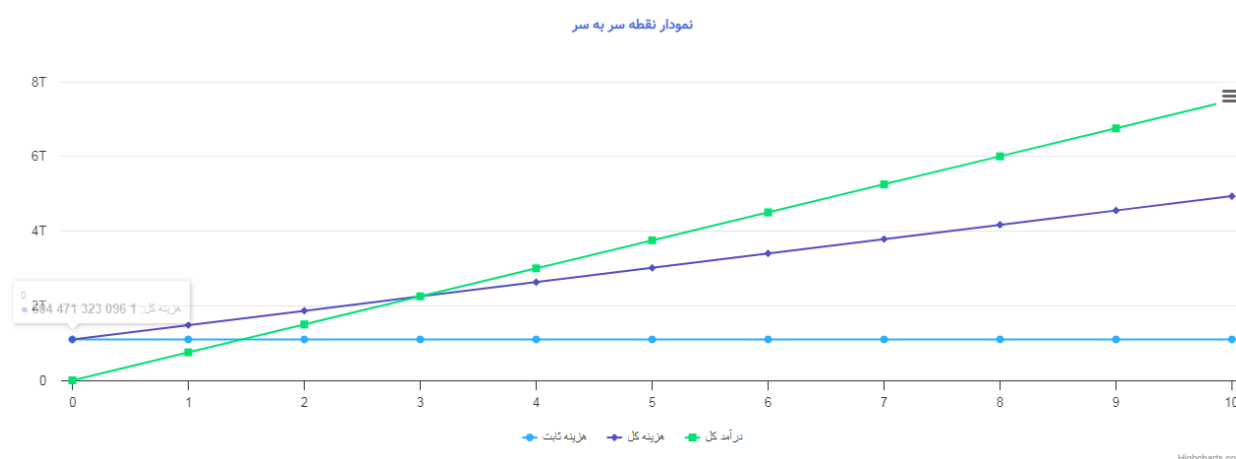


Fig 8-1. Break- even

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.

The net present value of the project is one of the other evaluation methods, which is calculated according to the following relationship:

The present value of the total cost of the implementation and operation period - the present value of the total income of the implementation and operation NPV=

The net present value of the project at a discount rate of 25% 10,405,607.97 Million Rials, which indicates the economic justification of the project.

One of the other methods of checking and evaluating investment plans is the method of internal rate of return or 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 benefits of the plan is equal to the current value of its expenses. According to the calculations, the internal rate of return of the project is estimated at 63.38% and it is favorable compared to the minimum expected profit (Minimum Attractive Rate of Return).

Tab 8-5. The table of project efficiency indicators (million Euro)

Present value of the total cost of implementation and operation	6124501
The present value of the total income of the period of implementation and operation	3518529 9
Net present value (NPV)	1486515 4
benefit - Cost ratio B/C	5.74
Internal rate of return (IIR)	63.38%
PI	3.77

Tab 8-6. Calculation of some financial ratios

	The title of the ratio	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412
Liquidity ratios	Current ratio	12.22	5.21	2.98	3.77	3.18	4.06	4.79	5.42	5.96	6.43
Liquidity ratios	Now ratio	10.22	4.73	2.80	3.59	3.05	3.94	4.67	5.29	5.84	6.31
Liquidity ratios	Current asset ratio (current assets to total assets)	0.20	0.33	0.63	0.74	0.87	0.91	0.94	0.96	0.97	0.98
Financial leverage ratios	The ratio of long-term debt to equity	0.02	0.06	0.21	0.20	0.27	0.22	0.20	0.18	0.16	0.15
Financial leverage ratios	Current debt to equity ratio	0.02	0.07	0.27	0.24	0.38	0.29	0.24	0.21	0.19	0.18
Financial leverage ratios	Debt to equity ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Activity ratios	Total asset turnover ratio	0.66	0.75	1.17	1.13	1.29	1.08	0.94	0.84	0.77	0.72
Activity ratios	Total asset turnover ratio	0.82	1.13	3.12	4.33	10.05	12.44	15.49	19.43	24.56	31.36
Profitability ratios	Gross profit margin	0.29	0.37	0.50	0.49	0.55	0.54	0.54	0.54	0.54	0.55
Profitability ratios	Gross profit margin	0.04	0.13	0.28	0.27	0.34	0.33	0.33	0.33	0.33	0.33
Profitability ratios	Return on assets ratio	0.03	0.10	0.33	0.31	0.43	0.35	0.31	0.28	0.26	0.24

Profitability ratios	Return on equity ratio	0.03	0.11	0.42	0.39	0.60	0.46	0.39	0.34	0.31	0.28
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Profitability Index shows how much economic profit will be obtained during the lifetime of the project for each unit of money invested in the project.

The investment payback period (Period Payback Investment Project) is the period of time to acquire the initial capital of the project from the source of its income. In other words, the payback period indicates the time it takes to recover the initial investment. This measure shows the speed of money return and the power of protecting the project against risk. The return period (simple) of the plan is estimated to 4 years and one month (equal to the year 1404) according to the calculations.

8-6- Sensitivity analysis of IRR:

In the sensitivity analysis of plans, the percentage of changes in the internal rate of return (IRR) of the plan is measured relative to the change in some parameters and basic variables of the plan. In this plan, the analysis is based on major variables such as sales revenue, fixed costs of the plan, and operational costs of the plan. The following table shows the results of the sensitivity analysis regarding the variables of sales income, fixed assets and operating costs.

Operating leverage is one of the levers that can be calculated with balance sheet data and can show the degree of dependence of the company's profit on operational activities. Increasing amounts of financial leverage may lead to large changes in the company's profits, as it is clear that during the activity of the plan, the amount of operating leverage has decreased.

Financial leverage is a financial tool to increase the return on an investment. In fact, the use of financial leverage means the use of debt in a certain investment, which in this research is positive, meaning that debt is used in a small proportion.

Compound Leverage (DCL) is another leverage ratio that calculates the effect of the combination of operating leverage and financial leverage on earnings per share assuming a specific change in sales. This ratio can be used to help determine the most optimal level of financial and operating leverage to use in any company, which has shown that the overall risk of the company has been reduced by reducing it.

Pyramid title	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412
DOL	8.25	2.61	1.29	1.23	1.09	1.08	1.07	1.06	1.05	1.04
DFL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DCL	8.25	2.61	1.29	1.23	1.09	1.08	1.07	1.06	1.05	1.04

8-7- Summarize

The implementation of the project is planned by acquiring a land with an area of 487 square meters and carrying out construction in the substructure of 6,000 square meters. The total investment in land and building is estimated at 479289.14 Euro and the total investment in main and auxiliary equipment is estimated at 380714.29 Euro.

The total fixed capital required is 53650741 Euro and the total working capital required for the project is 755099.9 Euro. The total investment of the project is expected from the resources brought by the company's shareholders.

The sale of the plan in 1403 is predicted at fixed prices equal to 4180493.6 Euro. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 80051.397 Euro. The net profit of the plan has been positive in all years. The profit figure in 1403 is equal to 125685.38 Euro. The profit will increase in the following years and will reach a maximum of 35185299 Euro. The internal rate of return (IRR) of the project is also estimated at 63.38% and the payback period (PBP) is estimated at a maximum of 4 years and one month. Also, the net present value of the project's cash flows (NPV) is positive and considering the expected interest rate of 30% is equal to 14568982.3 Euro.

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 aspects of the project are summarized as follows.

"Summary of economic issues"

activity	International Standard Industrial Classification (ISIC Code)	product name	Nominal capacity (unit)
agriculture	07020020	Tomato, pepper and cucumber	70000 ton
Activity duration	Fix investment (million Euro)	Variable investment (million Euro)	Human resources
24 month	0.755	5.369	757 people
Internal rate of return (IIR)	Net present value (million Euro)	Owners share (million Rials)	Benefit-cost ratio *B/C
63.38	14.86	--	5.74

8-8-Estimation of exchange rate changes during the project implementation:

The exchange rate at the time of evaluation is included as described in the table. The buying and selling prices are under the market prices and are adjusted to a large extent under the influence of the exchange rate increase. Therefore, exchange rate fluctuations regarding the purchase of foreign equipment will be compensated to some extent by the income from sales, and exchange rate fluctuations will have little effect on the evaluation results. Therefore, in the construction and implementation phase, if the financing of the project is through foreign currency sources, the amount of financial resources required will not change much.

9-1- Foreign currency needed:

9-2- The Way of participation and finance method:

Participation in the present project and its financing is foreseen in the form of establishing a company inside the country. The total financial resources required 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 investment:

The payback period investment is the length of time required to recover the initial investment of a project from the annual cash flows the project generates. According to the following

formula, the (simple) payback period of the project is estimated to be 4.08 years, or more precisely, 4 years and one month (equivalent to the year 1407)."

Payback period investment= $1/IRR + \text{construction}$

Payback period investment= $1/63.38 + 2.5 = 4.08$

9- Incentives, features and advantages of project:

Due to the fact that lands from natural and national resources are provided by the government to investors, so that they can use water and soil resources well and efficiently by having educated people and agricultural graduates at their disposal. The use of expertise, knowledge and optimal use of these resources will increase the efficiency of agricultural projects and lead to the production of high quality and high quantity products. The production of quality products in foreign markets increases the competitiveness of our country with foreign products and in the long run, it makes more markets available to Iranian agricultural products. In addition to the competitive market and exports, foreign exchange also increases in the country and causes economic growth. Employing young and educated workers in this field will encourage agricultural students to engage in work related to their field of study after graduation.

Considering that investment in these projects creates employment, exports and foreign exchange, on the other hand, the government should consider bank loans with very low and long-term interest for investors, and according to the laws and regulations, they should be exempted from some taxes. exceptions, but it is necessary to have sufficient supervision.

10- Management summary of the business plan for the production of greenhouse products in Qasr Shirin city, Gandamban region

Below is the management summary of the business plan for the production of greenhouse products in Qasr Shirin city of Gandamban region, related to Mr. Omid Rasouli, located in Gandamban region. The findings of this study indicate that the situation of supply and demand of the products/services of this project has been examined in the appendix. and appropriate marketing strategies have been set to respond to market needs and operate in a competitive environment. The business model of this project has also been set, which can be reviewed below. For this project, 5061346.29 euro will be invested as fixed capital in various items, and 303680.77 euro will be spent for obtaining permits, preparing plans, trial launch,

etc. The total investment in this plan reaches 5365072.06 euro. On the other hand, in the first year of operation of the plan, the amount of working capital is 7599474.18 euro, which is 777313.94 euro and 1564390.93 euro for the second and third years, respectively. It should be noted that the utilization percentage of the nominal capacity in the first, second and third year is 30%, 30% and 60%, respectively, also the estimates show that the total income of the project at 100% of the nominal capacity is 10719214.3 euro.

In total, the project will create employment for 757 people who will work in various positions. Also, this plan requires 1 rial of bank facility, which includes 0% of the total required investment (fixed and circulating).

The profit of the first year of this project is 94264.03 euro, which in the 10th year, taking into account the salvage value and inflation considered in the assumptions, reaches the amount of 26858.6. Based on the calculations, the internal rate of return (IRR) of this plan is 62.66%, compared to the investor's expected rate of return of 30%; This project is in a favorable condition; Therefore, from the point of view of this financial index, investment in this project is suggested. Also, the project will have a return on investment in 4 years and one month and will reach the break-even point with 29.92% of the nominal capacity. The following table provides a summary of the most important financial data:

No.	title	amount	interpretation
1	Payback period	4 years and one month	That is, after 4 years and one month, the net profit of the project covers the initial investment.
2	Percentage of sales at break-even point	30	In this project, to reach a point where we have neither profit nor loss, we must use 32% of the nominal capacity.
3	Debt ratio in the first year	1.6	It means that a total of 1.6% of the total assets are financed from debt.
4	Debt-to-equity ratio in the first year	0	It means that the current and long-term debt of the company is equal to 0.0% of the equity.
5	Turnover ratio of total assets in the first year	65.9	That is, the amount of sales is 65.9 times the value of total assets.
6	Net profit margin ratio in the first year	29.4	This means that 29.4% of sales or revenue is net profit.
7	Net profit margin ratio in the last year	54.5	It means that 54.5% of sales or income is net profit.
8	Current ratio in the first year	12.2	Current assets are 12.2 times current liabilities.
9	is equal to current liabilities.	6.4	Current assets are 6.4 times current liabilities.

10	compound lever	8.3	That is, for a 1% change in income in this project, the net profit will change by 8.3%.
11	Investment per person	7093.02 euro	7087.2 euro will be invested in this plan for each job creation person.
12	Employment facilities	0	0 rials of facilities are used to create employment for each person.
13	Profitability index	3.8	
14	The share of the most important investment item	57.0	57.0% of the plan's fixed investment is related to landscaping, which accounts for the largest share of the plan's investment items.