

# **General Department of Economic and Financial Affairs of Khuzestan**

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

## **Double-Circuit Cold Storage**

(Attachment Number 1)

Date: 2023/04/21

V2

**In the name of God**  
**Table of content**

**(Attachment Number 1) ..... 1**

1)Location of the project ..... 4

    1-1-Province ..... 4

    1-2- County ..... 4

2) Project Status ..... 4

    2-1-ACCESS TO INFRASTRUCTURES ..... 5

3)Technical specifications of the project ..... 6

    3-1-Product ..... 6

    3-2-Project Requirement ..... 7

        3-2-1-Land And Required Infrastructure ..... 7

        3-2-2-Plant Machinery and Equipment ..... 7

        3-2-3-Raw Materials and Intermediate Parts ..... 9

        3-2-4-Management and human resource ..... 10

4)Ownership and legal permissions ..... 10

    4-1-land ownership ..... 10

    4-2-Intellectual Property and Concessions ..... 10

    4-3-Legal permissions ..... 10

5)market research and competition ..... 10

    5-1-Target market introduction ..... 11

(6)Physical progress of the project..... 4

7)Operational plan and implementation scheduling..... 13

8)Financial Plan ..... 14

    8-1-Cost Estimation ..... 14

    8-2-Sales Revenue ..... 15

    8-3-Length of Production Phase ..... 15

    8-4-Break-Even Analysis ..... 15

    8-5-Cost-Benefit Analysis ..... 16

    8-6-Sensitive Analysis ..... 16

    8-7-Conclusion ..... 18

    8-8-Estimation of currency rate fluctuation during the project implementation ..... 18

9)Investment Required, method of fundraising and guarantees..... 18

    9-1-Foreign Currency Required ..... 18

    9-2-Model Of Partnership and Fundraising ..... 18

    9-3-Payback Period ..... 19

10)Incentives, features and benefits of the plan..... 19

**(Attachment Number 2) ..... 20**

## Tables and Figures

Table (1): access to infrastructures .....	5
Table (2): Amount of investment in land, landscaping and building .....	7
Table (3): Plant Machinery and Equipment.....	8
Table (4): Auxiliary and service plant Equipment .....	9
Table (5): Costs of Raw Material for Production.....	9
Table (6): Management and Human Resource .....	10
Table (7): Project Scheduling .....	13
Table (8): Cost Estimations.....	14
Table (9): Fixed Capital Estimations (Capital Costs).....	14
Table (10): Total Net Working Capital Requirements (Production Costs).....	14
Table (11): Pre-Production Expenditure.....	15
Table (12): Project Revenue in The First 5 Years of Production Phase (Billion Rials).....	15
Table (13): Planning Horizon .....	15
Table (14) : Project break-even point estimation .....	16
Table (15): Project Return Index.....	16
Table (16): Sensitivity Analysis (Percentage of IRR changes caused by sales revenue, fixed assets and operating costs alteration) .....	17
Table (17): Summary of Economic Features .....	18
Table (18): Currencies exchange Rate .....	18
Table (19): Foreign (Fixed) Currency Required .....	18
Figure (1): The Province location in Iran .....	4
Figure (2): Location map of Dezful in Khuzestan .....	4
Figure (3): Political divisions of Khuzestan province.....	4
Figure (4): Project location map .....	5
Figure (5): The picture of the Dezful Industrial zone 2.....	5
Figure (6): Map of access roads to the project .....	5
Figure (7): Percentage changes in IRR caused by the sales revenue, fixed assets and operating costs alteration.....	17

## 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

According to the latest national divisions of 1401 of the Ministry of Interior, this province has 29 counties, 70 districts, 145 villages, 90 cities and 3 special governorates. The latest political divisions of the province are described in figure (3).

**DEZFUL** city is one of the cities of Khuzestan province. The center of this city is **DEZFUL** and it is located 721 km from Tehran, 151 km from Ahvaz and 300 km from the Persian Gulf. DEZFUL city is spread from 48 degrees and 24 minutes of longitude and 32 degrees and 22 minutes of latitude. DEZFUL is limited to Lorestan from the north, SHUSHTAR from the east, Ahvaz from the south, and ANDIMESHK and ILAM from the west. The important rivers of this city are Dez and Karkheh.

DEZFUL city is located in the slopes of the middle Zagros. In Khuzestan province, this city is the second largest city after Ahvaz. This city is located in the north of Ahvaz and in the south of ANDIMESHK, and it has become famous for its long history and tourist attractions.

Agriculture and handicraft production are the most important sources of employment in this city. DEZFUL is one of the most important cities in Iran in the field of agriculture, and vegetables, citrus fruits and citrus fruits are among its main products.



Figure (1): The Province location in Iran

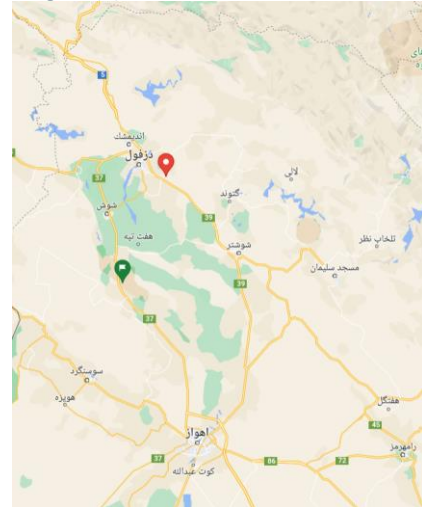


Figure (2): Location map of Dezful in Khuzestan

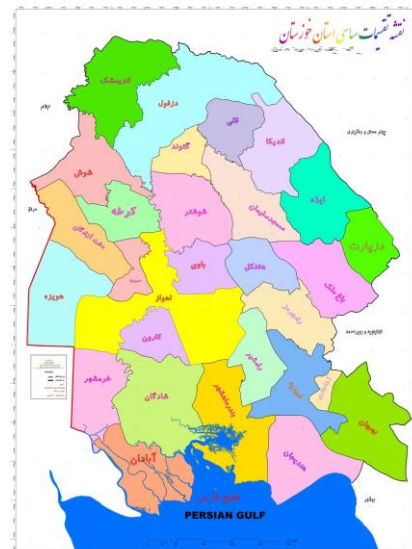


Figure (3): Political divisions of Khuzestan province

## 2) Project Status

The location of this project is proposed in DEZFUL Industrial zone and an area of about 12,000 square meters. This special area is located near the city of DEZFUL. According to the laws and regulations, taking land in this place requires industry, mining and trade permits and the approval of the Khuzestan Industrial Estates Company and the approval of the environment of DARFUL city. The reason for this choice is DEZFUL'S high ranking in the production of agricultural, horticultural and livestock products. According to the statistics, DEZFUL ranks first in the production of agricultural, horticultural and livestock products with a share of 22, 21.7 and 12%, respectively, with a big difference from other cities. Currently, some crops of the city, including celery, cauliflower, cabbage and carrots, and other vegetables are bought in bulk by exporters and are exported to Russia through the ASTARA border. The construction of this cold store can help to provide sorting services, maintain agricultural and horticultural products of the city and province and develop the economy of this region.

### 2-1- Access to infrastructures

Currently, there are water, electricity and gas infrastructures in this industrial town. In terms of access to transportation, this town is in a good location. The distance between the selected location and the DEZFUL-SHOSHTAR highway is 4.4 kilometers.



Figure (4): Project location map



Figure (5): The picture of the DEZFUL Industrial zone 2

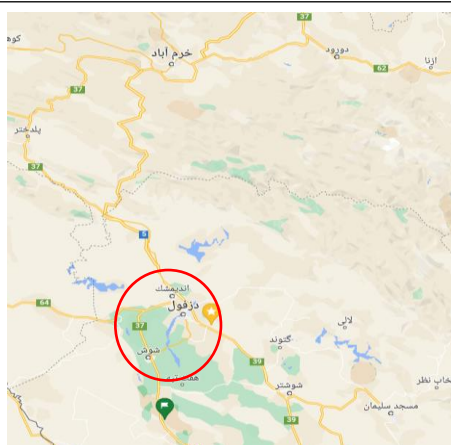


Figure (6): Map of access roads to the project

Table (1): access to infrastructures

No.	Required Infrastructure	Distance From Project Status(km)	Location Of Infrastructure Provision
1	Water	0	DEZFUL Industrial zone 2
2	Electricity	0	DEZFUL Industrial zone 2
3	Gas	0	DEZFUL Industrial zone 2
4	Telecommunication	0	DEZFUL Industrial zone 2
5	Main road	4.4	DEZFUL-SHOSHTAR highway
6	Side road	1.3	Transportation routes to the industrial town
7	Airport	23	DEZFUL Airport
8	Port	242	Imam Khomeini
9	Railway Station	28	ANDIMESHK Railway

### 3) Technical specifications of the project

A cold room is a fixed or mobile closed space that has a refrigeration system or device. Double-circuit or dual-purpose cold storages are those categories that can be set above zero and below zero. The motor used in double-circuit cold stores and their insulation method will make it possible to set the temperature of the cold store above zero or below zero at any time.

Usually, zero-positive cold storages are used to store agricultural products, fruits and vegetables, so that while preventing them from spoiling, the fruit tissues are not frozen and retain their taste. Cold storages above zero usually provide a temperature of zero to plus 5 degrees Celsius.

Negative zero cold stores are used to store highly perishable food such as red meat, chicken, fish, and protein and dairy products such as sausages, hamburgers, ice cream, etc. Usually, the temperature of cold storages is reduced to minus 32 degrees Celsius.

It is not possible to store food above zero and food below zero at the same time in double circuit cold stores. In these cold stores, engines are used that have the ability to cool down to minus 40 degrees Celsius. Also, the insulation method of these cold stores is thicker and more precise. Rock wool, injected insulation or polyurethane blocks are usually used to insulate cold stores.

Usually, cold storages are made in three types: Conex, shed and room. Conex cold storages are ready and it is possible to move them easily; The cold storage rooms cannot be moved, the third type of cold storages, which are built in the form of sheds and halls, will have the highest costs.

Some of the other uses of the secondary cold storage are:

Cold room for food storage (fruits, vegetables, meat, dairy and all kinds of food products), drug and vaccine storage, blood bank (plasma freezer), environmental test room, chamber, mobile shelter that can be installed on all kinds of Trailers, trucks and vans, mobile sheds that can be moved with a tractor or crane (no need for disassembly), flower storage (humidity controlled).



### 3-1- Project Requirement

#### 3-2-1- Land And Required Infrastructure

For the construction of a two-circuit cold store in DEZFUL industrial zone, an area of 12,000 square meters and construction infrastructure (sole and other buildings) totaling 5,310 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	Earth to dimensions 112 * 107	Khuzestan - DEZFUL city - DEZFUL industrial zone 2	12,000	4,000,000	48,000
2	Landscaping operations	According to the calculations	6,500	5,123,077	33,300
3	Construction	Production building (height 6-sanitary with sandwich panel)	4,200	120,000,000	504,000
		Administrative building and central management	300	80,000,000	24,000
		Labor and support building (restaurant and dressing room and prayer room, bathroom and toilet)	100	60,000,000	6,000
		Water, electricity and gas facilities building	60	40,000,000	2,400
		Guard and janitor building	50	50,000,000	2,500
		Other buildings (laboratory and warehouse)	600	60,000,000	36,000
Total			-	-	656,200

#### 3-2-2- Machinery and Equipment

The parts used in the construction of a double-circuit industrial cold store include the following:

**Double circuit refrigerator compressor:** The compressor is the most important part of any industrial double circuit refrigerator, whose task is to compress the gas used in the refrigerator, and in the process of compression, the gas temperature increases.

**Double circuit cold room condenser:** the main function of the condenser in the cold room is a heat exchanger; Gases whose temperature is increased by the compression of the compressor are turned into liquid by the condenser by cooling.

**Double-circuit cold room operator:** the operator's duty is to cool the space inside the rooms of the double-circuit industrial cold room; This part consists of 4 parts and cools the interior space of the rooms by piping through these 4 parts.

Side parts of double-circuit cold storage:

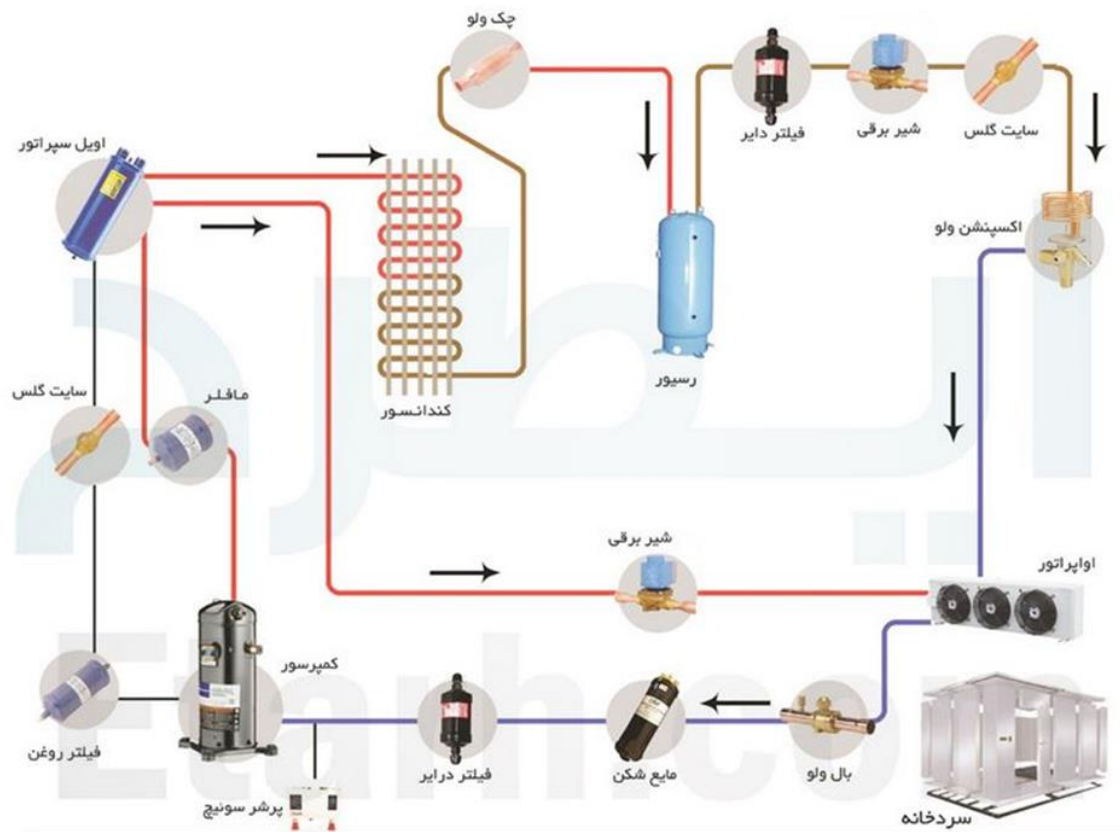
**Sandwich panels of double-circuit cold storage:** Sandwich panels are modern structures that are used today to build double-circuit cold storage; One of the characteristics of this structure is that it is light at the same time as having high resistance; It also prevents the entry and exit of air into the cold room.

**The electrical map of the double-circuit cold store:** the electrical map of the industrial double-circuit cold store actually shows the general layout of the cooling systems.

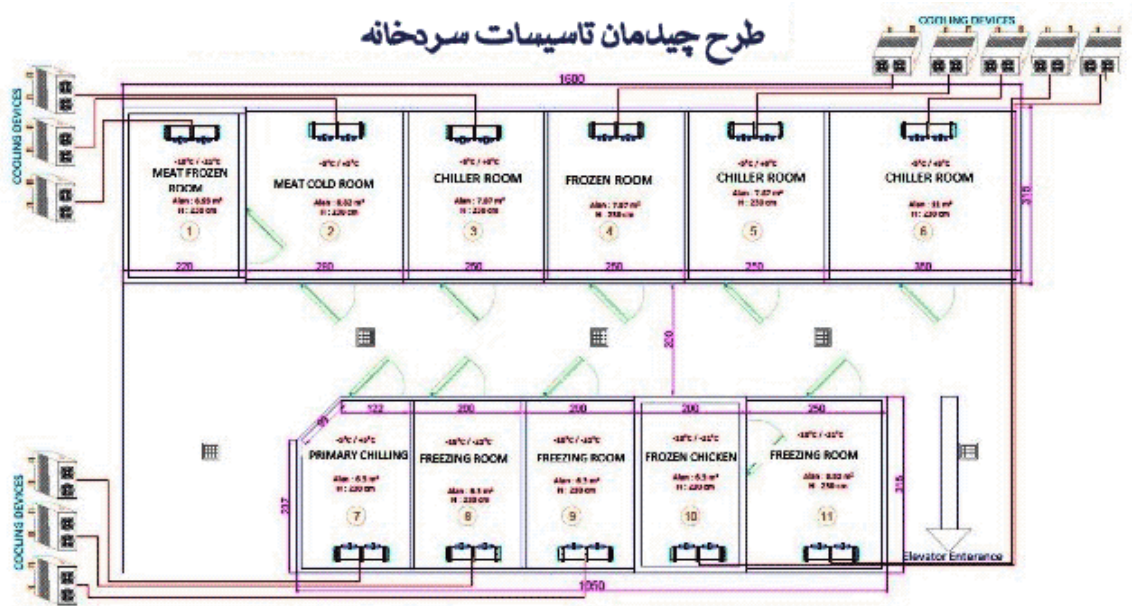
**Double-circuit cold room electrical panel:** the double-circuit industrial cold room electrical panel includes a metal box and is responsible for directing the entire system and performs start-up operations, control and shutdown of cold-room related devices. to give

**Double-circuit refrigerator motor:** the main factor for starting the cold storage system is the motor, and according to the temperature of the products, the refrigerators need a powerful motor.

**Double circuit cold storage floor:** The double circuit cold storage floor must have high temperature resistance; Otherwise, they will crack and cause the appearance of bacteria and fungi.



Components constituent of morgue



Example of a layout plan for a cold storage facility



Table (3): Plant Machinery and Equipment

No.	Equipment/Machinery	Required investment			Total cost (Million Rials)
		Amount	Purchase Price	Currency	
1	5,000-ton double-orbit above-zero storage equipment	1	390,000	(Million Rials)	390,000
2	Digital weighing equipment, racking, etc.	1	3,500	(Million Rials)	3,500
3	Other main equipment - domestic	1	8,500	(Million Rials)	8,500
Total		-	-	-	<b>402,000</b>

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	300	6	1,800
2	Several Electrical Cables	M	Facility	1,000	4.0	4,000
3	Electrical equipment of the lighting system	Amount	Facility	350	40	14,000
4	The Cost of Panel Boards and Related Electrical Equipment	Amount	Facility	5	320	1,600
5	branching of water	-	Facility	1	3,000	3,000
6	Other water transfer equipment	Amount	Facility	1	4,000	4,000
7	Firefighting, safety and health equipment and...	Capsule	Facility	20	30	600
8	gas piping	M	Facility	400	5	2,000
9	Gas branching	-	Facility	1	2,000	2,000
10	Water heater and heater	Machine	Facility	3	350	1,050
11	Air conditioning equipment	Machine	Facility	6	36	216
12	Air conditioner	Set	Facility	5	1,000	5,000
13	Gas heaters	ton	Facility	8	150	1,200
14	2.5-ton pallet jack with scale	Machine	Vehicle	5	360	1,800
15	3ton forklift	Machine	Vehicle	1	17,500	17,500
16	Nissan Cargo	Machine	Vehicle	1	6,000	6,000
17	car	Machine	Vehicle	1	5,000	5,000
18	Workshop and laboratory tools and equipment	Machine	Laboratory and workshop equipment and tools	1	12,000	12,000
19	Other safety equipment and CCTV system of office building	Set	Facility	1	3,200	3,200
20	Office Equipment	Set	office	8	700	5,600
21	Restaurant Equipment	Set	office	10	30	300
22	Medical Equipment	Set	office	1	1,500	1,500
23	Other ancillary facilities	-	Facility	1	2,634	2,634
Total				-	-	<b>96,000</b>

### 3-2-3- Raw Materials

The specifications of raw materials in the present design are as described in the table below.

Table (5): Costs of Raw Material for Production

No.	Title	unit	amount	consumption Unit	Amount of consumption in nominal capacity	The cost of materials at the nominal capacity (Million Rials)
1	Packaging materials/pallets and precautionary packaging containers	ton	٪0.50	percent	0	3,650

### 3-2-4- Management and human resource

For the construction of a double-circuit cold store, 20 manpower 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 - Rial
1	Senior	10	162,000,000
2	Mid-level	0	120,000,000
3	Junior	10	85,000,000

Number Of Direct Mid-Level Staff Required	2	0
Number Of Direct Junior Staff Required	77	10
Number Of Direct Senior Staff Required	17	10
Total	96	<b>20</b>

## 4) Ownership and legal permissions

### a. land ownership

the DEZFUL Industrial zone is a suitable place for the implementation of project. The right to use the land in the mentioned industrial town is equal to 4,000,000 Rials and the related costs are considered in the plan. Land ownership is subject to legal conditions and regulations and will be available to investors after exploitation. In order to take industrial land in this town, it is necessary for the investors to obtain the legal permits mentioned in paragraph 3-4.

### b. Intellectual Property and Concessions

In order to build a cold storage and operate it, there is no need to use high knowledge and these services are currently provided by other units. Therefore, the technical knowledge in question exists in the country. Of course, the provision of cold storage services for each of the fruits and vegetables must be in accordance with the relevant standards. Some of the standards in this regard include standards 1899, 2720, 3399, 3589, 1185, 1291, 1696, 1389, 1757, 1758, 18655, 19100, 2013, 2016, 2017, 2019, 2847, 3254, 3588, etc.

### c. Legal permissions

In order to build and operate a refinery, legal permits such as (operating permit and operating permit) from the Khuzestan Province Industry and Mining Organization, and an environmental permit are required. It is worth noting; The construction of this cold store in DEZFUL industrial town will not create any problem for the environment and environmental permits are possible.

## 5) market research and competition

### a. Target market introduction

One of the most important developments in the world in the field of refrigeration and cold storage equipment is the production of double circuit cold storage. To prevent food and agricultural products from spoiling, they should be kept in a cold room. Double-circuit cold storage has two different levels for storing food. Basically, this type of cold storage can be adjusted between +5 and -33 degrees.

Due to the production of various foods, fruits and vegetables from other places in the world, it seems difficult to store them due to their different freezing point; With the design and construction of a double-circuit cold store, it is possible to increase the capacity of food storage, and if the halls are empty, by changing its use, the cold room space can be used well. The statistics of mortuary units and their nominal capacity in 1401 by province are as described in the following table:

Table (7): Statistics of cold storage units by Khuzestan province

province	Share of the province (%)	Nominal capacity (tons)	Number of units
EAST AZARBAIJAN	٪5.50	246,100	74
WESTERN AZERBAIJAN	٪19.66	879,500	415
ARDABIL	٪2.57	115,000	38
ESFAHAN	٪5.61	251,000	31
ALBORZ	٪3.75	167,835	17
ILAM	٪0.16	7,330	7
BUSHEHR	٪1.97	87,935	108
TEHRAN	٪5.15	230,305	46
CHAHARMAHAL VA BAKHTIARI	٪1.50	67,000	17
SOUTHERN KHORASAN	٪0.24	10,645	13
KHORASAN RAZAVI	٪6.91	309,000	60
NORTH KHORASAN	٪0.35	15,600	7
KHUZESTAN	٪1.07	48,000	10
ZANJAN	٪1.42	63,550	17
SEM NAN	٪0.27	12,200	9
SISTAN AND BALUCHESTAN	٪1.46	65,200	59
FARS	٪5.45	243,989	115
QAZVIN	٪0.46	20,500	7
QOM	٪0.70	31,200	4
KURDISTAN	٪3.83	171,400	68
KERMAN	٪4.73	211,470	164
KERMANSHAH	٪0.74	33,100	16
KOHILOYEH AND BOYERAHMAD	٪0.40	18,000	11
GOLESTAN	٪0.19	8,300	8
GILAN	٪3.71	165,735	52
LORESTAN	٪0.54	24,000	10
MAZANDARAN	٪7.75	346,600	101
MARKAZI	٪2.69	120,250	22
HORMOZGAN	٪0.73	32,570	21
HAMEDAN	٪4.69	210,000	78
YAZD	٪1.35	60,600	15
south of Kerman province	٪4.45	199,000	66
total	100%	4,472,914	1,686

The statistics of cold storage units (in the country) during the years 1395 to 1400 are according to the following table:

Table (8): Statistics of cold storage units until the end of 1400

Nominal capacity (tons)	amount	year
2,632,752	911	1395
2,691,570	922	1396
3,551,966	1,214	1397
3,446,631	1,334	1398
3,938,572	1,360	1399
4,472,914	1,686	1400

With the annual production of more than 2 million and 600 thousand tons of chicken meat, about 900 thousand tons of light and heavy livestock meat and more than 20 million tons of fruit production in Iran, there is a demand for the construction of cold storage in the country.

To achieve a productive economy that relies on efficiency and innovation, to achieve a continuous growth in national income and increase the per capita wealth of the society, transitioning from an economy based on a few specific products is considered vital. In order to achieve such an economy, it is necessary and necessary to create infrastructure and reforms in the structure of the economic system, in order to form the necessary platforms to achieve a dynamic and competitive economy. In the path to development, it is very important to pay attention to the existence of infrastructure. Building and creating infrastructure is necessary to achieve high growth in the long term and maintain economic growth for a longer period of time. The creation of warehouses and cold storages as one of the infrastructures in the agriculture and animal husbandry sector, in order to increase the volume of domestic and foreign trade, plays an essential role in countries.

### 7) Physical progress of the project

No  Yes

This plan is created and defined to cover the needs of DEZFUL city and Khuzestan province. There has been no progress in the implementation of this project so far.

### 8) Operational plan and implementation scheduling

The implementation of the project stages until its operation is planned for 24 months, and the operation of the project is expected from the beginning of 1405. The schedule of the project is presented in Table (9).

Table (9): Project Scheduling

year	1402				1403				1404				1405			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operations/Season																
Pre investment studies	■															
Fundraising and starting	■	■	■	■												
Obtain legal permissions					■	■										
Providing engineering services						■										
Land purchase and preparation						■										
Selecting contractor						■										
Equipping site							■									
Construction and landscaping							■	■	■	■	■	■				
Order, purchase and transportation of machinery								■	■	■	■					
Machinery installation												■				
Facilities								■	■	■	■					
Hiring and onboarding of staff													■			
Unexpected delays													■			
Trial production													■			
production phase													■	■	■	■

## 9) 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 utilization and are consumed during the life of the project according to their service life. Working capital includes the capital required during the utilization of the project. The working capital of a production unit is the set of facilities, inventories and work in progress, as well as the cash required for the utilization of fixed capital in order to maintain and continue operations.

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 (10): Cost Estimations

No.	Subject	Amount (Million Rials)
1	Fixed investment	1,255,000
2	Working capital	14,717
3	Annual production cost	211,080
4	Annual depreciation of investment	107,739
5	Estimate the total capital required	1,269,717
6	The total price for the product unit (by product type)	-
7	Storage services for fruits and vegetables in cold storage (Riyals/kilogram per day)	144

Table (11): Fixed Capital Estimations (Capital Costs)

No.	Subject	Cost (Million Rials)	
1	Purchasing land	48,000	
2	Landscaping and land improvement	33,300	
3	Civil operations and construction of buildings	574,900	
4	Production machinery and equipment	402,000	
5	Service equipment	96,000	
6	Protection and environmental equipment	0	
7	Overhead costs	0	
8	Pre-Production Expenditure (As described in Table (13))	Pre-investment studies	1,820
		Project management and organization	38,230
		Technology education	2,950
9	Unexpected costs	57,800	
Total		1,255,000	

The main 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 coverage period of material inventory equivalent to one crop (30 days) is considered.
- 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 of the final product and work in progress is not included.
- 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 (12): Total Net Working Capital Requirements (Production Costs)

No.	Subject	Amount (Million Rials)
1	Raw Materials Inventory	304
2	Work In Progress	0
3	Finished Product	0
4	Accounts Receivable	0
5	Cash and cash balance	14,413
6	(Commercial Accounts Payable)	0
Total Net Working Capital Requirements		14,717

Table (13): Pre-Production Expenditure

No.	Subject	Description	Total (million Rials)
1	Incorporation	-	70
2	Obtaining Licenses / Production License	-	200
3	Studying, Consulting, Research and Development, Traveling, Visiting and Participating in Local Exhibitions, etc.	1.5 thousandth of the investment costs of the project	1,820
4	Property Insurance	2 thousandth of depreciable fixed assets	2,420
5	Survey Fee, Financing, Contract and So On	Survey fee 0.5 thousandth, other 2.5 thousandth	2,910
6	Cartography, Supervising	2 thousandth of contract expenses	2,020
7	Other's	Staff Training	Equivalent to 3 days of Staff salary
		Wages And Salaries During the Construction	Equivalent to the salary of 11 personnel in 12 months
		Other Expenses	72.2
Total			41,870

### 8-2- Sales Revenue

The provision of cold storage services to customers is in the form of assigning a place with a certain capacity to customers for a predetermined period of time. This period can be from one day to 6 months and it depends on the type of product and the conditions of harvesting and presenting it to the market. For each amount of capacity and duration of storage, an amount is agreed between the owner of the goods and the cold storer, which can be different for different goods. In the current plan, the rate of storage of fruits and vegetables in cold storage is considered to be 500 Rials per kilogram on average. Based on this (and according to the production plan), the total sales amount of the project in 1405 at the fixed prices of 1402 is estimated to be equal to 584 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 730 billion Rials.

Table (14): Project Revenue in The First 5 Years of Production Phase (Billion Rials)

No	Subject	Q <sub>1</sub>	Q <sub>2</sub>	Q <sub>3</sub>	Q <sub>4</sub>	Total 1 <sup>st</sup> Year	Total 2 <sup>nd</sup> Year	Total 3 <sup>rd</sup> Year	Total 4 <sup>th</sup> Year	Total 5 <sup>th</sup> Year
1	Storage services for fruits and vegetables in cold storage	146	146	146	146	584	657	730	730	730

### 8-3- Length of Production Phase

The construction period of the plan is 24 months and it is considered to start from first 1403. The duration of the project is considered to be 5 years.

Table (15): Planning Horizon

Title	Month	-	year
Project identification	1	/	1402
Beginning of construction phase	1	/	1403
Beginning of production phase	1	/	1405
End of production phase	12	/	1409

Length of construction phase (months)	Start of phase (months)	Length of production phase (years)
24	12	5

### 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

$$\text{Break-even sales value} = \frac{144,750}{1 - \frac{66,330}{730,000}} = 159,217 \text{ (Million Rials)}$$

$$\text{The number of sales at the break-even point} = \frac{144,750,195,000}{556 - 50} \approx 286,590,970 \text{ (Kg)}$$

$$\text{Break-even ratio (\%)} = \frac{159,217}{730,000} = 21.8\%$$

Table (16) : Project break-even point estimation (million Rials)

Title	Production 1405	Production 1406	Production 1407	Production 1408	Production 1409
Sales revenue	584,000	657,000	730,000	730,000	730,000
Variable costs	57,236	61,386	65,535	65,535	65,535
Profit margin	526,764	595,614	664,465	664,465	664,465
Profit margin ratio (%)	90	91	91	91	91
Fixed costs	141,356	143,072	144,788	144,788	137,230
Break-even sales value	156,715	157,818	159,068	159,068	150,765
Break-even ratio (%)	26.8	24.0	21.8	21.8	20.7

- According to COMFAR Results

Based on the calculations of COMFAR software, the break-even point in Rials including operating and non-operating costs, is 159 billion Rials and it will be achieved in the 21.8% 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. According to the break-even point relationship, three practical results are obtained from its analysis:

- 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.
- A high break-even point 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 30% is over 127,266 million 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 34.4% and compared to the Minimum Attractive Rate of Return, it is favorable.

Table (17): Project Return Index

Index	Amount	Unit of measurement
The Present Value of The Total Cost of The Period of Construction Phase and Production Phase	1,274,015	Million Rials
The Present Value of The Total Income of Construction Phase and Production Phase	1,401,282	Million Rials
NET PRESENT VALUE (NPV)	127,266	Million Rials
Cost-benefit RATIO (B/C)	1.10	-
INTERNAL RATE OF RETURN (IRR)	34.4	Percent
NPV RATIO (PI)	0.12	Rial per Rial of investment
NORMAL PAYBACK	2.35	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 Period** is the period of time to get the initial capital of the project from its income. In other words, the capital return period shows the time it takes to recover the initial investment. This measure shows the speed of money return and the project's protection against risk. The return period (simple) of the plan is estimated to be equal to 2.35 years (equal to the year 1407) 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 (18) shows the results of the sensitivity analysis regarding the variables of sales income, fixed assets and operating costs.



### 8-6-1- 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 34.4% to 43%. 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 (18): Sensitivity Analysis (Percentage of IRR changes caused by sales revenue, fixed assets and operating costs alteration)

Variation (%)	Sales revenue	Investment costs	Operating costs
-20%	26%	44%	36%
-4%	33%	36%	35%
0%	34.4%	34.4%	34.4%
4%	36%	33%	34%
20%	43%	27%	33%

### 8-6-2- Fixed Assets

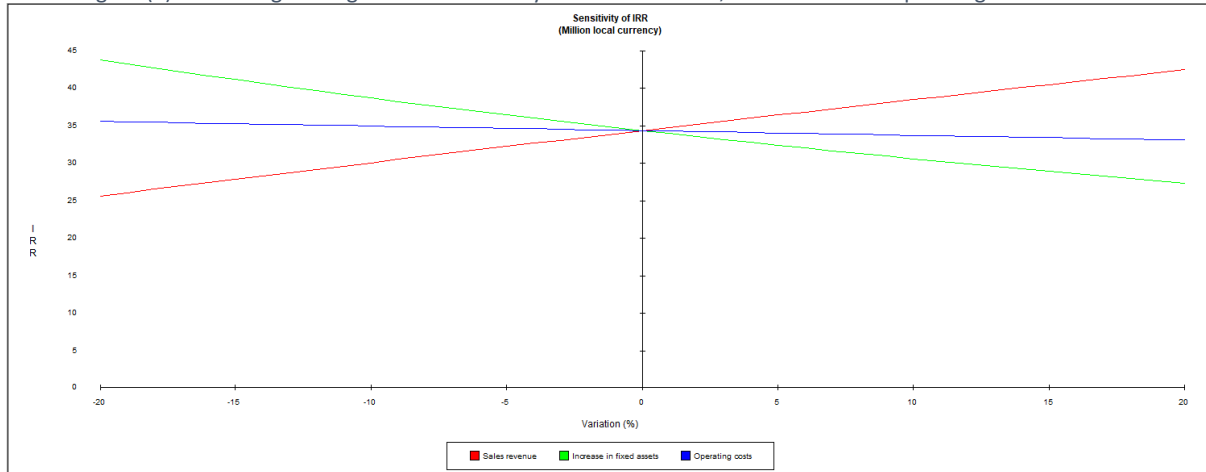
The change in the fixed assets is due to the fixed costs of the initial investment alterations. The results of the sensitivity analysis according to the fixed costs of the plan have been done and it shows that in case of an unexpected 20% increase in the fixed capital costs of the project, the internal rate of return will decrease from 34.4% to 27%. Conversely, if there is a 20% reduction in the fixed capital costs, the internal rate of return will increase and reach 44%.

### 8-6-3- 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 33%. On the contrary, if the total operating costs of the project are reduced by 20%, the internal rate of return will increase to 36%. 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 (7): 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 12,000 square meters and carrying out construction in the substructure of 5,310 square meters. The total investment in land and building is estimated at 656 billion Rials and the total investment in main and auxiliary equipment is estimated at 555 billion Rials. The total pre-operational costs are estimated at 43 billion Rials, including the total fixed capital required of 1,255 billion Rials and the total working capital required for the project is 14,717 million Rials. The total investment of the project is expected to come from the resources of the company's shareholders.

The project is expected to be sold in 1405 at fixed prices equal to 584 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 730 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1405 is equivalent to 385,408 million Rials. The profit will increase in the following years and will reach a maximum of 527,235 million Rials. The average annual profit of the plan is 343,506 million Rials and the average profit margin is expected to be 70.1%. The internal rate of return (IRR) of the project is estimated at 34.4% and the payback period (PBP) is estimated at a maximum of 2.35 years. 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 127,266 million 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 (19): Summary of Economic Features

Nominal Capacity and Unit of Measurement	Product Name	Title Of the Project with ISIC Code	Title Of the Project
5000 Ton	Storage and preservation of food in double circuit cold storage	Storage and preservation of food in double circuit cold storage (6302612311)	plan of Construction double-circuit morgue
Required Human Resource (Person)	Equity Shares (Million Rials)	Total Fixed Capital (Million Rials)	Project Duration
20	14,717	1,255,000	24
B/C	Applicant Available Cash (Million Rials)	Net Present Value (NPV) (Million Rials)	IRR (%)
1.1	1,269,717	127,266	34.4
ROI (%)	NPV Ratio / Profitability Index (Rial per Rial invested)	Dynamic Payback Period (Year)	Normal Payback Period (Year)
27	0.12	5.17	2.35
Average Assets Turnover Ratio	Average Net Profit Margin (%)	Average Annual Profit (%)	Maximum Annual Sales (Million Rials)
0.33	70.1	343,506	730,000

## 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 (20). 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 (20): 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

# 10) Investment Required, method of fundraising and guarantees

## 9-1- Foreign Currency Required

The plan does not need currency and the total fixed capital of the plan is Rial.

Table (21): Foreign (Fixed) Currency Required

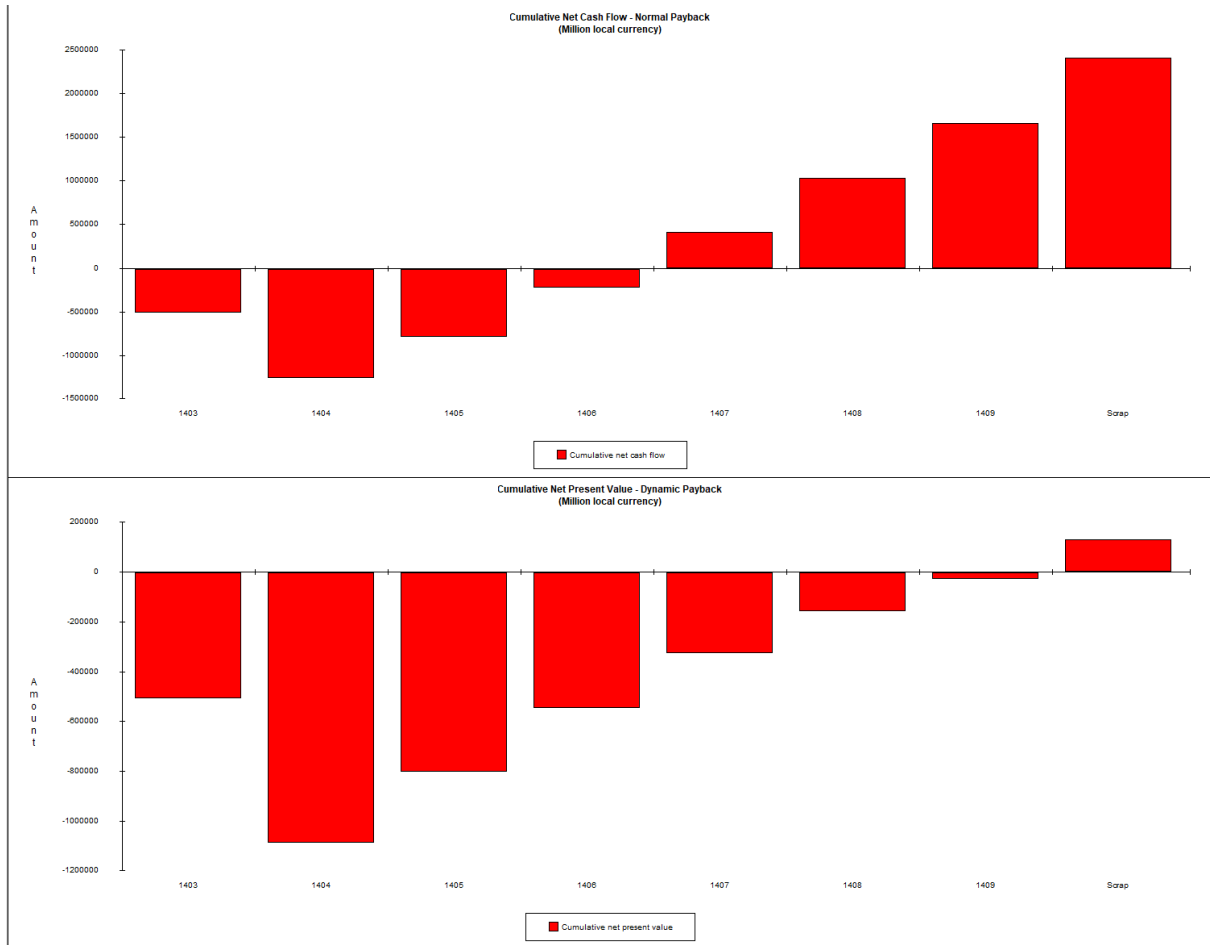
No.	Year	Required Investment
1	Year 1	0
2	Year 2	0
3	Year 3	0
4	Year 4	0
5	Year 5	0

## 9-2- Model Of Partnership and Fundraising

Participation in the present project and its fundraising process is predicted to be in the form of establishing a company inside Iran. The total required investment is predicted through the investor's contribution. Financing through local banks has not been included in the fundraising process.

### 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 2.35 years (equal to 1407) according to the calculations of CAMFAR.



Dynamic Payback Period of the plan is also estimated at 5.17 years.

## 11) 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.

In the tax department: according to Article 81 of the country's tax law, the income from all activities of agriculture, animal husbandry, fish and bee breeding and poultry breeding, fishing and fishing, animal husbandry, restoration of pastures and forests, gardens and trees of all kinds and plants of all kinds. They are exempt from paying taxes.

(Attachment Number 2)

Summary Sheet

Project introduction	
1. <b>Project Title:</b>	plan of Construction double-circuit morgue
2. <b>Sector:</b>	Production sub-sector: industry
3. <b>Products/services:</b>	Storage and preservation of food in a double-circuit cold room
4. <b>Location:</b>	Khuzestan - DEZFUL city - DEZFUL industrial zone 2
5. <b>Project description:</b>	<p>The implementation of the project is planned by acquiring a land with an area of 12,000 square meters and carrying out construction in the substructure of 5,310 square meters. The total investment in land and building is estimated at 656 billion Rials and the total investment in main and auxiliary equipment is estimated at 556 billion Rials. The total pre-operational costs are estimated at 43 billion Rials, including the total fixed capital required of 1,255 billion Rials and the total working capital required for the project is 15 billion Rials. The total investment of the project is expected to come from the resources of the company's shareholders.</p> <p>The sale of the plan in 1405 is predicted at fixed prices equal to 584 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 730 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1405 is equivalent to 385 billion. The profit will increase in the following years and will reach a maximum of 527 billion Rials. The average annual profit of the mature plan is 337 billion Rials and the average profit margin is expected to be 70.1%. The internal rate of return (IRR) of the project is estimated at 34.4% and the payback period (PBP) is estimated at a maximum of 2.35 years. 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 127 billion Rials.</p>
6. <b>Annual Capacity:</b>	5,000 ton

Project Status	
7. <b>Local/internal raw material access:</b>	100%
8. <b>Sales:</b>	730 billion Rials
<b>Anticipated local market:</b>	20%
<b>Anticipated export market:</b>	80%
9. <b>construction period:</b>	24 months
10. <b>project status:</b>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- Required land provided? Yes - currently there is industrial land in DEZFUL 2 industrial zone and based on the topography criteria of this area, it is a suitable place for building the project. Of course, in order to settle in this area, it is necessary to obtain the necessary approvals.</li> <li>- Legal permission (establishment license, foreign currency quota, environment) taken? In order to settle in DEZFUL 2 industrial zone, legal permits must be obtained from the organization of industry, mining, trade and environment of DEZFUL city.</li> <li>- Partnership agreement concluded with local/foreign investor? No. So far, no partnership agreement has been prepared for the implementation of the project. This plan has the necessary features to attract shareholders' financial resources.</li> <li>- Agreement with local/foreign contractor(s) concluded? No. so far, no agreement has been made for the construction and production of cages with domestic or foreign contractors.</li> <li>- The infrastructure utilities (electricity, water supply, telecommunication, fuel, road, etc.) procured? If the project is established in DEZFUL 2 industrial zone, infrastructure facilities such as water and electricity, roads, etc. are available.</li> <li>- List of technical know-how, machinery, equipment, as well as companies that sell or manufacture the product? In order to build a cold storage and operate it, there is no need to use high knowledge and these services are currently provided by other units. Therefore, the technical knowledge in question exists in the country. The provision of cold storage services for each fruit and vegetable must be in accordance with the relevant standards</li> <li>- Financing agreement for machinery, equipment and know-how concluded? No</li> </ul>

