

General Department of Economic and Financial Affairs of Khuzestan

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

6000-hectare shrimp farming complex plan in BUTAHARI

(Attachment Number 1)

Date: 2023/04/21

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In the name of God
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1) Location of the project

1-1- Province

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

1-2- County

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). **Handijan** city is located in the south of Khuzestan province. The center of this city is the city of Handijan. This city had a population of 38.7 thousand in 2015. The city of Handijan is one of the historical cities of Iran with an age of more than 3000 years. It is located in the southeast of Khuzestan province, 70 kilometers southeast of Mahshahr port and in the north of the Persian Gulf. A river called Handijan or Venus divides this city into two halves, the north and the south. Handijan Port, SEJAFI Port and MEHROVIAN Wharf are among the places that connect this city with the sea. Handijan has a 90 km water border with the Persian Gulf. From the economic point of view, Handijan River (Venus) divides this city into two halves, northern and southern. This river plays a decisive role in the lives of the people of the neighboring cities. An important part of handicrafts is made from palm leaves and sent to other regions inside and outside the country. Fishing industry is one of the oldest industries in Iran. BHRKAN region, which is located south of Handijan, is also one of the important areas for tourism and catching pink shrimp and other types of high-quality shrimp in the Persian Gulf region. The old and historical port of MEHROVIAN is located in the current village of IMAMZADEH Abdallah and is a part of Handijan city.



Figure (1): The Province location in Iran

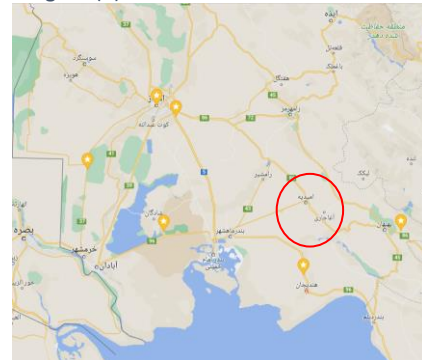


Figure (2): Location map of Handijan in Khuzestan



Figure (3): Political divisions of Khuzestan province

2) Project Status

This project will be implemented on a land of 6000 hectares at a distance of 2.5 km from the village called BUTAHARI on the coast of the Persian Gulf at the following coordinates.

Table (1): Coordinates of the project implementation location

points	Longitude	latitude
a	X=400937	Y=3346046
b	X=401085	Y=3343230
c	X=397939	Y=3343064
d	X=395554	Y=3341975
e	X=392577	Y=3340331
f	X=389601	Y=3338687
g	X=386887	Y=3337189
h	X=384905	Y=3340777
i	X=387619	Y=3342276
j	X=390595	Y=3343918
k	X=393572	Y=3345562

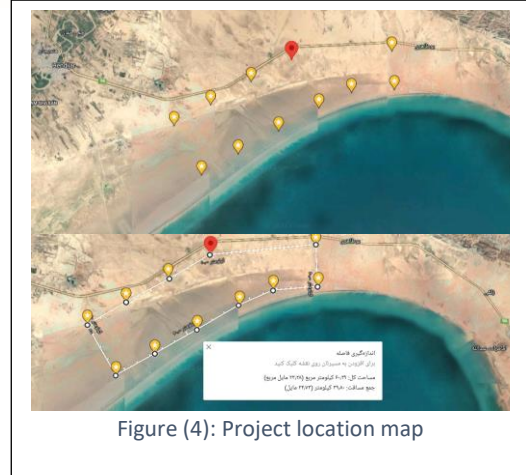


Figure (4): Project location map

BUTAHARI village is 28 km away from Handijan city. Currently, the land in question is barren and the construction of earthen pools in this area is without objection.

2-1- Access to infrastructures

Currently, there are electrical infrastructures in MAJARUT, the main road of BUTAHARI region. The nearest port to this area is DILAM Port in Bushehr province at a distance of 30 km, the nearest railway station (Bander Imam Railway) is located at a distance of 122 km, and the nearest airport (Mahshahr Airport) is located at a distance of 112 km.

Table (2): access to infrastructures

No.	Required Infrastructure	Distance From Project Status(km)	Location Of Infrastructure Provision
1	Water	0	Persian gulf
2	Electricity	0.5	electricity network
3	Gas	-	It is not predicted
4	Telecommunication	-	It is not predicted
5	Main road	0.5	DILAM - Handijan road
6	Side road	-	-
7	Airport	112	Mahshahr Airport
8	Port	30	Dilam port
9	Railway Station	122	Bandar Imam railway



Figure (5): Access routes to the project

3) Technical specifications of the project

3-1- Product

Shrimp: Shrimps are ten-legged crustaceans that have an elongated body and specialized appendages for swimming in water. Shrimps are found in many parts of the world and usually live on the bottom of oceans, seas, lakes and rivers. Most species live in oceans and in salt water. Some of them prefer river estuaries and brackish water. In total, about a quarter of shrimp species live in fresh water. Oceanic species live from near the coast to depths of 5000 meters.

Table (3): Characteristics of shrimp

Title	shrimp
Types of shrimps	Indian white, pink, tiger, marine breeding and...
The number of legs	The number of legs of these sea creatures is 10.
habitat	They live in the depths of the seas and oceans.
Edible shrimps	Pink, brown, white, stone, tiger, spotted
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Archaeological evidence shows that humans have been feeding on shrimp since prehistoric times. Although thousands of species of shrimps have been identified so far, only twenty of them are used for food.

In the 1970s, industrial shrimp farming was started and noticed, especially in China. Over time, with the increase in society's acceptance and need for shrimp, its production has also increased, and in 2007, the amount of farmed shrimp production surpassed the amount of shrimp caught from the seas. The largest production of farmed shrimp is done in China, followed by Thailand, Indonesia, and Vietnam. The largest imports also belong to the United States of America, the European Union and Japan.

Shrimp is usually sold frozen and has a high nutritional value. This food contains a lot of omega-3 fatty acids, calcium, iodine and good cholesterol and has a low level of mercury compared to other seafood.



Figure (6): Pictures of shrimp

3-2- Project Requirement

3-2-1- Land And Required Infrastructure

A land area of 6,000 hectares (with a useful area of breeding farms equal to 4,096 hectares) has been considered for the cultivation of shrimp in earthen ponds with a capacity of 14,700 tons per year. The specifications of the land, earthworks, concrete and other spaces required for the project are as described in the table below.

Table (4): Amount of investment in land, landscaping and building

No.	Requirements	Description	Investment Required		Total Cost (Million Rials)
			Required Area	Unit Price of Purchase/Construction	
1	land in the desired range	Khuzestan, Mahshahr County, BUTAHARI	60,000,000	0	0
2	Earth operations and preparation of pools and channels	The entire earthworks of constructing earthen pools, inlet and outlet channels, access roads, etc.	40,715,059	80,000	3,257,205
		Concrete tools and earthworks related to the water inlet of the entire complex + sand filtration system	2	187,660,000,000	375,320
		Paving and asphaltting the main access roads	632,832	3,000,000	1,898,496
		Other operations of landscaping and preparation of swimming pools, fencing, access roads, etc.	60,000,000	24,458	1,467,479
3	Construction	Aquatic feed warehouses in the form of mortgage and rent	5,000	1,000,000	5,000
		Administrative building and central management	3,120	100,000,000	312,000
		Labor and support kennels	2,720	100,000,000	272,000
		Canopy and equipment warehouse	1,760	100,000,000	176,000
		Guard and janitor compound	200	100,000,000	20,000
		Concreting operation of inlet and outlet openings of pools (cubic meters)	13,000	20,000,000	260,000
		Platform and canopy for unloading and loading catch	15,600	9,000,000	140,400
Total			-	-	8,183,900

3-2-2- Machinery and Equipment

According to the conditions of the place, the equipment required for shrimp farming is as follows. All equipment can be supplied in the country.

Table (5): Plant Machinery and Equipment

No.	Equipment/Machinery	Required investment			Total cost (Million Rials)
		Amount	Purchase Price	Currency	
1	Catwalk structures	4,096	150	(Million Rials)	614,400
2	Inlet and outlet water pumps (20 inches)	200	2,500	(Million Rials)	500,000
3	Ventilation equipment	8,192	500		4,096,000
4	Feeding system equipment	4,096	100	(Million Rials)	409,600
5	work boat (service)	10	1,200	(Million Rials)	12,000
6	Security system (camera) monitoring system	256	3,000	(Million Rials)	768,000
7	Environmental data receiving system	256	2,000	(Million Rials)	512,000
8	All types of pumps and screeds	256	80	(Million Rials)	20,480
9	Diesel emergency power generator	256	5,000	(Million Rials)	1,280,000
10	Other main equipment - Internal	1	167,520	(Million Rials)	167,520
Total		-	-	-	8,380,000

Table (6): 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	256	180	46,080
2	Power transmission line	km	Facility	8,000	10	80,000
3	Several Electrical Cables	m	Facility	124,160	4	496,640
4	Electrical equipment of the lighting system	Amount	Facility	256	800	204,800
5	The Cost of Panel Boards and Related Electrical Equipment	Amount	Facility	256	320	81,920
6	Water purifier	m	Facility	256	100	25,600
7	Drinking water piping	m	Facility	8,000	5	40,000
8	Drinking water pump and pumping equipment	Machine	Facility	256	150	38,400
9	Water tank (10000 liters)	Amount	Facility	256	400	102,400
10	fuel tank	m	Facility	256	150	38,400
11	Human sewage transfer route	m	Facility	256	150	38,400
12	Human sewage disposal well	m	Facility	256	150	38,400
13	Firefighting, safety and health equipment and...	Capsule	Facility	256	30	7,680
14	Air conditioner	Set	Facility	512	850	435,200
15	Nissan Cargo	Machine	Facility	256	7,000	1,792,000
16	ambulance	Machine	Facility	1	20,000	20,000
17	car	Machine	Facility	256	7,000	1,792,000
18	Workshop and laboratory tools and equipment	Machine	Laboratory and workshop equipment and tools	256	5,000	1,280,000
19	Other safety equipment and CCTV system of office building	Set	Facility	256	600	153,600
20	Office Equipment	Set	office	434	500	217,120
21	Medical Equipment	Set	office	256	80	20,480
22	Other ancillary facilities	-	Facility	1	34,880	34,880
Total				-	-	6,984,000

3-2-3- Raw Materials

In the present plan, the main raw materials include shrimp larvae and its feed. The price of each shrimp larva is equal to 1700 rials. The amount of feed to reach the ideal weight is considered with a feed conversion ratio (FCR) equal to 1.3. The average price of each kilo of feed is about 455,000 rials. It is worth noting; It is easily possible to supply these materials in the domestic market.

Table (7): Costs of Raw Material for Production

No.	Title	Average price of unit (Rials)	unit	conversion ratio	Amount of consumption in nominal capacity	The cost of materials at the nominal capacity (Million Rials)
1	shrimp larvae	1700	Rial/No	1.15	889,736,842	1,512,553
2	Types of aquatic feed (starting, growing and fattening) of shrimp	455,000	Kilo	1.3	19,110,000	8,695,050
3	medicine	60,000,000	Rial / per hectare	-	4,096	245,760
4	Transportation	5,000,000	Rial / per hectare	-	5,460	27,300
5	The cost of annual pool preparation (including washing the pool floor, drying, removing black soil, disinfection, liming, plowing, etc.)	150,000,000	Rial / per hectare	-	4,096	614,400
6	Other cases	-	-	-	-	554,753
Total			-	-	-	11,649,816

3-2-4- Management and human resource

The employment number of the present plan is equal to 3,987 people. Normally, for each hectare of shrimp breeding pond, 6 simple workers (on a fixed basis) and 10 workers on a seasonal basis (in the fishing season) are needed under normal conditions. The specifications of the human resources required for the project are as described in the table (6).

Table (8): Management and Human Resource

No	Level of skill	Number of staff	Average basic salary - Rial
1	Senior	606	240,393,143
2	Mid-level	197	100,000,000
3	Junior	3,184	104,285,714

Number Of Direct Mid-Level Staff Required	197	person
Number Of Direct Junior Staff Required	3184	person
Number Of Direct Senior Staff Required	606	person
Total	3987	person

4) Ownership and legal permissions

4-1- land ownership

The implementation of this plan is considered in a land of 6000 hectares. The specifications and location of the selected zone 4 are specified in paragraph 2. In order to build earthen pools and use them, documents under the title of establishment license and operating license (in accordance with the terms and conditions mentioned in paragraph 3-4) will be provided to the investors. These documents do not mean that the investors own the assigned lands. Based on the mentioned licenses, only the right to use the land is given to the operators until the time of continuous activity.

4-2- Intellectual Property and Concessions

Prawn breeding, according to established standards and regulations, requires the necessary knowledge and experience in this regard. Prawn cultivation in earthen ponds should have minimal environmental impact and reduce water quality in the area. Some rules and standards for shrimp farming in earthen ponds have been compiled by "Iran Fisheries Organization". The standards and criteria include the criteria for the construction site of the pool, environmental standards, management and breeding methods and the selection of suitable species for breeding.

4-3- Legal permissions

The approval of this organization is considered as an agreement in principle for natural and legal persons. In order to design, build and use an earthen pool, these people need an establishment permit from the Agricultural Engineering System Organization and the Natural Resources Organization of Khuzestan province. The license for the use of earthen pools is a document that is issued by the Agricultural Engineering System Organization and the Natural Resources Organization of Khuzestan province after their use and the completion of construction. Health permit is another license that is issued by the General Department of Veterinary Medicine of Khuzestan province after the start-up and completion of construction and according to the regulations of the Medical Sciences Organization of the country.

In addition to the above-mentioned cases, the construction of a cage in the Khouryat area of Mahshahr requires inquiries and approval from the following organizations:

- General Department of Environmental Protection of Khuzestan Province or General Department of Environmental Protection of Mahshahr City
- General Department of Natural Resources and Water Resources of Khuzestan Province (or Mahshahr City)
- Management of land affairs in Khuzestan province (or Mahshahr city)

According to the regulations of health executive regulations, it is mandatory to employ and hire at least one veterinarian doctor as a technical officer, as well as employ an expert or technician in the number and conditions announced by the country's fisheries organization. It is worth noting; The organization of the agricultural engineering system and natural resources of the province and the whole country is responsible for issuing the establishment license and operating license; Act according to the guidelines of the high supervision notified by the Iranian Fisheries Organization.

5) market research and competition

5-1- Target market introduction

The global fisheries and aquaculture industry, with a total global production volume of 171 million tons and an industrial value of 362 billion dollars, constitutes a major part of the global food industry. Meanwhile, shrimp production is equivalent to 7% of the production volume of the global fisheries and aquaculture industry. This product is classified as one of the high value species with a large global trade volume.

The demand for shrimp in the world is increasing. The growth of shrimp demand in the world in the years 2006 to 2011 was equal to 5.2 percent, in the years 2012 to 2014, it was equal to 7.7 percent, and during the years 2015 to 2014, it was 4.2 percent. Shrimp consumption in many countries of the world such as India, Ecuador and Mexico is increasing rapidly.

Global shrimp production has increased with an average growth rate of 3.2% during the period 2011-2017. The top 8 producers from Asia are China, Thailand, India, Indonesia, Vietnam and the Philippines and Bangladesh with the production of 3.42 million tons, more than 80%, and the countries of Ecuador, Mexico, Brazil, Venezuela, Honduras, Nicaragua, Guatemala, Belize, Panama and Peru also with The production of 756 tons is about 17.7% of the total global shrimp production. The largest shrimp exporters in the world are India (23%), Indonesia (7%), China (6%) and Thailand (2%). The largest shrimp importers in the world are Europe (31%), America (25%), China (14%) and Japan (7%).

After 1990, shrimp farming flourished in many countries that have suitable climate characteristics and a wide coastal belt with the ocean. Of course, high domestic consumption in these countries has prevented exports to other parts of the world. However, despite the high consumption, countries like Hunted have been able to export more than 80% of their production.

At present, in Iran, a large part of the country's need for aquatics is provided by fishing from the seas. Considering the limitations of marine reserves and the country's need for such products, it is expected; To expand the breeding capacities both on the coast and in the sea to meet the needs. Statistics show; A part of the shrimp consumed in the country is supplied through fishing in the southern seas and a part from the breeding farms. The average amount of shrimp caught from the sea in the past years was about 10 thousand tons, and about 41% of this amount was in Khuzestan province. The table below shows the status of aquatic production in farms and the amount of shrimp caught in the southern waters of the country.

Table (9): The status of shrimp production and fishing in the country and Khuzestan province

Year	Khuzestan				whole country			
	Catch in the South Sea (tons)	production (tons)	area (hectares)	Number of farms	Catch in the South Sea (tons)	production (tons)	area (hectares)	Number of farms
1398	4,671	528	187	17	9,937	46,114	12,389	865
1399	6,278	227	161	16	12,174	48,855	12,146	827
1400	3,483	802	406	27	8,621	57,799	14,034	899

Currently, a major part (about 43%) of the shrimp produced and caught in the country is exported to other countries. According to the amount of shrimp export and production, the country's per capita consumption in the last three years has been estimated between 0.35 and 0.5 kg. Meanwhile, the per capita consumption of shrimp in America in 2020 was 5 kg.

Table (10): Comparison of shrimp production and consumption in the country

Year	Per capita consumption of shrimp (kg/person)	Export - tons	Total consumption (domestic demand) of aquatic - tons	The total production and fishing of shrimp in the country
1398	0.35	26,902	29,149	56,051
1399	0.50	19,160	41,869	61,029
1400	0.39	33,812	32,608	66,420

The volume of shrimp production and consumption in the country is very low compared to other countries in the world. With the production of shrimp paste in the country while covering the domestic demand, it can be exported to other countries of the world, especially European countries.

8) Financial Plan

8-1- Cost Estimation

Generally, there are two ways to fundraise for this project, fixed capital and initial working capital. The required investment before utilization is provided through fixed capital. Initial working capital will be used during utilization. Fixed capital includes, purchasing land, construction and landscaping, machinery and equipment, facilities, office stuff and pre-production costs. These types of costs are incurred at the beginning and before 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 (12): Cost Estimations

No.	Subject	Amount (Million Rials)
1	Fixed investment	20,730,000
2	Working capital	5,190,402
3	Annual production cost	19,012,512
4	Annual depreciation of investment	2,511,882
5	Estimate the total capital required	25,920,402
6	The total price for the product unit (by product type)	-
7	shrimp (Riyal/kg)	1,275,739

Table (13): Fixed Capital Estimations (Capital Costs)

No.	Subject	Cost (Million Rials)	
1	Purchasing land	0	
2	Landscaping and land improvement	3,257,205	
3	Civil operations and construction of buildings	925,400	
4	Production machinery and equipment	8,380,000	
5	Service equipment	6,984,000	
6	Protection and environmental equipment	0	
7	Overhead costs	0	
8	Pre-Production Expenditure (As described in <i>Table (15)</i>)	Pre-investment studies	30,790
		Project management and organization	147,202
		Technology education	28,008
9	Unexpected costs	977,395	
Total		20,730,000	

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 shrimp breeding period (120 days) in the first year 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). 120 days is considered in this plan.

Table (14): Total Net Working Capital Requirements (Production Costs)

No.	Subject	Amount (Million Rials)
1	Raw Materials Inventory	3,883,272
2	Work In Progress	0
3	Finished Product	0
4	Accounts Receivable	0

5	Cash and cash balance	1,307,136
6	(Commercial Accounts Payable)	0
Total Net Working Capital Requirements		5,190,408

Table (15): Pre-Production Expenditure

No.	Subject	Description	Total (million Rials)
1	Incorporation	-	100
2	Obtaining Licenses / Production License	-	120
3	Studying, Consulting, Research and Development, Traveling, Visiting and Participating in Local Exhibitions, etc.	1.5 thousandth of the investment costs of the project	30,790
4	Property Insurance	2 thousandth of depreciable fixed assets	41,050
5	Survey Fee, Financing, Contract and So On	Survey fee 0.5 thousandth, other 2.5 thousandth	49,260
6	Cartography, Supervising	2 thousandth of contract expenses	25,130
7	Other's	Staff Training	Equivalent to 1 days of Staff salary
		Wages And Salaries During the Construction	Equivalent to the salary of 30 personnel in 12 months
		Other Expenses	72.2
Total			206,000

8-2- Sales Revenue

According to the surveys, the price (wholesale) of each kilogram of shrimp (according to ideal weight) is equivalent to 4.5 dollars. 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 9,173 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 35,280 billion Rials.

Table (16): Project Revenue in The First 5 Years of Production Phase (Billion Rials)

No.	Subject	Q ₁	Q ₂	Q ₃	Q ₄	Total 1 st Year	Total 2 nd Year	Total 3 rd Year	Total 4 th Year	Total 5 th Year
1	shrimp	2,293	2,293	2,293	2,293	9,173	17,993	27,166	35,280	35,280

8-3- Length of Production Phase

It will be possible to implement this project in 4 phases and within 4 years. In the first phase, a major part of the pool operation is the inlet and outlet channels and about 26% of the pool construction is planned. This period lasts for 24 months. The beginning of this phase is considered from April 1403. It will be possible to use the first phase and start shrimp breeding in the earthen pool from 1405.

In the next phases, earthen pools are gradually built. The implementation of the next phases will be completed by 1407. The progress of the project in each phase is taken into account according to the possibilities of constructing earthen pools. The progress of the project in 1405 is equal to 25%, in 1406 equal to 26% and in 1407 equal to 23%. The duration of the project is considered to be 7 years.

Table (17): Planning Horizon

Title	Month	-	year	Length of construction phase (months)	Start of phase (months)	Length of production phase (years)
Project identification	1	/	1402	24	12	7
Beginning of construction phase	1	/	1403			
Beginning of production phase	1	/	1405			
End of production phase	12	/	1411			

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 1406SH 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

$$\text{Break-even sales value} = \frac{4,498,283}{1 - \frac{14,826,593}{\text{Sales value}}} = 7,759,069 \text{ (Million Rials)}$$

35,280,000

$$\text{The number of sales at the break-even point} = \frac{4,498,282,519,800}{4,705,882,353 - 1,977,670,106} \approx 1,649 \text{ (Ton)}$$

$$\text{Break-even ratio (\%)} = \frac{7,759,069}{35,280,000} = 22\%$$

Table (18) : Project break-even point estimation (Million Rials)

Title	Production 1405	Production 1406	Production 1407	Production 1408	Production 1409	Production 1410	Production 1411
Sales revenue	9,172,800	17,992,800	27,165,600	35,280,000	35,280,000	35,280,000	35,280,000
Variable costs	4,228,509	7,771,479	11,496,720	14,826,593	14,826,593	14,826,593	14,826,593
Profit margin	4,944,291	10,221,321	15,668,880	20,453,407	20,453,407	20,453,407	20,453,407
Profit margin ratio (%)	54	57	58	58	58	58	58
Fixed costs	1,636,931	2,621,550	3,663,073	4,404,579	4,167,745	3,926,773	3,691,208
Break-even sales value	3,036,885	4,614,768	6,350,778	7,597,440	7,188,926	6,773,276	6,366,949
Break-even ratio (%)	33	26	23	22	20	19	18

- According to COMFAR Results

Based on the calculations of COMFAR software, the break-even point in Rials including operating and non-operating costs, is 7,597 thousand billion Rials and it will be achieved in the 22% 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 20% is over 23.735 billion Rials, which shows that the project is economically feasible.

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

According to the calculations, the internal rate of return of the project is estimated at 60.4% and compared to the Minimum Attractive Rate of Return, it is favorable.

Table (19): Project Return Index

Index	Amount	Unit of measurement
The Present Value of The Total Cost of The Period of Construction Phase and Production Phase	49,361,670	Million Rials
The Present Value of The Total Income of Construction Phase and Production Phase	73,096,949	Million Rials
NET PRESENT VALUE (NPV)	23,735,278	Million Rials
Cost-benefit RATIO (B/C)	1.48	-
INTERNAL RATE OF RETURN (IRR)	60.4%	Percent
NPV RATIO (PI)	1.37	Rial per Rial of investment
NORMAL PAYBACK	2.75	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

6000-hectare shrimp farming complex plan in BUTAHARI

(simple) of the plan is estimated to be equal to 2.75 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 (20) 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; 20% increase in sales revenue of the plan, the internal rate of return will increase from 60.4% to 82%. On the contrary, in the case of a 20% decrease in sales revenue, the internal rate of return of the project will decrease to 36%.

Table (20): Sensitivity Analysis (Percentage of IRR changes caused by sales revenue, fixed assets and operating costs alteration)

Variation (%)	Sales revenue	Investment costs	Operating costs
-20%	36%	73%	71%
-4%	56%	62%	63%
0%	60.4%	60.4%	60.4%
4%	65%	58%	58%
20%	82%	51%	49%

8-6-2- Fixed Assets

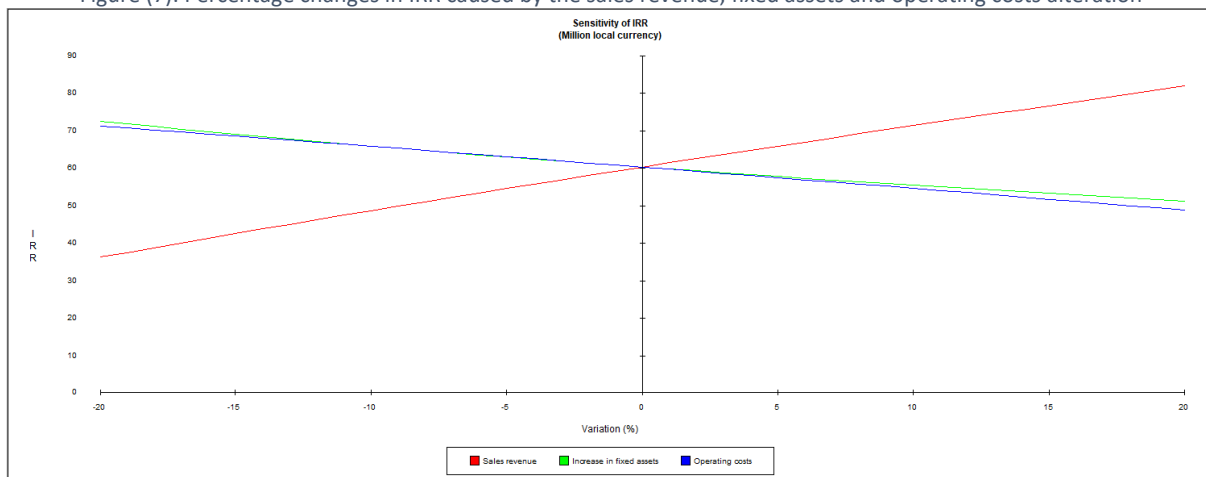
The change in the fixed assets is due to the fixed costs of the initial investment alterations. The results of the sensitivity analysis according to the fixed costs of the plan have been done and it shows that in case of an unexpected 20% increase in the fixed capital costs of the project, the internal rate of return will decrease from 60.4% to 51%. Conversely, if there is a 20% reduction in the fixed capital costs, the internal rate of return will increase and reach 73%.

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 49%. On the contrary, if the total operating costs of the project are reduced by 20%, the internal rate of return will increase to 71%. 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 project is planned to be implemented in a land area of 6000 hectares. In this plan, the useful area of shrimp cultivation is equal to 4096 hectares. The area of each farm is equal to 20 hectares and the useful area of shrimp cultivation in each farm is equal to 16 hectares. The number of said farms is equal to 256 farms. These farms are supplied with water through input and output channels.

The total investment in land and building is estimated at 4,183 billion Rials and the total investment in main and auxiliary equipment is estimated at 16,341 billion Rials. The total costs before operation are estimated to be 206 billion Rials, including the total fixed capital required is 20,730 billion Rials and the total working capital required for the project is 5,190 billion Rials. The total investment of the project is expected to come from the resources of the company's shareholders.

The sale of the project in 1405 is predicted at fixed prices equal to 9,173 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 35,280 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1405 is equivalent to 3,307 billion. The profit will increase in the following years and will reach a maximum of 16,762 billion Rials. The average annual profit of the mature plan is 12,648 billion Rials and the average profit margin is expected to be 45.3%. The internal rate of return (IRR) of the plan is estimated at 60.4% and the payback period (PBP) is estimated at a maximum of 2.75 years. Also, the net present value of the project's cash flows (NPV) is positive and, taking into account the expected interest rate of 30%, is equal to 23,735 billion Rials.

The liquidity status of the plan and the payment of dividends to the shareholders from the company's funds are also appropriate. 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 (21): Summary of Economic Features

Nominal Capacity and Unit of Measurement	Product Name	Title Of the Project with ISIC Code	Title Of the Project
Nominal capacity: 15000 tons Practical capacity: 14700 tons	Various types of shrimp	Types of shrimp (501512313)	6000-hectare shrimp farming complex plan in BUTAHARI
Required Human Resource (Person)	Equity Shares (Million Rials)	Total Fixed Capital (Million Rials)	Project Duration
5,165	5,190,402	20,730,000	24
B/C	Applicant Available Cash (Million Rials)	Net Present Value (NPV) (Million Rials)	IRR (%)
1.5	25,920,402	23,735,278	٪60.4
ROI (%)	NPV Ratio / Profitability Index (Rial per Rial invested)	Dynamic Payback Period (Year)	Normal Payback Period (Year)
52	1.37	3.28	2.75
Average Assets Turnover Ratio	Average Net Profit Margin (%)	Average Annual Profit (%)	Maximum Annual Sales (Million Rials)
1.30	٪45.3	12,648,037	35,280,000

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 (22). 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 (22): Currencies exchange Rate

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

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

9) Investment Required, method of fundraising and guarantees

9-1- Foreign Currency Required

The total fixed capital of the plan is in Rials. The currency equivalent of the required investment has been paid in the amount of 43 million euros, which is planned over 5 years (according to the progress of the plan).

Table (23): Foreign (Fixed) Currency Required

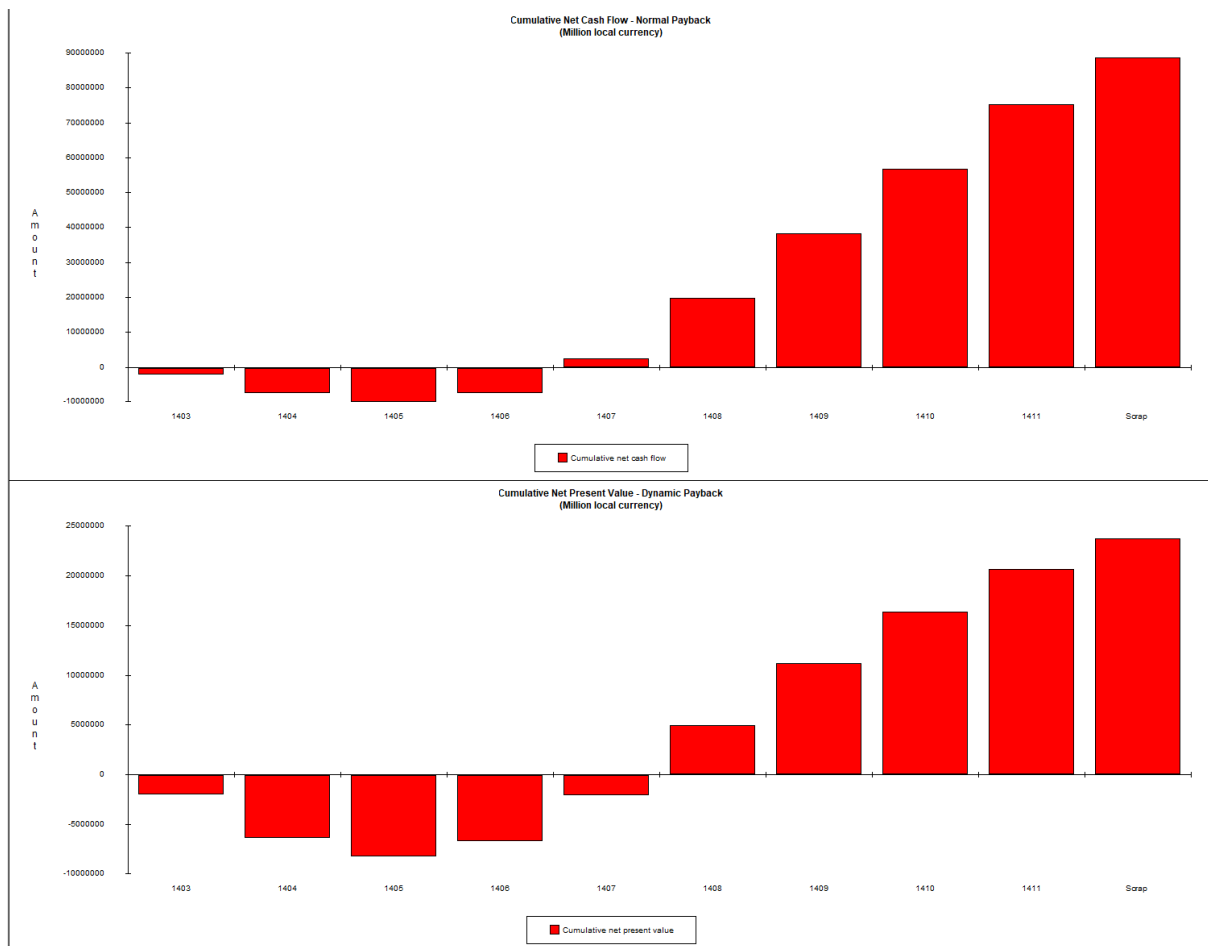
No.	Year	Required Investment
1	Year 1(403 SH)	0
2	Year 2	0
3	Year 3	0
4	Year 4	0
5	Year 5	0

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 2.75years (equal to 1407) according to the calculations of CAMFAR.



Dynamic Payback Period of the plan is also estimated at 3.28years.

10) Incentives, features and benefits of the plan

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

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

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

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)

Summery Sheet

Project introduction	
1. Project Title:	6000hectare shrimp farming complex plan in BUTAHARI
2. Sector:	agriculture sub-sector: fish farming
3. Products/services:	Various types of shrimp and fish
4. Location:	Khuzestan, Hendijan County, BUTAHARI
5. Project description:	<p>The implementation of the project is planned in a land area of 6000 hectares. In this plan, the useful area of shrimp farming is equal to 4096 hectares. The area of each farm is equal to 20 hectares and the useful area of shrimp farming in each farm is equal to 16 hectares. The number of said farms is equal to 256 farms. These farms are water supplied through input and output channels.</p> <p>The total investment in land and building is estimated at 4,183 billion Rials and the total investment in main and auxiliary equipment is estimated at 16,341 billion Rials. The total costs before operation are estimated to be 206 billion Rials, including the total fixed capital required is 20,730 billion Rials and the total working capital required for the project is 5,190 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 project in 1405 is predicted at fixed prices equal to 9,173 billion Rials. This figure will increase in the following years due to the increase in production capacity and will increase to a maximum of 35,280 billion Rials. The net profit of the plan has been positive in all years. The profit figure in 1405 is equivalent to 3,307 billion. The profit will increase in the following years and will reach a maximum of 16,762 billion Rials. The average annual profit of the mature plan is 12,648 billion Rials and the average profit margin is expected to be 45.3%. The internal rate of return (IRR) of the plan is estimated at 60.4% and the payback period (PBP) is estimated at a maximum of 2.75 years. Also, the net present value of the project's cash flows (NPV) is positive and, taking into account the expected interest rate of 30%, is equal to 23,735 billion Rials.</p>
6. Annual Capacity:	15,000ton

Project Status	
7. Local/internal raw material access:	100%
8. Sales:	35,280billion Rials
Anticipated local market:	15%
Anticipated export market:	85%
9. construction period:	24 months
10. project status:	<ul style="list-style-type: none"> - Feasibility study available? Yes- the feasibility of the project has been evaluated from various aspects and the results of the feasibility study are favorable in terms of market, engineering, financial and economic indicators. - Required land provided? Yes - the construction of earthen shrimp ponds has been approved and allowed. Based on this, according to the relevant rules, the operator can proceed with the design and use of earthen pools. - Legal permission (establishment license, foreign currency quota, environment) taken? Yes - 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. - Agreement with local/foreign contractor(s) concluded? No, so far, no agreement has been made with domestic or foreign contractors for the construction of the pool and its other operations. - The infrastructure utilities (electricity, water supply, telecommunication, fuel, road, etc.) procured? Yes - List of technical know-how, machinery, equipment, as well as companies that sell or manufacture the product? Yes. The desired equipment, according to the studies, includes cage flotation equipment, cage restraint equipment on the bottom of the lake, required nets, fiberglass pools, floats, boats and fish sorters and other intelligent management systems in operation (including feeding system, subsurface monitoring system, waste collection system, environmental data system, etc.). - Financing agreement for machinery, equipment and know-how concluded? No

Financial structure

11. Financial table:

Description	Local Currency Required			Foreign Currency Required	Total Euro
	Million Rial	Exchange Rate	Euro		
Total Fixed Investment Costs	20,730,000	600,000	34,550,000	0	34,550,000
Total Net Working Capital Requirements	5,190,402	600,000	8,650,670	0	8,650,670
Total Investment	25,920,402	-	43,200,670	0	43,200,670

- Value Of Foreign Equipment/Machinery:	0	Euro		
- Value Of Local Equipment/Machinery:	11,919,200	Euro		
- Value Of Foreign Technical Know-How:	0	Euro		
- Value Of Local Technical Know-How:	97,997	Euro		
- Net Present Value (NPV):	39,558,797	Euro	Net present values discounted to:	1403
- Internal Rate of Return (IRR):	60.4%	%		
- Normal Payback:	2.75	year		
- Minimum Attractive Rate of Return:	20%	%		

General information

12. Project Type: new Project Explanation / Rehabilitation project
 Name / Company name:-
 Address: Khuzestan, Hendijan County, BUTAHARI
 Tel: 0098 916 6120585 Fax:
 Email: meisam.bavarsad@gmail.com Website:
 Local entrepreneur: Private Sector government /public sector