

In the name of God

## **Pre-Feasibility Studies**

**Project Name:**

**Processing and Packaging of Fish and Shrimp**

**Project Owner:**

**Khorramshat Co.**

**Advisor of the project:**

**Dornica Sustainable Development Company**

**Project address: Khoramshahr Industrial Zone, Arvand  
Free-Trade Zone, Khoramshar, Khuzestan**

**Preparation Date: February, 2021**

**Pre-Feasibility Study Summary:**

<b>General Information</b>	
<b>Project Title</b>	<b>Processing and Packaging of Fish and Shrimp</b>
<b>Capacity</b>	<b>5,000 tons</b>
<b>Employment</b>	<b>18 individuals</b>
<b>Business days</b>	<b>300 days</b>
<b>Product consumption</b>	<b>meals</b>
<b>Market</b>	
<b>Global Price of the Product</b>	<b>7\$</b>
<b>Domestic demand:</b>	<b>10 Million Tons</b>
<b>Domestic production</b>	<b>17 Million Tons</b>
<b>Import</b>	<b>24 Million \$</b>
<b>Export</b>	<b>120 Million \$</b>
<b>Technical Information</b>	
<b>Land Area</b>	<b>10,000</b>
<b>Buildings Area</b>	<b>5.000</b>
<b>Core Raw Material</b>	<b>Fish, Shrimp, Carton, Tape</b>
<b>How to supply raw materials</b>	<b>internal</b>
<b>Power Requirement</b>	<b>150,000</b>
<b>Water Requirement</b>	<b>110,000</b>
<b>Fuel required</b>	<b>1200</b>
<b>Financial Information</b>	
<b>Fixed Investment</b>	<b>98,212</b>
<b>Working Capital</b>	<b>58,000</b>
<b>Total Investment</b>	<b>156,212</b>
<b>Annual Sales</b>	<b>3,400,000</b>
<b>Net Present Value</b>	<b>1,417 million rials</b>
<b>Internal Return Rate</b>	<b>51%</b>
<b>Payback Period</b>	<b>2 years</b>
<b>Ratio of investment resources</b>	
<b>Equity 32%</b>	<b>49987</b>
<b>Financing 68%</b>	<b>104662</b>

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## **Introduction**

Fish and shrimp are considered as one of the richest sources of protein of animal origin and with great ability to prepare a variety of foods. Freezing is one of the principles of preservation of food products that has long been considered by early humans.

The need to pay attention to this industry is to pay attention to the food consumption of the people in the field of aquatics. Until recently, the implementation of projects that were neither the needs of society nor the economy, did not seem necessary to implement them. Second, it was consumed fresh in homes and restaurants. However, with the passage of time and the increase in per capita consumption, the change of residential houses from houses with yards to apartments with small kitchens that have difficulty cleaning fish and shrimp or even cooking, increasing employment of women and increasing the age of marriage and even not having children in the first years of life due to work and education and etc. or less children and all and all have reasons to use ready meals.

But to bring aquatic products to people's food basket, packaging as an efficient tool has been considered by marketing experts for many years. The usage of different types of packaging while giving the product better storage capacity, is also effective in term of gaining a higher market share for the mentioned product.

In the following, this issue will be explained and the plan will be explained in detail.



## 1-Product Introduction

White meat is healthier than red meat. According to the latest findings of nutritionists and medical researchers, proper consumption of seafood prevents many diseases. Seafood is rich in nutritional values.

- Limited production of red meat and chicken
- Cheaper price of fish meat
- Increasing population of the country and the need to provide the required protein
- Quick preparation of these products for consumption
- Variety of food prepared using fish

Consumption of seafood is valuable when it is included in the household food basket in a healthy way. Therefore, due to the rapid perishability of fish and shrimp meat, preservation methods will be of particular importance.

### **The strategic importance of production, freezing and packaging of fish and shrimp:**

Fish and shrimp are considered as one of the richest sources of protein of animal origin and with a great ability to prepare a variety of foods. Freezing is one of the principles of food preservation that has long been considered by early humans.

The use of glaciers and the storage of game and fish in the snow by the Eskimos, the use of a mixture of ice and salt to create temperatures below the level of pure ice, the invention of a mechanical method of cold production using ammonia in 1875 and the construction of industrial cold storages and the supply of frozen red and white meat in the second half of the nineteenth century in the United States led to the supply of ready-to-eat frozen food about 30 years ago. New methods of freezing, such as IQF, are now evolved methods of freezing that are widely used in the food industry and food preservation.

### **1-1-Product Name and Code (ISIC 3)**

The most common classification in economic activities is the ISIC classification. The ISIC code of fish and shrimp processing and packaging is presented in the table below.

ISIC Code	Product Name
15121421	Shrimp Processing and Packaging
15121411	Fish Processing and Packaging

Source: Industry, Mining and Trade Organization

### **1-2-Import and Export Conditions**

According to the export and import regulations of the Customs of the Islamic Republic of Iran, the conditions and tariffs for the import or export of processed and packaged fish and shrimp are as follows.

SUQ	Import Fee	Item	Tariff Number
	60	Shrimp Processing and Packaging	03061300
	20	Fish Processing and Packaging	03033200

### **1-3-Assessment and Presentation of Standards**

#### **National Standards**

Item	Standard Number
Shrimp Processing and Packaging	6952
Fish Processing and Packaging	692

Source: Institute of Standards & Industrial Research of Iran (2020)

### **Standards and Licenses:**

Operation license issued by Iran Veterinary Organization and its Provincial Department of Khuzestan

Pending C.E. code issued by Iran Veterinary Organization and its Provincial Department of Khuzestan

Operation license issued by Arvand Free-Trade Zone Organization

Operation license issued by Khuzestan Department of Industry and Trade and Mines

Operation license issued by Khuzestan Department of Agriculture

### **1-4-Applications**

#### **The need to address the issue**

The first step is to pay attention to the amount of seafood consumed by people. Until recently, the implementation of such projects was neither a social need nor an economic one. That is, first of all, seafood has not played such a role in the food basket of the people. Second, it was consumed fresh in homes and restaurants. Due to higher consumption per capita, the shift from buildings with courtyards to apartments with small kitchens makes it difficult to clean fish and shrimp or even cook them, increasing the number of women working outside the home, increasing the age of marriage and even not having children in the first years of life due to work and education is some the reasons to use ready meals that are becoming more popular each day.

#### **Investigation of the target market and community for seafood**

For sustainable, reliable and profitable production, it must be planned according to the needs of the market. In order to be aware of people's tastes and needs, we must resort to the orders from the market or produce different samples to test the target community. Producing a product without studying and not paying attention to people's tastes is not only uneconomical but also keeps people away from consuming aquatic products.

#### **Raw material**

To implement the project, planning to supply its raw materials is very important, and the required materials, including fish and shrimp, must be fully understood in terms of economic species and the required amount, fishing harvest in the country and possibly the issue of import, fishing time, price, method of supply, identification of suppliers, storage, taste, texture and fat content. Flavors and food additives can influence product quality. Thus, it's an expert job to use quality raw material and proper flavors and additives.

### **1-5-Description of product applications in domestic and foreign markets**



Today, increasing population growth, diversity of tastes and increasing food consumption have forced human beings to try to make more use of resources to meet their food needs. This led humans to one of the food sources, water reserves. Per capita access to seafood is currently 16.4 kg per year in the world, 67 kg per year in China and Japan and 9 kg per year in Iran. Seafood can provide many necessary nutrients and since the per capita consumption of seafood is very low in Iran, maybe the best way to increase that is to make seafood products that are easy to consume. Thus,

## **1-6-Assessing the current Market**

Packaging tool has been considered by marketing experts as efficient for many years. The use of different types of packaging, while giving the product better storage capability, is also effective in gaining a higher market share for the product.

Despite having very good quality, insufficient attention to hygienic packaging standards has caused the country's various food products to not be able to enter global markets and pave the way for increasing the level of domestic production, due to some secondary contaminants or being supplied in non-standard or unappealing sizes and shapes. Obviously, by implementing hygienic processing and packaging projects, domestic food products will be able to compete with similar foreign products in the global market.

Contamination and spoilage of animal protein products cause a significant decline in nutritional value and ultimately the removal of nutrients from the consumption cycle. On the other hand, the use of fish, shrimp and other seafood as an important and valuable food source can play an important role in ensuring the health of society because the fat in seafood has low-density lipoprotein. However, these foods are very sensitive and perishable, and maintaining their quality from the fishing stage to consumption is very important. Therefore, industries related to the processing and storage of these products can improve the quality and thus encourage consumers to use these products.

Studies show that the per capita consumption of seafood in the food basket of Iranians is much lower than the global per capita. Considering the important role of seafood in public health, producing and packaging seafood should gain special attention. Statistics show that in order to increase the per capita consumption of seafood in Iran, the following measures should be taken with the support of the government:

- Promoting seafood as the main item in the people's food basket
- Establishing ancillary industries and producing ready-made seafood
- Government support for seafood by-products and making the efforts to regulate these products

In the meantime, silver carp meat (as a raw material available and relatively inexpensive with high nutritional value) has been considered as an alternative to red meat in sausage production. In our country, little research has been conducted to evaluate sausage production using black sea sprat meat, shark meat and grade 3 fishes including anchovies, sardines and ponyfishes.

## **1-7-Major Customers and Providers**

Canada, China, Japan, Russia, India, the United States are the largest producers of fish and India, Vietnam, and China are the largest producers of shrimp in the world. European countries, Japan and the United States are the major customers of seafood products.

The most suitable target markets for the export of domestic products are European countries and Arab states of the Persian Gulf. EU countries are also a very good target market for seafood products so that in 2018, they imported a significant amount of processed, packaged, cooked and frozen shrimp.

## **1-8-Export Conditions**

Due to high domestic demand and the impossibility of export regarding the rapid corruption of the product, no export program is imagined for these products.

## **1-9-Import Conditions**

All the products are dedicated to the domestic market and there's no plan for import.

## **2-Supply and demand situation in Iran and foreign markets**

One of the most important issues for the establishment of an industrial unit is the study of supply and demand and the market and the functioning units in the country. These surveys provide an overview of supply and demand in the consumer market. As mentioned before, fruits are one of the basic and essential nutrition for families and their consumer market is not specific to specific regions. They are consumed in all parts of the country and all around the world. Fruits are one of those products that have a permanent market and will never be removed from people's food baskets. Therefore, with the increase in population growth, their consumption will continue to increase. Currently, some production units with a capacity of over 40,000 tons are operating in this field in the country including Isfahan Flower Company and Allah Bahar Hamedan Food Company. Several production units are also under construction that upon completion, the capacity for producing processed vegetables and fruits will increase and export will become an option and priority. In fact, due to the high export value of these products, serious measures must be taken in this regard. There is a very high domestic demand for the c product and on the other hand, important markets such as Iraq and Kuwait can be covered.

## **2-1-Examining the consumption trend during the last five years**

With the advancement of human knowledge, the importance of seafood in the health of society and its role as a healthy nutrition meal has become more apparent. In the last decade, industrialized countries have set an agenda for promoting seafood which has been done through media to encourage people to consume more. Thus, seafood consumption increased in a wealthy country.

A study in 2018 showed that compared to the global average of 21 kg, the seafood consumption per capita in different parts of the world is as follows: industrialized countries 30 kg, developing countries 19 kg, poor countries 11 kg, Oceania 27 kg, Europe 23 kg, North America 22 kg, Asia 22 kg, South America 10 kg, Africa 10 kg and Iran 13 kg. Despite a 1.6 percent increase in world population over the past three decades, seafood consumption has grown by nearly 4 percent, and per capita, seafood consumption has increased from 10 kilograms to 20 kilograms over the last three decades. In developed countries, the per capita seafood consumption is higher than in the less developed countries, and the average per capita consumption in these countries is about 30 kg. In some countries, such as Japan and Norway, the per capita consumption of seafood is about 70 kg, due to factors such as the diversity of seafood products. In 2001, the per capita consumption of seafood in the country is about 5 kg, in 2011 about 10 kg and 2016 about 13 kg, but the consumption rate is still much lower than the international standard.

Trade plays a key role in aquaculture and the fisheries are considered as an industry with high employment-generating, income-generating, contributing to economic growth and development and food supply potential. Providing services is one of the aspects of the seafood trade. These services include a wide range of activities, including management expertise, harvesting and processing, policy-making and monitoring, online sales and related services, hiring and training of crews for ships, ship repair, fishing boat rental, construction And infrastructure facilities, research, stock valuation and data analysis. The overall value created by these fishery services is not yet available as they are usually recorded together with other activities. The seafood industry represents one of the largest food businesses in the world, as about 78% of these products are exposed to competition and sales in international trade. For many economies, seafood exports are essential to boosting activity along with various coastal areas, rivers and inland waters. For example, in 2014, more than 40% of the total value of goods traded in Cuba, the Faroe Islands, Greenland, Iceland, the Maldives and Seychelles appertained to the seafood trade. In the same year, seafood accounted for more than 9 percent of total agricultural exports (excluding timber) and 1 percent of the total value of world trade in goods. In 2014, more than 200 countries reported exports and imports of fishery products. The structure and pattern of trade vary considerably depending on the type of goods and the business area. Global trade in fishery products has expanded significantly in recent decades, increasing by more than 245% in terms of quantity (live weight) and 515% in terms of human consumption between 1976 and 2014. Figure 1 shows that in 1976, only 25% of seafood was exported, but in subsequent years, it increased to 40% in 2005. The ratio of exports to total production fell again in 2014 and reached 29%.



Fig. 1. Top-ten importing and exporting countries in the world

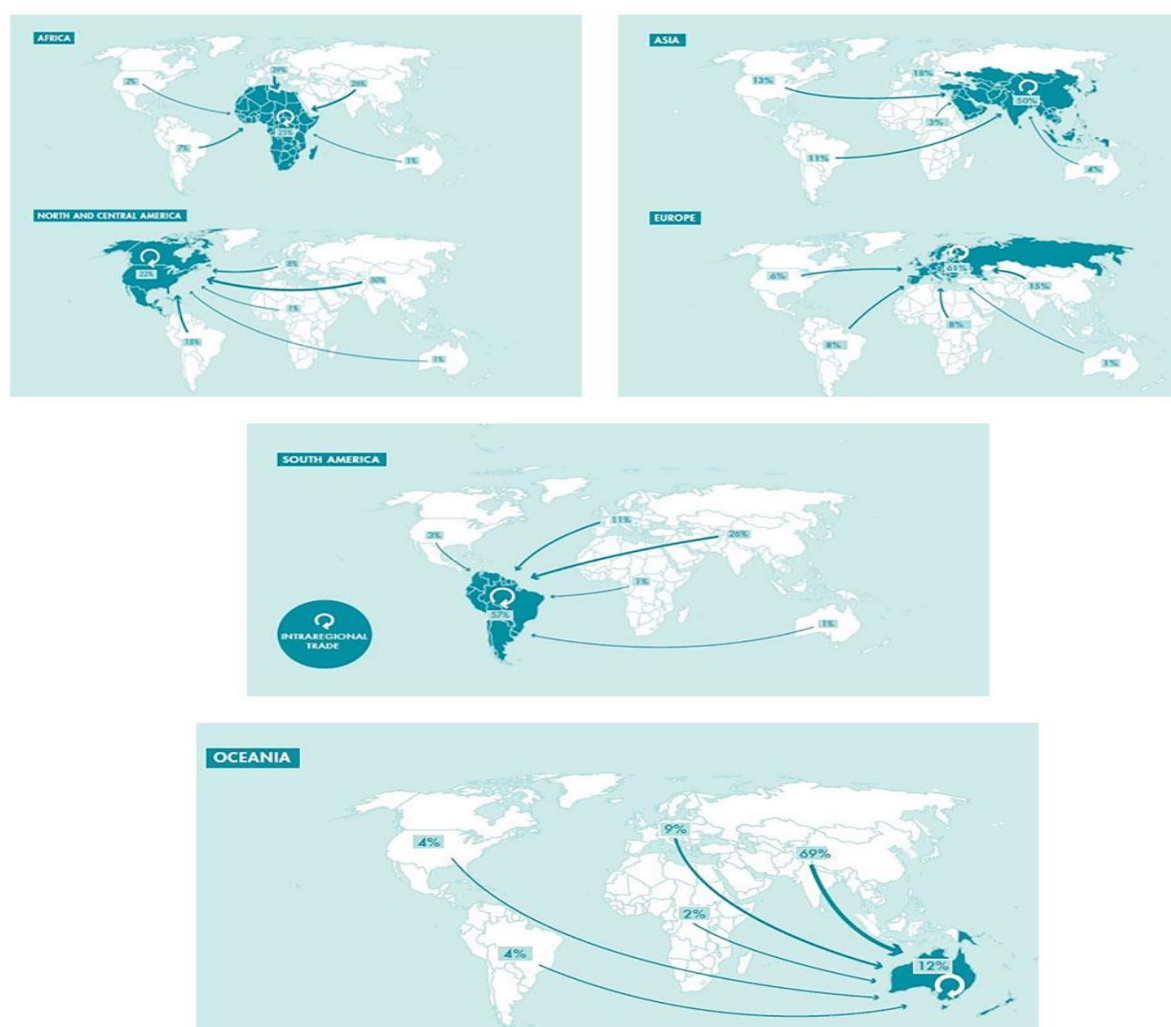
China is the world's largest producer of seafood and continues to be the largest exporter of fishery products since 2002, although the aquaculture sector accounts for only 1% of China's export business. Imports of Chinese fishery products are also growing and the country is the third-largest importer in the world since 2011. Of course, the increase in Chinese imports is partly the result of outsourcing by other countries for seafood production. The European Union, the United States and Japan are heavily dependent on seafood imports for their domestic consumption. In 2014, 63% of the world's fishery products were imported by the Chinese, which is equivalent to 59% of the total value of the world's imports. In addition to the above countries, many emerging markets and exporters became important during these years. Although most of these trades are not sufficiently reflected in official statistics, especially for Africa, the improvement of the distribution system, as well as the expansion of aquaculture, has been instrumental in increasing active trade in these areas.

		2004	2014	APR
		(US\$ millions)		(Percentage)
EXPORTERS	China	6 637	20 980	12.2
	Norway	4 132	10 803	10.1
	Viet Nam	2 444	8 029	12.6
	Thailand	4 060	6 565	4.9
	United States of America	3 851	6 144	4.8
	Chile	2 501	5 854	8.9
	India	1 409	5 604	14.8
	Denmark	3 566	4 765	2.9
	Netherlands	2 452	4 555	6.4
	Canada	3 487	4 503	2.6
	Top ten subtotal	34 539	77 801	8.5
	Rest of world total	37 330	70 346	6.5
	WORLD TOTAL	71 869	148 147	7.5

IMPORTERS	United States of America	11 964	20 317	5.4
	Japan	14 560	14 844	0.2
	China	3 126	8 501	10.5
	Spain	5 222	7 051	3.0
	France	4 176	6 670	4.8
	Germany	2 805	6 205	8.3
	Italy	3 904	6 166	4.7
	Sweden	1 301	4 783	13.9
	United Kingdom	2 812	4 638	5.1
	Republic of Korea	2 250	4 271	6.6
	Top ten subtotal	52 119	83 447	4.8
	Rest of world total	23 583	57 169	9.3
	<b>WORLD TOTAL</b>	<b>75 702</b>	<b>140 616</b>	<b>6.4</b>

Fig. 2 Trade flow summary of fishery products in 2014

Latin America and the Caribbean remain a stable exporting region. Europe has more imports than exports, and this ratio is almost equal to one in Asia. The figure below shows that in the last ten years, international trade patterns have been in favor of developed and developing countries. Developed countries still have major trade among themselves, and in 2014, in terms of value, 78% of developed countries' seafood exports were sent to other developed countries. However, over the past three decades, they have increased their share of exports to developing countries, in part due to their outsourcing of fishery processing.



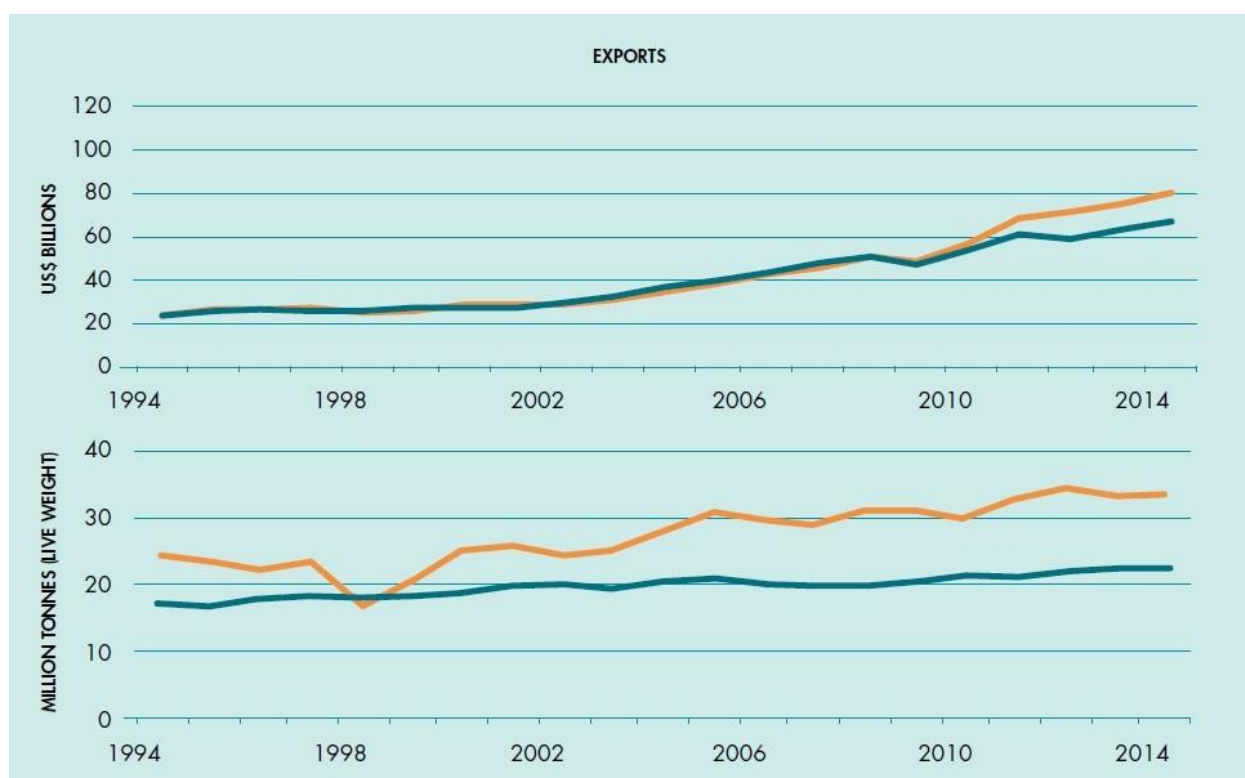


Fig. 3. The growing share of developing countries leading to reducing the shares of developed economies

In 1976, developing countries accounted for 37% of world trade exports, but in 2014, this share increased to 54% of the total value of fishery exports. During the same period, exports increased from 38% by weight to 60%. Fisheries trade represents a significant source of foreign exchange earnings for many developing countries. Also, it plays an important role in revenue, employment, and food security. In 2014, the unit price per kilogram of imported seafood from developing countries was much lower than from developed countries (\$2.5 vs. \$5.3 per kilogram), while the unit price per kilogram of their exported aquatic animals was about \$3.8-4 per kilogram in the same year. Exports of developing countries are a combination of valuable and low-value processed species.



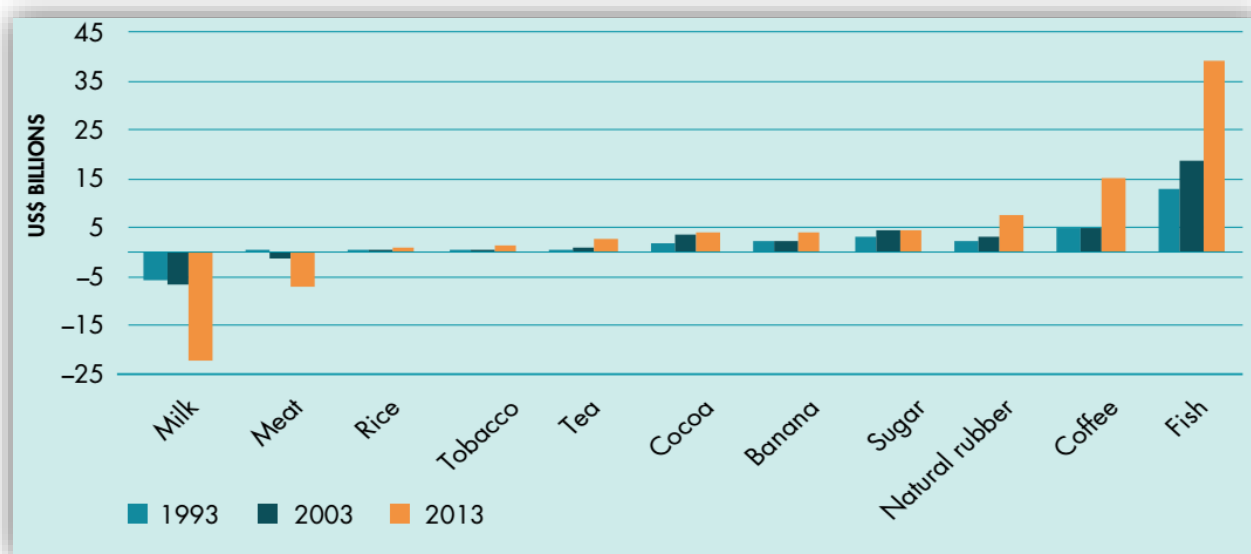


Fig. 4. Net export of some agricultural products in developing countries

However, many developing countries continue to impose high tariffs on imports of fish and its product. Although this usually reflects fiscal policy rather than a protective measure, it has devastating effects on regional trade. They leave. Over time, thanks to regional trade and bilateral agreements, tariffs are required to be further reduced. Sometimes, the most important obstacles that developing countries face are related to increasing their exports to developed countries because they are not able to estimate their production and continued presence in the market of these countries because developed countries are constantly meeting import requirements. These requirements are more in the field of food quality and safety and are increasingly related to technical standards and product freshness, a voluntary certification for biological sustainability as well as the social and labor conditions of their aquaculture industry. Other trade issues in developing countries may be due to technical barriers which are related to regulated technical standards (especially on the characteristics of a product). Despite technical advances and innovations, many countries still lack adequate infrastructure to provide innovative services, which can affect the quality and safety of fishery products. This can lead to losses and problems in their marketing. In the last two years, some of the major issues affecting international trade in fisheries products include: regulating the relationship between fisheries policy and management, allocating concessions and economic stability, growing public and retail sector concern about overfishing, the role of small units in seafood production and trade, increasing concerns about social and labor conditions in the aquaculture sector, globalization of the supply chain through the increasing production outsourcing, the importance of environmental compatibility, economic instability, the risk of using non-tariff barriers, high import tariffs justifying increased support for domestic production, the impact of large regional trade agreements on the international flow of fishery products, commodity price fluctuations and its impact on producers and consumers, currency rate fluctuations and its impact on the trade of fishery products, prices and

profit margins throughout the fisheries industry, brand fraud in fishery products, strict laws on food quality and safety in several countries, etc. The aforementioned issues can affect those involved in the seafood industry, depending on their position in the production chain, their contractual relationship and their ability to negotiate with suppliers and customers. The final products of fishery trade are becoming more complex, more dynamic and in different types and forms which indicates the increasing awareness of consumers. The most important share of the fisheries trade includes valuable species such as salmon, shrimp, tuna, sea bass and common bream. However, some relatively low-value, high-volume species are traded not only nationwide, but also regionally and internationally. In recent decades, the dramatic expansion of seafood production has significantly helped to increase the consumption and commercialization of species that were once only dependent on traditional fishing, and farmed products have gained a larger share of the international seafood trade. Estimates show that seafood products account for 20 to 25% of the volume and 33 to 35% of the total value of the world's fishery products. One of the most important aspects of the seafood industry in global markets is the production and export of value-added products. If only products for direct human consumption are considered, this sector accounts for 28-26% in volume and 37-35% of the value of international trade. Increasing seafood production requires some new solutions to transportation problems. However, the costs of transporting seafood decreased due to the increase in the farm area and harvest, while these costs increased for other food and protein sources. In the case of fresh, cold and smoked fish, consumers' access is facilitated for regional distribution by trucks and interregional and international distributions by airborne transportation. The distribution of frozen seafood products has also expanded dramatically, one of the most successful examples being frozen tilapia, which is shipped from Asia to markets around the world. In general, in 2014, international prices for fish were relatively high. According to the table below, the fish price index shows that, after peaking in March 2014 at 164, it had a general downward trend to the point that in July 2015, this index reached 135 due to the decrease in consumer demand in key markets and the increase in the supply of different types of fisheries. Some important species such as tuna, salmon and shrimp decreased in price in the first half of 2015, but other species such as herring, cattle, oysters and scallops increased in price. But in late 2015, a relative recovery in prices began. In 2014, 92% of the trade of fishery products in terms of quantity (equivalent to live weight) included processed products. Also, frozen fish and value-added products increased from 22% and 9% in 1984 to 40% and 18% in 2014, respectively.





Fig 5. FAO Price Index

### - Salmon and Trout

The share of salmon and trout in the global aquatic trade has increased sharply in recent decades, with the highest percentage of the value of these products alone in 2013 (16.6% value and 7.2% weight). Demand is constantly increasing (especially farmed for Atlantic salmon) and new markets have opened up as well as a variety of new processed products. The price of farmed salmon has been fluctuating for the past two years, but the prices of Norwegian salmon, which has a huge market share, have remained high. Chile (the second-largest producer and exporter of salmon) has experienced more production and lower prices after the salmon farming companies crisis in 2005. In addition to farming products, wild Pacific salmon fishing also increased in 2015; especially in Alaska, which has the highest record for fishing this species and the second-highest rate of fishing in all previous years. This overfishing has reduced the prices of all species of wild fish in the region's cold waters. Another interesting point is the recent US Food and Drug Administration (FDA) license for this product.

### - Shrimp

After decades of being the most important commercial seafood product in trading, shrimp is now in second place (15.3% of total value per 6% weighted share). Shrimp is mainly produced in developing countries and most of this production is exported, but recently with the improvement of the economic situation of these countries, the domestic consumption of shrimp has increased and exports have decreased. Although global shrimp production has increased in recent years, major countries (especially Asians) have experienced declining incomes due to disease. However, in 2015, for the first time since 2012, shrimp production in Thailand, which is one of the main producers and exporters of shrimp, increased. Shrimp prices were clearly falling from year to year, but in 2013 they reached a record high. In the first half of 2015, shrimp prices fell again by about 15 to 20% compared to the first half of 2014, due to differences in supply and demand in the US, EU and Japan. Lower prices affect export

earnings and have a negative effect on the profit margins of farmers in developing countries

<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Item</b>
691,174	600,802	549,732	535,865	473,658	<b>Fished in Southern Waters</b>
33,643	33,396	32,617	39,647	40,423	<b>Fished in Northern Waters</b>
724,817	634,198	582,349	575,512	514,081	<b>Total Fishing</b>
477,268	459,521	401,548	371,840	370,867	<b>Aquaculture</b>
1,202,086	1,093,719	983,897	947,352	884,957	<b>Total</b>

Table 1. Fishing and Aquaculture Volume in tons

<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Item</b>
326,784	274,533	270,977	279,301	239,593	<b>Large Pelagic Fish</b>
94,650	78,507	65,959	65,632	50,266	<b>Small Pelagic Fish</b>
241,365	223,533	194,202	176,787	170,885	<b>Demersal Fish</b>
11,194	9,420	8,341	8,567	8,789	<b>Shrimp</b>
17,181	14,809	10,253	5,578	4,125	<b>Myctophids</b>
691,174	600,802	549,732	535,865	473,658	<b>Total</b>

Table 2. Fishing Volume of Southern Waters in tons

<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Item</b>
7,208	7,223	7,973	10,338	11,412	<b>Large Pelagic Fish</b>
2,675	5,724	4,417	3,985	2,805	<b>Small Pelagic Fish</b>
33,267	31,219	32,292	29,049	25,041	<b>Demersal Fish</b>
4,800	3,622	3,599	4,007	4,357	<b>Shrimp</b>
47,950	47,788	48,011	47,379	43,615	<b>Myctophids</b>

Table 3. Fishing Volume of Sistan and Baluchestan Province in tons

<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Item</b>
196005	201097	184064	170341	167883	<b>Warmwater fish farming</b>
167830	163325	140244	126000	143917	<b>Coldwater fish farming</b>
32332	21331	17795	22475	12698	<b>Shrimp farmin - Salty water</b>
52	69	91	70	263	<b>Shrimp farming - Fresh water</b>
14050	10162	2853	638	0	<b>Caged fish farming</b>
410269	395984	345047	319524	324761	<b>Total</b>

Table 4. Aquaculture production volume by species group in tons

<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Item</b>
13434	9012	8205	14500	8488	<b>Bushehr</b>
854	724	1348	1362	771	<b>Khuzestan</b>
1025	570	303	210	0	<b>Sistan and Baluchestan</b>
1690	1124	714	481	304	<b>Golestan</b>
15329	9901	7225	5922	3135	<b>Hormozgan</b>
32332	21331	17795	22475	12698	<b>Total</b>

Table 5. Aquacultured shrimp volume in salty waters in tons

## 2-2-Export Markets

<b>Value (\$)</b>	<b>Weight (tons)</b>	<b>Product</b>
	36	<b>Ornamental</b>
361238642	99567	<b>Various types of fish</b>
5563018	1953	<b>Tuna family</b>
116299584	24780	<b>Shrimp</b>
10909637	3089	<b>Other seafood</b>
7371493	1530	<b>Canned seafood</b>
2790928	1	<b>Caviar</b>
282655	275	<b>Fish meal</b>

1959029	6329	<b>Feed</b>
136220	21	<b>Salmon for breeding</b>
1650	0	<b>Ichthyoplankton</b>
507193500	137581	<b>Total</b>

Table 6. The volume and export value of aquatic species in 2017

<b>Value (\$)</b>	<b>Volume (tons)</b>	<b>Country</b>	<b>Num.</b>
145429114	47033	Iraq	<b>1</b>
124742295	39372	Vietnam	<b>2</b>
26354802	7738	China	<b>3</b>
13891718	3013	United Arab Emirates	<b>4</b>
12929761	4017	Thailand	<b>5</b>
8093932	1998	Kuwait	<b>6</b>
7621646	2101	Hong Kong	<b>7</b>
3271746	1660	Sri Lanka	<b>8</b>
2430820	539	Lebanon	<b>9</b>
2372726	472	Afghanistan	<b>10</b>
2067003	440	France	<b>11</b>
1139718	269	Russia	<b>12</b>
898356	425	Malaysia	<b>13</b>
478302	72	Spain	<b>14</b>
442866	98	Oman	<b>15</b>
431126	146	South Korea	<b>16</b>
421917	120	Pakistan	<b>17</b>
410234	83	Taiwan	<b>18</b>
373971	1	the UK	<b>19</b>
263982	1	Germany	<b>20</b>
254400	106	Myanmar	<b>21</b>
241223	47	Turkey	<b>22</b>
163828	163	Tajikistan	<b>23</b>
146850	1	Italy	<b>24</b>
122706	1	Belgium	<b>25</b>
113328	199	Azerbaijan	<b>26</b>
91616	114	Turkmenistan	<b>27</b>
52875	1	Luxembourg	<b>28</b>
80835	12	The USA	<b>29</b>
45340	15	Bahrain	<b>30</b>
6674	34	Armenia	<b>31</b>

Table 7. The amount and value of Iran's aquatic exports to the most important export target markets

According to the tables above, Iraq and Vietnam are our main customers, but our products are also exported to Luxembourg, South Africa and even the United States. Of course, given that Hong Kong and Vietnam are the main routes for sending our fish to China, the combined value of these three countries will put China first. Due to the fact that Arab countries in the region are a fan of Iran's seafood products, the share of these countries including the United Arab Emirates, Kuwait, Qatar and Lebanon, is generally high.

When the opportunity to develop economic relations with Qatar was provided in 2017, Iranian businesses were able to increase their seafood exports almost tenfold, from \$69,000 in 2016 to more than \$ 550,000 in 2017.

### **3-Assessment and Determination of the Minimum Economic Capacity including Fixed Investment Value in Rials and Dollars (Using the Available Data of Ongoing Units, UNIDO, Internet and Global Databases, Technology, Equipment, etc. Provider Companies)**

The annual nominal capacity of the project is as follows, considering the domestic demands (especially Khuzestan province) and exporting.

#### **Number**

#### **Number**

Over the first 5 years, the practical capacity will be the same as the nominal capacity, considering the need for liquidity to supply raw materials, manpower efficiency and unforeseen factors.

A 12-month period is estimated to purchase the required equipment and complete the production line. This volume of products is anticipated to be prepared in 250 days by an 8-hour day shift.

#### **Production and Sales Plan over the Next 5 Years**

Year 5	Year 4	Year 3	Year 2	Year 1	Year of Operation / Title	
100	100	100	100	100	Capacity Percentage - tons	
5,000	5,000	5,000	5,000	5,000	Processing and packaging of fish	
500	500	500	500	500	Processing and packaging of shrimp	
					Revenue	
600,000	600,000	600,000	600,000	600,000	Fish price per kg	
800,000	800,000	800,000	800,000	800,000	Shrimp price per kg	
3,400,000	3,400,000	3,400,000	3,400,000	3,400,000	Sales	
3,400,000	3,400,000	3,400,000	3,400,000	3,400,000	3,400,000	

					Million Euros (1€=280,000R)	<b>Total Sales</b>
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### Project Investment Details:

Total Cost		Required Cost					Cost (million Rials)	Item
Mill ion Eur os	Millo n Rials	Total (Million Rials)	Rial	Foreign Currencies				
			Million Rials	Equivalent to Rials (Million Rials)	Million Yuan	Million Dollars		
		4,000	-				4,000	Land
		4,423	-				4,423	Landscaping
		29,188	-				29,188	Construction
		8,400	5,000				3,400	Facilities
		40,000	20,000				20,000	Equipment and Machinery
		3,000	-				3,000	Laboratory Equipment
		8,000	8,000				-	Transportation
		200	200				-	Office Equipment
		1,000	1,000				-	Unforeseen Expenses
		99,023	34,200				64,823	Total Fix Assets
		-	-				-	Pre-Operation Costs
		98,212	34,200				64,011	Total Fixed Investment
		58,000						Working Capital
		156,212						Total Investment

- 1 Euro = 280,000 Rials
- 1 Dollar = 255,000 Rials
- 1 Yuan = 60,000 Rials

### Land Details:

Equivalent to Euros	Total Cost of Available and Required	Total Cost (Million Rials)		Area (m <sup>2</sup> )		Item
		Required	Available	Required	Available	
	24,000				10,000	Land

### Building Details:

Equivalent to Euros	Total Cost (Million Rials)			Unit Price (Rials)	Area (m <sup>2</sup> )		Item
	Total	Required	Accomplished		Required	Accomplished	
			17,280	20,000,000		864	Production Hall: Industrial Shed
			9,072	18,000,000		504	Raw Material and Products Warehouse: Industrial Shed
			1,800	15,000,000		120	Offices
			300	15,000,000		20	Electrical Room
			736	8,000,000		92	Security Building
			29,188			1,600	Gross Floor Area and Total Costs

### Facilities Details:

Equivalent to Euros	Required Cost (Million Rials)			Technical Specifications	Item
	Total	Required	Accomplished		
	800	500	300	140 kV	Power Supply
	400	200	200	1 inch	Water Supply
	400		400	30 m <sup>3</sup>	Gas Supply
	4,500	2,000	2,500	100 tons	Refrigerator
					Fire Extinguishing
	6,100	2,700	3,400		Total

### Production Line Machinery:

Equivalent to Euros	Total (Million Rials)	Cost (Million Rials)		Equivalent in Million Rials	Equivalent in Dollars		Number		Machinery	Number
		Required	Accomplished		Required	Accomplished	Required	Available		
		15,000	10,000				3	1	Shrimp Device	1
		8,000					2	-	Fish Fillet Production Device	2
		8,000	6,000				3	1	Packaging Line	3
	<b>47,000</b>	<b>31,000</b>	<b>16,000</b>				<b>Total</b>			

### Office and Service Equipment

Equivalent to Euros	Required Cost (Million Rials)			Number		Items
	Total	Required	Accomplished	Required	Accomplished	
				3	2	Office Furniture
				4	5	Chairs
				-	1	Faxes
				-	1	Telephone/Modems
				5	3	Computers
				3	3	Printers
				5	1	Other
	<b>1,000</b>					<b>Total</b>

### Working Capital Costs:

Equivalent to Euros	Total Cost				Duration (months)	Item
	Total (Million Rials)	Rials	Foreign Currencies			
		Million Rias	Equivalent to Million Rias	Million Yuan		
	40,000	40,000			2	Raw Material and Packaging
					1	Products in Process
	18,000	18,000			1	Liability
					1	Petty Cash



	58,000	58,000				Working Capital
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### Production Costs:

Equivalent to Euros	Cost (Million Rials)	Items
	2,300,200	Raw Material and Packaging
	4,200	Production Staff Payments
	425	Energy (Power, Water, Fuel, . . .)
	500	Repair and Maintenance
	500	Unforeseen
	600	Depreciation
	6,790	Personnel
	100	Office and Sales
	-	Financial Facilities
	300	Factory Insurance
	<b>2.313.615</b>	<b>Total</b>

### 4-The volume of Annual Required Raw Materials and Where to Supply Them From (Domestic or Foreign), The Cost (in Rials and Euros) and Examining the Fundamental Changes in the Process of Supplying the Required Items in the Past and Future

Equivalent to Euros	Total Price			Supply Location	Unit Price		Consumption Required per Total Capacity	Consumption Unit	Consumption per Unit of Product	Num.
	Total (Million Rials)	Foreign Currency (Yuan)	Domestic (Million Rials)		Foreign Currency (Yuan)	Domestic (Million Rials)				
			2,000,000	Iran		400	5,000	tons	Fresh Production	1
			300,000	Iran		600	500	tons	Shrimp Production	2
			200	Iran		100	2	tons	Cartons and Tape	3
			<b>2,300,200</b>	<b>Total</b>						

### 5-Human Resources and Employment Status

18 individuals will be employed. Specialized human resources will be available due to high-quality universities and technical and vocational training centers in Khuzestan province.

### 6-Assessment and Determination of Power, Water and Fuel Supply and Telecommunication and Transportation Facilities (Roads, Railways, Airports, Ports, . . .) and How to Provide Those to a Zone Suitable for the Project

Khoramshahr industrial zone has all the necessary infrastructures such as power, water, gas and telecommunication facilities. The distance between Khoramshahr and Ahvaz (Khuzestan capital) is 110 km. Khoramshahr port is one the most important commercial ports in the country which can facilitate export. Also, the Shalamchah border market within the 18 km distance to the project location can make the export efforts to Iraq much easier. The distance to Abadan airport and railway is 15 and 5 km, respectively.

Annual Salary and Benefits - 14 months	Salary - Rials	Number	Item	Num.
700	500,000,000	1	Manager	1
560	400,000,000	1	Quality Control Manager	2
420	300,000,000	1	Technical Expert	3
4,200	25,000,000	12	Skilled Worker	4
350	25,000,000	1	Administrative and Marketing Staff	5
560	20,000,000	2	Worker and Driver	6
6,790		18	Total	

Total Cost - Million Rials	Unit Price - Rials	Annual Consumption	Unit	Item	Num.
165	1,100	15,000	kw/h	Power	1
10	1,000	10,000	m <sup>3</sup>	Water	2
40	4,000	10,000	liter	Diesel Fuel	3
210	30,000	7,000	liter	Gasoline	4
425	Total				

## 7-Commercial and Economic Support for the Project

Several supporting projects are ongoing to promote the industry.

- In order to evaluate, discuss and resolve the obstacles and problems facing the production units, a “Production Facilitation Committee” was appointed in all the provinces whose members are governor-general (chairman), provincial unit head of Ministry of Industry and Mines (secretary), head of provincial management and planning organization, head of the provincial chamber of commerce, industries, mines and agriculture, head of the provincial chamber of industry, mining and commerce, etc. The most important responsibility of the committee is to
  - facilitate, complete and launch semi-finished production projects and develop them
  - support and help the export of provincial products

- evaluate the cause of stagnation or suspension of production unit operations and try to solve the problem

- **Resistive Economy (Economic Prosperity) Committee:** Ministry of Industry, Mines and Commerce issued a resolution (12868) on May 15<sup>th</sup>, 2016 by which the completion of industrial projects with more than 60% physical progress and support of small and medium production units were funded.
- **Small Industries Investment Guarantee Fund:** Issuing credit guarantees facilitates the financing of small businesses and warrants the payback of principal plus interest to the bank. The guarantee will be issued after a thorough inspection and validation and offering the proper collateral.

#### **7-1-Supporting Custom Tariff (of Products and Machinery) by International Tariffs**

The tariff for importing the machinery required for the project is 5 to 10 percent to facilitate the technology provision and support domestic production. The tariff for importing MDF sheets is 55% to prevent the importing and support domestic production.

#### **7-2-Financial Support (of Available Units and Projects) by Banks - Investment Companies**

The funding by banks can be accomplished by

- ١- **Foreign Exchange Reserve Fund:** The oil revenue surplus is allocated to manufacturers and exporters to finance some of their foreign currency needs in the shape of Islamic contracts and approved regulations and according to domestic import and export of commodity and services regulations.
- ٢- **Resistive Economy (Economic Prosperity) Committee:** Funding is considered to complete the industrial projects with more than 60% physical progress and support the small and medium production units.
- ٣- **Foreign Investment Encouragement and Protection Law**  
Since 1955, the framework of foreign investment in Iran's law has been to attract and support foreign investment. In order to make reforms in the economic structure of the country, the Iranian parliament proposed new law on foreign investment called the Encouragement and Support of Foreign Investment Act which was finally approved in 2002. This new law has led to the development of the legal framework and the environment for foreign investors in Iran. Some of the progress made by the new law in the field of foreign investment are:
  - The Government of the Islamic Republic of Iran welcomes the foreign investment of foreign entities, both natural and legal, in all areas of economic activity.
  - Recognition of new investment methods in addition to foreign direct investment

- Facilitating the process of applying and approval of foreign investment
- Establishment of an organization called Foreign Investment Services Center within the Organization for Investment Economic and Technical Assistance of Iran in order to provide centralized and effective support to the activities of foreign investors in Iran

In case of attracting foreign investment, the government has considered incentives some of which are:

١. Tax exemption for products of foreign investment companies
٢. Providing insurance coverage to investors
٣. Granting customs exemptions on the import of inputs required by foreign investment companies
٤. Provide subsidies for local labor training
٥. Creating free-trade zones for investment
٦. Providing cheaper infrastructure and public services such as water and electricity
٧. Guaranteeing the return of profits and principal and preventing their confiscation and nationalization

## **8-Analysis, Conclusions and Suggestions:**

### **- Economic Expert Report**

Today, seafood has a special place in the consumer food basket. Every day, as people become more aware of the benefits of healthy foods, the demand for a variety of seafood is increasing. On the other hand, due to the low variety of seafood products, the per capita consumption in the country is not in a good position compared to other countries. However, the existence of technical knowledge and equipment and machinery and the possibility of access to appropriate domestic and foreign markets and most importantly, the existence of marine resources makes the implementation of this project economically justifiable.

Economic indicators all indicate that the implementation of this project is highly beneficial. Therefore, the implementation of the project will actually bring more profit to the investor than the profits granted in the banking system.

### **- Environmental Expert Report**

None of the environmental criteria including air, soil and noise pollution and waste disposal were violated and thus, the project can be completely implemented.

### **- Management Expert Report**

Since seafood products are highly in demand, the current supply cannot meet the domestic needs and there's a high demand for such products by neighboring countries, the implementation of this project is highly recommended.

## **Financial Report Summary**

<b>Fish: 461,380 rials</b>	<b>Product Final Cost</b>
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<b>shrimp: 66,000 rials</b>	
<b>Fish: 65,000 rials</b>	<b>Product Sales Price</b>
<b>shrimp: 800,000 rials</b>	
<b>3,400,000</b>	<b>Total Sale (Million Rials)</b>
<b>46.26%</b>	<b>Sales Percentage at Break-Even Point</b>
<b>1,086,385</b>	<b>Profit (Million Rials)</b>
<b>51%</b>	<b>Internal Return Rate</b>
<b>44,275</b>	<b>Net Value Added (Million Rials)</b>
<b>2 years</b>	<b>Payback Period</b>