In the name of Allah

# Pre-feasibility studies 

Project Name:<br>Production of Ice Cream

Project Owner:<br>Tohfeh Nesfe Jahan Company

Advisor of the project: Zahra Badoei

Project address: Khuzestan, Izeh Industrial Estate

Date of P.F.S: March , 2021

## Summary of pre-feasibility plan

| General Specification |  |
| :--- | :--- |
| Name of The Project | Ice cream production |
| Project Capacity | 2500 tons |
| Personnel Number | 16 persons |
| Working Days | 250 days |
| Product Usage | Middle meal and dessert |
| Marketing | $2-5$ Euro/kg |
| Product Global Price | 284 thousand ton |
| Domestic Demand | 359 thousand ton |
| Domestic Production | - |
| Import | 41925 ton |
| Export | $7000 \mathrm{~m}^{2}$ |
| Technical Study | $1107 \mathrm{~m}^{2}$ |
| Land Area | Sugar, milk, Stabilizers and emulsifiers |
| Building Area | Domestic |
| Main Raw Materials | 250 KW |
| Supplying Place of Raw Materials | $3000 \mathrm{~m}^{3}$ |
| Power Requirement | $100,000 \mathrm{~m}^{3}$ gas |
| Water Requirement | $22,015.00$ million Rails $\cong 0.226$ million Euro |
| Fuel Requirement | $222,645.0$ million Rails $\cong 0.813$ million Euro |
| Economical \& Financial Study | $48,298.50$ million Rail's $\cong 0.176$ million Euro |
| Fixed Investment Cost | $270,943.50$ million Rail's $\cong 0.989$ million Euro |
| Working Capital | 63.0909 million Rail's $\cong 1.64$ million Euro |
| Total Investment Cost | 2.62 years |
| Annual Sale | Rillion Rail's $\cong 1.385$ million Euro |
| Net Present Value(NPV) | Reails 0.763 million Euro |
| Break Even Point(BEP) | Investment Return Period |


| Index | Page No. |
| :--- | :---: |
| Introduction: | $\mathbf{4}$ |
| 1.Product introduction | $\mathbf{6}$ |
| 1.1. Product name and ISIC code | 7 |
| 1.2. Customs tariff code | 7 |
| 1.3. Import and export products conditions | 8 |
| 1.4. Review and presentation of standard (national or international) | 8 |
| 1.5. Review and provide information about domestic production prices and global <br> price of the product | 8 |
| 1.6. Explaining the usage and application of the product in the domestic and foreign <br> markets | 9 |
| 1.7. Evaluation of alternative products, competitors and analysis and its effects on <br> consumption of the product | 9 |
| 1.8. The strategic importance of the product in Iran and foreign markets | $\mathbf{9}$ |
| 1.9. The major producing countries and product consumer | $\mathbf{1 8}$ |
| 2. Situation of supply and demand in Iran and foreign markets |  |
| 2.1. Study of utilization capacity and production process since the beginning of the <br> Sixth Five Year Economic Development Plan of the Islamic Republic of Iran, unit <br> location, the number and level of technology of available units, nominal capacity, <br> practical capacity, lack of full capacity utilization reasons, the name of country and <br> manufacturer of machinery used in production | 11 |
| 2.2. Study of the status of new projects and under construction development projects <br> (In terms of number, capacity, operation place, the physical progress rate and the level <br> of their technology and investments by both foreign exchange and other required) <br> and semi-finished projects | 14 |
| 2.3. The trend of imports of the product in the last five years <br> the production process | 16 |
| 2.4.The trend of consumption in the last five years <br> country and compare it with other countries | 15 |
| 2.5. The trend of export product in the last five years and the possibility of its <br> development | 15 |
| 2.6. Reviewing of products needs based on export priority |  |
| 3- Overview of technology and production methods and product supply in the |  |


| Index | Page No. |
| :---: | :---: |
| 5. Determine the minimum economic capacity includes the estimated volume of fixed investment estimated volume with the separation of Rials and foreign exchange (Using information of available and under construction units, UNIDO, internet, the global data banks, technology selling companies and equipment, etc.) | 20 |
| 6-The annual major required raw materials and annual and to supply outside or inside the country, domestic and foreign exchange and checking the major developments in the supply of essential required items in the past and future | 30 |
| 7. The risk analysis of the project | 31 |
| 8. Human resources and employment status | 33 |
| 9.Determine the amount of water, electricity, gas, telecommunications and communication facilities (road - rail - Airport - Port ...) and how to provide them in the appropriate area to implementation | 33 |
| 10. Economic and trade support for plan | 34 |
| 10.1. Supporting of Customs tariff (products and machines) with global tariff | 34 |
| 10.2. financial support (existing units and projects) banks - investment firms | 34 |
| 11.Analyzes And providing summary and final offer | 35 |
| 12. Summary of pre-feasibility plan | 38 |

## Introduction:

Ice cream is a food that is made up of carbohydrates, proteins, fats and minerals. 70 grams of ice cream produces about 130 calories of energy in body. Due to the presence of ice crystals and fat cells, the ice cream has a special taste, so it is an enjoyable and enjoyable meal.

Nowadays ice cream is out of the luxury category and has become a food item, and its production creates high added value. The value of ice cream exports in 2018 was $\$ 63$ million and in 2019 it was $\$ 159$ million which is a significant figure. Therefore investing in ice cream production is quite economical and affordable. One of the most important reasons for the implementation of the project in Khuzestan province (Izeh) can be mentioned as follows:

- Existence of a significant consumer population in Khuzestan province (population 4.7 million)
- Long heat season
- No import
- Existence of high quality raw materials (due to rangelands and suitable climatic conditions in Izeh and livestock boom)
- Access to land, rail and water links for export to southern neighbor countries
- Ensuring security
- 10 year exemption tax

Therefore, " Tohfeh Nesfe Jahan" Company realizes the major advantages of Khuzestan province and Izeh city, in the field of livestock production and ease of access to high quality raw materials and markets inside and outside the country. Regarding to the scientific and practical experience of the company executives in the field of ice cream production ( 20 years of experience) and innovation and variety in production, the success of production and competition in sales is not out of the question. The physical progress of the project is $80 \%$ and requires financial resources to purchase machinery and provide working capital.

It should be noted that it will be welcomed if the investor wishes to import and supply up-to-date machinery with high technology and regarding to the Market elasticity and technical capability, the capacity may be doubled.


## 1.Product introduction:

The purpose of the present project is to produce 2,500 tonnes of ice cream per year in different types of popsicle, magnum, teddy, glass, family (liter), Ice cream sandwich are milk-based and ice with different flavors.

Ice cream is a food that contains carbohydrates, protein, fat, minerals, and some vitamins; ice cream is a milk nutrient product obtained from freezing and aeration of homogenized and pasteurized blend of raw materials. Ice cream is a foam product in which small bubbles of air are dispersed in a semi-frozen phase.

Ice cream is a funny and energetic product that is produced in various types of Popsicle, magnum, teddy, glass, family (liter), Ice cream Sandwich and etc. Ice cream has all the characteristics of milk and because of its appeal to children and adolescents, it can greatly compensate for their lack of milk intake. If stored at $-25^{\circ} \mathrm{C}$, it will have a shelf life of about one year.


### 1.1. Product name and ISIC code

ISIC is the most common classification and categorization of economic activities. ISIC classification is defined as: classification and categorization of the international standard industrial classification of all economic activities. This classification is allocated to one of the 2 , 4, and 10 digit codes based on the type of industry and product. the ISIC codes related to ice cream types are given in the table below.

| Product name | ISIC Code | Unit |
| :--- | :---: | :---: |
| ice cream | 1520312450 | ton |
| Pasteurized ice cream | 1520312747 | ton |
| Fruit ice cream | 1520412451 | ton |
| Plain ice cream (vanilla) | 1520412454 | ton |
| Flavored ice cream | 1520412458 | ton |
| Ice cream based on milk | 1520412748 | ton |
| Popsicle Ice Cream | 1520412759 | ton |
| Fruit ice cream with milk | 1520512453 | ton |
| Simple Milk Ice Cream | 1520512455 | ton |
| Cereal plain ice cream | 1520512456 | ton |
| Fruit flavored ice cream | 1520512459 | ton |
| Cocoa-flavored ice cream or brainless chocolate | 1520512460 | ton |
| Cocoa-flavored ice cream or nutritious chocolate | 1520512461 | ton |
| Traditional Ice Cream (Saffron Ice Cream) | 1520512462 | ton |
| Traditional ice cream with slices of cream (saffron ice <br> cream) | 1520512463 | ton |
| Milk ice cream | 1520512749 | ton |
| Cocoa or chocolate milk cream | 1520512750 | ton |

Source: organization of Industry, mine and trade

### 1.2. Customs tariff code

Based on the export and import regulation of Islamic republic of Iran the custom tariff for ice cream is as follows:

| Heading <br> subheading No. | Description |
| :---: | :---: |
| 21050000 | Ice cream and other edible ice, whether or not containing cocoa. |

Source : export-import regulations (2020)

### 1.3. Import and export products conditions

Given the conditions for product import and export in Islamic republic of Iran, conditions and tariffs for import and export of the ice cream is as follows:

| Heading <br> Subheading <br> No. | Description | SUQ | Import duty |
| :---: | :--- | :---: | :---: |
| 21050000 | Ice cream and other edible ice, whether or not <br> containing cocoa. | kg | 55 |

Source : export-import regulations (2020)
Import terms:

1. Import and entry of the ice cream is subject to the substantive of Article 16 of the Food and Drinks and ... approved in 1967 (in addition to compliance with general regulations and having a health certificate and usability from the country of origin, it requires a license, import and clearance and export documents from the Ministry of Health).
2. Ice cream is subject to mandatory export standards.

### 1.4. Review and presentation of standard (national or international) <br> - national Standard

| Number | Title | Country |
| :---: | :--- | :---: | :---: |
| 2450 | Ice cream | Iran |

Source: Institute of Standards and Industrial Research of Iran

## International Standard

| No. | Topic of standard | Number of <br> standard |
| :---: | :--- | :---: |
| 1 | Australia New Zealand Food Standards Ice cream | 2.5 .6 |
| 2 | Ice cream standard | $243: 2003$ |
| 3 | European industry standards for ice cream, milk ice and dairy ice <br> cream | EU1169:2011 |

### 1.5. Review and provide information about domestic production prices and global price of the product

The ice cream industry is very competitive in the world. Given the variety of ice cream, it is difficult to determine a price for it, but on average it costs between $€ 2$ and $€ 5$ per kilogram. In Iran, the price of ice cream varies from 180 to 300 thousand Rials per kilogram.

### 1.6. Explaining the usage and application of the product in the domestic and foreign markets

In all countries of the world including Iran, ice cream is a food that is mostly consumed as a snack; the nutritional value of ice cream depends on the nutritional value of the raw materials used in making ice cream. Milk as the main ingredient of ice cream has many benefits. The major constituents of milk are water, fat, protein, lactose, vitamins and minerals and milk is the most important source of calcium too.

Milk containing fat which is saturated $60 \%$ and the rest unsaturated fat. Milk fat is also nutritionally valuable in addition to being energetic due to the presence of vitamin A and D. Milk also contains proteins which fall into two categories: casein and whey proteins which help metabolize the body by producing essential amino acids. The sugar in milk is called lactose which is decomposed by specific enzymes in the digestive tract and converted to simpler sugar. Phosphorus, magnesium, zinc, iron, vitamins $\mathrm{A}, \mathrm{B}_{12}$ and $\mathrm{B}_{2}$ are other nutrients in milk that contribute to its richness.

In Iran, ice cream is mainly used for edible purposes and in most of the festivities, ice cream is used for the greater vitality and is given to children and adolescents as a snack. But overseas, including the United States, in addition to human consumption, some ice cream is also given to pets such as dogs and cats to control their behavior.

In Iran, per capita consumption of ice cream has increased from 3.5 kg per person in 2016 to 5 kg per person in 2019. On average, every American consumes about 23 pounds of ice cream (10.5 kg ) a year.

### 1.7. Evaluation of alternative products, competitors and analysis and its effects on consumption of the product

Although it can be mentioned as other competitors such as desserts, carbonated drinks, pastries and other snacks as well as ice cream competitor but in the dairy industry every dairy product has a special place, especially ice cream has high consumption in the high summer.

Now a days, the consumption of frozen yogurt, a low-sugar and diet-based ice cream has increased in the world and has gained its fans.

Kalleh, Mihan, Zarin Ghazal (Daity) and Pak dairy companies are the competitors in the field of ice cream production in the country. If the cost product in this company is less than competitors, it is possible to compete.

### 1.8. The strategic importance of the product in Iran and foreign markets

According to the researches, the design product in Iran has not strategic importance because the technical knowledge and skills required for its production are quite simple and its related technology in country is native. This product can be manufactured in most countries and at the same time it does not have any political, social or other barriers to market entry. But the importance of ice cream at present to the country's economy is in the aspect of its pricing in terms of policies toward a non-oil resisting economy and the producers and exporters have focused on that.

### 1.9. The major producing countries and product consumer

The United States, the United Kingdom, and several European countries are other major producers of ice cream. $9 \%$ of milk that produced in the US is used in ice cream production.

Big producer companies of ice cream in the world

| No | Country | Company |
| :---: | :---: | :---: |
| 1 | England -Netherlands | Unilever (Magnum) |
| 2 | United States | Häagen-Dazs |
| 3 | Europe | Cornetto |
| 4 | United States | Ben \& Jerry's |
| 5 | - | conglomerate |
| 6 | Switzerland | Nestle |

Per capita consumption of ice cream in some of the world's most consumed countries is as follows:

1. New Zealand (28.4 liters per year)
2. USA (20.8 liters per year)
3. Australia ( 18.0 liters per year)
4. Finland ( 14.2 liters per year)
5. Sweden ( 12.0 liters per year)
6. Canada ( 10.6 liters per year)
7. Denmark ( 9.8 liters per year)
8. Ireland (8.4 liters per year)
9. Italy ( 8.0 liters per year)
10. England (7.0 liters per year)

China is also one of the largest consumers of ice cream with 4.3 billion liters of consumption per year.
Although consumption of ice cream has declined in Western countries due to rising public awareness of medical care, it has increased significantly in East Asian countries. The ice cream market has now grown dramatically in India, Indonesia and Vietnam bit it has declined dramatically in Switzerland, Denmark and the US over the past five years.


## 2. Situation of supply and demand in Iran and foreign markets

2.1. Study of utilization capacity and production process since the beginning of the Sixth Five Year Economic Development Plan, unit location, the number and level of technology of available units, nominal capacity, practical capacity, lack of full capacity utilization reasons, the name of country and manufacturer of machinery used in production

According to the statistics of the units with active operating licenses presented by the Organization of Mines, Trade and Commerce, there are currently 214 industrial units with a nominal capacity of 717,887 units in the field of ice cream production in the whole country which are the major producers. The major producers are located in Tehran, Alborz and Fars provinces.

At present, the actual production capacity of ice cream in the country is 350,000 tons that about $12 \%$ is exported and the rest is consumed in the country. Due to the hot climate of Khuzestan, the consumption of ice cream is very significant, but there is no active ice cream maker in the province (although 5 workshops have operating licenses). One of the reasons for the lack of full capacity utilization can be factors such as relatively high inflation rate and increased production costs especially the packaging sector.

Fewer goods are produced in Iran which are not imported in the market. Ice cream is one of the few food products that is less competitive with its foreign counterparts and is not imported into the country because the variety of production in the Iranian ice cream market is very high and consumers have a great choice in the ice cream market. There are also high quality fruits and nuts in Iran that are also used in ice cream production.

Kaleh, Mihan, Zarin Ghazal (DAITY) and Pasteurized Pak Dairy are the most important ice cream companies in the country and even the Middle East. In a 2016 report by Forbes Magazine, Mihan ice cream from Iran is the world's 10th best-selling ice cream brand which has a remarkable $31 \%$ growth in sales from 2011 to 2016.

According to the studies it was determined that all the machines and equipment of the ice cream production line are manufactured in Iran, but some of the big companies that have good financial ability are buying ice cream machines from countries like Germany, Italy and Switzerland. They buy all automatic machinery and human has not working in this process because of the hygiene tips that are very important in the food industry. The status and amount of production of these units are presented in the following table:

Of licensed operation unit in the field of ice cream production

| No. | Province | Number of units | Capacity (tons) | investment |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Million Rials | Million EUR |
| 1 | Ardabil | 4 | 1,580 | 80,962 | 0 |
| 2 | Esfahan | 12 | 14,298 | 380,283 | 1.03 |
| 3 | Alborz | 20 | 27,319 | 2,693,143 | 63.618 |
| 4 | Eest Azerbaijan | 14 | 17,242 | 1,730,276 | 6.1 |
| 5 | West Azerbaijan | 4 | 11,000 | 76,408 | 1.609 |
| 6 | Bushehr | 1 | 510 | 6,469 | 0 |
| 7 | Tehran | 70 | 244,843 | 5,221,248 | 91.158 |
| 8 | Chahar Mahaal and Bakhtiari | 2 | 5,500 | 110,851 | 0 |
| 9 | Khorasan Razavi | 18 | 29,907 | 655,347 | 6.413 |
| 10 | Khorasan North | 1 | 300 | 4,190 | 0 |
| 11 | Khuzestan | 5 | 23,670 | 125,795 | 0 |
| 12 | Zanjan | 1 | 650 | 22,242 | 0 |
| 13 | Semnan | 2 | 1,100 | 34,144 | 0 |
| 14 | Sistan and Baluchestan | 2 | 1,300 | 40,909 | 0 |
| 15 | Fars | 10 | 130,280 | 1,826,958 | 5.424 |
| 16 | Qazvin | 6 | 43,040 | 51,565 | 0 |
| 17 | Qom | 4 | 6,650 | 40,600 | 0.318 |
| 18 | Kurdistan | 2 | 41,000 | 199,025 | 0 |
| 19 | Kerman | 2 | 20,250 | 99,573 | 0 |
| 20 | Kermanshah | 3 | 11,840 | 37,891 | 0 |
| 21 | Kohgiluyeh and Boyer-Ahmad | 1 | 600 | 8,620 | 0 |
| 22 | Golestan | 8 | 13,325 | 119,884 | 0 |
| 23 | Gilan | 7 | 20,780 | 236,989 | 68.79 |
| 24 | Lorestan | 2 | 700 | 11,720 | 0 |
| 25 | Mazandaran | 3 | 35,460 | 84,229 | 0 |
| 26 | Markazi | 2 | 4,700 | 108,100 | 2.35 |
| 27 | Hormozgān | 2 | 1,100 | 27,096 | 0 |
| 28 | Hamadan | 2 | 1,030 | 4,541 | 0 |
| 29 | Yazd | 4 | 7,900 | 13,100 | 0 |
| nominal Total capacity |  | 214 | 717,874 | 14,052,158 | 246.81 |
| Practical capacity (55\%) |  | 107 | 358,937 |  |  |

Source: organization of Industry, Mine and Trade

### 2.2. Study of the status of new projects and under construction development projects (In terms of number, capacity, operation place, the physical progress rate and the level of their technology and investments by both foreign exchange and other required) and semi-finished projects

Based on information from the organization of Industry, Mine and Trade, ice cream production units under construction and their production levels are presented in the table below. Due to the high quality products of the leading companies in the field of ice cream production such as Mihan, Domino, Kalleh, Pak and Daity in order to compete with these products, we must inevitably use the high technology to produce high quality products, which are currently being managed by industrial units They are paying attention to this issue.

Under Construction Units of ice cream production with 60-99\% of physical progress

|  |  | Number of | Capacity | inve | nent |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Province | units | (tons) | Million Rials | Million EUR |
| 1 | Ardabil | 1 | 440 | 40,200 | 0 |
| 2 | Esfahan | 3 | 15,000 | 634,946 | 7.161 |
| 3 | Alborz | 5 | 6,900 | 164,481 | 0 |
| 4 | Eest Azerbaijan | 2 | 660 | 25,200 | 0 |
| 5 | West Azerbaijan | 1 | 500 | 43,000 | 0 |
| 6 | Tehran | 12 | 28,900 | 4,344,926 | 66.525 |
| 7 | Chahar Mahaal and Bakhtiari | 2 | 3,300 | 183,699 | 0 |
| 8 | Khorasan, South | 1 | 400 | 44,000 | 0 |
| 9 | Khorasan Razavi | 2 | 380 | 61,249 | 0 |
| 10 | Khuzestan | 3 | 5,200 | 84,569 | 0 |
| 11 | Qazvin | 4 | 7,400 | 151,215 | 0 |
| 12 | Kermanshah | 1 | 1,000 | 41,800 | 0 |
| 13 | Golestan | 2 | 2,700 | 41,400 | 0 |
| 14 | Lorestan | 2 | 2,100 | 26,205 | 0 |
| 15 | Mazandaran | 5 | 9,500 | 326,707 | 0 |
| 16 | Markazi | 2 | 2,410 | 252,464 | 6.213 |
| Total |  | 48 | 86,790 | 6,466,061 | 79.899 |

Source: organization of Industry, Mine and Trade

Under Construction Units of ice cream production with 20-59\% of physical progress

| No. Province |  | Number <br> of units | Capacity <br> (tons) | investment |  |
| :---: | :--- | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| 1 | Esfahan | 3 | 1,150 | 124,900 | 1 |
| 2 | Alborz | 5 | 54,340 | $8,368,877$ | 7.9 |
| 3 | Eest Azerbaijan | 1 | 10,000 | 353,062 | 0.93 |
| 4 | West Azerbaijan | 2 | 3,550 | 108,312 | 0.9 |
| 5 | Tehran | 16 | 84,350 | 436,437 | 55 |
| 6 | Khorasan Razavi | 2 | 825 | 20,985 |  |
| 7 | Sistan and Baluchestan | 1 | 1,000 | 5,200 |  |
| 8 | Qazvin | 1 | 4,000 | 21,700 | 5 |
| 9 | Kerman | 1 | 600 | 7,868 |  |
| 10 | Golestan | 1 | 1,000 | 31,600 |  |
| 11 | Gilan | 2 | 360 | 8,835 |  |
| 12 | Mazandaran | 1 | 3,200 | 11,000 |  |
| 13 | Markazi | $\mathbf{3 7}$ | $\mathbf{1 6 7 , 3 7 5}$ | $\mathbf{9 , 5 6 1 , 2 5 5}$ | $\mathbf{7 1 . 2 3}$ |
| Total |  |  |  |  |  |

Source: organization of Industry, Mine and Trade

### 2.3. The trend of imports of the product in the last five years

According to the customs statistics of the country during the 5 years, no import of the mentioned goods has been carried out into the country.

### 2.4.The trend of consumption in the last five years

One of the common methods of calculating the amount of internal consumption is to estimate the amount of apparent consumption, which is calculated in the following table.

As shown in the following tables, the apparent consumption of ice cream in 2019-2020 was estimated at 283,841 tons.

Estimating apparent consumption of sausage and lunch meat and hamburger products in the country over the past 5 years (2014-2019)

|  | $\mathbf{2 0 1 4 - 2 0 1 5}$ | $\mathbf{2 0 1 5 - 2 0 1 6}$ | $\mathbf{2 0 1 6 - 2 0 1 7}$ | $\mathbf{2 0 1 7 - 2 0 1 8}$ | $\mathbf{2 0 1 8 - 2 0 1 9}$ | $\mathbf{2 0 1 9 - 2 0 2 0}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Domestic production (tons) | 251,256 | 264,982 | 273,904 | 288,602 | 305,656 | $\mathbf{3 5 8 , 9 3 7}$ |
| Imports (tons) | 0 | 0 | 0 | 0 | 0 | 0 |
| Export (tons) | 42,359 | 41,462 | 36,973 | 37,455 | 41,952 | 41,952 |
| The apparent consumption | $\mathbf{2 0 8 , 8 9 7}$ | $\mathbf{2 2 3 , 5 2 0}$ | $\mathbf{2 3 6 , 9 3 1}$ | $\mathbf{2 5 1 , 1 4 7}$ | $\mathbf{2 6 3 , 7 0 4}$ | $\mathbf{2 8 3 , 8 4 1}$ |

### 2.5. The trend of export product in the last five years and the possibility of its development

The figure shows the export of ice cream and more significantly, the export of ice cream which is remarkable.

It is worth noting that more than $98 \%$ of exports are exported to Iraq, which may be a golden opportunity in the first place, but it must pay close attention to its high risk in terms of fragile political and security relations.

Therefore, Exporters should seek to identify and evaluate other markets in the region to minimize the economic risk to their firms if the Iraqi market loses.

Exports of ice cream in the last 5 years

| year | Weight (Kg) | Rail's value | Dollar value | Description |
| :---: | :---: | :---: | :---: | :---: |
| $2018-19$ | 41,346 | $7,055,587,344,983$ | $137,294,576$ | $98 \%$ Iraq |
| $2017-18$ | 36,956 | $4,337,929,724,998$ | $128,442,690$ | $98 \% \mathrm{Iraq}$ |
| $2016-17$ | 36,973 | $3,750,489,570,976$ | $120,638,716$ |  |
| $2015-16$ | 41,462 | $2,697,289,746,968$ | $92,089,838$ |  |
| $2014-15$ | 42,359 | $2,272,564,710,558$ | $86,637,612$ |  |

Source :The Islamic Republic of Iran Customs Administration (2020)

The chart of exported ice cream in the last 5 years


Exports of ice cream divided by country in 2018-2019

| counterparty <br> country | Weight (Kg) | Rail's value | Dollar value | Weight ratio (Wt\%) |
| :--- | :---: | :---: | :---: | :---: |
| Iraq | $41,346,680$ | $7,055,587,344,983$ | $137,294,576$ | 98.55 |
| Pakistan | 264,138 | $55,513,561,633$ | 924,358 | 0.63 |
| Oman | 103,983 | $13,945,395,285$ | 234,028 | 0.25 |
| Bahrain | 65,289 | $12,731,476,028$ | 219,456 | 0.16 |
| United Arab <br> Emirates | 44,651 | $10,060,481,942$ | 137,769 | 0.11 |
| Kuwait | 36,798 | $6,790,831,716$ | 117,619 | 0.09 |
| Qatar | 33,263 | $6,619,448,464$ | 101,498 | 0.08 |
| Georgia | 30,847 | $4,362,899,765$ | 103,391 | 0.07 |
| Afghanistan | 24,237 | $4,866,135,400$ | 69,275 | 0.06 |
| United States | 2,952 | $468,006,000$ | 11,143 | 0.01 |
| Malaysia | 150 | $19,840,500$ | 450 | 0.00 |
| Total | $\mathbf{4 1 , 9 5 2 , 9 8 8}$ | $\mathbf{7 , 1 7 0 , 9 6 5 , 4 2 1 , 7 1 6}$ | $\mathbf{1 3 9 , 2 1 3 , 5 6 3}$ | $\mathbf{1 0 0 . 0 0}$ |

Source: Islamic Republic of Iran Customs Administration (2020)

Exports of ice cream divided by country in 2017-2018

| counterparty <br> country | Weight (Kg) | Rail's value | Dollar value | Weight ratio (Wt\%) |
| :--- | :---: | :---: | :---: | :---: |
| Iraq | $36,956,484$ | $4,337,929,724,998$ | $128,442,690$ | 98.67 |
| Pakistan | 303,497 | $35,699,890,319$ | $1,039,243$ | 0.81 |
| Bahrain | 63,708 | $7,232,994,197$ | 214,709 | 0.17 |
| Kuwait | 46,755 | $5,540,525,097$ | 163,641 | 0.12 |
| Qatar | 41,073 | $4,546,681,614$ | 131,460 | 0.11 |
| Georgia | 17,650 | $2,005,506,825$ | 61,775 | 0.05 |
| Oman | 13,526 | $1,639,514,230$ | 46,735 | 0.04 |
| United Arab <br> Emirates | 11,904 | $1,101,913,341$ | 31,026 | 0.03 |
| United States | 1,294 | $196,603,500$ | 5,500 | 0.00 |
| Total | $\mathbf{3 7 , 4 5 5 , 8 9 0}$ | $\mathbf{4 , 3 9 5 , 8 9 3 , 3 5 4 , 1 2 1}$ | $\mathbf{1 3 0 , 1 3 6 , 7 7 9}$ | $\mathbf{1 0 0 . 0 0}$ |

Source: Islamic Republic of Iran Customs Administration (2020)

### 2.6. Reviewing of products needs based on export priority

Regarding to the growth trend of ice cream consumption over the past 5 years, which represents an average of $7 \%$ growth annually, it also accounts for approximately $7 \%$ as consumption growth for the year 2020 to 2025 are considered. Also considering export resistance, oil sanctions and the need to focus on the development of non-oil currency exports, the export growth is estimated at about $12 \%$ of domestic production and ice cream deficiency or surplus is estimated for the next 5 years.

As shown in the following table, the country will face approximately 41.7 thousand tonnes of ice cream shortage in 2025, to overcome this shortage, units need to be expanded or building new units or importing the product.

Estimates of product demand over the next 5 years

| Production | $2020-2021$ | $2021-2022$ | $2022-2023$ | $2023-2024$ | $2024-2025$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| The domestic consumption (tons) | 384,063 | 410,947 | 439,713 | 470,493 | 503,428 |
| Export (tons) | 46,088 | 49,314 | 52,766 | 56,459 | 60,411 |
| Total demand (tons) | $\mathbf{4 3 0 , 1 5 0}$ | $\mathbf{4 6 0 , 2 6 1}$ | $\mathbf{4 9 2 , 4 7 9}$ | $\mathbf{5 2 6 , 9 5 2}$ | $\mathbf{5 6 3 , 8 3 9}$ |
| Output of current units (tons) | 358,937 | 358,937 | 358,937 | 358,937 | 358,937 |
| Production of new operational <br> units (tons) | 47,734 | 110,655 | 129,315 | 147,974 | 163,162 |
| Total supply (tons) | $\mathbf{4 0 6 , 6 7 1}$ | $\mathbf{4 6 9 , 5 9 2}$ | $\mathbf{4 8 8 , 2 5 2}$ | $\mathbf{5 0 6 , 9 1 1}$ | $\mathbf{5 2 2 , 0 9 9}$ |
| (Shortage) / surplus | $\mathbf{( 2 3 , 4 7 9 )}$ | $\mathbf{9 , 3 3 1}$ | $\mathbf{( 4 , 2 2 7 )}$ | $\mathbf{( 2 0 , 0 4 1 )}$ | $\mathbf{( 4 1 , 7 4 0 )}$ |

## 3- Overview of technology and production methods and product supply in the country and compare it with other countries

Nowadays in Iran and other advanced countries in the technology of ice cream is used HTST method and is currently the best method of ice cream production. Organizations overseeing production are the Food and Drug Administration as well as the Standard Organization. It is also worth nothing that product launches are in collaboration with broadcasting companies as well as capillary distribution (direct delivery to stores and supermarkets).

| Conditions | Time | Temperature | The pasteurization method |
| :--- | :---: | :---: | :---: |
| Non-continuous in <br> double-walled tanks | 30 min | $69^{\circ} \mathrm{C}$ | Slow LTLT |
| Continuous on plate <br> pasteurizer | 25 min | $80^{\circ} \mathrm{C}$ | Fast HTST |

Some sources and applications of ice cream raw materials

| Raw material | Sources | Application |
| :--- | :--- | :--- |
| Fat and milk fat | Butter, condensed milk, cream, <br> milk, butter, vegetable fat | Aerating, stabilizing the floor, <br> texturing |
| Fat-free solids | Condensed milk, skim milk, milk, <br> cream | Emulsifier, flavoring, improving <br> melting quality, creating soft texture, <br> water holding capacity |
| Sweeteners | Sucrose, corn syrup, Anvertebrate <br> sugar, dextrose | Sweetener, increase volume, increase <br> viscosity, decrease melting point |
| Stabilizers | Guar gum, xanthan gum, alginate <br> gum, carboxymethyl cellulose | Air bubble fixation, texture <br> improvement, improved melt quality, <br> viscosity enhancement, improved oral <br> sense |
| Emulsifiers | Mono and Diglycerides, Lecithin | Emulsify ice cream fat |
| Flavors | Vanilla, vanilla extract, cocoa, <br> chocolate and kernels | To taste |

The ice cream production process briefly includes the following:

1. Getting raw milk
2. Sampling
3. Quality control tests
4. Weighing and mixing
5. Thermal process
6. Pasteurization (HTST) and homogenization
7. Reaching: aging \& storing vat
8. Freezing and aeration
9. Initial molding and packaging
10. Tightening: Harding
11. Final packaging
12. Transfer to cold storage
13. Final product quality control
14. Distribution and sale


## 4. Determine the strengths and weaknesses of known technologies (in outline) in the production process

Traditional technologies have many weaknesses such as low production capacity, declining quality and nutritional value and increased pollution; But new technologies have prominent strengths such as high production capacity and efficiency, increased quality and nutritional value, pollution reduction, manpower reduction, decrease production costs.

## 5. Determine the minimum economic capacity includes the estimated volume of fixed investment estimated volume with the separation of Rials and foreign exchange (Using information of available and under construction units, UNIDO, internet, the global data banks, technology selling companies and equipment, etc.)

Regarding the need of the domestic market especially Khuzestan province and considering the export, the nominal annual capacity of the project is:

## - Ice cream types: 2500 tons

The practical capacity of the project is predicted to be 75,90 and 100 percent of nominal capacity, respectively, considering the need for cash to supply raw materials, manpower efficiency and unforeseen factors during the first three years of operation.

It should be noted that if the esteemed investor wishes to increase investment, it is possible to increase production due to the appropriate market demand and selection of machinery with higher production capacity.

It takes about 6 months to complete and purchase the equipment. The product is also expected to be produced in 250 working days and a 12 -hour shift per day.

Plan production and sales over the next 3 years

| Years of operation | first year | second year | third year |
| :---: | :---: | :---: | :---: |
| Percentage of capacity |  | 75 | 90 |
| Ice cream | 397.5 | 2250 | 2500 |
| Total production |  | $\mathbf{3 9 7 . 5}$ | $\mathbf{2 2 5 0}$ |
| The outcome of selling |  |  |  |
| Ice cream( $\mathbf{1 8 0}$ million Rails /ton) | $168,750.0$ | $405,000.0$ | $405,000.0$ |
|  | million Rails | $\mathbf{1 6 8 , 7 5 0 . 0}$ | $\mathbf{4 0 5 , 0 0 0 . 0}$ |
|  | Million Euro | $\mathbf{0 . 6 2}$ | $\mathbf{4 0 5 , 0 0 0 . 0}$ |

Table of Project Investment

| Description | incurred <br> Costs <br> (million <br> Rails) | required Costs |  |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | The Foreign currency |  | Local <br> Currency | Total (Million Rails) | Million Rails | Equivalent in Million Euro |
|  |  | Million <br> Euro | Equivalent Rails (Million Rails) | Million Rails |  |  |  |
| land | 8,400.00 | 0.0 | 0.0 | 0.00 | 0.00 | 8,400.00 | 0.031 |
| landscaping | 6,710.00 | 0.0 | 0.0 | 1250.00 | 1250.00 | 7,960.00 | 0.029 |
| Construction | 31,210.00 | 0.0 | 0.0 | 1600.00 | 1600.00 | 32,810.00 | 0.120 |
| utilities | 4,715.00 | 0.0 | 0.0 | 2,350.00 | 2,350.00 | 7,065.00 | 0.026 |
|  <br> Machinery | 9,350.00 | 0.0 | 0.0 | 145,690.00 | 145,690.00 | 155,040.00 | 0.566 |
| laboratory equipment | 0.00 | 0.0 | 0.0 | 1200.00 | 1200.00 | 1200.00 | 0.004 |
| transportation | 0.00 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.000 |
| Office <br>  <br> Supplies | 130.00 | 0.0 | 0.0 | 540.00 | 540.00 | 670.00 | 0.002 |
| Other and unpredicted | 0.00 | 0.0 | 0.0 | 8,000.00 | 8,000.00 | 8,000.00 | 0.029 |
| total | 60,515.00 | 0.0 | 0.0 | 160,630.00 | 160,630.00 | 221,145.00 | 0.807 |
| Pre-Production expenditures | 500.00 | 0.0 | 0.0 | 1,000.00 | 1,000.00 | 1,500.00 | 0.005 |
| Total of fixed Capital | 61,015.00 | 0.0 | 0.0 | 161,630.00 | 161,630.00 | 222,645.00 | 0.813 |
| Working capital | 0.00 | 0.0 | 0.0 | 48,298.50 | 48,298.50 | 48,298.50 | 0.176 |
| Total <br> Investment | 61,015.00 | 0.0 | 0.0 | 209,928.5 | 209,928.5 | 270,943.50 | 0.989 |

Exchange rate:
1 Euro $\cong 274,000.0$ Rails
1 dollar§ 228,000.0 Rails
land specification of project as follows as:

| Description | Area(m ${ }^{2}$ ) |  | Cost (million Rails) |  |  | Equivalent in Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | done | required | done | required | Total |  |
| land | 7000.0 | 0.0 | 8400.0 | 0.0 | 8400.0 | 30,657.0 |

landscaping price as follows as:

| Description | Area(m²) |  | Cost (million Rails) |  |  | Equivalent in <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | done | required | done | required | Total |  |
| Excavation and leveling | $4000 \mathrm{~m}^{3}$ | 0.0 | 600.0 | 0.0 | 600.0 | $2,262.8$ |
| Wall (2.5 meters high) | 336 m | 0.0 | $3,360.0$ | 0.0 | $3,360.0$ | $12,0,211.7$ |
| Sidewalk building and <br> filling the area with the <br> sand | $1500 \mathrm{~m}^{2}$ | 0.0 | $2,250.0$ | 0.0 | $2,250.0$ |  |
| Green space and lighting | $200 \mathrm{~m}^{2}$ | $500 \mathrm{~m}^{2}$ | 500.0 | 1250.0 | 1750.0 | $6,386.9$ |
| total |  |  | $\mathbf{6 , 7 1 0 . 0}$ | $\mathbf{1 2 5 0 . 0}$ | $\mathbf{7 , 9 6 0 . 0}$ | $\mathbf{2 9 , 0 5 1 . 1}$ |



## Construction items Information:

| Description | Building Type | Square meters area |  | Total cost (million Rails) |  | Equivalent in <br> Euro |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Required | Done | Required | Total |  |  |
| Production salon | Industrial shed - <br> Tiling up to ceiling <br> - Anti-acid ceramic <br> floor - False ceiling | 430 | 0 | $12,900.0$ | 0.0 | $12,900.0$ | $47,080.3$ |
| Raw materials <br> and product <br> warehouse | Industrial shed - <br> Tiling up to the <br> ceiling - Ceramic <br> floor | 180 | 40 | $5,400.0$ | $1,200.0$ | $6,600.0$ | $24,087.6$ |
| Process part | Metal structure <br> shed | 120 | 0 | $3,600.0$ | 0.0 | $3,600.0$ | $13,138.7$ |
| Office of <br> Supervision | In the shed | 5 | 0 | 150.0 | 0.0 | 150.0 | 547.4 |
| Administrative <br> buildings and <br> welfare building | Concrete structure, <br> Exterior design of <br> stone, two floors | 232 | 0 | $6,960.0$ | 0.0 | $6,960.0$ | $25,401.5$ |
| Lab | Half floor upstairs <br> of shed | 60 | 0 | $1,800.0$ | 0.0 | $1,800.0$ | $6,569.3$ |
| electronic room | Made of bricks | 5 | 20 | 100.0 | 400.0 | 500.0 | $1,824.8$ |
| Gate guard | Made of bricks | 15 | 0 | 300.0 | 0.0 | 300.0 | $1,094.9$ |
| Total <br> infrastructure <br> and costs |  | $\mathbf{1 0 4 7}$ | $\mathbf{6 0}$ | $\mathbf{3 1 , 2 1 0 . 0}$ | $\mathbf{1 , 6 0 0 . 0}$ | $\mathbf{3 2 , 8 1 0 . 0}$ | $\mathbf{1 1 9 , 7 4 4 . 5}$ |

## the view of the factory




## Administrative buildings



## Utilities:

| Description | Technical Specifications | Number/amount |  | Required costs (million Rail's) |  |  | $\begin{gathered} \text { Equivalent } \\ \text { in } \\ \text { Euro } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Done | Required | Done | Required | Total |  |
| Electrification | Electric power $200 \mathrm{KW}$ | 112 | 90 | 2,000.0 | 900.0 | 2,900.0 | 10,583.9 |
| Electric supply | Electrical of all buildings | 0 | 0 | 1,000.0 | 600.0 | 1,600.0 | 5,839.4 |
| Water | Split 1 ", water supply and piping | 0 | 0 | 1,000.0 | 0.0 | 1,000.0 | 3,649.6 |
| Gas | Split and Mannesmann piping | 0 | 0 | 400.0 | 0.0 | 400.0 | 1,459.9 |
| Telecommuni cations | 3 line | 0 | 0 | 15.0 | 0.0 | 15.0 | 54.7 |
| Security camera | Night vision type | 0 | 16 | 0.0 | 150.0 | 150.0 | 547.4 |
| Air compressor | 2 cubic meters | 0 | 1 | 0.0 | 700.0 | 700.0 | 2,554.7 |
| Fuel tank | 6000 liter | 1 | 0 | 100.0 | 0.0 | 100.0 | 365 |
| Heating and Cooling Appliances | Split Air conditioner | 2 | 0 | 200.0 | 0.0 | 200.0 | 729.9 |
| Total |  |  |  | 4,715.0 | 2,350.0 | 7,065.0 | 25,784.7 |

## Equipment\& Machinery product line:

| Description | Qty |  | The foreign currency <br> (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency (million Rails) |  | Total <br> costs <br> (million <br> Rails) | Equivalent in <br> Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  |  |  |  |  |
|  |  |  |  |  |  | Done | Required |  |  |
| Stainless steel tanks | 3 | 3 | 0 | 0 | 0 | 4,420.0 | 4,420.0 | 8,840.0 | 32,262.0 |
| Filling Popsicle, Sandwich and cone ice creams | 0 | 1 | 0 | 0 | 0 | 0 | 76,500.0 | 76,500.0 | 279,197.0 |
| Linear liter ice cream filler | 0 | 1 | 0 | 0 | 0 | 0 | 10,200.0 | 10,200.0 | 37,226.0 |
| Filler the glass of ice cream | 0 | 2 | 0 | 0 | 0 | 0 | 6,800.0 | 6,800.0 | 24,818.0 |
| Pasteurizer | 0 | 1 | 0 | 0 | 0 | 0 | 5,440.0 | 5,440.0 | 19,854.0 |
| Homogenizer | 0 | 1 | 0 | 0 | 0 | 0 | 1,360.0 | 1,360.0 | 4,964.0 |
| three blender | 0 | 1 | 0 | 0 | 0 | 0 | 850.0 | 850.0 | 3,102.0 |
| freezer | 0 | 4 | 0 | 0 | 0 | 0 | 14,960.0 | 14,960.0 | 54,599.0 |
| Cooler Plate | 0 | 1 | 0 | 0 | 0 | 0 | 1,360.0 | 1,360.0 | 4,964.0 |
| Ice Filling | 0 | 1 | 0 | 0 | 0 | 0 | 7,650.0 | 7,650.0 | 27,920.0 |
| Jet Printer | 0 | 1 | 0 | 0 | 0 | 0 | 986.0 | 986.0 | 3,599.0 |
| CIP | 0 | A series | 0 | 0 | 0 | 1,360.0 | 0 | 1,360.0 | 4,964.0 |
| Full boiler | 0 | 1 | 0 | 0 | 0 | 0 | 2,550.0 | 2,550.0 | 9,307.0 |
| Ice Bank | 0 | 1 | 0 | 0 | 0 | 2,550.0 | 0 | 2,550.0 | 9,307.0 |
| Air compressor | 0 | Complete line | 0 | 0 | 0 | 0 | 1,020.0 | 1,020.0 | 3,723.0 |
| Cooling Tower | 0 | 2 | 0 | 0 | 0 | 1,020.0 | 0 | 1,020.0 | 3,723.0 |
| Lab | 0 | Complete series | 0 | 0 | 0 | 0 | 1,020.0 | 1,020.0 | 3,723.0 |
| Steel Pump | 0 | 4 | 0 | 0 | 0 | 0 | 374.0 | 374.0 | 1,365.0 |
| Filter | 0 | 4 | 0 | 0 | 0 | 0 | 340.0 | 340.0 | 1,241.0 |
| Steel pipe and fittings | 0 | A series | 0 | 0 | 0 | 0 | 2,550.0 | 2,550.0 | 9,307.0 |
| Fruits Feeder | 0 | 1 | 0 | 0 | 0 | 0 | 2,550.0 | 2,550.0 | 9,307.0 |
| Full installation and Setting up | 0 |  | 0 | 0 | 0 | 0 | 4,760.0 | 4,760.0 | 17,372.0 |
| Total |  |  | 0 | 0 | 0 | 9,350.0 | 145,690.0 | 155,040.0 | 565,839.0 |

## laboratory equipment

| Description | Qty |  | The foreign currency <br> (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency (million Rails) |  | Total <br> costs (million Rails) | Equivalent in <br> Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  | Done | Required |  |  |
| 55 liter incubator | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 1200.0 | 1200.0 | 4,379.5 |
| Rotary Ice Incubator | 0 | 1 |  |  |  |  |  |  |  |
| 25 liter autoclave | 0 | 1 |  |  |  |  |  |  |  |
| Electric furnaces | 0 | 1 |  |  |  |  |  |  |  |
| Ben Murray | 0 | 1 |  |  |  |  |  |  |  |
| Laboratory tableware and dishes | 0 | Complete series |  |  |  |  |  |  |  |
| Total | 1 | 0 | 0 | 0 | 0 | 0.0 | 1200.0 | 1200.0 | 4,379.5 |

## Transportation

| Description | Qty |  | The foreign currency (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency (million Rails) |  | Total <br> costs (million Rails) | Equivalent in <br> Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  | Done | Required |  |  |
| - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Office Equipment \& Supplies and Services:

| Description | Qty |  | The foreign <br> currency <br> (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency <br> (million Rails) |  | Total <br> costs <br> (million <br> Rails) | Equivalent <br> in <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  | 109.5 |  |  |  |
| Panasonic ATX | 1 | 0 | 0.0 | 0.0 | 0.0 | 30 | 0.0 | 30 | 109.5 |
| Cannon scanner | 1 | 0 | 0.0 | 0.0 | 0.0 | 30 | 0.0 | 30 | 10.0 |
| Safe Box | 1 | 0 | 0.0 | 0.0 | 0.0 | 20 | 0.0 | 20 | 73.0 |
| 12-foot <br> refrigerator | 1 | 0 | 0.0 | 0.0 | 0.0 | 50 | 0.0 | 50 | 182.5 |
| HP Triple <br> Printer | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 60 | 60 | 219.0 |
| Table and chair <br> management | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 80 | 80 | 292.0 |
| Conference table <br> and chair | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 150 | 150 | 547.4 |
| LED TV | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 100 | 100 | 365 |
| Computer | 0 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 150 | 150 | 547.4 |
| Total |  |  | $\mathbf{0 . 0}$ | $\mathbf{0 . 0}$ | $\mathbf{0 . 0}$ | $\mathbf{1 3 0 . 0}$ | $\mathbf{5 4 0}$ | $\mathbf{6 7 0}$ | $\mathbf{2 , 4 4 5 . 3}$ |

## Working capital:

| Description | duration | The foreign currency |  | Local <br> Currency | Total <br> (Million <br> Rails) | Equivalent <br> in <br> Million <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Million <br> Euro | Equivalent Rails <br> (Million Rails) | Million <br> Rails | R |  |
| Supplementary <br> Raw Material and <br> Packaging | 1 Month | 0 | 0 | $21,554.17$ | $21,554.17$ | 0.079 |
| Energy |  |  |  |  |  |  |
| Cash in hand | 1 Month | 0 | 0 | 88.42 | 88.42 | 0.0003 |
| Account receivable | 1 Month | 0 | 0 | $2,319.17$ | $2,319.17$ | 0.008 |
| Total |  | 0 | 0 | $24,336.75$ | $24,336.75$ | 0.089 |

## Production costs:

| Description | Amount <br> (Million Rials) | Equivalent in <br> (Million Euro) |
| :--- | :---: | :---: |
| Costs of materials | $258,650.00$ | 0.944 |
| Cost of production personnel salary | $7,281.00$ | 0.027 |
| Cost of utilities (fuel and electricity, water ...) | $1,061.00$ | 0.004 |
| Cost of repair and maintenance | $9,847.00$ | 0.036 |
| cost of unforeseen production(5\%) | $5,537.00$ | 0.020 |
| Depreciation expense | $18,106.56$ | 0.066 |
| Administrative personnel salary | $4,723.00$ | 0.017 |
| Costs of administrative and sales | $4,500.00$ | 0.016 |
| Factory insurance | 442.00 | 0.002 |
| Total sum | $\mathbf{3 1 0 , 1 4 7 . 5 6}$ | $\mathbf{1 . 1 3 2}$ |

6-The annual major required raw materials and annual and to supply outside or inside the country, domestic and foreign exchange and checking the major developments in the supply of essential required items in the past and future

The main raw materials for ice cream production are milk that can be obtained from Izeh city. Sugar will also be supplied from sugar factories in Khuzestan province. Packaging will also be purchased from Khuzestan province and the provinces of Tehran and Isfahan. Other additives used in ice cream are mainly imported from domestic importing companies.

## Required Raw materials:2500 ton ice cream

| $\begin{aligned} & \text { Descripti } \\ & \text { on } \end{aligned}$ |  |  | The amount required for all capacity | Priceofunitmillion)( Rails | Currency prices |  | $\begin{aligned} & \text { Cost (million } \\ & \text { Rails) } \end{aligned}$ |  | Total cost (million Rails) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | The <br> currency <br> (million <br> dollar) | Equivalen t Rails million ) (Rails |  |  |  |  |
| Sugar | 0.26 | ton | 650 | 77 | 0 | 0 | 50,050.0 | Domestic | 50,050.0 | 0.183 |
| Raw milk | 0.7 | ton | 1750 | 50 | 0 | 0 | 87,500.0 | Domestic | 87,500.0 | 0.319 |
| milk <br> powder | 0.032 | ton | 80 | 350 | 0 | 0 | 28,000.0 | Domestic | 28,000.0 | 0.102 |
| Oil | 0.052 | ton | 130 | 95 | 0 | 0 | 12,350.0 | Domestic | 12,350.0 | 0.045 |
| Emulsifier stabilizer \& | 0.005 | ton | 12.5 | 2100 | 0 | 0 | 26,250.0 | Domestic | 26,250.0 | 0.096 |
| cacao powder | 0.003 | ton | 7 | 1000 | 0 | 0 | 7,000.0 | Domestic | 7,000.0 | 0.026 |
| cellophane | 0.015 | ton | 37.5 | 600 | 0 | 0 | 22,500.0 | Domestic | 22,500.0 | 0.082 |
| carton | 250.0 | pcs | 625,000 | 0.04 | 0 | 0 | 25,000.0 | Domestic | 25,000.0 | 0.091 |
| Total |  |  |  |  | 0 | 0 | 258,650.0 |  | 258,650.0 | 0.944 |

## 7. The risk analysis of the project

## Strengths:

- Existence of high quality raw materials (due to rangelands and suitable climatic conditions in Izeh and livestock boom)
- Possibility of mass production and variety of production
- High internal rate of return
- No import
- There is no active producer of ice cream in Khuzestan
- The production method is the same in Iran and other countries of the world
- Appropriate communication infrastructures such as transit roads, railways and waterways are available to access domestic and foreign markets especially Iraq and the Gulf States.
- Izeh is close to important commercial ports such as Imam Khomeini Port and Khorramshahr for export


## Weakness:

- Lack of liquidity to supply machinery
- Perfect competition market


## Opportunities:

- Long heat season
- Existence of a very large consumption market within the project area ( 4.7 million population of Khuzestan province)
- Supporting domestic production
- Supporting to attract foreign investors
- Access to major axes and infrastructure such as freeway, south-north rail, access to open water for export
- Ensuring security
- 10 year exemption tax


## Threats:

- US sanctions
- Variable inflation rates and rising production prices

Sensitivity analysis of IRR based on the changes in sale revenue, increased in fixed assets and operational cost


## 8. Human resources and employment status

The project Employment rate is 16 people, 10 of these rate will be in production and 6 persons in office. Due to the existence of universities and Valid technical and professional centers in Khuzestan province and Izeh province, access to specialist human resources is provided.

| Job Title | Sex |  | Required |  |  | Monthly <br> salaries | Monthly <br> ser person <br> salaries <br> (million <br> Rails) | Annual <br> salaries <br> (million <br> Rails) | Equivalent in <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\checkmark$ | 1 | 1 | 1 | 70 | 70 | $1,148.0$ | $4,189.8$ |
| Finance director, <br> sales, <br> administrative |  | $\checkmark$ | 1 | 1 | 1 | 50 | 50 | 820.0 | $2,992.7$ |
| Financial <br> personnel, sales <br> office | $\checkmark$ | $\checkmark$ | 1 | 1 | 1 | 42 | 42 | 688.8 | $2,513.9$ |
| warehouse <br> keeper |  | $\checkmark$ | 1 | 1 | 1 | 42 | 42 | 688.8 | $2,513.9$ |
| Processes <br> manager |  | $\checkmark$ | 1 | 1 | 1 | 50 | 50 | 820.0 | $2,992.7$ |
| Line Supervisor | $\checkmark$ | $\checkmark$ | 1 | 1 | 1 | 50 | 50 | 820.0 | $2,992.7$ |
| Food Industry <br> Engineer | $\checkmark$ | 1 | 1 | 1 | 50 | 50 | 820.0 | $2,992.7$ |  |
| Worker | $\checkmark$ |  | 6 | 1 | 6 | 42 | 252 | $4,132.8$ | $15,083.2$ |
| Guard |  | $\checkmark$ | 1 | 2 | 1 | 42 | 84 | $1,377.6$ | $5,027.7$ |
| Secretary | $\checkmark$ |  | 1 | 1 | 1 | 42 | 42 | 688.8 | $2,513.9$ |
| Total |  |  | $\mathbf{1 5}$ |  | $\mathbf{1 6}$ |  | $\mathbf{7 3 2}$ | $\mathbf{1 2 , 0 0 4 . 8}$ | $\mathbf{4 3 , 8 1 3 . 1}$ |

## 9. Determine the amount of water, electricity, gas, telecommunications and communication

 facilities (road - rail - Airport - Port ...) and how to provide them in the appropriate area to implementationIzeh Industrial City has basic infrastructure such as water, electricity, gas and telecommunication facilities. It is 180 kilometers from Izeh to Ahvaz (the capital of the province), providing access to all airport, rail and transit facilities, these possibilities is facilitating trade.

| Description | unit | Annual consumption | Price per unit (Rails) | Total price <br> (million Rails) | Equivalent <br> in Euro |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Electricity | KW | 250,000 | 1,300 | 325 | $1,186.1$ |
| water | $\mathrm{m}^{3}$ | 3,000 | 20,000 | 60 | 219 |
| Gas | $\mathrm{m}^{3}$ | 100,000 | 1,400 | 140 | 510.9 |
| Gasoline | lit | 6,000 | 6,000 | 36 | 131.4 |
| Other |  |  |  | 500 | $1,824.8$ |
| total |  |  |  |  |  |

## 10. Economic and trade support for plan

To stimulate the industrial section and related to the resistance to economy, several projects are implemented and the following are mentioned

- In order to study, exchange of views and coordination to resolve the problems and obstacles faced by manufacturing units, "the Working Group of facilitate and remove of production obstacles " is formed in all provinces and with membership of the governor (chairman), head of the provincial Ministry of Industry, Mine and Trade ( Secretary), management and planning organization chairman, President of the Chamber of commerce, Industries, mines and Agriculture of province and chairman of the house of industry, mine and trade. The main tasks of this working group can be mentioned as follows:
- Helping to expedite the completion and commissioning of the production of semifinished projects and develop
- Support and contribute to the export development of provincial products.
- Investigating slowdown causes or production units suspension and problem solving coordination.
- Working Group on Economy of Resistance (boom): Regarding to the economy resistive of Ministry of Industries and Business in Act 12868 dated 2016.21.4, the funding are considered in order to completing industrial plans with a physical progress more than $60 \%$ and also improving the competitiveness of small and medium production units to increase exports.
- Investment Guarantee Fund of Small Industries: The credit guarantees issuance is guaranteed to facilitate financing was through small business facilities and securitized principal and interest and credit facilities granted by banks and financial institutions to small firms. This credit guaranties have been issued for applicants after expert review and validation, obtaining fees with the required securities and warranty credit.


### 10.1. Supporting of Customs tariff (products and machines) with global tariff

In order to support domestic production and ease of technology supply, the machines input rights to the project are relatively low at around $10 \%$. Also the import right of the product for import is very high and about $55 \%$, thus supporting domestic production.

## 10.2. financial support (existing units and projects) banks - investment firms

The most important sources of financial credit from banks, can be cited as follows.

1. Foreign exchange reserves: The surplus proceeds from the sale of crude oil facility will be provided support and finance of part of the foreign exchange needs of producers and exporters of private and cooperative sectors. In the framework of contracts and Islamic banking laws and regulations enacted by the opening credits are awarded based on the provisions of the import and export of goods and services.
2. Economy of Resistance Committee (boom): Now, funding is considered for the completion of a physical progress with $60 \%$ and industrial production units as well as enhance the competitiveness of small and medium enterprises to increase exports.

## 3. Foreign Investment Promotion and support Act:

Since 1955, the legal framework for foreign investment in Iran has been the Attraction and support of Foreign Investments law. In line with reforms in the economic structure of the country, the Iranian parliament has offered the foreign investment plan as a Foreign Investment Promotion and Support Act which legislated finally in 1381. This will lead to the development of the legal framework and operational environment for foreign investors in Iran. Some of the new developments in the field of foreign investments include:

- Islamic Republic of Iran is welcome of foreign investments by foreign persons, whether natural or legal persons in all areas of economic activity.
- Recognition of new investment methods in addition to foreign direct investment
- Short and quick process and approval application and foreign investment approval.
- Creating an unique organization called the Center for Foreign Investment Service Organization for Investment, Economic and Technical Assistance of Iran in order to focused and effective support of the activities of foreign investors in Iran
- Further liberalization of foreign exchange mechanisms for more use by foreign investors

In case of absorbing foreign investor, the government considers some bonus, such as:

1. Tax exemption for the products of foreign investing companies
2. Presenting insurance coverage for the investors
3. Presenting customs exemptions for importing equipment required by foreign investing companies
4. Granting subside for training local manpower
5. Preparing free zones for investment
6. Granting infrastructure facilities and less expensive public services such as water and power
7. Guaranteeing return on profit and the main capital and prevention from their confiscation and nationalization

## 11.Analyzes And providing summary and final offer

Regarding to the growth trend of ice cream consumption over the past 5 years, which represents an average of $7 \%$ growth annually, it also accounts for approximately $7 \%$ as consumption growth for the year 2020 to 2025 are considered. Also considering export resistance, oil sanctions and the need to focus on the development of non-oil currency exports, the export growth is estimated at about $12 \%$ of domestic production and ice cream deficiency or surplus is estimated for the next 5 years.

As shown in the following table, the country will face approximately 41.7 thousand tonnes of ice cream shortage in 2025, to overcome this shortage, units need to be expanded or building new units or importing the product.

Thus, the country will be faced with shortage about 41.7 thousand tonnes of ice cream by the end of 2025 .

Therefore, as mentioned above, the ice cream product has a shortage of production and supply until 2025. Given the general policies of the system and the detrimental effects of foreign sanctions, this deficiency must definitely be remedied through domestic production. In order to supply the domestic demand, using the opportunity created in Iraq's export market and in the near future in Syria, as well as reducing dependence on single-product oil exports, it is essential to complete and launch new units, such as Tohfe Nesfe Jahan company located in the Khuzestan province.

One of the most important reasons for the implementation of the project in Khuzestan province, Izeh can be mentioned as follows:

- Existence of a significant consumer population in Khuzestan province (population 4.7 million)
- Long heat season
- No import
- Existence of high quality raw materials (due to rangelands and suitable climatic conditions in Izeh and livestock boom)
- Access to land road, rail and waterways links for export to neighboring countries
- Ensuring security
- 10 year exemption
- High rate of return
- Low capital return period
- Target Markets:

1. Internal sector: firstly Khuzestan, secondly the neighboring provinces and then the whole country
2. External Sector: Iraq, Afghanistan and the Gulf States, Pakistan, India, etc.

| Cost of ice cream(kg) | 129,650.0 Rails〔 0.473 Euro |
| :---: | :---: |
| Sale price of ice cream (kg) | 180,000.0 Rails $\simeq 0.657 \mathrm{Euro}$ |
| total Sales | 450,000.0 million Rails million Euro |
| Present sales in break-even point | 20.48\% |
| Profit | 125,867.2 million Rails $\mathbf{0 . 4 5 9}$ million Euro |
| Gross value added | 180,442.0 million Rails $\simeq 0.658$ million Euro |
| Net value added (million Rail's) | 162,335.4 million Rails $\simeq 0.592$ million Euro |
| The Gross value added to total Sales | 40\% |
| The Net value added to total Sales | 36\% |
| The Gross value added to Investment | 67\% |
| Investment Return Period | 2.62 years |

Exchange rate:
1 Euro $\cong 274,000.0$ Rails
1 dollar؟ 228,000.0 Rails

## 12- Summary of pre-feasibility plan

| General Specification |  |
| :---: | :---: |
| Name of The Project | Ice cream production |
| Project Capacity | 2500 tons |
| Personnel Number | 16 persons |
| Working Days | 250 days |
| Product Usage | Middle meal and dessert |
| Marketing |  |
| Product Global Price | 2-5 Euro/kg |
| Domestic Demand | 284 thousand ton |
| Domestic Production | 359 thousand ton |
| Import | - |
| Export | 41925ton |
| Technical Study |  |
| Land Area | $7000 \mathrm{~m}^{2}$ |
| Building Area | $1107 \mathrm{~m}^{2}$ |
| Main Raw Materials | Sugar, milk, Stabilizers and emulsifiers |
| Supplying Place of Raw Materials | Domestic |
| Power Requirement | 250 KW |
| Water Requirement | $3000 \mathrm{~m}^{3}$ |
| Fuel Requirement | 100,000 m ${ }^{3}$ gas |
| Economical \& Financial Study |  |
| Fixed Investment Cost | 222,645.0 million Rails $\cong 0.813$ million Euro |
| Working Capital | $48,298.50$ million Rail's $\cong 0.176$ million Euro |
| Total Investment Cost | 270,943.50 million Rail's $\cong 0.989$ million Euro |
| Annual Sale | $450,000.0$ million Rail's $\cong 1.64$ million Euro |
| Net Present Value(NPV) | 379,509.08 million Rail's $\simeq 1.385$ million Euro |
| Break Even Point(BEP) | 20.48 \% |
| Internal Rate of Return(IRR) | 63.09 \% |
| Investment Return Period | 2.62 years |
| Investment Sources Ratio: <br> Equity:23\% <br> Finance: 77\% | $62,015.00$ million Rails $\cong 0.226$ million Euro <br> $208,928.50$ million Rails $\cong 0.763$ million Euro |

