In the name of Allah

# Pre-feasibility studies 

Project Name:<br>Production of Fruit Juice from concentrate

Project Owner:
Mr. Naser Khatamiyan

Advisor of the project:
Zahra Badoei

Project address: Khuzestan, Andimeshk Industrial Estate No. 2

Date of P.F.S: February , 2021

## Summary of pre-feasibility plan

| General Specification |  |
| :--- | :--- |
| Name of The Project | Production of fruit juice from concentrate |
| Project Capacity | fruit juice from concentrate:2000 tons |
| Personnel Number | 16 persons |
| Working Days | Food and Beverage |
| Product Usage | 923 Euro/ton |
| Marketing | 1.09 million tons |
| Product Global Price | 1.11 million tons |
| Domestic Demand | 2044 tons |
| Domestic Production | 16.8 thousand tons |
| Import |  |
| Export | $6261 \mathrm{~m}^{2}$ |
| Technical Study | $2244 \mathrm{~m}^{2}$ |
| Land Area | citrus concentrate, sugar, packing materials |
| Building Area | Domestic |
| Main Raw Materials | 125 KW |
| Supplying Place of Raw Materials |  |
| Power Requirement | $5000 \mathrm{~m}^{3}$ |
| Water Requirement | $200,000 \mathrm{~m}^{3}$ gas |
| Fuel Requirement |  |
| Economical \& Financial Study | $111,161.8$ million Rails $\cong 0.450$ million Euro |
| Fixed Investment Cost | $44,379.75$ million Rails $\cong 0.180$ million Euro |
| Working Capital | $155,541.55$ million Rails $\cong 0.630$ million Euro |
| Total Investment Cost | $336,000.0$ million Rails $\cong .36$ million Euro |
| Annual Sale | $34.45 \%$ |
| Net Present Value(NPV) | 4.4 years |
| Break Even Point(BEP) | 122,500 million Rails $\cong 0.496$ million Euro |
| Internal Rate of Return(IRR) |  |
| Investment Return Period | Rails $\cong 0.43$ million Euro |
| Investment Sources Ratio: <br> Equity:21\% <br> Finance: $79 \%$ |  |
|  |  |


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## Introduction:

In determining post-World War II economic development strategies, most countries chose the strategy of industrialization, citing the added value of the sector as a reason. That is, technological development based on knowledge and industrialization is responsible for modern economic development in countries, not traditional industries. Despite all the technological developments, the most advanced industrialized countries (USA, Japan and EU) consider the development of the agricultural sector not only as a complement to the industrial sector and the application of industry to agriculture as a result of increasing productivity in the sector but also consider the importance of food production in relation to their national security.

Because of using agricultural products as raw materials, processing industries can be a good case in making better use of these products. Many agricultural products are not produced or consumed at the same time. their Production or harvesting is usually done in a specific short time, but their consumption happens later on (for a long time). processing industries can preserve products in a way that they can be consumed throughout the year.

Creating and expanding processing industries has some economic effects, such as creating added value, employment, foreign exchange income as well as greater use of agricultural products. Thereby, this will prevent product loss juice are among the products processing industries that have considerable industrial history in Iran especially from the 60's and 70's onward. Companies such as "Marghab Dasht" (yek o yek) and "Takdaneh" are among the pioneers of this industry in the late 60s.

Khuzestan province has the following features in terms of cultivation and production of horticultural crops. They are specified in the following table and graph .
the Area under cultivation and Khuzestan capacity and rank in production of the horticultural crops
(2020)

| title | The Area under cultivation <br> (thousand hectare) | The amount of production (thousand tons) | The Area under cultivation relative to the country (percentage) | The Amount of production relative to the country (percentage) |
| :---: | :---: | :---: | :---: | :---: |
|  | horticultural crops | horticultural crops | horticultural crops | horticultural crops |
| Country | 2,953.9 | 23,459.5 | - | - |
| Khuzestan province | 61.7 | 383 | 2.1 | 1.6 |
| the Rank of <br> Khuzestan in the country | 18 | 22 | - | - |

References: Agricultural Statistics Bulletin, Volume I and III, Ministry of Jihad Agriculture, 2020


Therefore, according to the statistics, figures, and the above table, it can be said that Khuzestan province it stands in middle among other provinces in terms of horticultural crops. Also due to climate and fertile land, Iran has considerable varieties of fruits and citrus which are used as fresh fruits and producing of fruit juice also yield high value added. Additionally, they meet domestic demands and the country obtains considerable income and foreign currency through their export. Khuzestan province due to 4.7 million population, warm weather, popularity of healthy and cold beverages, also neighborhood with Persian gulf coasts' countries and export ports and terminals has a suitable location to establish a juice factory. Therefore, Mr. Khatamian has established a juice factory in Andimeshk industrial estate.

Part of the factory's operations, such as excavation, earth filling and landscaping, have been carried out by the company ( $15 \%$ physical progress) . in order to be completed the company requires funding to purchase machineries ,equipment and the raw materials. The project is very favorable in terms of access to raw materials, communication infrastructures and access to national and foreign markets. It should be noted that if the investor wishes to import and supply up-to-date machineries with advanced technology, it will be welcomed.


## 1.Product introduction:

The purpose of the present project is to produce juice from a concentrate with a capacity of 500 tons.
Fruit concentrate is one of the products in the processing of fruits and that is a form of substance .they eliminates most of its main constituents or solvents. Concentrates are usually formed by taking out the water or suspension, such as taking the water in the juice and changing it into a powder or extract. The benefit of concentrate production is that by eliminating water, the weight of the nutrient is reduced and therefore it easier and cheaper to transport, plus when it is consumed the concentrate is easily returned to its original state by adding solvents (usually water). In this method, the essential oils or extracts actually made from the fruit, and by mixing these essential oils with sugar and water, they produce a variety of juices.


### 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. ISIC code for citrus juice produced from concentrate are given in the table below

| Product name | ISIC Code | Unit |
| :--- | :--- | :---: |
| juice from concentrate | 1513412469 | ton |
| Types of fruit drinks (with fruit concentrate) | 1513412528 | ton |
| Orange juice from concentrate without gas | 1513512470 | ton |
| Grapefruit juice from concentrate without gas | 1513512471 | ton |
| Apple Juice from concentrate without gas | 1513512476 | ton |
| Pomegranate juice from concentrate without gas | 1513512478 | ton |
| Mixed non-citrus fruit juice from concentrate without gas | 1513512485 | ton |
| Fruit Drink (With Fruit Concentrate) | 1513512529 | ton |
| Bitter Orange juice from concentrate without gas | 1513512472 | 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 citrus juice are as follows:

| Heading <br> subheading No. | Description |
| :---: | :--- |
| 2009 | Fruit juices (including grape must) and vegetable juices, unfermented and not <br> containing added spirit, whether or not containing added sugar or other sweetening <br> matter. |
| 20091200 | Orange juice Not frozen, of a Brix value not exceeding 20 |
| 20091900 | Other |
| 20093100 | Juices of any other single citrus fruit of a Brix value not exceeding 20 |
| 20094900 | Other |
| 20097100 | Apple juice of a Brix value not exceeding 20 |
| 20097900 | Other |
| 20092100 | Grapefruir juice of a Brix value not exceeding 20 |
| 20099000 | Mixtures of juices |

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 citrus juice are as follows:

| Heading <br> Subheading No. | Description | SUQ | Import <br> duty |
| :---: | :--- | :---: | :---: |
| 2009 | Fruit juices (including grape must) and vegetable juices, <br> unfermented and not containing added spirit, whether or <br> not containing added sugar or other sweetening matter. |  |  |
| 20091200 | Orange juice Not frozen, of a Brix value not exceeding 20 | kg | 55 |
| 20091900 | Other | kg | 32 |
| 20093100 | Juices of any other single citrus fruit of a Brix value not <br> exceeding 20 | kg | 55 |
| 20094900 | Other | kg |  |
| 20097100 | Apple juice of a Brix value not exceeding 20 | kg | 55 |
| 20097900 | Other | kg | 55 |
| 20092100 | Grapefruir juice of a Brix value not exceeding 20 | kg | 55 |
| 20099000 | Mixtures of juices | kg | 55 |

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

1.     - The entry is subject to the observance of Article 16 of the Low on Foodstuffs and Beverages approved in 1967.
2.     - The importation of products of subheading $20091200,20092100 \& 20093100$ with The

Previous authorization of Ministry of Agriculture-Jahad

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

| Number | Title | Country |
| :---: | :--- | :---: |
| 16748 | Fruit juice concentrate- energy consumption criteria in production <br> process | Iran |
| 5180 | Fruit juices and derived products Determination of Lactic acid, total, <br> by spectrophotometric method | Iran |
| 5181 | Fruit juices and derived products - determination Of L- and D- lactic <br> acids , by enzymatic method | Iran |
| 6332 | Microbiology of Concentrated fruit and vegetable juices- <br> Specifications and test methods | Iran |

Source: Institute of Standards and Industrial Research of Iran

## International Standard

| No. | Topic of standard | Organization that assigned <br> the abbreviation | Number of <br> standard |
| :---: | :---: | :---: | :---: |
| 2 | CODEX GENERAL STANDARD | CAC | $247-2005$ |

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

The global price of concentrate juice on the world markets is around 923 Euro per ton. In Iran, this price was variable and ranged 150-180 million Rials per ton.

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

Most common use of fruit juices is as beverage which is increasing. Pleasant taste and vitamins are the main reasons of their use especially among children, the youth, the elderly, and the patients. Fruit juice is literally popular as a non-alcoholic and uplifting drink across the world. Considering that fruits are seasonal and they are not available throughout the year, fruit juices make them available all the seasons.

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

Various types of fresh fruit juice, carbonated drinks, non-alcoholic beer and also fresh fruits can substitute for artificial juices. However, because of nutritional value and vitamins in fruit juices many people prefer them to carbonated drinks, non-alcoholic beer and alcoholic beverage.

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

Given the important characteristics of modern and industrial life, which are speed and consequently lack of time, it seems that the use of packaged condiments and juices that can be consumed in a short amount of time; are important in the daily lives of different societies, especially transitional societies in the Middle East, where statistics on women's employment in most countries show a growing trend and hence the of lack of time in families to use traditional products instead is increasingly obvious.

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

The United States is the largest consumer of juice in the world followed by countries such as Switzerland and Germany.
The United States is also the largest producer of juice, and countries such as China and Germany are major producers of this product. Regarding the consumption of this product, all countries are major consumers considering their population rate.

## 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

Based on data obtained from the Organization of Industry, mine and Trade, the juice production units and their amount (capacity) of production are presented in the following table .Production quality of Iranian products is good and competitive in global markets.

The machineries used in this industry are up-to-date ones and 10 percent of producers use the machineries made in Germany, Turkey and China. Production of different parts of juice factory has been localized. Some of the producers and sellers of these machineries are mentioned following:

-Steel industry Sabalan Co.<br>-Namjoo Machine Manufacturing<br>-Machine Karan<br>-Rassel International Trading Co.

Of licensed operation unit in the field of juice production from concentrate

| No. | Province | Number of units | Capacity (ton) | investment |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | million Rials | million Euro |
| 1 | Ardabil | 12 | 184,890 | 1,277,693 | - |
| 2 | Isfahan | 10 | 6,996 | 665,092 | 0.8 |
| 3 | Alborz | 44 | 72,948 | 3,214,308 | 63.179 |
| 4 | Ilam | 3 | 37,000 | 394,816 | 6.873 |
| 5 | Azerbaijan, East | 24 | 724,830 | 3,681,720 | 8.567 |
| 6 | Azerbaijan, West | 33 | 199,340 | 3,191,926 | 0.155 |
| 7 | Tehran | 61 | 139,179 | 16,496,973 | 245.062 |
| 8 | Chahar Mahaal and Bakhtiari | 3 | 7,500 | 483,145 | - |
| 9 | Khorasan, South | 3 | 21,400 | 135,165 | 0.068 |
| 10 | Khorasan, Razavi | 11 | 90,505 | 4,154,002 | 11.961 |
| 11 | Khorasan, North | 2 | 30,000 | 225,100 | - |
| 12 | Khuzestan | 1 | 43,400 | 416,109 | - |
| 13 | Zanjan | 8 | 56,300 | 4,129,225 | 0.025 |
| 14 | Semnan | 1 | 5,400 | 105,732 | - |
| 15 | Sistan and Baluchestan | 2 | 10,730 | 144,189 | - |
| 16 | Fars | 19 | 90,550 | 1,484,495 | - |
| 17 | Qazvin | 10 | 51,603 | 648,275 | - |
| 18 | Qom | 12 | 16,420 | 260,324 | 0.679 |
| 19 | Kerman | 2 | 2,250 | 65,804 | - |
| 20 | Kermanshah | 6 | 27,100 | 1,889,833 | 1.4 |
| 21 | Kohgiluyeh and Boyer-Ahmad | 3 | 7,000 | 376,143 | 3.498 |
| 22 | Golestan | 6 | 24,700 | 421,879 | - |
| 23 | Gilan | 14 | 81,340 | 956,223 | 0.904 |
| 24 | Lorestan | 2 | 35,000 | 278,145 | - |
| 25 | Mazandaran | 23 | 144,719 | 8,306,924 | 2.233 |
| 26 | Markazi | 8 | 296,450 | 11,069,593 | 17.122 |
| 27 | Hormozgān | 1 | 600 | 24,200 | - |
| 28 | Hamadan | 4 | 8,200 | 95,113 | - |
| 29 | Yazd | 2 | 2,300 | 10,500 | - |
|  | Total nominal capacity | 330 | 2,418,650 | 64,602,647 | 387.5 |
|  | Practical capacity (50\%) | 165 | 1,209,325 |  |  |

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 data obtained from the Organization of Industry, Mine and Trade, the units under construction of juice and their volume of production are presented in the following table.

Under Construction Units of juice production from concentrate with 20-99\% of physical progress

| No. | Province | Number of units | Capacity (ton) | investment |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{gathered} \hline \text { million } \\ \text { Rials } \end{gathered}$ | million Euros |
| Units under construction of Fruit juices with physical development $\mathbf{6 0 \% - 9 9 \%}$ |  |  |  |  |  |
| 1 | Ardabil | 4 | 9,000 | 487,406 | 4.588 |
| 2 | Isfahan | 2 | 1,000 | 68,880 | - |
| 3 | Alborz | 7 | 7,346 | 349,467 | 3.277 |
| 4 | Azerbaijan, East | 11 | 132,600 | 2,637,735 | 53.5 |
| 5 | Azerbaijan, West | 4 | 17,100 | 228,015 | 0.47 |
| 6 | Tehrans | 8 | 18,325 | 1,843,267 | 74.1 |
| 7 | Kerman | 4 | 17,500 | 537,620 | - |
| 8 | Chahar Mahaal and Bakhtiari | 2 | 63,500 | 138,588 | - |
| 9 | Khorasan, Razavi | 2 | 12,000 | 498,480 | 1.197 |
| 10 | Khuzestan | 5 | 36,300 | 950,783 | 4.698 |
| 11 | Zanjan | 2 | 10,000 | 204,291 | - |
| 12 | Semnan | 1 | 500 | 32,827 | - |
| 13 | Fars | 1 | 12,000 | 31,000 | - |
| 14 | Qom | 5 | 22,100 | 1,956,188 | 35.661 |
| 15 | Kurdistan | 1 | 5,000 | 10,450 | - |
| 16 | Kohgiluyeh and Boyer-Ahmad | 1 | 1,500 | 73,636 | - |
| 17 | Golestan | 1 | 5,000 | 31,900 | - |
| 18 | Gilan | 6 | 84,972 | 554,453 | - |
| 19 | Mazandaran | 5 | 26,500 | 343,262 | 0.445 |
| 20 | Hamadan | 1 | 1,000 | 22,500 | - |
| 21 | Yazd | 1 | 3,000 | 45,790 | - |
|  | Total Sum | 74 | 486,243 | 11,046,538 | 177.936 |
| Units under construction of Fruit juices with physical development $\mathbf{2 0 \% - 5 9 \%}$ |  |  |  |  |  |
| 1 | Isfahan | 3 | 15,300 | 323,400 | - |
| 2 | Azerbaijan, East | 2 | 150,000 | 3,615,243 | 94.68 |
| 3 | Azerbaijan, West | 1 | 6,000 | 47,110 | - |
| 4 | Tehran | 6 | 14,200 | 290,830 | - |
| 5 | Khuzestan | 1 | 1,800 | 15,432 | - |
| 6 | Semnan | 1 | 400 | 105,959 | - |
| 7 | Fars | 2 | 4,200 | 579,924 | 9.908 |
| 8 | Qazvin | 1 | 300 | 10,000 | - |
| 9 | Qom | 1 | 100 | 24,206 | - |
| 10 | Golestan | 4 | 10,000 | 191,013 | - |
| 11 | Gilan | 1 | 400 | 9,000 | - |
| 12 | Mazandaran | 5 | 30,650 | 306,800 | 21.321 |
| 13 | Markazi | 2 | 10,400 | 1,162,721 | 23.153 |
| 14 | Hamadan | 1 | 5,000 | 70,000 | - |
|  | Total Sum | 31 | 248,750 | 6,751,638 | 149.062 |

Source: organization of Industry, Mine and Trade

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

juice imports, according to the country's customs statistics, both in terms of currency and weight, we observe declining trend from 2014 to 2019. The most important reason, is the reduction of the country's currency resources and the new sanctions.

In 2018 and 2019, the largest amount of juice was imported from Turkey. The table and figure below show the amount of juice imports during the last 5 years.

Imports of juice in the last 5 years

| year | Weight (ton) | Rails value | Dollar <br> value | Description |
| :---: | :---: | :---: | :---: | :---: |
| $2018-19$ | 2,044 | $176,524,000,801$ | $4,246,127$ | Turkey:24\%_Brazil:22\% |
| $2017-18$ | 1,832 | $140,334,587,871$ | $4,161,373$ | Turkey:33\%_Ireland:25\% |
| $2016-17$ | 3,756 | $191,133,608,320$ | $6,164,895$ | Brazil:30\% |
| $2015-16$ | 5,100 | $230,806,745,430$ | $7,828,910$ | Netherlands: $29 \%$ |
| $2014-15$ | 6,557 | $278,877,560,490$ | $10,527,934$ | Netherlands: $34 \%$ |

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

The amount and value of juice imports in the last 5 years


Imports of juice divided by country in 2018-2019

| NO. | Country | Weight <br> $(\mathbf{k g})$ | Value (Rials) | Value <br> (Dollar) | Weight <br> percent |
| :---: | :--- | :---: | :---: | :---: | :---: |
| 1 | Turkey | 482,670 | $30,696,231,178$ | 731,700 | $\mathbf{2 3 . 6}$ |
| 2 | Brazil | 452,250 | $40,960,646,330$ | $1,006,892$ | 22.1 |
| 3 | Ireland | 293,336 | $43,325,469,805$ | $1,031,559$ | 14.3 |
| 4 | Austria | 227,150 | $17,092,718,422$ | 406,969 | 11.1 |
| 5 | Netherlands | 207,900 | $15,164,641,800$ | 361,063 | 10.2 |
| 6 | France | 194,400 | $13,871,412,000$ | 330,272 | 9.5 |
| 7 | Italy | 56,160 | $5,348,678,400$ | 127,349 | 2.7 |
| 8 | Spain | 44,000 | $4,216,767,720$ | 96,098 | 2.2 |
| 9 | Greece | 37,440 | $2,399,923,468$ | 57,142 | 1.8 |
| 10 | Germany | 24,000 | $1,174,974,120$ | 36,208 | 1.2 |
| 11 | Belgium | 20,250 | $1,977,096,478$ | 53,841 | 1.0 |
| 12 | UAE | 4,892 | $295,441,080$ | 7,034 | 0.2 |
|  | Sum | $\mathbf{2 , 0 4 4 , 4 4 8}$ | $\mathbf{1 7 6 , 5 2 4 , 0 0 0 , 8 0 1}$ | $\mathbf{4 , 2 4 6 , 1 2 7}$ | $\mathbf{1 0 0 . 0}$ |

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

Imports of juice divided by country in 2017-2018

| No. | Country | Weight <br> (kg) | Value <br> (Rials) | Value <br> (Dollar) | Weight <br> percent |
| :---: | :--- | :---: | :---: | :---: | :---: |
| 1 | Turkey | 600,884 | $43,673,985,746$ | $1,312,287$ | $\mathbf{3 2 . 8}$ |
| 2 | Ireland | 457,293 | $50,239,337,267$ | $1,484,175$ | 25.0 |
| 3 | Belgium | 202,500 | $15,465,294,281$ | 476,836 | 11.1 |
| 4 | Spain | 197,076 | $7,881,704,409$ | 223,912 | 10.8 |
| 5 | Austria | 114,425 | $10,257,195,408$ | 289,912 | 6.2 |
| 6 | South <br> Africa | 88,108 | $4,452,126,567$ | 125,615 | 4.8 |
| 7 | Italy | 79,200 | $5,188,242,114$ | 158,352 | 4.3 |
| 8 | Brazil | 42,200 | $1,564,725,960$ | 43,967 | 2.3 |
| 9 | Thailand | 19,497 | $367,034,460$ | 11,316 | 1.1 |
| 10 | Greece | 18,720 | $1,089,867,995$ | 30,227 | 1.0 |
| 11 | Kenya | 9,936 | $128,909,664$ | 3,974 | 0.5 |
| 12 | UAE | 1,932 | $26,164,000$ | 800 | 0.1 |
| Sum | $\mathbf{1 , 8 3 1 , 7 7 1}$ | $\mathbf{1 4 0 , 3 3 4 , 5 8 7 , 8 7 1}$ | $\mathbf{4 , 1 6 1 , 3 7 3}$ | $\mathbf{1 0 0}$ |  |

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

### 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 can be inferred from the following tables, the apparent consumption of concentrated juice in 2019 was estimated to be 883,000 and 1 million tons, respectively.

Estimating apparent consumption of juice in the country over the past 5 years (2014-2019)

|  | $\mathbf{2 0 1 4 - 2 0 1 5}$ | $\mathbf{2 0 1 5 - 2 0 1 6}$ | $\mathbf{2 0 1 6 - 2 0 1 7}$ | $\mathbf{2 0 1 4 - 2 0 1 5}$ | $\mathbf{2 0 1 5 - 2 0 1 6}$ | $\mathbf{2 0 1 9 - 2 0 2 0}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Domestic production (tons) | 428,629 | 553,838 | 667,701 | 812,857 | 946,417 | $1,111,362$ |
| Imports (tons) | 6,557 | 5,100 | 3,756 | 1,832 | 2,044 | 2,044 |
| Export (tons) | 28,579 | 36,111 | 13,964 | 40,838 | 16,817 | 16,817 |
| The apparent consumption | $\mathbf{4 0 6 , 6 0 7}$ | $\mathbf{5 2 2 , 8 2 7}$ | $\mathbf{6 5 7 , 4 9 3}$ | $\mathbf{7 7 3 , 8 5 1}$ | $\mathbf{9 3 1 , 6 4 4}$ | $\mathbf{1 , 0 9 6 , 5 8 9}$ |

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

Juice exports, especially citrus concentrate, had significant ups and downs in the last 5 years, this means that in 1396, we witnessed the highest amount of currency and weight exports of this product (2017-18). but this amount of, exports in 97 (2018-19) reduced to $40 \%$ in 96 (18-18 2017). Most of the juice exports in recent years have been to countries such as Turkey, Afghanistan, Iraq and Russia.

Exports of juice in the last 5 years

| year | Weight (ton) | Rails value | Dollar value | Description |
| :---: | :---: | :---: | :---: | :---: |
| $2018-19$ | 16,817 | $937,335,452,156$ | $14,698,625$ | Iraq33\%-Afghanistan $46 \%$ |
| $2017-18$ | 40,838 | $1,843,069,196,722$ | $53,229,509$ | Turkey $40 \%$ - Afghanistan14\% <br> Russia16\% |
| $2016-17$ | 13,964 | $553,343,831,089$ | $17,574,676$ |  |
| $2015-16$ | 36,111 | $1,547,057,579,133$ | $51,997,838$ |  |
| $2014-15$ | 28,579 | $1,090,961,629,869$ | $41,093,207$ |  |

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

The amount and value of juice exports in the last 5 years


Exports of juice divided by country in 2018-2019

| No. | Country | Weight <br> (kg) | Value <br> (Rials) | Value <br> (Dollar) | Weight <br> percent |  |  |  |  |  |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Afghanistan | $7,755,976$ | $383,737,671,312$ | $6,072,427$ | $\mathbf{4 6 . 1 2}$ |  |  |  |  |  |
| 2 | Iraq | $5,600,431$ | $293,213,760,375$ | $4,661,332$ | $\mathbf{3 3 . 3 0}$ |  |  |  |  |  |
| 3 | Federation <br> Russian | $2,139,920$ | $131,492,516,560$ | $2,014,138$ | 12.72 |  |  |  |  |  |
| 4 | Pakistan | 570,742 | $49,655,917,865$ | 749,411 | 3.39 |  |  |  |  |  |
| 5 | Libya | 204,384 | $9,103,458,000$ | 216,749 | 1.22 |  |  |  |  |  |
| 6 | Kuwait | 111,936 | $20,215,241,343$ | 271,913 | 0.67 |  |  |  |  |  |
| 7 | UAE | 89,478 | $13,112,392,758$ | 185,642 | 0.53 |  |  |  |  |  |
| 8 | Malaysia | 62,728 | $6,247,702,483$ | 72,597 | 0.37 |  |  |  |  |  |
| 9 | UK | 53,905 | $5,686,355,012$ | 97,880 | 0.32 |  |  |  |  |  |
| 10 | Qatar | 48,621 | $4,477,143,472$ | 64,195 | 0.29 |  |  |  |  |  |
| 11 | Other countries | 228,327 | $24,870,436,448$ | 356,534 | 1.36 |  |  |  |  |  |
| Sum |  |  |  |  |  |  | $\mathbf{1 6 , 8 1 7 , 8 2 7}$ | $\mathbf{9 3 7 , 3 3 5 , 4 5 2 , 1 5 6}$ | $\mathbf{1 4 , 6 9 8 , 6 2 5}$ | $\mathbf{1 0 0}$ |

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

Exports of juice divided by country in 2017-2018

| No. | Country | Weight <br> (kg) | Value <br> (Rials) | Value <br> (Dollar) | Weight <br> percent |
| :---: | :--- | :---: | :---: | :---: | :---: |
| 1 | Turkey | $16,451,917$ | $808,373,465,906$ | $23,442,329$ | $\mathbf{4 0 . 2 9}$ |
| 2 | Federation Russian | $6,771,072$ | $252,334,623,296$ | $7,180,523$ | $\mathbf{1 6 . 5 8}$ |
| 3 | Afghanistan | $5,942,124$ | $199,097,441,552$ | $5,751,775$ | $\mathbf{1 4 . 5 5}$ |
| 4 | Austria | $3,927,993$ | $208,752,210,284$ | $5,893,721$ | 9.62 |
| 5 | Germany | $2,135,416$ | $115,406,118,820$ | $3,431,504$ | 5.23 |
| 6 | India | $1,737,557$ | $95,788,540,435$ | $2,795,123$ | 4.25 |
| 7 | Iraq | $1,568,110$ | $48,948,991,300$ | $1,439,158$ | 3.84 |
| 8 | Poland | 623,584 | $33,317,707,989$ | 935,376 | 1.53 |
| 9 | Qatar | 434,545 | $15,830,289,915$ | 464,345 | 1.06 |
| 10 | Turkmenistan | 301,046 | $15,629,516,328$ | 451,670 | 0.74 |
| 11 | Other countries | $\mathbf{9 4 4 , 6 9 1}$ | $\mathbf{4 9 , 5 9 0}, \mathbf{2 9 0}, 897$ | $\mathbf{1 , 4 4 3 , 9 8 5}$ | 2.31 |
|  | $\mathbf{4 0 , 8 3 8 , 0 5 5}$ | $\mathbf{1 , 8 4 3 , 0 6 9 , 1 9 6 , 7 2 2}$ | $\mathbf{5 3 , 2 2 9 , 5 0 9}$ | $\mathbf{1 0 0}$ |  |

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

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

Given the growth trend of juice consumption over the last 5 years, which represents an average of $21 \%$ growth annually, it is most cautious to consider half of the above growth ( $10 \%$ ) as consumption growth of 2020 to 2025 years. also considering the need for, the development of non-oil product exports, the export growth should be considered to be about $5 \%$ over the past five-year average and Based on this, the shortage or surplus of the juice product of the next 5 years is estimated.

As can be inferred from the table below, by the year of 2025 Iran will face a shortage of about 339,000 tons of juice, Therefore, in order to alleviate this shortage we either need to expand the existing units or to build new units or to export this product.

Estimating the required amount of juice over the next 5 years

| Production | $2020-2021$ | $2021-2022$ | $2022-2023$ | $2023-2024$ | $2024-2025$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| The domestic consumption (tons) | $1,206,248$ | $1,326,873$ | $1,459,560$ | $1,605,516$ | $1,766,067$ |
| Export (tons) | 17,658 | 18,541 | 19,468 | 20,441 | 21,463 |
| Total demand (tons) | $\mathbf{1 , 2 2 3 , 9 0 6}$ | $\mathbf{1 , 3 4 5 , 4 1 3}$ | $\mathbf{1 , 4 7 9 , 0 2 8}$ | $\mathbf{1 , 6 2 5 , 9 5 7}$ | $\mathbf{1 , 7 8 7 , 5 3 1}$ |
| Output of current units (tons) | $1,111,362$ | $1,111,362$ | $1,111,362$ | $1,111,362$ | $1,111,362$ |
| Production of new operational <br> units (tons) | 68,074 | 207,770 | 277,852 | 312,114 | 336,652 |
| Total supply (tons) | $\mathbf{1 , 1 7 9 , 4 3 6}$ | $\mathbf{1 , 3 1 9 , 1 3 2}$ | $\mathbf{1 , 3 8 9 , 2 1 4}$ | $\mathbf{1 , 4 2 3 , 4 7 6}$ | $\mathbf{1 , 4 4 8 , 0 1 3}$ |
| (Shortage)/ surplus | $\mathbf{( 4 4 , 4 7 0 )}$ | $\mathbf{( 2 6 , 2 8 2 )}$ | $\mathbf{( 8 9 , 8 1 4 )}$ | $\mathbf{( 2 0 2 , 4 8 1 )}$ | $\mathbf{( 3 3 9 , 5 1 7 )}$ |

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

In this project, fruit concentrate is used to produce the juice. The reason for converting juice into concentrate and re-converting it to juice that is available to the consumer, is the ease of keeping the concentrate, because of its lower volume than the juice. This section explains the stages of juice production according to the utilizable production lines in the country:

## A. Mixing

Depending on the type (fruit juice, nectar, syrup), the concentrate should be mixed with some water, aroma, sugar and acid.
To prepare the juice, the concentrate or the initial brix is diluted with mineral-free water and potable water. for this purpose Mineral-free water should be used. But water that does not alter the natural composition of the juice can also be used. Water must have special properties to prevent sediment and undesirable changes


## B. Filtration

In order to separate the suspended solids of the water and sugar from the juice, the produced juice is finally filtered through the filter.

## C. de-aerating

When stirring, some air is dissolved in the juice. In order to prevent oxidative changes, the juice is passed through the de-aeration machine to remove the air inside up to a large extent. In this system, the juice like a thin film passes through the cylindrical surface and the air inside is released (taken, extracted) by vacuum $(25-30 \mathrm{mmHg})$.

## D. filling

If pasteurization is done after the filling, the juice should be tepid when filling is performed (approximately 2 degrees C). But if the pasteurization is not done after filling, the juice is pasteurized in the plate heat exchanger at the temperature of $90-92^{\circ} \mathrm{C}$ for 1 minute and then packaged at the temperature of $85^{\circ} \mathrm{c}$. for filling process a vacuum system that operates automatically based on pressure equilibrium is used.


## E. Cooling

After hot filling or pasteurization, the juice temperature rapidly drops to 30-35 degrees Celsius. This is important both for microbiological stability and for maintaining taste quality. If the bottles are left alone to cool down, it will take a long time and this will cause undesirable changes in the taste and color of the juice..


## F. Packaging and Storing

It is best to store the juice in a quarantine for 5 days after being labeled and packaged in a carton. This will increase the speed of inversion and creates a balance in the taste of the juice.


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

It seems that Conventional technologies have different weakness points. The first disadvantage is in the crushing stage. Because at this stage, unintentionally, the efficiency of the work decreases, because some of the fruit juice is inadvertently removed (wasted). On the other hand, if the size of the pieces does not reach the desired level, then again we will face efficiency decrease because the fruit juice will not be fully extracted. So it seems that the current technologies need to be optimized . The second weakness in the production line occurs after the production stage and is in the draining process. Draining by pressure is not very efficient. However, this method is better than other methods such as centrifugal methods that may still be used in some factories.
The third weakness is in the enzymatic phase. Because with the existing technologies, these substances have to be added as chemicals and foreign substances to the products, and that is not so desirable.
The fourth disadvantage relates to the first stage of condensation, because high temperature will destroy the fruit's vitamin.
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.)

Considering the market need especially that of Khuzistan and the neighboring provinces as well as the project export objectives, and also taking into account the economic capacity, the annual capacity of the project is estimated to be as 2000 tons of fruit juice. This will be achieved in 250 working days and one shift per day if the cash needed to purchase the machineries is provided. The estimated time required to supply equipment and raw materials is 1.5 years.

Plan production and sales over the next 4 years

| Years of operation | first year <br> 6 months | second year | third year | forth year |
| :---: | :---: | :---: | :---: | :---: |
| Percentage of capacity |  | $70 \%$ | $80 \%$ | $90 \%$ |
| fruit juice | 700 | 1600 | 1800 | 2000 |
| Total production |  | 700 | 1600 | 1800 |
| The outcome of selling |  |  |  |  |
| fruit juice $(168$ million Rails/ton) |  | $117,600.0$ | $268,800.0$ | $302,400.0$ |
| Total <br> sales | million Rails | $117,600.0$ | $268,800.0$ | $302,400.0$ |

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 <br> Rails | Equivalent in Million Euro |
|  |  | Million <br> Euro | Equivalent <br> Rails <br> (Million <br> Rails) | Million <br> Rails |  |  |  |
| land | 7,513.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7,513.0 | 0.03 |
| landscaping | 5,422.0 | 0.0 | 0.0 | 2,696.6 | 2,696.6 | 8,118.6 | 0.033 |
| Construction | 6,156.0 | 0.0 | 0.0 | 59,324.0 | 59,324.0 | 65,480.0 | 0.265 |
| utilities | 1,500.0 | 0.0 | 0.0 | 2,950.0 | 2,950.0 | 4,450.0 | 0.018 |
|  <br> Machinery | 0.0 | 0.0 | 0.0 | 20,000.0 | 20,000.0 | 20,000.0 | 0.081 |
| laboratory equipment | 0.0 | 0.0 | 0.0 | 600.0 | 600.0 | 600.0 | 0.002 |
| transportation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.000 |
| Office <br>  <br> Supplies | 0.0 | 0.0 | 0.0 | 500.0 | 500.0 | 500.0 | 0.002 |
| Other and unpredicted | 0.0 | 0.0 | 0.0 | 3,200.0 | 3,200.0 | 3,200.0 | 0.013 |
| total | 20,591.2 | 0.0 | 0.0 | 89,270.6 | 89,270.6 | 109,861.8 | 0.445 |
| Pre- <br> exploitation <br> cost | 300.0 | 0.0 | 0.0 | 1,000.0 | 1,000.0 | 1,300.0 | 0.005 |
| Total of fixed Capital | 20,891.2 | 0.0 | 0.0 | 90,270.6 | 90,270.6 | 111,161.8 | 0.450 |
| Working capital | 0.0 | 0.0 | 0.0 | 44,379.75 | 44,379.75 | 44,379.75 | 0.180 |
| Total <br> Investment | 20,891.2 | 0.00 | 0.00 | 134,650.35 | 134,650.35 | 155,541.55 | 0.630 |

Exchange rate:
1 Euro $\cong 247,000$ Rails $\quad 1$ US $\$ \cong 202,000$ Rails

## land specification of project as follows as:

| Description | Area( $\mathbf{m}^{2}$ ) |  | Cost (million Rails) |  |  | Equivalent in Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | done | required | done | required | Total |  |
| land | 6261 | 0.0 | 7513 | 0.0 | 7513 | 30,418.0 |

## landscaping price as follows as:

| Description | Area(m²) |  | Cost (million Rails) |  |  | Equivalent in <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | done | required | done | required | Total |  |
| Excavation and leveling | $6000 \mathrm{~m}^{3}$ | 0.0 | $1,200.0$ | 0.0 | $1,200.0$ | 4,858 |
| Wall (2.5 meters high) | 325 m | 0.0 | $3,250.0$ | 0.0 | $3,250.0$ | 13,158 |
| Asphalt and sidewalk | 0 | $3,127 \mathrm{~m}^{2}$ | 0.0 | $2,501.6$ | $2,501.6$ | 10,128 |
| Green space and lighting | $648 \mathrm{~m}^{2}$ | $130 \mathrm{~m}^{2}$ | 972 | 195.0 | $1,167.0$ | 4,725 |
| total |  |  | $\mathbf{5 , 4 2 2}$ | $\mathbf{2 , 6 9 6 . 6}$ | $\mathbf{8 , 1 1 8 . 6}$ | $\mathbf{3 2 , 8 6 9 . 0}$ |

## Construction items Information:

| Description | Building Type | Square meters <br> area |  | Total cost (million Rails) |  |  | Equivalent <br> in <br> Euro |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Done | Required | Done | Required | Total |  |
| Production and <br> storage salon <br> 3 shed | Industrial shed - <br> Tiling up to the <br> ceiling - Ceramic <br> floor - | 0.0 | 2,052 | $6,156.0$ | $55,404.0$ | $61,560.0$ | $249,230.8$ |
| Administrative <br> buildings and <br> welfare building | Exterior design of <br> brick, Inside <br> stone and painted, <br> ceramic floor | 0.0 | 100 | 0.0 | $3,000.0$ | $3,000.0$ | $12,145.7$ |
| electronic room | Made of bricks | 0.0 | 12 | 0.0 | 120.0 | 120.0 | 485.8 |
| Gate guard | Made of bricks, | 0.0 | 80 | 0.0 | 800.0 | 800.0 | $3,238.9$ |
| Total <br> infrastructure <br> and costs | - | $\mathbf{0 . 0}$ | $\mathbf{2 2 4 4}$ | $\mathbf{6 , 1 5 6 . 0}$ | $\mathbf{5 9 , 3 2 4 . 0}$ | $\mathbf{6 5 , 4 8 0 . 0}$ | $\mathbf{2 6 5 , 1 0 1 . 0}$ |

Part of the executive operations of the buildings, including the foundation of the sheds, have been carried out.

## Utilities:

| Description | Technical <br> Specifications |  | Required costs <br> (million Rail's) |  |  |
| :--- | :--- | :---: | :---: | :---: | :---: |
|  | Done | Equivalent in <br> Euro |  |  |  |
| Electrification | Electric supply and <br> power 125 KW | 1,350 | 1,500 | 2,850 | $11,538.5$ |
| Water | Split 1 "and water <br> supply | 150 | 500 | 650 | $2,631.6$ |
| Gas | Split and piping | 0 | 500 | 500 | $2,024.3$ |
| Heating \& Cooling | Air conditioning <br> 30000 btu: 2 unit | 0 | 450 | 450 | $1,821.9$ |
| Total |  | $\mathbf{1 , 5 0 0}$ | $\mathbf{2 , 9 5 0}$ | $\mathbf{4 , 4 5 0}$ | $\mathbf{1 8 , 0 1 6 . 2}$ |

## Equipment\& Machinery product line:

| Description | Qty |  | The foreign currency (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency (million Rails) |  | Total costs (million Rails) | Equivale <br> nt in <br> Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  | Done | Required |  |  |
| steam generator | 0 | 1 | 0 | 0 | 0 | 0.0 | 20,000.0 | 20,000.0 | 80,972 |
| Mix tank | 0 | 1 |  |  |  |  |  |  |  |
| concentrate preparation | 0 | 1 |  |  |  |  |  |  |  |
| Pasteurization and packaging | 0 | 1 |  |  |  |  |  |  |  |
| Quality control | 0 | 1 |  |  |  |  |  |  |  |
| Total |  |  | 0 | 0 | 0 | 0.0 | 20,000.0 | 20,000.0 | 80,972.0 |

Supplier and production of the Machineries: Namjoo machine manufacturing company
Execution Period: one year

- Services:
- Basic and comprehensive design
- Construction, supplement of the equipment and Utilities (national and foreign)
- Control system and precise tools
- Instalment of equipment
- Personnel training, pre-commissioning, commissioning, capacity test


## laboratory equipment

| 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 |  |  |
| Incubators, furnaces, scales and other equipment | 1 | 0 | 0 | 0 | 0 | 600.0 | 0.0 | 600.0 | 2,429.0 |
| Total | 1 | 0 | 0 | 0 | 0 | 600.0 | 0.0 | 600.0 | 2,429.0 |

## Transportation

| Description | Qty |  | The foreign currency (EUR) |  | Equivalent <br> Rails <br> (million <br> Rails) | Local Currency (million Rails) |  | Total 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 currency (EUR) |  | Equivalent Rails (million Rails) | Local Currency (million Rails) |  | Total <br> costs <br> (million <br> Rails) | Equivalent in Euro |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Done | Required | Done | Required |  | Done | Required |  |  |
| Office furniture | 0 | 1 | 0 | 0 | 0 | 0 | 65 | 65 | 263.2 |
| Tables and chairs | 0 | 4 | 0 | 0 | 0 | 0 | 60 | 60 | 242.9 |
| Dining table and chair | 0 | 15 | 0 | 0 | 0 | 0 | 120 | 120 | 485.8 |
| Fax | 0 | 1 | 0 | 0 | 0 | 0 | 15 | 15 | 60.7 |
| Phone / Modem | 0 | 1 | 0 | 0 | 0 | 0 | 10 | 10 | 40.5 |
| Computers and Laptops | 0 | 1 | 0 | 0 | 0 | 0 | 100 | 100 | 404.9 |
| Printer | 0 | 1 | 0 | 0 | 0 | 0 | 30 | 30 | 121.5 |
| Refrigerator | 0 | 1 | 0 | 0 | 0 | 0 | 100 | 100 | 404.9 |
| Total |  |  | 0 | 0 | 0 | 0 | 500 | 500 | 2,024.3 |

## Working capital:

| Description | duration | The foreign currency |  | Local <br> Currency | Total <br> (Million <br> Rails) | Equivalent <br> in <br> Million <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Equivalent Rails <br> (Million Rails) | Million <br> Rails | Rals |  |  |
| Supplementary <br> Raw Material and <br> Packaging | 1 Month | 0 |  |  |  |  |
| Account receivable | 1 Month | 0 | 0 | $20,243.33$ | $20,243.33$ | 0.082 |
| Cash in hand | 1 Month | 0 | 0 | $22,361.54$ | $22,361.54$ | 0.091 |
| total |  | $\mathbf{0}$ | 0 | $1,774.87$ | $1,774.87$ | 0.007 |

## Production costs:

| Description | Amount <br> (Million Rials) | Equivalent in <br> (Million Euro) |
| :--- | :---: | :---: |
| Costs of materials | $242,920.00$ | 0.983 |
| Cost of production personnel salary | $6,855.20$ | 0.028 |
| Cost of utilities (fuel and electricity, water ...) | 760.00 | 0.003 |
| Cost of repair and maintenance | $3,064.47$ | 0.012 |
| cost of unforeseen production(5\%) | $7,600.00$ | 0.031 |
| Depreciation expense | $6,757.4$ | 0.027 |
| Administrative personnel salary | $3,558.80$ | 0.014 |
| Costs of administrative and sales | $3,360.00$ | 0.014 |
| Cost of financial facilities | $6,615.00$ | 0.027 |
| Factory insurance | 220.00 | 0.001 |
| Total sum | $\mathbf{2 8 1 , 7 1 1 . 2 1}$ | $\mathbf{1 . 1 4 1}$ |

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
Citrus concentrate as the main ingredients of this process can be supplied from inside the country, particularly from Mazanadran, Fars, Khorasan Razavi and Khuzestan province. Other packaging materials will be provided from Khuzestan and other provinces such as Tehran, Khorasan Razavi, Isfahan and East Azarbaijan.

## Required Raw materials:

| $\dot{Z}$ | Description |  |  | The amount required for all capacity | Priceofunitmillion )(Rails | Currency prices |  | Cost(millionRails) | Supplying Place | Total cost (million Rail's) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | $\begin{gathered} \hline \text { The } \\ \text { currency } \\ \text { (million } \\ \text { dollar) } \end{gathered}$ | $\begin{gathered} \hline \text { Equivalent } \\ \text { Rails } \\ \text { million ) } \\ \text { (Rails } \\ \hline \end{gathered}$ |  |  |  |  |
| 1 | citrus concentrate | 0.25 | ton | 500.0 | 300 | 0 | 0 | 150,000 | Domestic | 150,000 | 0.607 |
| 2 | sugar | 0.05 | ton | 100.0 | 77 | 0 | 0 | 7,700 | Domestic | 7,700 | 0.031 |
| 3 | citric acid | 0.0015 | ton | 3.0 | 380 | 0 | 0 | 1,140 | Domestic | 1,140 | 0.005 |
| 4 | Tetra pack 200CC | 5000 | pcs | 4,000,000.0 | 0.009 | 0 | 0 | 36,000 | Domestic | 36,000 | 0.146 |
| 5 | Tetra pack 1000CC | 1000 | pcs | 1,200,000.0 | 0.028 | 0 | 0 | 33,600 | Domestic | 33,600 | 0.136 |
| 6 | Carton | 216 | pcs | 432,000.0 | 0.015 | 0 | 0 | 6,480 | Domestic | 6,480 | 0.026 |
| 7 | Naylon shrink | 0.010 | ton | 20.0 | 400 | 0 | 0 | 8,000 | Domestic | 8,000 | 0.032 |
| Sum |  |  |  |  |  | 0 | 0 | 242,920 | - | 242,920 | 0.983 |

## 7. The risk analysis of the project

## Strengths:

- Using up-to-date technology
- The possibility of mass production
- High internal rate of return
- High quality and variety of products
- being located in Khuzestan, which is one of the hubs of agriculture and processing industries in the country.
- The existence of Appropriate communication infrastructures such as transit roads, railways, and waterways to access the high consumption domestic and foreign markets, especially Iraq and the Gulf States.
- being Close to important commercial ports such as Imam Khomeini and Khorramshahr Port for exportation


## Weakness:

- Lack of liquidity to supply machinery
- Short harvest season of agricultural crops
- perfect competition in processing and food industries
- 


## Opportunities:

- Supporting domestic production
- Supporting the attraction of foreign investors
- the Existence of a very large consumer market in the project area and in Khuzestan (the agricultural hub of the country)
- Access to major communicative roads and infrastructures such as freeway, south-north railway, and access to open water for exportation


## Threats:

- US sanctions
- Political instability in the Middle East
- variable inflation rates and rising production prices

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


## 8. Human resources and employment status

The project employs 16 people, 11 of whom will be working in production section and 5 in the office. Due to the existence of prestigious universities in the province and the existence of technical and engineering graduated students, access to specialist human resources is available.

| Job Title | Sex |  | Required |  |  | Monthly salaries <br> per person <br> (million Rails) | Salaries <br> (million <br> Rails) | Annual <br> salaries <br> (million <br> Rails) | Equivalent <br> in <br> Euro |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | F | M | Qty | Shift | Sum |  | 984.0 | $3,983.8$ |  |
| CEO |  | $*$ | 1 | 1 | 1 | 60 | 45 | 738.0 | $2,987.9$ |
| Finance director, <br> sales, <br> administrative |  | $*$ | 1 | 1 | 1 | 45 |  |  |  |
| Financial <br> personnel, sales <br> office | $*$ | $*$ | 1 | 1 | 1 | 42 | 42 | 688.8 | $2,788.7$ |
| warehouse keeper |  | $*$ | 1 | 1 | 1 | 37 | 37 | 606.8 | $2,456.7$ |
| Process engineer | $*$ | $*$ | 1 | 1 | 1 | 45 | 45 | 738.0 | $2,987.9$ |
| Skilled worker | $*$ | $*$ | 3 | 1 | 3 | 42 | 126 | $2,066.4$ | 8,366 |
| Worker | $*$ | $*$ | 6 | 1 | 6 | 35 | 210 | $3,444.0$ | $13,943.3$ |
| Secretary | $*$ |  | 1 | 1 | 1 | 35 | 35 | 574.0 | $2,232.9$ |
| Guard |  | $*$ | 1 | 1 | 1 | 35 | 35 | 574.0 | $2,323.9$ |
| Total |  |  | $\mathbf{1 6}$ |  | $\mathbf{1 6}$ | $\mathbf{2 6 8}$ | $\mathbf{4 1 2}$ | $\mathbf{1 0 , 4 1 4 . 0}$ | $\mathbf{4 2 , 1 6 2 . 0}$ |

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

Andimeshk Industrial estate has the basic infrastructures .water, electricity and gas and telecommunication facilities are also available in the site. The distance from Andimeshk to Ahvaz (capital of the province) is 155 kilometers and 255 kilometers to Imam Khomeini Port. The distance to airport and railway station is about 10 and 5 km Respectively.

| Description | unit | Annual consumption | Price per unit (Rails) | Total price <br> (million Rails) | Equivalent <br> in <br> Euro |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Electricity | KW | 200,000 | 1,400 | 280 | $1,133.6$ |  |  |  |
| water | $\mathrm{m}^{3}$ | 5,000 | 20,000 | 100 | 404.9 |  |  |  |
| Gas | $\mathrm{m}^{3}$ | 200,000 | 1,400 | 280 | $1,133.6$ |  |  |  |
| Other |  |  |  | 100 | 404.9 |  |  |  |
| total |  |  |  |  |  |  | $\mathbf{7 6 0}$ | $\mathbf{3 , 0 7 7 . 0}$ |

## 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 duty to the project are relatively low at around $10 \%$. In order to support domestic production, the input rights of the products are very high and about 32 to $55 \%$. This prevents the import of similar products to the country.

## 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 equipments 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

As for juice, given the growth trend of the juice consumption over the past 5 years, which represents an average of $21 \%$ growth annually, in the most caution condition we consider half ( $10 \%$ ) of that amount will be for the consumption growth of the year 2020 to 2025. also considering the need for the development of non-oil product exportation, the growth of exports is also estimated at about $5 \%$ over the past five-year average . therefore according to this, the shortage of juice is estimated to be at 339,000 tons over the next five years.

Therefore as mentioned above, concentrate juice products will have a shortage of production and supply in 2024-25. Therefore, based on the general policies of The Islamic Republic of Iran and for mitigating the effects of foreign sanctions, this shortage must certainly be addressed through domestic production. In this regard, in order to continue the export process of juice products, it is
necessary to use the opportunity that exists in Iraq export market and in the near future in Syria export market. also to reduce dependence on single-product oil exports the creation of new units such as Khatamiyan factory is essential.

| Cost of (ton) | Juice from concentrate: 135.65 million Rails؟ 549.2 Euro |
| :--- | :--- |
| Sale price of (ton) | Juice from concentrate: 168 million Rails؟ 680.1 Euro |
| total Sales (100\% capacity) | $336,000.0$ million Rails؟ 1.36 million Euro |
| Present sales in break-even point | $34.45 \%$ |
| Profit (100\% capacity) | $54,288.79$ million Rails $\cong 0.22$ million Euro |
| Gross value added | $89,255.5$ million Rails $\cong 0.36$ million Euro |
| Net value added | $82,497.8$ million Rails $\cong 0.33$ million Euro |
| The Gross value added to total <br> Sales | $27 \%$ |
| The Net value added to total <br> Sales | $25 \%$ |
| The Gross value added to <br> Investment | $57 \%$ |
| Investment Return Period | 4.4 years |

Exchange rate:
1 Euro $\cong 247,000$ Rails $\quad 1$ US\$ $\cong 202,000$ Rails

## 12- Summary of pre-feasibility plan

| General Specification |  |
| :---: | :---: |
| Name of The Project | Production of fruit juice from concentrate |
| Project Capacity | fruit juice from concentrate:2000 tons |
| Personnel Number | 16 persons |
| Working Days | 250 days |
| Product Usage | Food and Beverage |
| Marketing |  |
| Product Global Price | 923 Euro/ton |
| Domestic Demand | 1.09 million tons |
| Domestic Production | 1.11million tons |
| Import | 2044 tons |
| Export | 16.8 thousand tons |
| Technical Study |  |
| Land Area | $6261 \mathrm{~m}^{2}$ |
| Building Area | $2244 \mathrm{~m}^{2}$ |
| Main Raw Materials | citrus concentrate, sugar, packing materials |
| Supplying Place of Raw Materials | Domestic |
| Power Requirement | 125 KW |
| Water Requirement | $5000 \mathrm{~m}^{3}$ |
| Fuel Requirement | 200,000 m ${ }^{3}$ gas |
| Economical \& Financial Study |  |
| Fixed Investment Cost | 111,161.8 million Rails $\cong 0.450$ million Euro |
| Working Capital | $44,379.75$ million Rails $\cong 0.180$ million Euro |
| Total Investment Cost | 155,541.55 million Rails $\cong 0.630$ million Euro |
| Annual Sale | $336,000.0$ million Rails $\simeq 1.36$ million Euro |
| Net Present Value(NPV) | 106,127.77 million Rails 00.43 million Euro |
| Break Even Point(BEP) | 34.45\% |
| Internal Rate of Return(IRR) | 33.92\% |
| Investment Return Period | 4.4 years |
| Investment Sources Ratio: <br> Equity:21\% <br> Finance: 79\% | $33,041.55$ million Rails $\cong 0.134$ million Euro 122,500 million Rails $\cong 0.496$ million Euro |

