

Pre-Feasibility Studies

Project Title:

Producing Dairy Products

Project Owner:

Bam Laban Tehran

Advisor of the project:

Dornica Sustainable Development Company

**Project Address: Ahwaz Industrial Town 2, Ahwaz,
Khuzestan**

Preparation Date: February, 2021

Pre-Feasibility Study Summary:

General Information	
Project Title:	Producing Daily Products
Capacity	-
Employment	72 individuals
Business days	300 days
Product consumption	meals
Market	
Global Price of the Product	Is variable
Domestic demand:	250000
Domestic production	210000
Import	41 million dollers
Export	750 million dollers
Technical Information	
Land Area	10,000
Building Area	4,000
Core Raw Material	Dairy
How to supply raw materials	interval
Power requirement	900,000
Water Requirement	650,000
Fuel required	88000 L
Financial Information	
Fixed Investment	430,000
Working Capital	151750
Total Investment	581750
Annual Sales	1472600
Net Present Value (NPV)	84299 million Rials
Internal Return Rate	86%
Payback Period	1.1 Years
Ratio of investment resources	
Equity 32%	186160
Financing 68%	395590

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Introduction

The purpose of creating this production plan is to create a dairy production unit.

Milk and its products are the most important components of the human diet, which are rich in calcium, phosphorus, vitamins and protein in terms of nutritional value. The protein in milk and its products is cheaper and has a higher biological value than other sources of animal and plant proteins. In industrialized countries, the increase in milk production, variety of products and the development of processing industries have had a significant impact on the consumption of milk and its products, so that the per capita consumption of a European reaches 300 kg of milk per year. In Iran, with the development of livestock and milk processing industries, per capita consumption of milk and dairy products has increased relatively.

The dairy market in the past year is shown by last year's analysis of the country's dairy industry; Milk, as always, has the largest market share among products in this field. This amount shows a 36% share of milk production among other dairy products in the country. According to EMRC, other products in the industry, such as cheese, yogurt, buttermilk and cream, have taken the next positions, respectively.

In the following, this product and its market will be further examined, as well as this production plan.

flour was enriched with vitamin B and folic acid to reduce the risk of fetal defects. The outcome indicated that food supplementation can be helpful as, for example, enriched salt could reduce the risk of goiter in most countries where this type of food was consumed. Currently, foods are being enriched using many healthful substances like omega-3 supplements and probiotics. However, the question is whether all kinds of enrichment are healthful or whether they just represent a commercial approach to selling food at higher prices. Is food enrichment really needed? In the food industry section which has dominated today's industrial agriculture and instant food industry, many enriched foods seem to be not necessarily healthier but still needed. In fact, the soil on the earth has become nutrient-wise poorer over the past 50 years or so and insufficient minerals in soil may result in development of low-nutrient crops. On the other hand, the issue of transformation should also be considered here. Take bread as an example. A part of nutrients contained in wheat will be lost when it is ground, no matter how fertile a soil was used to grow that wheat. Therefore, this flour should be supplemented with vitamin and minerals. Global experience in dairy production tells us that milk and yoghurt have been among the top candidates for food enrichment in the market. Enriched dairy enabled most European and American countries to prevent many forms of nutrient deficiency, particularly during childhood. Some companies in Iran too supplemented their produced milk with salts and vitamins to enrich their dairy products while the practice is yet to become widespread. Vitamin A, vitamin D, and calcium are fat-soluble minerals used to enrich dairy products. Such products supply the calcium needed for children, especially for the ages when ossification takes place. These products are recommended for people with osteoporosis or children who dislike milk. Since many micronutrients, including calcium, are less absorbed at older ages, consuming the bone calcium may result in soft bone tissues. In this case, enriched dairy products together with hormone therapy can be helpful in keeping the physical health particularly in women. As women do not use calcium supplements during pregnancy, enrich milk represents a good replacement to meet their physical needs during this period. Otherwise, excessive use of such products must be avoided. Regarding other unfavorable effects of excessive use of enriched dairy products, it is important to note that B vitamins are among the nutrients used to enrich dairy and excessive vitamin B will leave the body every day when it is taken in amounts larger than needed. However, excessive use of fat-soluble vegetables creates the risk of food poisoning that can endanger health.

Different types of fruits including strawberry, melons, apple, banana, and dates are used to flavor dairy products. While they can give dairy products, including milk and yoghurt, a better taste, the antimicrobial agents used to keep fruits from rotting

are harmful and not recommended for prolonged use. Among the dairy products, there are products called functional foods used to treat or prevent a number of disorders. Lactose-free milk is a type of functional food recommended for lactose-intolerant individuals or people who may experience abdominal bloating, diarrhea, or cramps when they drink milk. They have no choice but drinking lactose-free milk or replace milk with other products. Another healthful product lately produced in Iran is probiotic-supplemented milk or yoghurt. These dairy products contain healthful bacteria which keep or enhance physical, particularly intestinal, health. They adapt better to the human body, survive the digestive system environment, and enhance physical health by making this environment inhospitable for the microbes living in the intestine. Probiotic products also have anticancer and antiseptic properties, enhance immunity, deal with impaired glucose tolerance, increase absorption of salts and vitamins, and help reducing blood cholesterol.

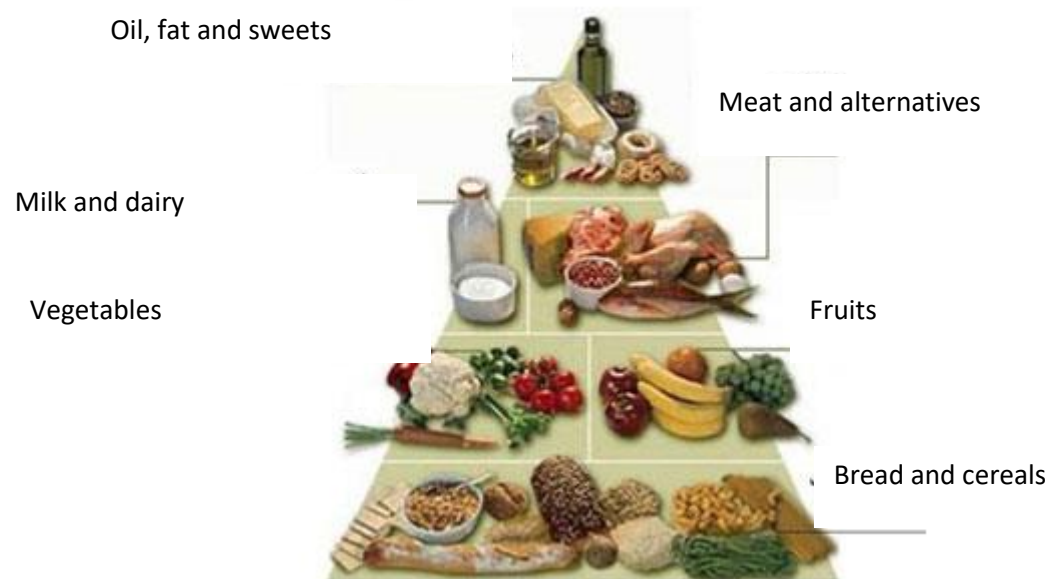
1.1.Strategic Significance of Dairy Production

Dairy product refers to food produced from milk. The raw material used in producing dairy products is often cow milk. This section presents definitions, properties, applications, and history of milk, yoghurt, cheese, cream, diluted yoghurt (*dough*), and pizza cheese.

The present project is intended to establish a manufacturing unit for dairy products.

As seen here, food groups are classified based on how important they are and how much they are used. The groups include breads and cereals, fruit, vegetables, meat, and milk. The foods at the top of the food pyramid, as its largest section, include breads, rice, macaroni, biscuits, breakfast cereals, and other foods which provide starch. The foods in this group must be eaten 1 to 6 to 11 units per day. The second level, as the second most important group, represents vegetables and fruits. A daily amount of 3 to 5 units of vegetables and 2 to 4 units of fruits must be eaten. The third level belongs to meat and dairy with required daily amount of 2 to 3 units for meat and 3 or more units for milk. (According to the World Health Organization, a daily amount of 150 liters of milk per capita is needed while this stands at 95 liters at most for Iranian people). The vertex of the pyramid, with the smallest area which means a small required intake per day, belongs to fats and sweets. These are not recommended as a basic food group, meaning that they are optional but should be eaten at a moderate level as they contain high amounts of calories. Spices, coffee,

tea, and carbonated drinks have no place in this pyramid since they do not contain nutrients and only add flavor to food.



Bread group: This includes whole grains (wheat, barley, oat, millet), rice, and different types of macaroni (lasagna, noodles, vermicelli). The foods in this group supply the body's need for complex hydrocarbons and fibers as well as B vitamins and minerals like iron and proteins.

Vegetable group: This includes a wide range of green vegetables like raw-eaten vegetables, cucurbits, and starchy vegetables (*e.g.* broad bean). The foods in this group supply minerals and vitamins needed for the body, including C and A vitamins, calcium and magnesium salts, and fibers.

Fruit group: This includes different types of fruits that we know. They supply fiber, A and C vitamins, and potassium. The foods in this group are important because they do not contain sodium, fat, and cholesterol.

Meat group: This includes red meat, poultry, fish, egg, and legumes. The foods in this group supply protein, phosphorus, vitamins B1, B3, B6, and B12, and many minerals including iron. Legumes are a subgroup of starchy vegetables but are placed in this group because they contain protein and minerals that are similar to those found in meat.

Dairy group: This includes milk, yoghurt, and cheese which are the best option for supplying calcium while also supplying protein and vitamins B2, A, and B12.

1.2.Importance of milk and dairy products

Milk and its derivatives represent an essential component of human diet with a rich nutritional value in terms of providing calcium, phosphorus, protein, and vitamins needed for the body. The protein contained in milk and dairy products is cheaper and biologically more valuable than other animal and plant proteins. In industrial countries, increased production of milk, greater diversity in products, and developed processing industries significantly contributed to increased consumption of milk and dairy, with a 300 kg milk per year drunk by an average European per capita. Development of farms and milk processing industries in Iran has also led to a relative increase in per capita consumption of milk and dairy products. Milk and dairy products are rich in water-soluble vitamins which can meet almost everything the human body needs when it comes to vitamins. Milk contains vitamins A, K, E, D, fat-soluble vitamins, and minerals, most importantly calcium. The most healthful food source of calcium is milk and dairy products which represent 85% of calcium used in diet for developed countries. The traditional practices of pasteurization and homogenization have no impact on calcium content of milk. The importance of taking dairy products become more apparent given the fact that calcium deficiency in Iranian people's diet is the second most prevalent type of nutrient deficiency, coming only after iron deficiency. In addition, protein-wise, milk is a particularly valuable source of nutrients while it also offers a more cost-effective option for meeting the body's need for protein.

The nutritional value of one liter of milk is greater than 200 grams of meat. The per capita consumption of milk in Iran falls below the value recommended by FAO and WHO which recommended daily consumption of one glass (420 CC) of milk or yoghurt, 30 g cheese and/or 1.5 cup of ice cream for an adult. The recommended values are higher for populations at risk (*e.g.* pregnant women, breastfeeding mothers, children, and elderly). Studies by FAO and WHO recommended that 50% of daily proteins taken by an adult should be in the form of animal protein. For example, a 40-year-old individual weighing 70 kg should take at least 56 g protein per day, with 50% of it coming from animal sources. This means that this individual needs 28 g animal protein per day.

۱.۳. **Product Name and Code (ISIC)**

The most widely used classification used in economic operations is the one proposed by ISIC. The table below shows the ISIC codes for dairy products.

Source: The Iranian Ministry of Industry, Mine & Trade

Product	ISIC
Pasteurized milk	15201111
Pasteurized yoghurt	152012131
Non-carbonated diluted yoghurt (<i>dough</i>)	15201236
Cream	15201120
Cheese	۱۵۲۰۱۲۵۱
Pizza cheese	15201256
Cheese and other derivatives	15201260

1.4.Import and Export Conditions:

Given the import and export regulations of the Islamic Republic of Iran Customs Office, the conditions and tariffs applied to importing/exporting dairy products are as indicated in the table below:

Tariff Number	Item	Entry Fee
04015090	Pasteurized milk	30
0417140	Pasteurized yoghurt	30
0403	Non-carbonated diluted yoghurt (<i>dough</i>)	30
04015010	Cream	30
0462000	Cheese	30
04061000	Pizza cheese	30
04063000	Cheese and other derivatives	30

1.5.Assessment and Standard Presentation (National or International)

National Standard:

Standard Number	Title
1527	Milk
1189	Cream
695	Yoghurt
6629	Different kinds of cheese
2452	Diluted yoghurt (<i>dough</i>)

Source: Institute of Standard and Industrial Research of Iran (2020)

Standards and Permits:

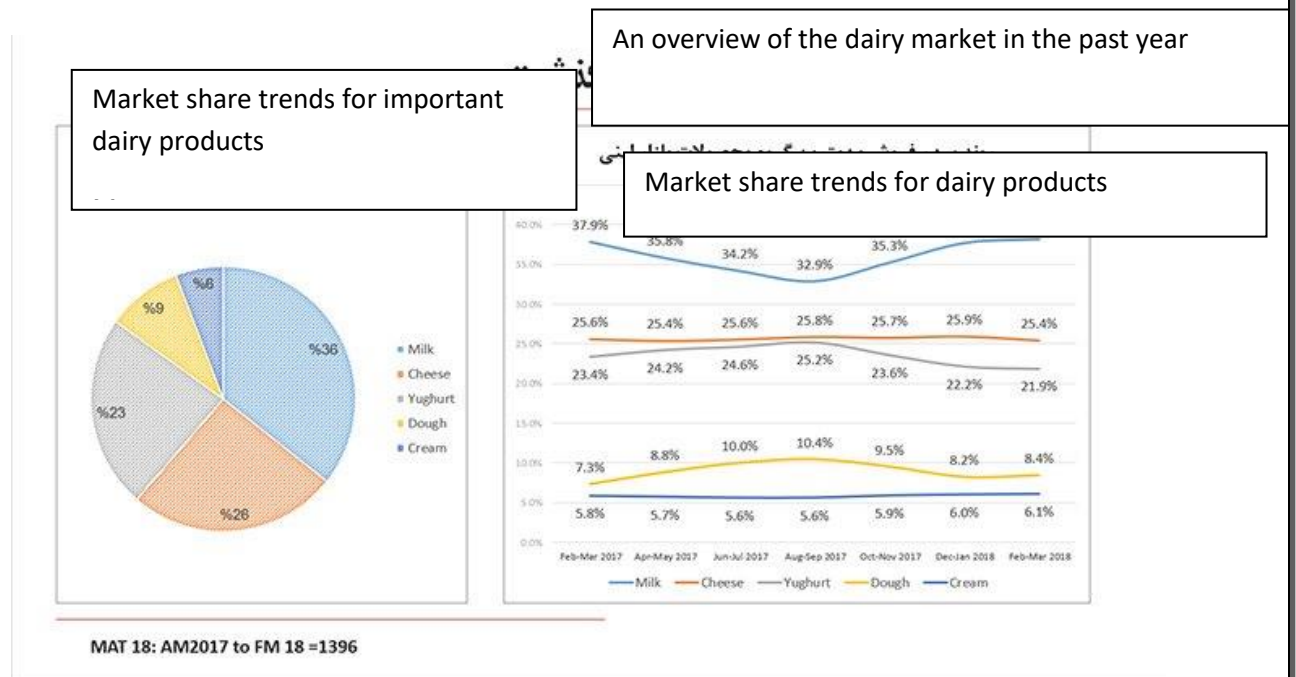
Operation license issued by the Health Department

Operation license issued by Department of Khuzestan Industry

Operation license obtained from the Agricultural Jihad Department of the province

1.6.Products Uses and Applications**1.6.1.Market Research and Target Population for Dairy Products**

An overview of the dairy market over the past year: studies of the Iranian dairy market over the past year indicated that milk, as usual, represents the largest share of the dairy market. This amounts to 36% of the whole Iranian dairy market. Research by Emrooz Marketing Research Co (EMRC) showed that in terms of the market share, milk is followed by other dairy products such as cheese, diluted yoghurt (*dough*), and cream respectively. The ranking often remained unchanged in the Iranian market and is certainly different from that of neighbor countries. The sales figures of this produce were not the same for all months of the past year, with sales charts pointing to fluctuating figures. For example, these charts indicate a several percent reduction in the amount of milk sold for the warm months of the year, similar to a trend found in the previous years. Unlike milk, cheese - the second dairy product on the top-selling chart – did not experience much change in terms of sales figure over the year, following an almost constant trend regardless of the month of the year. This almost unchanging trend was also observed for other products like cream. In addition, a number of things that happened in 2017 were the same as the years before and the market conditions show that months with higher temperatures also shifted consumers to buying more yoghurt and diluted yoghurt.



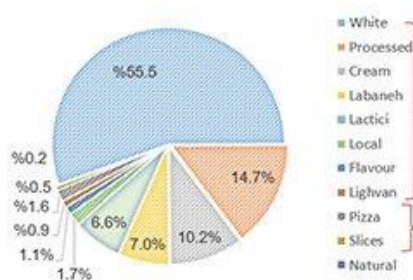
1.6.2. An overview of Cheese Market in the Past Year

The following section focuses on the sales trend for cheese, as the second top-selling dairy product in the Iranian market. Currently, cheese is supplied to market in different forms for eating or cooking, offering consumers more options to choose from. The trend for choosing different types of cheese indicates that white cheese was the most favorable type selling at 5.55%. It should be noted, however, that introduction of *Labaneh* cheese in the past year changed this preference. The same market also offered processed, cream, *Labaneh*, lactic, local, flavor, and *Lighvan* cheeses, gaining some market share. As for baking/cooking cheeses, the market offered pizza cheese, Slices, and Natural. Overall, the cheese market shows an interesting trend, with *Labaneh* and white cheese having experienced a declining market share towards the yearend and into the next year, especially in March.

Another interesting point to note is the price per gram of cheese in the Iranian dairy market.

Market shares for different types of cheese

سهم فروش انواع مختلف پنیر
MAT18

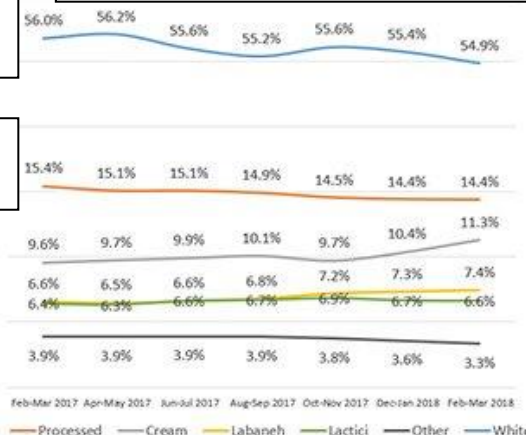


Cheese eaten
for breakfast

Cheese used for
baking/cooking

An overview of the dairy market in the past year

Market share trends for major cheese products



Cheese price
(Rial/g)

قیمت هر گرم پنیر در سال ۹۶ (ریال)	
پنیرهای سفیدانه	135.7
White	119.0
Processed	166.2
Cream	144.0
Labaneh	153.2
Lactici	145.5
Local	156.9
Flavour	218.5
Lighvan	217.7
پنیرهای پخت و پز	313.4
Pizza	301.1
Slices	351.1
Natural	602.2

MAT 18: AM2017 to FM 18 =1396

Leading Cheese Sellers in the Past Year

Kalleh, Pegah, Sabah, Damdaran, Mihan, Roozaneh, Ramak, Choopan, Haraz, and Razavi are respectively the top 10 cheese brands in the Iranian market. Among the top 10 cheese brands, Kalleh has the highest sales in Amol white cheese and toasty cooking cheese. This accounts for %70 of white cheese and %14 of toasty cheese market shares. According to this report, competition in this part of the market is intense, with the brands competing shoulder to shoulder; a move that, if made based on accurate statistics and data, will lead to a valuable achievement for the brands.

Cheese market in the past year

Top-selling breakfast



Share of shelf	Price
70%	64,000

Top-selling baking/cooking
cheese



Share of shelf	Price
14%	70,000

1.7.A Description of Product Application in Domestic and International Markets

Milk and dairy products are the major sources of animal protein, vitamins, and essential fatty acids for human nutrition, particularly in children. In most countries, including Iran, cow milk represents the most important source of milk. Milk and its derivatives in food industry cover a wide range of products including cheese, yoghurt, cream, *etc.* Milk is essentially a naturally secreted substance from mammary glands in most mammals use to feed newborn animals.

Natural components of milk are water (86-88%), fat (3-6%), protein (3-4%), lactose (5%), and phosphorous and salts (7%) which vary to some extent depending on the species and physiological and environmental conditions. This variety of animal milk is important for the purpose of processing. An important aspect of dairy research across the globe is the different methods involved in processing dairy products since milk and its derivatives play an important role in human diet as ingredients used on a wide range of food.

So far a large number of studies have been conducted in this area in Iran, with the research line dating back to years ago. However, the dairy industry has not received the attention it deserves. Unfortunately, the country face problems in producing the major dairy products as current practices do not match the global health and production standards while dairy products are significantly diverse across the world.

1.8.A Closer Look into the Product Market

Currently, there are over 400 active brands and factories in the Iranian industry market with over 200 factories operating at local level, over 170 operating at regional-provincial level, about 30 factories operating at national level, and a few factories that succeeded in achieving an international status.

Unlike many other Iranian industries, over 85% of dairy industry is directly led under the management and investment by the private sector, with the remaining section owned by public non-governmental organizations. This means that the dairy industry does not rely on public resources and like other privatized industries, has a limited access to public resources.

The extensive involvement of the private sector and several small, medium, and large brands and factories created an intensely competitive domestic market and therefore (if the government continues to stay out of the way), the fierce competition will continue over price, quality, flavor, and packaging. Over the past two decades, this important issue has been notably reflected in the diverse range of prices, packaging, and advertisements.

The intensely competitive industry offers customers a wider range of choices, providing consumers with alternative options to put on their basket if they are not satisfied with a brand's prices, packaging, or availability of products.

For various reasons, particularly the government's strict policies for controlling prices, over 80% of the dairy products representing top-selling three items (*i.e.* milk, yoghurt, and cheese) are controlled by public pricing policies and the rest are priced under the Pricing Code for Domestic Products.

The financial documents prepared by the dairy producers listed in the Iranian stock market (verified by the regulators and policymaking authorities) show that the overall profit margin in the dairy industry is smaller than 3%, which is relatively low margin compared to other sectors and Iranian industries given that the annual inflation rates over the past decade have seriously harmed the development process of the dairy industry.

The Iranian dairy industry has created about 120,000 direct employment opportunities and 450,000 indirect employment opportunities, with a total of 2 million jobs along the supply chain.

In the past 15 years, interventions by the government to control dairy prices have led to the loss of 12,000 jobs as a result of 800 factories that were shut down during this period.

The dairy industry can achieve its full potential by harnessing its 40-percent unused capacity, if a number of problems including pricing, investment in increasing per capita consumption, and export-constraining policies are properly addressed.

It is highly possible to increase production of unprocessed milk at SMEs in rural and less-developed areas by modifying the policies that target the supply chain.

Many dairy producers in Saudi Arabia and Turkey, which significantly increased their dairy producing capacity in the past decade through extensive investment, now rely on their respective government's protection to control large regional markets. Therefore, the government of the Islamic Republic of Iran should formulate policies that help strengthen the dairy industry and pave the way for development and capacity building.

Every manufacturer will welcome and benefit from a stable, less-fluctuating market, but in the end, it is the changing macroeconomic measures that impose higher expenses on manufacturers, inevitably leading to higher prices for products. It is important to note that no producer will benefit from higher fluctuating prices, particularly in the dairy market with its competitive environment where rising prices increase the risk of losing market share. However, dairy producers will have to either shut down their plants or raise their prices given the fact that expenses are increasing in all areas from supplying milk from farms to employee compensation, transportation, packaging, and distribution. In addition, both producer and policymaking authorities must protect consumers. Instead of pumping subsidized foreign currency into the first loop of the supply chain which most benefits rentiers and leads to corruption, inefficiency, and building monopolies, the government should allocate this budget to the other end of the chain where the end consumer can benefit from the government's help while corruption is reduced and producers can move toward a balanced development in line with our national interests. Consistent with their social responsibilities, the directors of the dairy industry have clearly indicated their readiness to provide the government with over 2 million tons of milk for distribution among the underprivileged deciles in the society. A wide range of products like different types of yoghurts and flavored milk, ice creams, frozen desserts, and cheeses are among the new products at the global level that have drawn attention from many consumers, creating a booming market for dairy products. Different dairy products like yoghurts and flavored milks are known as healthy foods by many people around the world and many consumers across the globe are now familiar with the nutritional value and health benefits of these foods.

1.9. Major Consumers in Iran

Top milk-consuming countries

Rank by per capita consumption of milk (kg)

Finland (361.19), Sweden (355.86), the Netherlands (320.15), Switzerland (315.78), Greece (314.69), Montenegro (305.87), Lithuania (303), Denmark (295.62), Albania (281.17), Romania (266.19), Luxembourg (265.9), Kazakhstan (262.61), Norway (261.52), France (260.48), Italy (256.1)

According to the annual report published by the Statistical Center of Iran the country has produced 7,600,000 tons of milk in 2016 and 7,800,000 tons of

cow milk in 2019 (including traditional and industrial production), reaching a production level of 8,600,000 tons if the 10%-share of the milk produced by others animals is taken into account.

1.10.Major Global Dairy Exporters and the Challenges They Face

The European Union, the United States, Australia, Argentina, and New Zealand are the five major producers of dairy products in the world. Among the EU members, Ireland and the Netherland are two top producers with a 2.8-percent growth in dairy production amounting to 2 billion liters of milk.

On the other hand, issues like sanctions on Russian trades and declining demands in China, a major dairy consumer, represent a big challenge faced by the EU in exporting dairy products while exports from the US, as a major dairy producer, have grown, with less than 10 percent of US-produced dairy products being exported to China and Russia.

In addition, the dry Australian climate and increasing price of agricultural water represent a challenge for dairy production in this country, placing the dairy production growth in Australia somewhere between 1 and 2 percent. Furthermore, the declining Chinese demand shrank the dairy demand-supply market in New Zealand.

In general, however, it is important to note that the producers referred to above are major dairy exporters in the world, having produced almost half a million ton of milk per month up to 2014. Importers of dairy products, except for China and Russia, experienced an approximately 10-percent increase in their imports up to 2013.

1.11.Conditions for Exports

The Iraqi market as well as those in Persian Gulf region will be among the major markets for exporting dairy products.

1.12.Conditions for Imports

All products needed for producing the product are domestically available and there is no plan for imports.

2.Supply and Demand in Iranian and Foreign Markets

Given the unfair US sanctions on the main route of Iranian income, *i.e.* the oil industry, non-petroleum exports now play a significant role in bringing foreign currency income into Iran and since quality is a major factor involved in accepting foreign products, the Iranian food industry has relied on the particular climate of the Middle Eastern and North African countries to gain a special position in exporting non-petroleum products into these countries. According to the statistics published by authorities, this sector represented 13% of total non-petroleum exports in 2017 and 14% in 2018.

As shown in the table below, the share of food exports has experienced a growth in 2018 compared to the previous year. The data published by the National Center of Strategic Water and Agricultural Studies in Iran Chamber in 2018 show that the average price per ton of export agricultural goods was \$ 920, showing a 143.4 growth compared to \$ 378 per ton of non-petroleum exports. Accordingly, in the same year, “average customs value for each dollar-equivalent of agricultural and food exports in 2018 was over IRR 59,484 and the average value of total non-petroleum exports was IRR 58,164”. However, it is important to note the changes that occurred in the Iranian economy over these two years.

Another important point to note is the share of dairy products in food exports which in 2017 represented the largest share since on the one hand it contributes to public health and on the other it faces major regional competitions from other countries including Turkey. Over the two years noted above, dairy products accounted for \$ 695 m (25%) and \$ 613 m (12.9%) of the total food exports in 2017 and 2018, respectively. Given the significant drop in the share of dairy products of total food exports in 2018, it is likely that major changes have taken places in the Iranian dairy industry and macroeconomic conditions. Before assessing the changes in the dairy industry, one should note the significant fluctuations in exchange rates over these two years which could contribute to increasing share of foods in total Iranian non-petroleum exports.

Exchange rates for foreign currencies experienced a sharp increase in 2018 and, given the large gap between the value of US dollar and Iranian Rial, exports market were reasonably expected to become economically more attractive. But, as noted earlier, despite the growth of food and agriculture sector in 2018, the dairy industry experienced a fall in exports for a number a reasons which will be discussed below.

Iranian dairy products are often exported to Iraq, accounting for 78.5% of exports in 2017 and 77% in 2018. Other importers of Iranian dairy products in

2017 were Afghanistan, Pakistan, Qatar, Russia, Turkmenistan, UAE, Oman, Syria, and Kuwait. And in 2018, Iraq as the top buyer of Iranian dairy products was followed by Afghanistan, Pakistan, UAE, Qatar, Russia, Turkmenistan, Azerbaijan, Syria, and Kuwait.

Total dairy exports amounted to about \$ 695 m in 2017 and to \$ 612 m in 2018. Studies show that most dairy products, except for yoghurt and powdered milk, approximately amounted to the same level of exports and foreign currencies brought into the country. And the major reason behind smaller amounts of exports and foreign currencies brought into the country by dairy products in 2018 was reduction in yoghurt and powdered milk exports. An important point to note, however, is that except for yoghurt and powdered milk with small changes in average price per kilogram, other dairy products did not experience a significant change in prices over these two years.

Exports of yoghurt and powdered milk dropped in 2018, with about an 18 million kg drop for yoghurt compared to 2017 and a 50-percent drop for powdered milk due to a ban on exports applied in the summer of 2018. At the same time, the average price per kg of exported yoghurt rose by 6 cents in 2018 while powdered milk experienced a 1-cent drop in average price.

The figures presented here indicate no significant change in exports over this two-year period, with the major changes caused by the ban on exporting powdered milk from Iran and a number of strict regulations that limited exports to Iraq as the number one importer of Iranian products. In addition, raw milk also experienced significant changes in price over these two years. In 2017, one kilogram of raw milk was sold at 1,440 Tomans, a price enforced by the Market Regulation Authority. The price rose to 1,570 Tomans in 2018. By combining these figures with the foreign currency exchange range in 2018, which could naturally make export a more attractive option, it can be argued that the potential benefits of rising exchange rates were set off against the rise in raw milk prices together with other overhead costs in 2018, and assuming that no ban was imposed on exporting powdered milk, the export performance of dairy industry in 2018 would still be almost the same in 2017.

A number of reasons may be cited regarding the insignificant growth of Iranian dairy exports in 2018 compared to 2017. But perhaps an important factor that contributed to this was the fact that Iranian dairy companies still follow the trend of the previous years without redesigning their export models. Consequently, not only were the changes in market development and product diversity insignificant, but also these companies failed to re-formulate their export strategies during these two years based on the changing conditions. It

seems that development of export market for dairy products requires Iranian dairy companies to consider new strategies and modify their previous strategies in order to balance out the decisions made by the government.

2.1. Consumption Trend in the Past five Years

A review of global per capita consumption of milk, butter, and cheese in the past five years

Milk

Country		2013 Kg	2014 Kg	2015 Kg	2016 Kg	2017 Kg	2018 Kg	± on 2017
Belarus	بیلاروس	106,55	111,12	112,27	110,76	112,48	111,09	▼ -1,24%
Ukraine	اوکراین	117,83	123,39	120,58	117,94	113,02	110,32	▼ -2,39%
Australia	استرالیا	107,73	110,76	113,45	105,70	103,47	105,76	▲ +2,22%
New Zealand	نیوزلند	99,82	108,39	107,69	106,63	105,61	105,26	▼ -0,33%
Canada	کانادا	84,58	82,74	81,31	80,38	78,75	76,31	▼ -3,09%
United States	ایالات متحده	77,42	74,66	73,07	72,07	70,02	68,00	▼ -2,89%
EU-28	اتحادیه اروپا	66,91	67,16	66,47	65,86	65,61	65,38	▼ -0,35%
Russia	روسیه	70,68	68,58	66,02	62,24	59,41	57,65	▼ -2,96%
India	هند	42,55	44,05	45,64	47,39	48,69	49,33	▲ +1,33%
Brazil	برزیل	44,64	47,30	46,48	46,23	47,75	46,23	▼ -3,17%
Argentina	آرژانتین	48,54	47,55	48,00	38,95	37,97	39,43	▲ +3,84%
Mexico	مکزیک	33,95	33,65	33,24	32,80	32,32	31,99	▼ -1,01%
Japan	ژاپن	30,98	30,52	30,75	31,25	31,21	31,29	▲ +0,26%
South Korea	کره جنوبی	31,63	30,56	30,22	29,53	30,62	30,78	▲ +0,54%
Taiwan	تایوان	15,25	15,76	16,35	16,85	17,27	17,73	▲ +2,65%
China	چین	9,15	9,33	9,40	8,95	9,09	8,97	▼ -1,25%
Philippines	فیلیپین	0,69	0,62	0,56	0,82	0,72	0,75	▲ +3,69%

Last update: 2019-10-17

NOTE: Per capita consumptions of each country are obtained dividing total consumption (Source FAS-USDA) by the population (Source FAO, Eurostat).

Butter

Country		2013 Kg	2014 Kg	2015 Kg	2016 Kg	2017 Kg	2018 Kg	± on 2017
New Zealand	نیوزلند	4,87	4,82	5,20	6,01	5,95	5,89	▼ -0,93%
Australia	استرالیا	3,67	3,79	3,95	4,23	4,70	4,72	▲ +0,42%
EU-28	اتحادیه اروپا	4,02	4,26	4,23	4,27	4,32	4,31	▼ -0,24%
India	هند	3,70	3,77	3,84	3,92	4,02	4,12	▲ +2,39%
Belarus	بیلاروس	5,17	5,59	4,53	4,32	4,96	4,02	▼ -19,01%
Canada	کانادا	2,89	2,78	2,95	3,22	3,30	3,49	▲ +5,66%
United States	ایالات متحده	2,48	2,50	2,60	2,64	2,62	2,64	▲ +0,81%
Russia	روسیه	2,49	2,62	2,43	2,45	2,48	2,48	▲ 0,02%
Mexico	مکزیک	1,95	1,90	1,98	2,09	2,04	1,91	▼ -6,46%
Ukraine	اوکراین	2,22	2,58	2,17	2,09	1,85	1,73	▼ -6,87%
Taiwan	تایوان	0,81	0,94	1,06	1,02	1,02	0,97	▼ -4,44%
Argentina	آرژانتین	0,96	0,88	0,85	0,73	0,63	0,83	▲ +30,91%
Japan	ژاپن	0,56	0,59	0,60	0,56	0,56	0,59	▲ +4,41%
Brazil	برزیل	0,43	0,39	0,41	0,43	0,42	0,43	▲ +2,63%

Last update: 2019-10-17

NOTE: Per capita consumptions of each country are obtained dividing total consumption (Source FAS-USDA) by the population (Source FAO, Eurostat).

Cheese

Country		2013 Kg	2014 Kg	2015 Kg	2016 Kg	2017 Kg	2018 Kg	± on 2017
EU-28	اتحاديه اروپا	17,14	17,51	17,87	17,82	18,18	18,32	▲ +0,78%
United States	ایالت متحده	15,34	15,66	16,09	16,70	16,93	17,34	▲ +2,46%
Canada	کانادا	11,43	11,43	11,54	12,62	13,76	14,37	▲ +4,42%
Australia	استرالیا	10,89	11,29	11,34	11,40	11,90	11,83	▼ -0,62%
Argentina	آرژانتین	11,75	11,82	12,07	11,59	10,96	11,35	▲ +3,56%
New Zealand	نیوزلند	8,63	8,76	8,88	9,01	9,77	10,11	▲ +3,38%
Russia	روسیه	7,94	7,46	7,31	7,47	7,92	8,23	▲ +3,87%
Belarus	بیلاروس	6,86	7,06	7,27	7,49	7,60	7,72	▲ +1,56%
Ukraine	اوکراین	4,39	4,39	4,12	4,21	4,25	4,50	▲ +5,83%
Mexico	مکزیک	3,38	3,53	3,77	3,89	3,96	4,02	▲ +1,68%
Brazil	برزیل	3,71	3,69	3,75	3,78	3,82	3,70	▼ -3,11%
South Korea	کره جنوبی	2,13	2,34	2,71	2,68	3,12	3,24	▲ +4,03%
Japan	ژاپن	2,22	2,17	2,30	2,38	2,54	2,59	▲ +1,78%
Taiwan	تایوان	1,07	1,11	1,23	1,36	1,35	1,35	▼ -0,29%
Philippines	فیلیپین	0,16	0,20	0,26	0,33	0,37	0,38	▲ 1,03%

Last update: 2019-10-17

NOTE: Per capita consumptions of each country are obtained dividing total consumption (Source FAS-USDA) by the population (Source FAO, Eurostat).

3. Investigating and Determining Minimum Economic Capacity, Including Estimated Fixed investments by Currency (Rial and Foreign Currencies; Using Available Information and Ongoing Projects, UNIDO, Internet, World Data Banks, Technology and Equipment Vendors, etc.)

Given the domestic demands, particularly in Khuzestan, and taking into account the export values, the annual nominal capacity of the project is:

Figures presented in the table

Within four years, the actual capacity is predicted to reach 100% of the nominal capacity. Since the company has been producing over the past years, an estimated 12-month period is required to complete and purchase equipment. In addition, this amount of products is predicted to be produced in 300 business days with an 8-hour shift.

Project Investment Details:

Total Cost		Required Cost					Cost (million Rials)	Item
Mill ion Eur os	Millo n Rials	Total (Million Rials)	Rial	Foreign Currencies				
			Million Rials	Equivalent to Rials (Million Rials)	Million Yuan	Million Dollars		
	20,000						20,000	Land
	15000						15000	Landscaping
	81448						81448	Construction
	10,000						10,000	Facilities
	270,000						270,000	Equipment and Machinery
	9552						9552	Laboratory Equipments
	10,000						10,000	Transportation
	5000						5000	Office Equipment
	4000						4000	Unforeseen Expenses
	425,000						425,000	Total Fix Assets
	5000						5000	Pre-Operation Costs
	430,000						430,000	Total Fixed Investment
	151750		151750					Working Capital
	581750	581750						Total Investment

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

Land Details:

Equivalent to Euros	Total Cost of Available and Required	Total Cost (Million Rials)		Area (m ²)		Item
		Required	Available	Required	Available	
	20,000				10000	Land

Building Details

Equiva lent to Euros	Total Cost (Million Rials)			Unit Price (Rials)	Area (m ²)		Item
	Tot al	Requi red	Accompli shed		Requi red	Accompli shed	
			21400	20.000.000		1320	Production Hall: Industrial Shed
			10800	18.000.000		400	Raw Material and Products Warehouse: Industrial Shed
			3960	15.000.000		244	Offices
			10800	15000.000		720	Electrical Room
			20.000			400	Cold Storage
			9200	20.000.000		440	Guest Accommodation & Other Facilities
			288	3.000.000		36	Septic Tank
			81448			4000	Gross Floor Area and Total Costs

Facilities Details:

Equivalent to Euros	Required Cost (Million Rials)			Technical Specifications	Item
	Total	Require d	Accomplishe d		
				250-kW transformer	Power Supply
				1 inch	Water
				400 m ³ , pressure: 60 psi	Gas Supply
				Ventilation	Air Conditioning
					Fire Detection and Extinguishing System

			10,000		Total
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Production Line Machinery:

	Equivalent in Million Rials	Equivalent in Million Rials		Number	Machinery	
		Required	Accomplished			
				2	Prepackaging	
				1	Two-line Filler (75)	
				1	Two-line filler (95)	
				1	Two-line filler (125)	
				1	Two-line bucket filler	
				1	Shrink packer	
				2	Labeling machine	
				2	Pasteurizer	
				2	Homogenizer	
				1	Tri-blender	
				1	Separator (10 T)	
				1	Complete Automatic CIP PLC	
				-	Piping tools for production building	
				-	Plumber compensation	
				-	Piping tools for facilities	
					Fluid plumber compensation	
				-	All cables and switchboards (compensation included)	
				1	Single-wall tank (15 T)	
				6	Double-wall tank (2 T)	
				7	Double-wall tank (15 T)	
				1	Double-wall tank (50 T)	
				2	Triple-wall tank (500 kg)	
				1	Triple-wall tank (2 T)	

				-	Compressor (10 hp)- three 10-hp compressors, four 30-hp compressors, 9 evaporators, Ice bank (10 T) with two copper coils, cooling tower (5 T), Sandwich panel (15-cm ceiling)	
				-	Milk receiver	
				-	Scale (5 T)	
				-	Microbial lab equipment	
				-	Chemical lab equipment	
				-	Catering equipment	
				-	Office equipment	
				1	Aerobic septic system (50 T)	
				1	anaerobic septic system(300 T)	
				1	Steam boiler (6 T) with relay and hybrid-fuel burner	
				1	Condensate tank for boiler	
				1	Inkjet printer	
				1	Air compressor (10 bar)	
				1	Water treatment system (120 m ³)	
				1	Water Softener	
				1	Water tank (10 T)	
				2	Gasoil tank (20 T)	
				6	Centrifugal pump	
				1	Gasoil tank (0 T)	
				13	Centrifugal pump	
				200	Palette	
				1000	Basket	
				Total		

Office and Service Equipment

Equivalent to Euros	Required Cost (Million Rials)			Number		Items
	Total	Required	Accomplished	Required	Accomplished	
					2	Office Furniture
					50	Chairs
					1	Faxes
					1	Telephone/Modems
					20	Computers

					10	Printers
					10	Other
	5,000				Total	

Total cost	Unit price	unit	Daily consumption	Raw material	#
750	30,000	kg	25000	Raw milk	1
786	265000	kg	2965	Powdered milk	2
312	220,000	kg	1420	Cream	3
268	110,000	kg	2432	Margarine	4
119	100,000	kg	1191	Whey powder	5
276	80,000	kg	3450	Sugar	6
2	50,000	Kg	40	Salt	7
24	4	-	6	Starter	8
12	6	-	2	Starter	9
5	5	-	1	Starter	10
78.6	300,000	kg	262	Prepacking plastic	11
89.2	120,000	-	755	Bucket	12
24.6	20,000	-	1230	Cardboard box	13
40	6000	-	6666	600-g container	14
18.2	30,000	-	607	Bucket container	15
10	1500	-	6666	Foil	16
20	1000	-	20,000	Foil	17
30	1500	-	20,000	100-g container	18
91.2	4000	-	22800	Bottle (250)	19
30	7500	-	4000	Bottle (1500)	20
21.4	800	-	26800	Bottle cap	21
6	1500	-	4000	Label (150)	22
22.8	1000	-	22800	Label (250)	23

5.2	20,000	kg	74.5	Shrink pack plastic	24
035.886.000 Rials				Total	

Monthly expenses amount to 75.875.

Working Capital Costs:

Equivalent to Euros	Total Cost				Duratio n (months)	Item
	Total (Million Rials)	Rials	Foreign Currencies			
		Million Rias	Equivalent to Million Rias	Million Yuan		
	151750	151750			2	Raw Material and Packaging
					1	Products in Process
					1	Liability
					1	Petty Cash
	151750	151750				Working Capital

Production Costs:

Equivalent to Euros	Cost (Million Rials)	Items
	910500	Raw Material and Packaging
	25620	Compensation
	3155	Energy (Power, Water, Fuel, . . .)
	10000	Repair and Maintenance
	10000	Unforeseen
	7000	Depreciation
	5000	Office and Sales
	-	Financial Facilities
	1000	Factory Insurance
	972275	Total

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

Total price (million Rial)	Total price		Supply location	Unit price		Consumption required for total capacity	Unit	Consumption per unit of product	
	Foreign currency (million Rial)	Domestic (million Rial)		Foreign currency (Yuan)	Domestic (million Rial)				
		160.000	Iran		160000	1000.000	number	Premium pastry/ cream	
		130.000	Iran		130.000	1000.000	number	First grade pastry cream	
		340.000	Iran		170.000	2000.000	number	Cheese	
		50.000	Iran		50.000	1000.000	number	Full-fat bagged milk (800 g)	
		450.000	Iran		30.000	15.000.000	number	Bagged Dough	
		90.000	Iran		90.000	1000.000	number	Dough (1.5 L)	
		100.000	Iran		30.000	2.000.000	number	Dough (250 CC)	
		45000	Iran		50.000	900.000	number	Medium-fat yoghurt (600 g)	
		50.000	Iran		10.000	5000.000	number	Medium-fat yoghurt (100 g)	
		30000	Iran		60.000	500.000	number	Full-fat yoghurt (600 g)	
		15000	Iran		150.000	100.000	number	Full-fat yoghurt (150 g)	
		12.600	Iran		180.000	70.000	number	Full-fat yoghurt (2-l bucket)	
		1.472.600	Total						

5.Human Resources and Employment Status

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

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

Annual Salary and Benefits - 14 months	Salary - Rials	Number	Item	#.
700	50.000.000	1	Manager	1
560	40.000.000	1	Quality Control Manager	2
420	30.000.000	1	Technical Expert	3
22750	25.000.000	65	Skilled Worker	4
350	25.000.000	1	Administrative and Marketing Staff	5
840	20.000.000	3	Worker and Driver	6
25620		72	Total	

Total Cost - Million Rials	Unit Price - Rials	Annual Consumption	Unit	Item	#
1620	1800	900000	kw/h	Power	1
975	1500	650000	m ³	Water	2
320	4000	80000	liter	Gasoil	3
240	30,000	8000	liter	Gasoline	4
3155	Total				

7.Commercial and Economic Support for the Project

Several supporting projects are ongoing to promote the industry.

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

- facilitate, complete and launch semi-finished production projects and develop them
- support and help the export of provincial products

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

* **Resistive Economy (Economic Prosperity) Committee:** Ministry of Industry, Mines and Commerce issued a resolution (12868) on May 15th, 2016 by which the completion of industrial projects with more than 60% physical progress and support of small and medium production units were funded.

* **Small Industries Investment Guarantee Fund:** Issuing credit guarantees facilitates the financing of small businesses and warrants the payback of principal plus interest to the bank. The guarantee will be issued after a thorough inspection and validation and offering the proper collateral.

7.1.Supporting Custom Tariff (of Products and Machinery) by International Tariffs

The tariff for importing the machinery required for the project is 5 to 10 percent to facilitate the technology provision and support domestic production. Variable tariffs are imposed on different types of dairy products to protect domestic production and prevent imports.

7.2.Financial Support (of Available Units and Projects) by Banks - Investment Companies

The funding by banks can be accomplished by

- ١- Foreign Exchange Reserve Fund: The oil revenue surplus is allocated to manufacturers and exporters to finance some of their foreign currency needs in the form of Islamic contracts and approved regulations and according to domestic import and export of commodity and services regulations.
- ٢- Resistive Economy (Economic Prosperity) Committee: Funding is considered to complete the industrial projects with more than 60% physical progress and support the small and medium production units to increase exports.
- ٣- Foreign Investment Encouragement and Protection Law

Since 1955, the framework of foreign investment in Iran's law has been to attract and support foreign investment. In order to make reforms in the economic structure of the country, the Iranian parliament proposed new law on foreign investment called the Encouragement and Support of Foreign Investment Act which was finally approved in 2002. This new law has led to the development of the legal framework

and the environment for foreign investors in Iran. Some of the progresses made by the new law in the field of foreign investment are:

- The Government of the Islamic Republic of Iran welcomes the foreign investment of foreign entities, both natural and legal, in all areas of economic activity.
- Recognition of new investment methods in addition to foreign direct investment
- Facilitating the process of applying and approval of foreign investment
- Establishment of an organization called Foreign Investment Services Center within the Organization for Investment Economic and Technical Assistance of Iran in order to provide centralized and effective support to the activities of foreign investors in Iran

In case of attracting foreign investment, the government has considered incentives including:

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

8. Analysis, Conclusions and Suggestions:

Today, dairy products have found their special spot in people's shopping carts. And demands for dairy products increase with growing public awareness of healthy foods. On the other hand, the diversity of dairy products in Iran has led to a lower per capita consumption of dairy products compared to other countries. However, the present plan is economically justifiable based on the availability of technical knowledge, proper equipment and machineries, access to domestic and foreign markets, and more importantly availability of resources. All economic indices point to the potentially high profitability of this project and therefore implementation of this project at a proper site and based on a well-designed schedule will lead to a higher level of profit compared to the interests paid by the banks to investors.

Environmental Expert Report

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

Management Expert Report

The growing demand for these products means that the current level of supply cannot meet the domestic needs. Measured culture-building efforts can increase demands for the products. On the other hand, very high demands for exports to neighboring countries have doubled the potential financial return on exporting these products. Therefore, the present project is highly recommended for implementation.

As detailed in the tables above	Product Final Cost
As detailed in the tables above	Product Sales Price
1472600	Total Sale (Million Rials)
86/26%	Sales Percentage at Break-Even Point
500325	Profit (Million Rials)
86%	Internal Rate of Return
84.299.0	Net Value Added (Million Rials)
1.1 years	Payback Period