



# PASTA PRODUCTION FACILITY FEASIBILITY REPORT



*Feasibility of Pasta Production Facility was carried out with the financial support provided by **Karacadağ Development Agency** within the scope of 2018 Feasibility Support.*

Contract No: TRC2/18/FD/0009



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## **FEASIBILITY REPORT FORMAT**

### **A. EXECUTIVE SUMMARY (Summary of project related information and feasibility study findings)**

Feasibility report of Pasta production facility has been prepared in accordance with the service purchase agreement signed with the Şanlıurfa Chamber of Commerce and Industry within the scope of Karacadağ Development Agency Feasibility Support Program.

There is no facility operating which has the same investment subject with the subject of the facility invested in Şanlıurfa. According to 2017 data, 1,044,645 tons of wheat was produced in Şanlıurfa province. With the SAP, as a result of the added value increase in agricultural production, the agriculture-based food industry started to develop in the region. The fact that the Şanlıurfa climate is suitable for wheat and barley production, close proximity to the semolina plants obtained from durum wheat, which is the main raw material of pasta production, and the ease of supply were effective in the planning of this project. With the facility to be built, pasta from durum wheat will be produced and a value-added product will be obtained.

Pasta is a food product which has a high consumption rate all over the World. The main reasons of this are the availability of in every culture, ease of access and cooking, nutritiousness and cheapness. Pasta which can be enriched with sauces prepared with different ingredients, is considered as an important nutrient in all areas of food consumption, from homes to luxury restaurants.

According to the report prepared by the International Pasta Organization (IPO), in 2016, over 14 million tons of pasta were produced around the world. A huge amount of this production are covered by Italy, Turkey, Brazil, Russia and the US. According to this report, Italy ranks first in the production sequence with 3 million 324 thousand 636 tons. Turkey comes as third after the United States. Turkey which has located in an important position in the production and exportation of Pasta, increased the sales revenue by 9 percent to 251 million 852 thousand 338 dollars in the first 5 months of 2019.

The country where the average pasta consumption per capita is the most intense is Italy which is also a leader in production. Pasta consumption per capita in Italy is 26 kilograms. Turkey ranks 10th with 8.5 kilograms consumption per capita. In addition to the employment of 30 thousand people directly and indirectly, our pasta industry supports agricultural employment through the production of durum wheat which is used as a basic input, and contributes to the livelihood of tens of thousands of farmer families.

Despite the height reached by the production rates, there is not enough supply in the world to meet the ever-growing consumption volume. Pasta industry which has a growing market has an investment worth of trading volume and capacity.

The Project will be built is expected to contribute to the development of the region's economic and social welfare. Within the scope of the investment, female

employment will be provided in the appropriate units of the facility, which will contribute to increase the participation of women in business and working life. Especially in order to facilitate and sustain women's employment, it is planned to build a nursery for the children of the employees in the facility area.

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## **2. INTRODUCTION (purpose, scope and organization of the report, working method, summary of findings, results and recommendations)**

The purpose of this feasibility report prepared by the Şanlıurfa Chamber of Commerce and Industry is to analyze the capacity of the production facility planned to be established within the Şanlıurfa Organized Industrial Zone and the sustainability of the investment in this context.

In this study which consists of 16 chapters, executive summary and introduction sections and also information about the investment region, its location, capacity, duration and sustainability are presented in general terms. In Chapter 3, information about the definition and technical details of the project is given and in the following section, the information regarding the socio-economic status of the region which is located in the background of the project, the relationship between sectoral policies and investment, compliance with institutional structures and regulations, and the source of the project idea are given as detailed. In Chapter 5, the reasons for the investment of Pasta Production Facility are given in detail. In Chapter 6, the operational policies of this facility are given to provide the sustainability of the investment. In Chapter 7, the relationship between investment and geographical and physical characteristics of Şanlıurfa province, which is the project application area, is presented. In Chapter 8, the cost of the investment is explained in detail within the scope of the capacity of the production facility to be established and the technology and machinery to be used. After the submission of technical and financial information on project inputs as of Chapter 9 Organizational structure and labor force need of Pasta Production Facility are presented within the scope of all these details. Such as how the project will be carried out and how the project will be carried out and how the decision-making process will be carried out, investment time schedule plan and the tables which are related the activity period income and expense estimates.

## **3. DESCRIPTION AND SCOPE OF THE PROJECT (name of the project, purpose, type, technical content, components, size, duration of application, place or area of application, project outputs, main inputs, target audience and / or region, project owner organization and legal status, executive organization)**

The name of the project is “Pasta Production Facility” and the project is in the “production facility investment” type. Within the scope of the pasta production facility’s feasibility report the background of the investment was analyzed by socio-economic status and regional policies, the main source of the Project’s idea and it’s reasons were showed by examining the national current and future demand levels. The production, sales program and marketing strategy have been determined within the scope of the project's application and financing planning.

The agricultural product of the region, will meet with professionalism and technology with the investment to be realized after the work, to be realized in the province which currently does not have any pasta production facilities and this



will increase the added value of the province as a whole. Added values, which is assumed that will be envisaged, to be happen by the realization of the Project are presented below:

- Contributing the food manufacturing sector of country and region by gathering cutting edge technology with traditional agriculture products,
- Creating employment diversity,
- Contributing to national income of the country and the region by the effect of increasing income,
- Creating income diversity,
- Increasing of exportation in food production,
- Contributing to the participation of women in business and working life by creating women's employment

**The target audience of the project;**

1. Şanlıurfa Chamber of Commerce and Industry
2. Domestic and foreign food sector investors
3. Semolina-Durum Wheat Producers.

**Final beneficiaries of the project;**

1. Şanlıurfa commodity exchange market
2. Nation of Şanlıurfa and nation of all TRC2 region and nation of southeast anatolian region indirectly

Main purpose of the Project is preparing the feasibility report upon establishment of the pasta production facility to bring pasta production which has a significant effect on the economic income of the regions that are in our country which has an important place in the World on food sector to Şanlıurfa and all TRC2 region, to improve the investment opportunities in TRC2 Region by sharing this feasibility report with the stakeholders in order to start the facility and to provide contribution to take advantages from opportunities which is important from the aspect of development and competitiveness of the region. Within the scope of the investment, women will be employed in the appropriate units of the facility, and it is expected to contribute to the increase in the participation rate of women in business and working life and to their participation in social life.

This feasibility study will be a very important investment guide in terms of determining the location of the facility, revealing the architectural structure of the building, making preparations by determining its capacity, calculating the return time of the investment and taking precautions by determining the risks. The data on the infrastructure, economic returns and expenses of the facility will pave the way for the investment in the province and region of Şanlıurfa by

starting and resulting quickly. While financial analysis has been done within the scope of the project, It is foreseen that the facility will be purchased or constructed. It is aimed to guide the people who will invest in this field by subtracting the cost of all the elements of a pasta facility.

Project owner organization is Şanlıurfa Chamber of Commerce and Industry, and it's registered to Union of Chambers and Commodity Exchanges of Turkey. Regulations are located in Turkey Union of Chambers and Commodity Exchanges and Chambers and Commodity Exchanges Act as numbered 5174, on chambers of commerce and industry, established pursuant to Article 135 of the Constitution on professional institutions in the nature of public institutions.

#### **4. BACKGROUND OF THE PROJECT**

##### **4.1. Socio-economic Status (general, sectoral and / or regional)**

2,035,809 people live in Şanlıurfa according to 2018 ABPRS data. The population density of the city is 105 people per km<sup>2</sup> and the annual population growth rate is 25 per thousand. 59.47% of the population is under the age of 25 according to 2017 data. The population between the ages of 25-65 constitutes 36.74% of the total population and 3.79% of the population over 65 years old. 50.32% of the population is male and 49.68% is female. Net Migration Rate is 5 -5.72 according to 2016 ABPRS data. As stated in the Migration Management data, Şanlıurfa is the second city to host the largest number of Syrians. Pursuant thereto this, 462.961 registered Syrians live in Şanlıurfa. Approximately 17% of this population lives in the temporary shelter, while 83% live with the local population throughout the city.

Pursuant thereto the ICIR (International Competition Research Institute) Inter-provincial Competitiveness Index, which measures the competitiveness level of the provinces, Şanlıurfa is among the provinces with the lowest competitive power with 7,74. It is observed that the province is continuously decreasing in the trade and production sub-index. It is in the last rank in the Human Capital sub-index according to 2016-2017 which is the sub index of the same index. In the ranking of Production and Trade Sub-Index by years, it ranked 37th in 2012-2013, and decreased to 49th in 2016-2017.

Although it has economic diversity, it is seen that the economic structure relies heavily on agriculture, energy, tourism and animal breeding. Within the scope of the Southeastern Anatolia Project (GAP), fishing activities with the launch of Atatürk Dam also contribute to the economy of Şanlıurfa which is irrigable land has developed considerably. Atatürk Dam, which is among the most important investments of the region and the country, played an important role in the development of the region. With the development of irrigation opportunities, cotton and grain production in the regional agriculture came to the forefront and as related with these, textile and flour and cracked wheat factories has increased. With this situation, it can be stated that the potential of the region was revealed together with GAP which is one of the most important projects carried out by the state and that the region became open to new investments.

Despite all these positive developments and advances, when the socio-economic structure of the Southeastern Anatolia Region, including Şanlıurfa, compared to the western regions of the country, it is seen that the provinces and regions are lagging behind in the ranking regarding the development levels. This situation is caused by many different reasons. These reasons vary in subjects such as population, financial structures, education level and efficiency and prevalence in health services, infrastructure and especially income level. Steps to be taken regarding new investments are of great importance in regions at relatively lower levels in order to eliminate large differences in socio-economic development levels between provinces and regions. In other words, mobilizing production activities that will stimulate domestic and foreign trade; In this way, it can be used as an important tool to increase the quality of employment, infrastructure, income level and related services and to eliminate regional disparities.

**Table 1: Turkey and Sanliurfa Province Basic Indicators, Rank in 81 Province**

Index	Turkey TR	TRC2 Şanlıurfa	
	Data	Data	Ranking
Population 2019	83,154,997	2,073,614	8
The ratio of city population to the total population, 2019 (%)	92.8	100	1
Population density, 2019	108.05	110.5	23
Total age dependency rate, 2019 (%)	47.46	76.71	1
Median age, 2019	32.4	20.1	81
Annual population growth rate, 2019 (%)	13.94	18.4	12
Gender ratio, 2017 (%)	100.64	101.3	31
Net migration rate, 2019 (%)	-	-9.14	52
Literacy rate, 2018 (+6 age) (%) <sup>1</sup>	96.97	92.01	80
Number of students per teacher, 2018 <sup>2</sup>	18	23	1

Source: TURKSTAT.

<sup>1</sup> As of April 2020, 2018 data is provided by TURKSTAT.

<sup>2</sup> As of April 2020, 2018 data is provided by TURKSTAT.

The data of Şanlıurfa in TURKSTAT is given above. When the data in the tables are evaluated, the negative socio-economic data of Şanlıurfa are expected to show a positive change with new investments.

The World Health Organization (WHO) stated that pasta is an economic source, since individuals'

carbohydrate needs should be supplied as healthy carbohydrates found in pasta and therefore an important food in nutrition. Pasta is an exceptional source of nutrients and energy, as it is in the group of complex carbohydrates with a low glycemic index thanks to the minerals and vitamins contained in Durum Wheat itself. It contains vitamins A, B1 and B2, as well as iron, calcium, phosphorus, and is also a good source of protein.

Pasta Production Facility will add value to durum wheat, which is one of the most important and qualified agricultural products of the region, and will contribute to the income level of the region. With an export share and thanks to this it will be

an important investment to change the socio-economic situation in behalf of the region.

#### **4.2 Sectoral and / or Regional Policies and Programs**

The process of the gaining value of pasta production as an industrial area in Turkey has been started with the pasta production factory which was built in İzmir as of first in 1922. Industrial type of pasta production replaces the homemade pasta, which is known as noodles, has been happened by increasing the development and urbanization rates. With establishing the small and large factories over the years pasta production and trade volume of Turkey in the global market has gained an important place. Turkey has gained production volume over 1 million tons with established facilities that has high production capacity per daily in last 10 years. Basically this production divided into two branches as long cut pasta and short cut pasta type. Other type of classification is done according to its content and drying rate.

The food industry which has also pasta production as a part of itself is one of the sectors with the highest trade volume all over the world. According to international trade data, pasta is the 333th most traded product in the world.

(<https://atlas.media.mit.edu/en/profile/hs92/1902/>) According to the World Pasta Sector Statistics published by Milan-Italy based International Pasta Organization (IPO) in 2016, Turkey ranks as third after the Italy and United States in the production of pasta. Accordingly, 1,509,370 tons produced in 2016. (<http://www.makarna.org.tr/d/makarna-sektoru/sektor-raporlari/45/>)

#### **Table 2: World Pasta Production by Countries (Tons) in 2016**

<b>Italy</b>	<b>3,324,636</b>	<b>Canada</b>	136,000
<b>United States *</b>	2,000,000	<b>Colombia</b>	118,647
<b>Turkey</b>	<b>1,509,370</b>	<b>India</b>	100,000
<b>Brazil</b>	<b>1,235,842</b>	<b>South Africa</b>	91,000
<b>Russia</b>	1,075,404	<b>Belgium</b>	77,500
<b>Iran</b>	560,000	<b>Portugal</b>	76,500
<b>Argentina</b>	<b>402,565</b>	<b>Czech Republic</b>	70,000
<b>Egypt</b>	400,000	<b>Hungary</b>	66,000
<b>Mexico</b>	337,000	<b>Ecuador</b>	56,000
<b>Germany</b>	<b>335,600</b>	<b>Austria</b>	54,778
<b>Tunisia</b>	333,500	<b>Guatemala</b>	<b>54,626</b>
<b>Venezuela</b>	329,948	<b>Romania</b>	52,600
<b>Peru</b>	<b>296,504</b>	<b>Australia</b>	50,000
<b>Spain</b>	260,288	<b>Switzerland</b>	43,140
<b>France</b>	<b>233,522</b>	<b>United Kingdom</b>	35,000
<b>Greece</b>	<b>165,000</b>	<b>Costa Rica</b>	25,182
<b>Poland</b>	160,000	<b>Netherlands</b>	23,335
<b>Chile</b>	<b>149,550</b>	<b>Slovak Republic</b>	22,000
<b>Japan</b>	144,500	<b>Sweden</b>	20,200
		<b>Others</b>	182,635

Source: Survey carried out by I.P.O. and UN.A.F.P.A. - Data in bold are updated to December 2016

Source: International Pasta Organization, 2016

Turkey takes second place after the Italy with 831 thousand tons of pasta exportation to 152 countries. Although Italy ranks first in world exports, its exports to non-EU countries are at the level of 550 thousand tons.

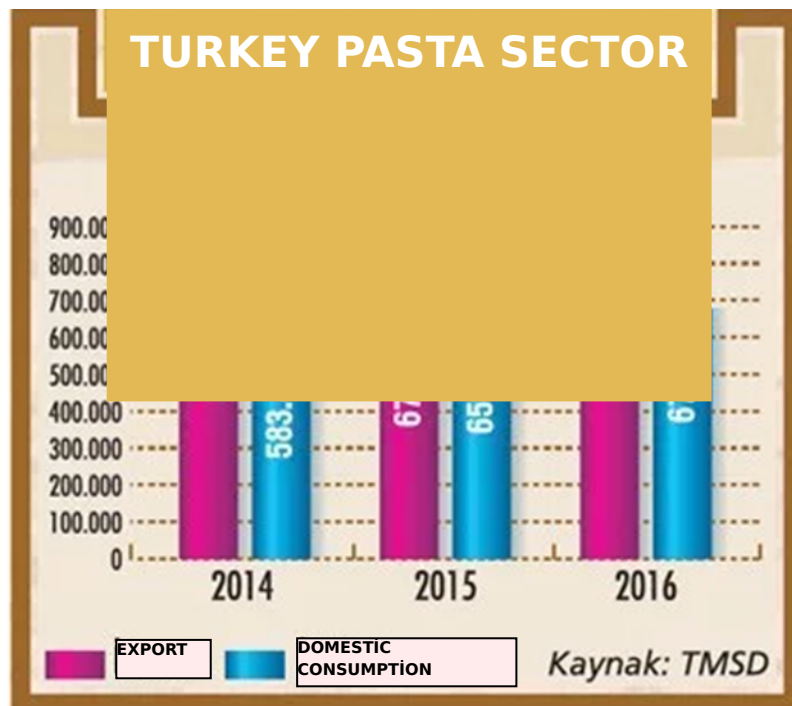


Figure 1 Turkey Pasta Sector

Turkey's three major exporting countries are Angola, Benin and Iraq. Among the countries of the European Union, Germany, Spain and the United Kingdom holds the top three in our exports. As it can be understood from the export regions, our country has an important position in pasta production worldwide and has the potential to export and diversify most of its production to different countries and regions.

As of 2016, 24 company (one of them has foreign capital) produce 1 ton and more pasta per day in our country. Despite this in Brazil which is the closest competitor in the nearest global production, this number is over 140. Considering that the number of production facilities is at the rate of one-seventh of its closest competitors, the importance of the raw material potential becomes apparent.

The production capacity of 24 large producers operating in our country is 2 million tons and as of 2017, 1 million 754 thousand tons of production has been realized. In 2017, our exports were 1 million 55 thousand tons and our domestic consumption was 700 thousand tons. In the same year, world pasta production was 14.6 million tons and approximately 9 billion dollars worth of pasta was traded. Turkey has carried out more than 10 percent at worldwide production of pasta In 2017.

The entry of turkish pasta manufacturers into the european union market is limited to 20 thousand tons because of the framework of the EC-Turkey association council. We have enough qualitated production capacity that is demanded by EU. Our pasta export to the large domestic market of the EU, where we have been in the customs union relationship for more than 20 years with the quota of 20 thousand tons, and which we carry out half of our foreign trade, remains very low.

Turkey is gene central of durum wheat which is the raw material and also largest cost item (85%) for pasta. Our country is 4th in the world ranking in durum wheat production, and as of 2017, it has produced 3.9 million tons.

Keeping pasta and bread wheat parity low in agricultural support purchases in recent years, giving high production supports to cotton, corn, lentils and similar products and also because of not determining the supports as meet the needs of the industry, durum wheat cultivation areas are decreasing. Planting areas are decreasing year by year in Southeastern Anatolia, which is especially suitable for quality wheat cultivation.

Our pasta industry supports agricultural employment through the production of durum wheat, which is used as a basic input as well as the employment of approximately 30 thousand people directly and indirectly, and contributes to the livelihood of thousands of farmer families.

Pasta factory and production in Turkey			
Name	City	Capacity	
		(day/ton)	(year/ton)
Nuh	Ankara	609	182,500
Nuh	Çankırı	72	21,600
Durum Gıda	Mersin	357	106,920
Beşler	Gaziantep	306	91,800
Barilla	Bolu	305	91,440
Tat	Gaziantep	280	92,400
Piyale	Sakarya-Hendek	252	75,600
Doğa	Gaziantep	225	67,626
Kombassan	Karaman	223	66,708
Selva	Konya	216	65,000
Mutlu	Gaziantep	203	60,894
Beslen	Gaziantep	190	57,000
Oba	Gaziantep	188	56,448
Pastavilla	İzmir	163	48,427
Türkmen	Çankırı	128	38,556
Berrak	Çankırı	102	30,600
Ddoyum	Burdur	96	28,642
Öğün	Gaziantep	95	28,500
Mer Gıda	Mardin	61	18,360
Yayla	Ankara	25	6,375
Dost	Çorum	22	6,523
Örnek	Gaziantep	15	4,500
Tuğ Gıda	Kayseri	10	3,000
Ece	Gaziantep	10	3,000
Total Capacity		<b>4,153</b>	<b>1,252,419</b>

*Figure 2 Pasta Factory and Production in Turkey*

Source: TMSD, Turkey pasta Sector, 2010

When this table is analyzed, it is seen that the most registered producers are in Gaziantep and in parallel the highest production capacity is realized in Gaziantep. Istanbul, Bursa, Ankara and Balıkesir while watching Gaziantep in the production capacity ranking, according to these records, it is seen that there are no registered producers in Şanlıurfa, where our investment plan will be realized. There are a total of 10 production facilities in Gaziantep and Mardin, which are the closest point to Şanlıurfa. As of 2010, 24 production facilities operating throughout the country produce 1.252.419,00 kg annually. According to data from previous years, more than half of this production is exported. At this point, production data related to Gaziantep can be seen as proof that the demand in the domestic and foreign markets is met with high production capacity. Therefore, it is seen that in the current situation pasta production facility, which will be built in Şanlıurfa, that has an internal market connection, will have a stimulating effect on the economy. Thanks to features such as pasta production and storage easily, low cost, high nutritional value and technology-oriented. The development of this sector, which creates an average of 84 jobs per production facility across the country, will also be an important source of solution to the region's unemployment and employment problems.



The two main issues for the development of food sector are a production facility which has high production capacity and the Access and efficiency of basic resources. Durum wheat which is the main raw material of pasta is a higher quality source when they growth in certain regions of Şanlıurfa, although it has the opportunity to grow in almost every region of our country.

#### **4.3 Institutional Structures and Legal Legislation (such as incentive and BOT legislation)**

Agriculture and agriculture-based industry is leading sector with the such sectors that are investment, textile, food, logistics, building materials and chemicals, renewable energy and tourism in Şanlıurfa. Pasta and semolina production is one of the priority areas among agriculture based industries.

Investments to be implemented in the region have been included in the Investment Incentive System with the publication of the "Decision on State Aid in Investments" in the Official Gazette. Dated June 19, 2012 and numbered 28328. There are various advantages such as tax deduction, customs tax exemption and VAT exemption for investments that comply with this legislation. In this system, which divides the provinces into 6 different regions according to their socio-economic development levels, the investments to be made in Şanlıurfa, which is among the provinces of the 6th Region, will have the highest support rate. Pasta Production Facility, which is researched within the scope of the project, is among the topics to be supported within the scope of regional incentive application.

For large-scale investments issued by the Ministry, and investments to benefit from regional supports, investment place can be allocated within the framework of the principles and procedures determined by the Ministry of Finance.

##### **Customs Tax Exemption**

Investment goods within the scope of all incentive certificates above the minimum fixed investment amount determined as 500.000 TL in the legislation for the province of Şanlıurfa will be exempted from the Customs Tax which must be paid in accordance with the Import Regime Decision. (Şanlıurfa Investment Support Office, <http://www.investsanliurfa.com/tesvik-ve-destekler/yatirim-tesvik-sistemi--584>). For example; If the Customs Duty applied for the machinery equipment with a value of 500,000 TL is 20% and the 100,000 TL will remain in the pocket of the investor with the incentive certificate to be obtained.

##### **VAT Exemption and Return**

Import and local deliveries of machinery and equipment to be made within the scope of the incentive certificate for investors with an incentive certificate above the minimum fixed investment amount determined as 500.000 TL in the legislation for Şanlıurfa province are exempt from VAT. (Şanlıurfa Investment Support Office, <http://www.investsanliurfa.com/tesvik-ve-destekler/yatirim-tesvik-sistemi--584>). To give an example, considering the investment of 500.000 TL of

machinery equipment within the scope of this production facility investment in Şanlıurfa: 90,000 TL is left in the pocket of the investor with the exception of 18% VAT to be applied.

#### Tax Discount

Income or institutions within the framework of article 32 / A of Law No. 5520 for investors with an incentive certificate over the minimum fixed investment amount determined as 500.000 TL in the legislation for Şanlıurfa province. The tax is applied with the discount and investment contribution rates stated in the table below until the investment contribution amount is reached. Accordingly, 50% of the fixed investment amount will be applied for investments outside the OIZ and 55% for the investments within the OIZ. In the application of this article, the amount of the contribution to the investment expresses the amount of the investments to be covered by the State through the tax that has been discharged by applying corporate income tax, the ratio to be found by dividing this amount by the total investment made refers to the contribution rate to the investment. (Şanlıurfa Investment Support Office, <http://www.investsanliurfa.com/tesvik-ve-destekler/yatirim-tesvik-sistemi--584>)

#### Insurance Supports

Insurance supports applied for investments in the region are divided into two as employer and employee share. Social security premium worker share calculated over the legal minimum wage amount for additional employment provided by investment is paid by the government and is only applied in 6th Region supports. Employer's share of social insurance premium calculated over the legal minimum wage for additional employment provided for investments is provided to paid by the Government (T. C. Presidential Investment Office, <http://www.invest.gov.tr>)

**Table 3: Within the Scope of Regional Incentive Practices VI. Support Elements, Rates and Periods in the Region**

VAT exemption			■
Customs Tax Exemption			■
Tax Discount	Contribution Rate to Investment (%)	Out of OIZ	50
		Inside OIZ	55
	Corporate Tax or Income Tax Discount Rate (%)		90
Insurance Premium Employer Share Support		Out of OIZ	10 years
		Inside OIZ	12 years
Investment Location Allocation			■

Interest Support	Internal Loan	7 Point
	Foreign Currency / Foreign Currency Indexed Loan	2 Point
Insurance Premium Worker Share Support		10 years
Income Tax Withholding Support		10 years

Source: T.C. Presidential Investment Office, <http://www.invest.gov.tr>

This investment subject, which is among the main sectors to be supported in the region and activities in line with the incentive system, is capable of activating a development process in line with the regional institutional structures and the incentive policies implemented across the country.

#### **4.4 Source and Eligibility of the Project Idea**

TRC2 Region is an area open to development with projects supported by both public and private sectors. By developing efficient methods of the existing resources of the region, their resources can be contributed to the economy in a way to create added value. In the region that the main economic source is agriculture, the highest quality wheat of our country is produced. Also this situation has attracted the attention of foreign investors who came to Turkey to do researches.

In our country which is among the leading countries in production and export rates in the pasta the demand still continues for a production facility that has a daily production capacity to meet the pasta needs of the geography that facilities placed in and wider regions. An investment to be made in the pasta sector, which is among the fastest growing sectors in the world, will be among the investments that will provide the highest contribution to the regional economy with the fact that durum wheat is among the important agricultural resources of the region and with an increasing consumption amount each year.

##### **4.4.1 Eligibility of the Project for Sectoral and / or Regional Development Purposes (Policies, Plans and Programs)**

Pasta sector is one of the sectors with the highest production and consumption volume worldwide. Sector volume has started to grow especially after the World war II. in the territory of Italy. The place that in our country's market and foreign market of this sector is quite wide. Although pasta production has decreased with the general economic recession that has been accompanied by the international crises from time to time, it has gained an acceleration in the world in recent years. The world in which production and consumption momentum is open to the general development of the sector and in line with Turkey's production and exports is seen that hosts the potential to rise to a higher rank.

Global productivity in wheat, which is the main source of pasta production and an industry branch based on durum wheat, has been at the highest level in recent years. Thus, according to the Grain Board Office 2017 Grain Report, global wheat production in the period of 2017/18 increased to 758 million tons, that is the

highest value in history, with an increase of approximately 4 million tons compared to the previous period thanks to its high yield (3,5 t / ha).

(<http://www.tmo.gov.tr/Upload/Document/hububat/HububatRaporu2017.pdf>) In our country, despite the decrease in cultivated wheat fields, no net decrease was observed in wheat production amount; yield rate increased. Şanlıurfa, which is the province where the investment is planned to be realized, is the province with the highest share in wheat production after Konya, Diyarbakır and Ankara, as can be seen from the table below.

**Table 4: Wheat Production According to Provinces (ton)**

Cities	2013		2014		2015		2016		2017	
	quantity	%	quantity	%	quantity	%	quantity	%	quantity	%
Konya	2,291,930	10.39	1,905,300	10.03	2,554,256	11.30	2,045,298	9.93	2,192,410	10.20
Diyarbakır	1,248,686	5.66	1,076,609	5.67	1,192,796	5.28	1,151,524	5.59	1,129,383	5.25
Ankara	1,153,980	5.23	817,110	4.30	1,150,555	5.09	1,205,676	5.85	1,090,500	5.07
Sanliurfa	1,215,004	5.51	867,558	4.57	1,087,746	4.81	917,545	4.45	1,044,645	4.86
Tekirdağ	631,164	2.86	737,284	3.88	744,257	3.29	825,714	4.01	882,674	4.11
Mardin	748,813	3.40	727,995	3.83	795,245	3.52	702,032	3.41	833,009	3.87
Yozgat	776,657	3.52	644,926	3.39	830,939	3.68	734,593	3.57	699,052	3.25
Adana	704,481	3.19	583,417	3.07	730,873	3.23	621,872	3.02	690,411	3.21
Corum	487,172	2.21	432,630	2.28	622,946	2.76	607,956	2.95	581,078	2.70
Sivas	671,159	3.04	497,328	2.62	751,925	3.33	578,709	2.81	569,158	2.65
Kirklareli	439,110	1.99	521,985	2.75	412,341	1.82	475,796	2.31	552,431	2.57
Eskişehir	548,828	2.49	368,394	1.94	498,223	2.20	580,788	2.82	546,296	2.54
Edirne	508,624	2.31	618,207	3.25	488,125	2.16	522,970	2.54	505,460	2.35
Afyon	432,353	1.96	357,748	1.88	484,527	2.14	397,191	1.93	454,010	2.11
Other Cities	10,192,039	46.22	8,843,509	46.54	10,255,246	45.38	9,232,336	44.82	9,729,483	45.25
Total	22,050,000	100.00	19,000,000	100.00	22,600,000	100.00	20,600,000	100.00	21,500,000	100.00

Source: Wheat Report 2018, Chamber of Agricultural Engineers & TURKSTAT

In addition to Şanlıurfa, Mardin and Diyarbakır are also important wheat producers. this situation that is being to near regions, which is provide raw materials for pasta, will provide a chance to gain a place in domestic and foreign markets with adding value of region's sources and will show it's cost will be low and quality will be high.

Using the resources obtained from the region to add value to the region show the availability to Regional plans of institutions such as GAP, Karacadağ Development Agency, where Şanlıurfa is located, with the 10th Development Plan and lower-scale programs.

#### **4.4.2 Relation of the Project to Past, Ongoing and Other Planned Projects**

Şanlıurfa Chamber of Commerce and Industry, with the participation of local and international sector employees and representatives in the region, conducts investment analysis in addition to activities such as meetings, seminars and large-scale conferences for the development of trade. The Şanlıurfa Chamber of Commerce and Industry, which has held joint meetings with representatives of different public institutions and organizations and private sector, will realize an investment feasibility associated with the activities carried out so far with this project.

Pasta industrialists association of Turkey carries out joint projects such as agricultural research and policy with the general directorate for the development of the sector.

#### **4.4.3 The relationship of the project with other institutional projects**

##### **a) Other institutional projects that must be taken simultaneously with the project**

There are no other institution projects that need to be taken simultaneously with the project.

##### **b) Precautions to avoid physical conflicts with another institution project in the project**

As a result of the researches carried out by Şanlıurfa Chamber of Commerce and Industry in consultation with other institutions and organizations, it was understood that there is no other investment planning for the establishment of pasta production facility in our city and there will be no conflict.

#### **4.4.4 Eligibility of the Project to the Strategic Plan and Performance Program of the Administration**

In line with the 2019-2023 Strategic Plan targets of the Şanlıurfa Chamber of Commerce and Industry, stakeholder workshops were held and strategic goals were determined and these goals are as follows:

- 1.1 Developing new services,
- 1.2 Improving the institutional infrastructure and competencies,
- 2.1 Ensuring specialization in strategic service sectors and accelerating growth,
- 2.2 Making agricultural production a competitive structure,
  - 2.2.1 To develop projects for the highest utilization of the province's agricultural potential,
  - 2.2.3 Working to ensure food safety,
- 2.3 Industry development and transition to value added production structure,
- 2.4 Sustainable resource management,
- 2.5 Increasing the competitiveness of SME's and supporting entrepreneurship,
- 2.6 Improving the business and investment environment,
- 3.1 Development of activities for members,
- 3.2 Development of promotional activities.

2.2.1 Developing projects for the highest utilization of the agricultural potential of the province within the scope of the strategic plan of the administration, 2.2.3 Studies to ensure food safety, 2.3 Industry development and transition to value added production structure and 2.6 Strategic objectives of improving the business and investment environment, After the preparation of the Pasta Production Facility Feasibility Report, it is among the targets to be contributed with the establishment of the facility. The facility to be established will improve the agricultural potential of the province and contribute to the production of value added products. Investigation of new markets and market entry conditions with this export-oriented investment and an investment in accordance with the strategic plan will be made in the region by utilizing state supports within the scope of export and export oriented activities. In this direction, it can be stated that this report is compatible with the strategic plan and objectives of the administration.

#### **4.4.5 The Emergence of the Project Idea**

According to the 2018 sectoral evaluation panel's final report of the national grain council, Turkey exports 5 million tonnes of processed wheat based products, that are 3,5 million tons of flour each year(the first in the World), 1 million tons of

pasta, 250 thousand tons of bulgur wheat and 250 thousand tons of other products.

The basis of the project idea is the region's potential for the food industry. With the GAP, as a result of the increase in the added value in agricultural production, the food industry based on agriculture has started to develop in the region. At this point, having suitable climate for wheat and barley production has facilitated the supply of semolina obtained from durum wheat which is the main raw material of pasta production

#### **4.4.6 Studies, Research And Other Studies That Made In The Past Related To The Project**

Şanlıurfa Chamber of Commerce and Industry integrated stakeholder analysis and SWOT analysis methods into the strategic plans to evaluate the strengths and weaknesses and opportunities and threats of the region, institution and stakeholders. Although these studies carried out by ŞCCI are not directly related to the establishment of the pasta production facility, they have played a role in the emergence of the project idea since it includes analysis focused on investment, production and export.

### **5. Justification of The Project**

Pasta Production Facility is planned to be implemented in accordance with the regional resources. Within the scope of these resources, analysis and planning of current and future national and regional demands were carried out.

#### **5.1 Demand Analysis at National and Regional Level**

Pasta production is an industry branch with a high demand in the food sector for many years. The main factors in high demand are associated with the availability of pasta in every culture, ease of access and cooking, nourishment and cheapness. Pasta, enriched with sauces prepared with different ingredients, is accepted as an important nutrient in every area of food consumption from houses to luxury restaurants.

When Turkey's pasta industry examined, it is seen that Turkey's production rates are at the top rows thanks to quality, efficiency and production of durum wheat which is used for production of Semolina that is the main raw material of Pasta.

Increasing pasta production and consumption throughout the world has improved with the pasta production facilities established in Italy with the end of the Second World War. With the development of pasta production technologies and the orientation of the production lines from manual and long-term production to automation, the production rates have also gained a significant momentum. According to the data in the report prepared by the International Pasta Organization (IPO) in 2016, in all over the world more than 14 million tons of pasta was produced in 2016. The majority of this production are covered by mainly in Italy, Turkey, Brazil, Russia and the US. According to the report prepared by IPO, when the production amounts of the countries are examined; It is seen that in 2016, Italy was in the first place with 3 million 324 thousand 636 tons of

production. The US watching the Italy that is the world's largest pasta producer with 2 million tons of pasta and Turkey ranks third with a production of 1 million 509 thousand 370 tons of pasta. In sorting while Brazil watching the Turkey with 1 million 235 thousand tons, Russia takes the fifth place with 1 million 75 thousand tons of pasta production.

In parallel with these production rates, pasta consumption is increasing year by year. Thanks to easy to cook, cost-effective food, having high nutritive grain in it and being a meal that can be prepared with a variety of sauces to suit the palate and culinary habits of different cultures. The country where the average pasta consumption per capita is the most intense is Italy which is also a leader in production. Pasta consumption per capita in Italy is 26 kilograms. Turkey ranks 10th with per capita consumption of 8.5 kilograms. Researches on this situation explain that the consumption levels in our country are at lower levels despite the production, thus the variety of sauces that add richness to pasta are not widespread in kitchens.

Despite the high level of production and consumption rates, it is seen that supply has not been realized in a way to meet the demands within the scope of global demand. In this case, import and export values can be shown as confirmatory sources. Pasta is the 330th most exported product in the world with 9,2 billion USD global export total. Italy, which is the most important actor of the market with its production and consumption values, is also a leader in exports with a market share of 28% compared to 2017 figures. Turkey watching the Italy by dint of exporting much of its production thanks to low level of consumption values despite the high level of production capacity rankings. In addition to the balance in the relationship between production and consumption, also Turkey's location bringing into prominence to do trade with many countries such as Europe, Africa etc. USA, Belgium and China are other important actors in pasta export.

The main obstacles for this situation although to make more production with using the raw material which Turkey has in the present and gaining export income more:

- The scarcity of high capacity production facilities,
- Few studies on pasta product diversification and marketing,
- Failure to study target markets and their entry conditions in detail

Can be listed as above.

According to Pasta Manufacturers and Industrialists Association's January-June 2019 Sector Report, when compared to the same period of the previous year, pasta exports were 613 thousand tons with an increase of 4.2% in the first 6 months of 2019 and as a value it reached to 287 million dollars with an increase of 2,9%. While the average unit price per ton was \$ 475.31 in the first six months of 2018, the unit price fell by 1.7% to \$ 467.40 in the same period of 2019.



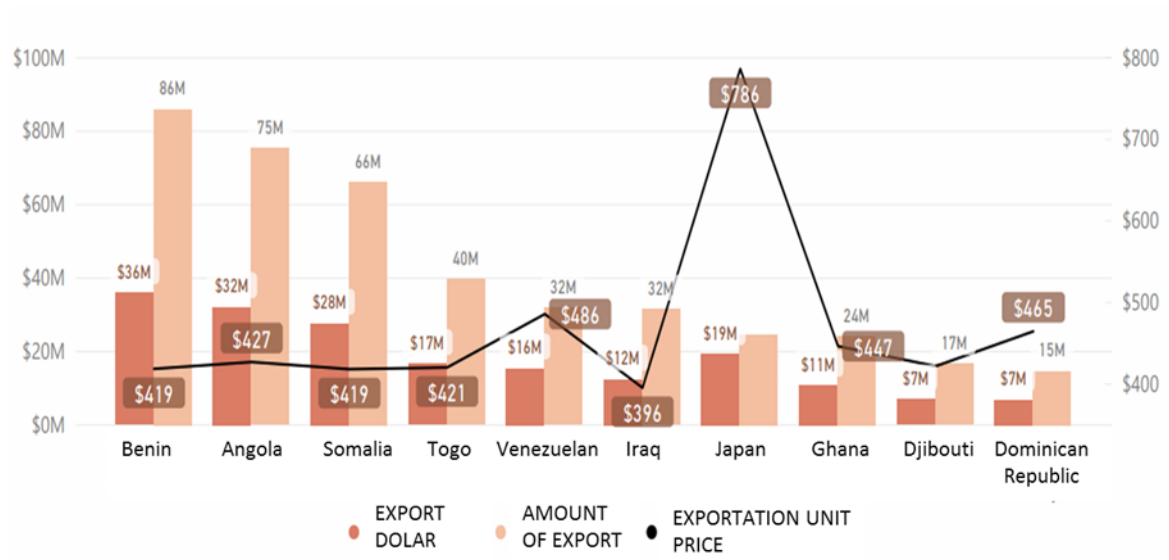


Figure 3 January-June Pasta Exporting 2019

January-June 2019 (<http://musad.org/wp-content/uploads/2019/08/musad-rapor-2Q.pdf>)

In January-June period of 2019, the highest amount of exports was made to Benin with 86 thousand tons and Angola and Somalia follow this country. While the same countries share the top three in exports in dollar terms, Japan, which ranks 7th with 24.7 thousand tons of exports, ranks 4th in dollar terms.

#### EXPORT VALUE BY YEARS (USD)

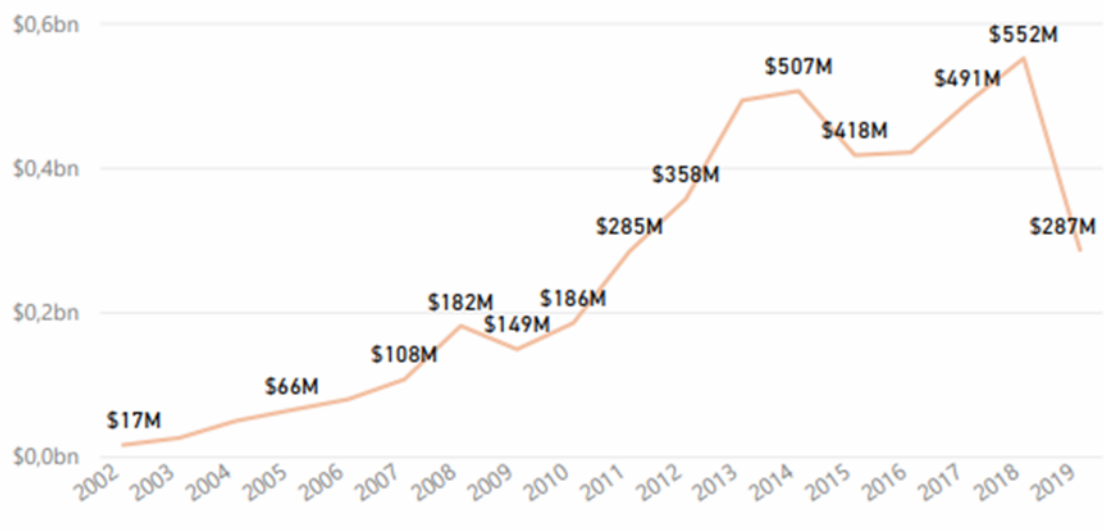


Figure 4 Export Value by Years (USD)

The 2019 data on the graph shows only the first 6 months period.

Monthly export development has been on an increasing trend since 2002, although it has decreased in some months.

#### EXPORT AMOUNT BY YEARS (KG)

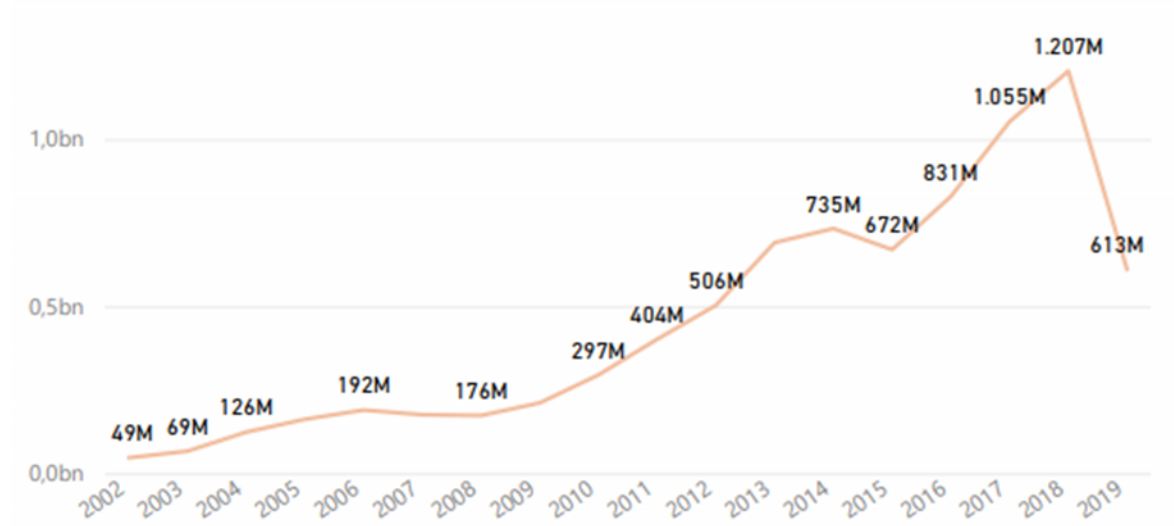


Figure 5 Export Amount by Years (KG)

In the 12 months of 2018, 1.2 million tons of pasta were exported. This amount is the highest annual export amount made so far. In the first month of 2019, it is observed that 613 thousand tons export amount was achieved.

The average unit price per ton, which was 256 dollars in January-June 2018 period, increased by 8.2 percent in the same period of 2019 and reached 277 dollars. The figures show that in the first six months of 2019 we paid more foreign currency for durum wheat import, on the other hand, it shows that we export the pasta that we produce from wheat that we import more expens.

UNIT SALES PRICE IN COUNTRIES EXPORTING MORE THAN 20 THOUSAND TONS IN 2018			
COUNTRY	EXPORT (TON)	EXPORT SHARE	UNIT VALUE \$/TON
Italy	1,733,027	40.30%	1,098
Turkey	1,156,287	26.90%	455
Spain	104,441	2.40%	789
Belgium	94,681	2.20%	917
Iran, Islamic Republic of	86,048	2.00%	773
Mexico	60,668	1.40%	802
Egypt	59,304	1.40%	1,000
Greece	53,052	1.20%	849
Cote d'Ivoire	48,431	1.10%	579
Peru	38,104	0.90%	756
Saudi Arabia	34,197	0.80%	1,795
Czech Republic	29,280	0.70%	704
United Arab Emirates	29,102	0.70%	905
Latvia	24,721	0.60%	619
Russian Federation	24,685	0.60%	674
Guatemala	22,979	0.50%	905
Argentina	22,774	0.50%	553
*Noodles etc. exporters are excluded			

Figure 6 Unit Sales Price in Countries Exporting More Than 20 Thousand Tons in 2018

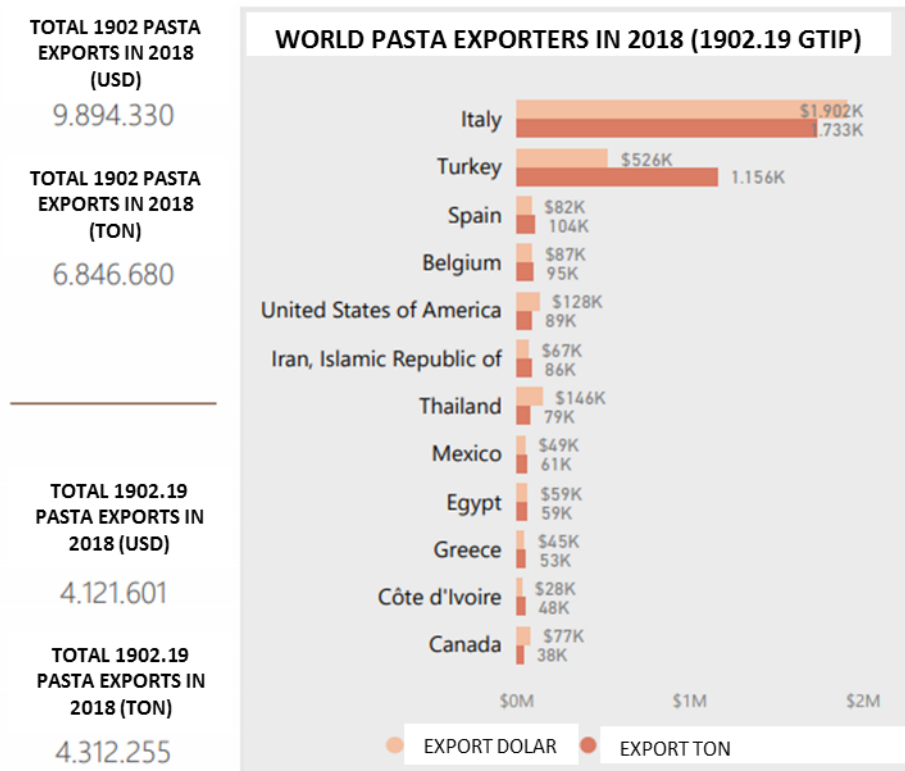
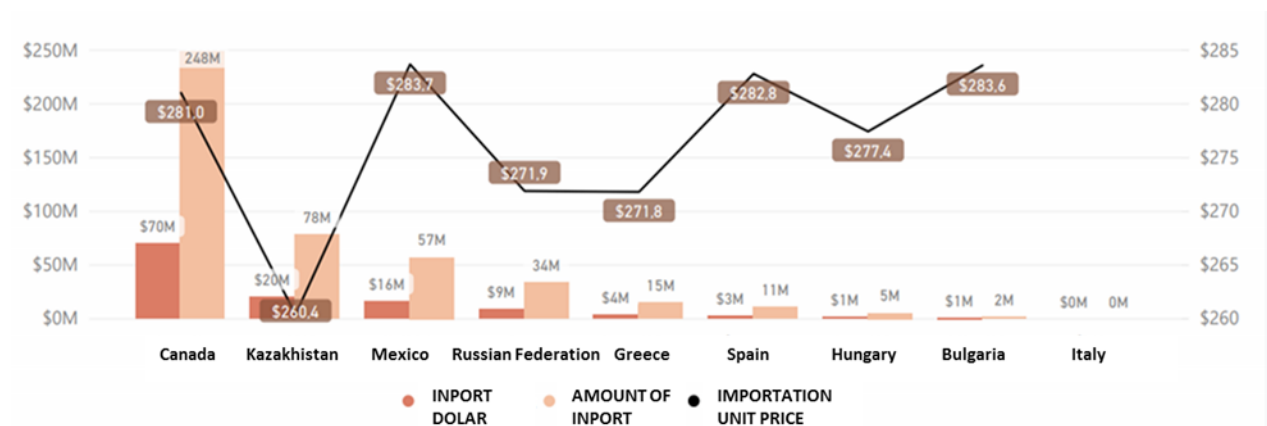


Figure 7 World Pasta Exporters in 2018 ( 1902.19 GTIP)

According to Trademap data although Turkey is in the second row after Italy with the 26,9% share in 2018 in the 1902.19 GTIP pasta export, it ranks last among the countries despite exporting more than 20 thousand tons with an export value of 455 dollars/ton.

Despite the Turkey make production of wheat that is adequate for yearly production, the production deficit in durum wheat needed in pasta production is covered by imports. The import of durum wheat was realized as 451 thousand tons in the first six months of 2019, with an increase of 47 percent in quantity compared to the same period of the previous year, and was realized as 124.9 million dollars with an increase of 59.1 percent in value.



*Figure 8 Country Wheat Imports by Country - January-June 2019*

In January-June 2019, the highest amount of durum wheat is made from Canada with 248 thousand tons and 70 million dollars, Kazakhstan and Mexico follows this country.

UNIT PURCHASE PRICE IN COUNTRIES IMPORTING MORE THAN 55 THOUSAND TONS IN 2018			
COUNTRY	IMPORT (TON)	IMPORT SHARE	UNIT VALUE \$/TON
United States of America	358,157	8.60%	1,674
Germany	340,339	8.20%	1,077
France	312,073	7.50%	977
Angola	219,224	5.30%	404
Japan	168,883	4.00%	1,415
Benin	155,159	3.70%	407
Somalia	128,708	3.10%	429
United Kingdom	120,198	2.90%	1,078
Korea, Republic of	111,070	2.70%	1,248
Canada	109,675	2.60%	1,438
Venezuela, Bolivarian Republic of	90,441	2.20%	559
Iraq	89,521	2.10%	632
Togo	87,913	2.10%	413
Netherlands	81,585	2.00%	1,223
Belgium	66,179	1.60%	1,253
Hong Kong, China	56,539	1.40%	1,422
Russian Federation	55,229	1.30%	1,129

Figure 9 Unit Purchase Price in Countries Importing More Than 55 Thousand Tons in 2018

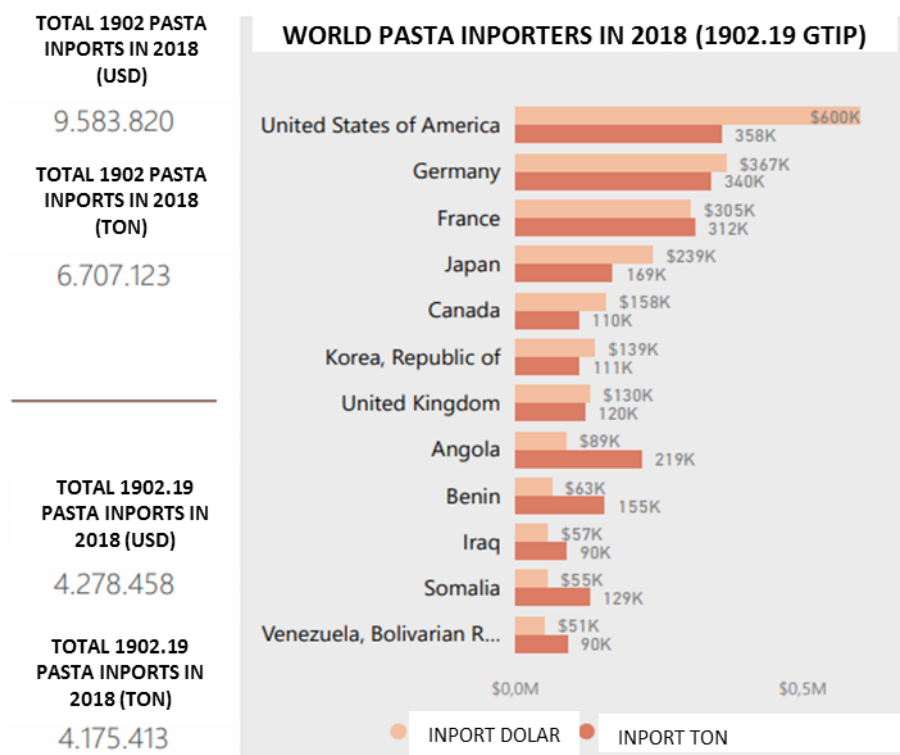


Figure 10 World Pasta Market Importers

According to Trademap data, USA ranks first in pasta import with 1902.19 GTIP with a share of 8.6%. The second largest importer country is Germany with 340

thousand tons and the third country is France with 312 thousand tons. Angola which the Turkey exports approximately 160 tons of pasta in 2018 is the fourth largest importer country.

## **5.2 Estimating Future Demand at the National and Regional Level**

In addition to qualified investments, the main determinants of the growth of the pasta production sector are the area where the wheat, which is the raw material of pasta production, is planted and the yield obtained. Data regarding the cultivated area and yield of durum wheat in terms of decare starts from 1988 and these rates provide a basis for growth scenarios.

**Tablo 5: Turkey Wheat Planted Area by the year 1998-2018, Production and Yield**

Cereals, 1988-2018				
	Buğday - Wheat			
	Toplam	Toplam	Durum	Diger
	Total	Total	Durum	Other
Planted Area(Dekar)				
1988	138 169 250	94 350 000	-	-
1989	137 408 950	93 510 000	-	-
1990	137 106 150	94 500 000	-	-
1991	139 718 400	96 300 000	-	-
1992	139 339 450	96 000 000	-	-
1993	141 982 950	98 000 000	-	-
1994	141 445 500	98 000 000	-	-
1995	138 164 700	94 000 000	-	-
1996	139 460 300	93 500 000	-	-
1997	139 724 730	93 400 000	-	-
1998	140 747 000	94 000 000	-	-
1999	139 257 430	93 800 000	-	-
2000	139 626 380	94 000 000	-	-
2001	139 073 550	93 500 000	-	-
2002	137 856 500	93 000 000	-	-
2003	134 136 000	91 000 000	-	-
2004	138 325 850	93 000 000	21 000 000	72 000 000
2005	138 932 410	92 500 000	20 000 000	72 500 000
2006	130 415 623	84 900 000	15 100 000	69 800 000
2007	124 030 395	80 977 000	13 545 000	67 432 000
2008	119 899 739	80 900 000	13 400 000	67 500 000
2009	120 677 087	81 000 000	13 350 000	67 650 000
2010	121 002 714	81 034 000	13 340 000	67 694 000
2011	119 034 352	80 960 000	13 380 000	67 580 000
2012	112 933 013	75 296 394	11 900 357	63 396 037
2013	115 403 221	77 726 000	12 786 000	64 940 000
2014	117 265 268	79 192 084	12 824 636	66 367 448
2015	117 132 230	78 668 874	12 737 734	65 931 140
2016	114 652 688	76 719 448	12 386 724	64 332 724
2017	111 080 325	76 688 785	12 369 119	64 319 666
2018	108 991 783	72 992 701	12 021 006	60 971 695
Production (Ton)				
1988	30 893 694	20 500 000	-	-
1989	23 498 600	16 200 000	-	-
1990	30 201 369	20 000 000	-	-
1991	31 147 655	20 400 000	-	-
1992	29 157 250	19 300 000	-	-
1993	31 749 450	21 000 000	-	-
1994	27 014 400	17 500 000	-	-
1995	28 183 560	18 000 000	-	-
1996	29 343 100	18 500 000	-	-
1997	29 760 575	18 650 000	-	-
1998	33 186 972	21 000 000	-	-
1999	28 885 720	18 000 000	-	-
2000	32 248 694	21 000 000	-	-
2001	29 570 560	19 000 000	-	-
2002	30 830 650	19 500 000	-	-
2003	30 806 800	19 000 000	-	-
2004	34 153 910	21 000 000	5 000 000	16 000 000

2005	36 471 600	21 500 000	4 500 000	17 000 000
2006	34 642 986	20 010 000	3 500 000	16 510 000
2007	29 256 990	17 234 000	2 709 000	14 525 000
2008	29 287 281	17 782 000	2 782 000	15 000 000
2009	33 577 151	20 600 000	3 740 000	16 860 000
2010	32 772 550	19 674 000	3 450 000	16 224 000
2011	35 202 073	21 800 000	3 850 000	17 950 000
2012	33 377 430	20 100 000	3 300 000	16 800 000
2013	37 489 268	22 050 000	4 075 000	17 975 000
2014	32 714 157	19 000 000	3 300 000	15 700 000
2015	38 637 138	22 600 000	4 100 000	18 500 000
2016	35 281 164	20 600 000	3 620 000	16 980 000
2017	36 132 767	21 500 000	3 900 000	17 600 000
2018	34 408 699	20 000 000	3 500 000	16 500 000
Yield (Kg / Dekar)				
1988	.	217	-	-
1989	.	173	-	-
1990	.	212	-	-
1991	.	212	-	-
1992	.	201	-	-
1993	.	214	-	-
1994	.	179	-	-
1995	.	191	-	-
1996	.	198	-	-
1997	.	200	-	-
1998	.	223	-	-
1999	.	192	-	-
2000	.	223	-	-
2001	.	203	-	-
2002	.	210	-	-
2003	.	209	-	-
2004	.	226	238	222
2005	.	232	225	234
2006	.	236	232	237
2007	.	213	200	215
2008	.	220	208	222
2009	.	254	280	249
2010	.	243	259	240
2011	.	269	288	266
2012	.	267	277	265
2013	.	284	319	277
2014	.	240	257	237
2015	.	287	322	281
2016	.	269	292	264
2017	.	280	315	274
2018	.	274	291	271

Source: TURKSTAT

In the light of this data, half of the planted area decreased from 2004 to 2018 and production is seen to decrease around 22%. Despite this, no decrease in yield was observed with technological developments and improvement of irrigation processes, but it was seen that it reached the highest levels of recent years. The durum wheat, which is produced with its hard structure and high protein content, is used as the main raw material of not only pasta but for bulgur and couscous. The future demand will arise within the scope of the increase in

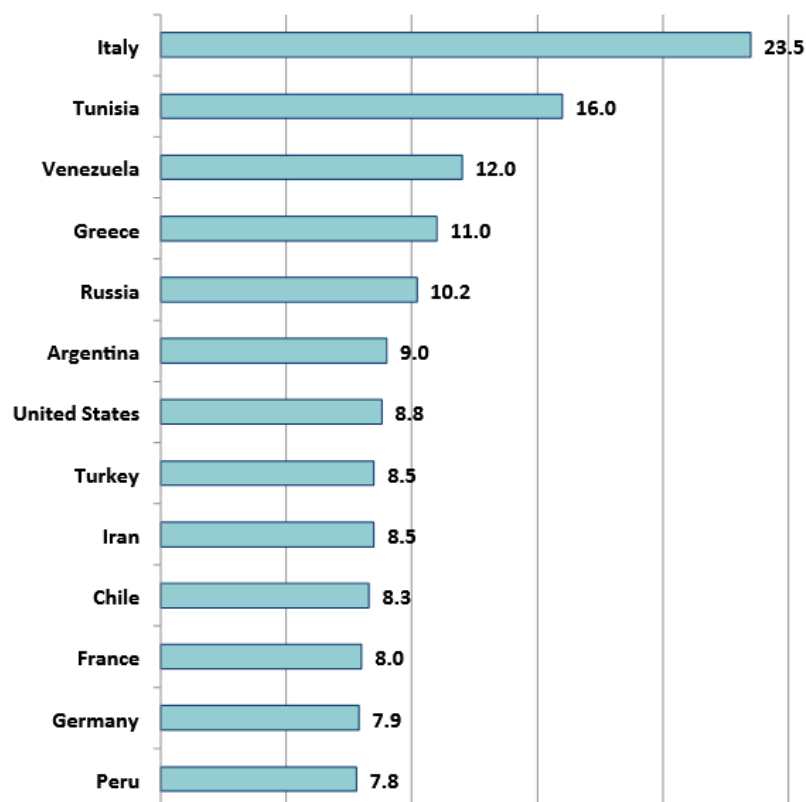


the production and productivity of durum wheat, which makes pasta quite nutritious, and the state of the domestic market.

- Future development potential of demand and forecast of demand.
- Assumptions, studies and methods used as a basis for demand forecasts (simple extrapolation, model etc.)

Pasta consumption is increasing year by year although increasing in exportation can not be captured for domestic consumption in Turkey. In recent years, in order to increase the consumption of pasta, sector representatives have been working intensively. As a result of this work in 2016, per capita consumption of pasta in Turkey has reached its highest level of all time with 8.5 kilograms. Annual consumption per capita in the world reaches 15 kilograms but pasta consumption in our country is below the world average. Italy ranks first with a consumption of 23.5 kilograms per person. According to the information given by Turkey pasta manufacturers association, in the short term of per capita pasta consumption in Turkey is planned to be increased to 10 kilograms.

**Table 6: Pasta Consumption Per Capita By Country (kg)**



*Source: Survey carried out by IPO and UN.A.F.P.A. – 2016*

## **6. SHORT CUT PASTA SALES-PRODUCTION PROGRAM**

### **6.1 Sales Program**

If the pasta production facility with a daily production capacity of 48 tons operates at full capacity, an annual production will arise as around 17,000 tons. These products, which will be packed in the production facility, will be sent for sale in the domestic and foreign markets. The capacity of investment property was determined by considering the average capacity of the pasta plant in Turkey.

### **6.2 Production Program**

High capacity production lines have 24-hour operation features. This feature is a must since it requires a warm-up phase of at least 3-4 hours during the first run of the production line. Otherwise, it will not be possible to obtain high efficiency from the production line and additionally, energy costs will increase in each closing and opening phase. For this reason, the production facility is planned to operate for 24 hours with the creation of shift working conditions. Within the scope of this planning, 3 shifts per day are foreseen. There will be an operator and assistant responsible for programming the machine in each shift. When the products to be produced on the production line reach the final stage, it is determined that there should be a master and an assistant worker to perform the classification by preventing accumulation in front of the line.

### **6.3 Marketing Strategy (pricing, promotion and distribution)**

Pasta that will be produced in different ways is priced by considering production costs and market pricing and it is planned to be offered to the consumer in 500 gram packages.

## **7. PROJECT LOCATION / APPLICATION AREA**

### **7.1 Physical and Geographical features**

- Geographical Settlement

Şanlıurfa is located in the Southeastern Anatolia Region of our country and in the Middle Euphrates Department. Mardin is located in the east of Şanlıurfa, Syria is in the South, Gaziantep is in the West, Adıyaman is in the northwest and Diyarbakır is in the North of Şanlıurfa. Total area is 18,765 sq km, and ranks 7th in the overall ranking of the area in Turkey.

The highest point of the city is Karacadağ with 1938m. The altitude of the city center is 550 meters. Şanlıurfa, which is located in the north of the region called Mesopotamia in history, has wide flat areas, shows 60.4% of its plateau, 22% is mountainous, 16.3% is plain and 1.3% is highland character.

Şanlıurfa, which is located between 37°16' north latitudes and 38°09' east longitudes, constitutes TRC2 Region between 26 Level 2 Regions with Diyarbakır.

- Climate (yağış oranı, nem, sıcaklık, rüzgâr vb.)

Continental climate is dominant in Şanlıurfa likewise in general of Turkey. In this context, summers are very hot and dry while winters are cold and rainy. At the same time, daily and annual temperature differences are quite high. Average annual precipitation is calculated as 462 mm In Sanliurfa. Average temperature is 18.6 ° C, relative humidity is 48%, evaporation is 2.048 mm, wind speed is 2.8 m / s.

- Information on soil and land structure

In the studies carried out within the scope of the Şanlıurfa Provincial Development Plan (2002), Şanlıurfa land has been divided into 3 main ecologic area categories according to climate, land form, soil structure and with 60.4% fluctuation, 22% mountainous, 16.3% plain, 1.3% plateau characteristics features. The altitude decreases as you go south from Karacadağ which is the highest point of the region. Other mountains of the region are Tektek Mountains, Takirtukur Mountains, Susuz Mountains, Germus Mountains, Nemrut Mountains, Sebeke Mountains and Arat Mountains. Suruç Plain, Harran Plain, Viranşehir-Ceylanpınar Plain. In addition, Halfeti, Hilvan and Bozova Plains are important plains.

The effects of lava erupting from Karacadağ that is a volcanic mountain on the soil can be seen.

- Flora

Şanlıurfa, where the continental climate prevails and the summer is quite hot and dry, is relatively poor in terms of vegetation. After the cold of winter passes, chamomile, poppy, crocus, thyme, thistle, wild wheat, yellow flower, etc. summer flowers flourish and disappear with increasing temperatures. Larger trunk trees such as Poplar, Willow, Oak, Hawthorn, Bonito trees can be seen around the streams and other wetlands.

- Water Resources

Şanlıurfa province, which is a part of the Southeastern Anatolia Project, is located in the euphrates river valley and is located in a fertile region in terms of soil and water resources. The Euphrates River enters the Şanlıurfa lands near Maktalan, that is near Dağbaşı District/Siverek district, and reaches the Syrian lands after determining the border between Adıyaman and Gaziantep. Atatürk, Karakaya and Birecik Dams are the most important dams built on the Euphrates River in this region. Rains of the region in winter flow to Hacıhıdır Stream in Viranşehir and Pine Stream, Brownie Stream, Hamdun Stream, Beşkardeş Stream, Çak Stream Curcup Stream, Sesik Stream, Şavelat Stream in Siverek.

D.S.İ XV. It was determined by the Regional Directorate that Şanlıurfa has a water source of 32536 hm<sup>3</sup> / year.

- Other Natural Resources

Thermal water source in Karaali village, which is 45 km away from Şanlıurfa city center, is used to obtain geothermal energy and studies are carried out to expand its usage area. The solar energy potential of Şanlıurfa is quite high in direct proportion to the sun's rays received by the region. It can be added the advantages of renewable energy of the city. The production facility can be built with a renewable solar power plant.

Its main mines and mineral resources are; phosphate, brick-tile and cement.

## **7.2 Economic and Physical Infrastructure (accessibility to raw material resources, transportation and communication system, water-electricity-natural gas networks, land use, sub-industry, distribution and marketing opportunities etc.)**

Şanlıurfa Organized Industrial Zone, where the production facility will be located, consists of three sections. The first part covers 378 hectares. The infrastructure of SUOIZ has been completed as electricity, water, natural gas, road, treatment plant. Usage of drinking water of OIZ was taken to the 500 m promotion building with a transmission line from Şanlıurfa Municipality and taken to 2500 metre cube tanks, 6500 metre cube and 12 km line and distributed to factories with HDPE pipes. General cleaning of the OIZ and the cleaning of the rain water channels are done regularly.

## **7.3 Social Infrastructure (population, employment, income distribution, social services, cultural structure)**

According to the 2018 ABPRS data, 2,035,809 people live in Şanlıurfa. The population density of the city is 105 people per km<sup>2</sup> and the annual population growth rate is 25 per thousand. The population of TRC2 Region in general is 3.768.205. Population distribution table by district is as follows:

**Table 7 Population distribution by district**

<b>Municipality</b>	<b>Population (Person)</b>
<b>Akçakale Municipality</b>	115.615
<b>Birecik Municipality</b>	95.128
<b>Bozova Municipality</b>	55.423
<b>Ceylanpınar Municipality</b>	89.020
<b>Eyyübiye Municipality</b>	379.852
<b>Halfeti Municipality</b>	40.879
<b>Haliliye Municipality</b>	381.877
<b>Harran Municipality</b>	89.798
<b>Hilvan Municipality</b>	42.724

<b>Karaköprü Municipality</b>	219.796
<b>Siverek Municipality</b>	260.970
<b>Suruç Municipality</b>	102.265
<b>Viranşehir Municipality</b>	200.267

According to TURKSTAT 2017 data, the relative poverty rate based on income was realized as 9.3% in TRC2 Region where Şanlıurfa is included. In the region, the participation rate of individuals aged 15-64 in 2018 was 50.7%, and the unemployment rate was 18.8% and the employment rate was 41.1%. Compared to the previous year 2017, the employment rate decreased by 2 points from 43.5%, while the unemployment rate increased by 4 points from 14%.

According to TURKSTAT statistics, although the increase in female employment has been observed since 2013, male dominance is observed when the gender distribution of labor force participation rate is examined. The sectoral distribution of employment is shown in the table below:

	2009	2010	2011	2012	2013	2014	2015	2016
	NACE 2 Rev.2							
<b>Agriculture</b>	28.9	27.9	28.1	30.1	32.1	39	36.1	35.3
<b>Industry</b>	16.2	17.2	18.6	23.7	21.7	19.9	19.9	18.8
<b>Service</b>	54.9	54.9	53.3	46.4	46.4	41.1	44.1	45.7
<b>Total</b>	100	100	100	100	100	100	100	100

*Figure 11 Sectoral distribution of employment*

Şanlıurfa is an important logistic center from trade aspect thanks to having GAP airport and the Cargo airport that has the longest runway of Turkey. The production infrastructure of the region is developing with the Food, Textile and Leather, Chemistry, Non-Metallic Mineral Products, Machinery-Metal, Forestry Products sectors in addition to the products that have a potential to increase the added value such as Cotton, Wheat, Lentil, Corn, Barley, Pistachio, Pepper. Şanlıurfa, which is located in a very productive region in terms of stockbreeding, meets an important part of our country's need for bovine breedings.

Şanlıurfa has an important cultural history with its ancient cities, walls, inns and registered buildings. Bu tarih ilin turizm potansiyelini oluşturmaktadır. Şanlıurfa attracts a significant amount of domestic and foreign tourists with the contribution of Göbeklitepe which is in UNESCO World Heritage Permanent List and other tourism values.

#### **7.4 Institutional Structures**

Şanlıurfa Chamber of Commerce has done all the jobs according to the Constitution's 135th article "Professional Organizations in the Public Institution

Nature" 5174 as established and activities on "Turkey Chambers and Commodity Exchanges Act by the Union of Chambers and Commodity Exchanges" and the regulatory framework created based on this law like the other chambers. Purpose of the establishment of the rooms is given in Article 4, which was published in No. 2004 5174 Turkey Chambers and Stock Exchanges Union of Chambers and Commodity Exchanges of the Act,: "meeting the common needs of its members, to facilitate professional activities, to ensure that the occupation developed according to general benefit, to protect professional discipline, morality and solidarity in order to ensure honesty and trust in their members' relations with each other and the public and in order to established for fulfilling the duties given by the legislation and the services given in the Law as defined "professional institution that is a public institution with a legal personality". (ŞUTSO 2019-2023 Strategic Plan, s.14)

Şanlıurfa Chamber of Commerce and Industry consists of four bodies: Professional committees, Assembly, Board of Directors and Discipline Board. Details of the organizational structure are provided later in this report.

### **7.5 Pre-assessment of Environmental Impacts**

very low amount diminution and waste occur in pasta production with using up-to-date machinery and equipment thanks to developing technology. The low amount of waste that comes with standardized production using the amount of raw materials determined according to the production data does not have any harmful effects on the environment.

### **7. 6 Alternatives, Site Selection and Land Cost (expropriation price)**

In order to produce short and long cutting pasta, there is a need for a production facility where the production line to produce the product with the specified capacity can be placed. The technology to be used has been chosen to reduce the cost of production in order to realize this production at specified times and capacities.

The production facility to be established in the Organized Industrial Zone will start its activities by taking advantage of the OIZ. Within the scope of the investment, it is planned to buy approximately 20 decares of land. Land cost is approximately 600.000 TL.

## **8. TECHNICAL ANALYSIS AND DESIGN**

### **8.1 Capacity Analysis and Selection**

By analyzing the demand for pasta production and the market, it has been observed that there is demand that can be met by working with a capacity of at least 2000 kg per hour in the region. With the daily production of 48 tons, both domestic and foreign market needs will reach the level that can be met within our country.

## **8.2 Analysis of Alternative Technologies and Technology Selection**

The method used in pasta production is basically divided into two as automatic system and hand made in terms of technology. Although the automation infrastructure of automated systems is changing, the technology required to achieve the highest efficiency in the current situation is full automation. Production with the machine programmed with the desired shape and type within the scope of full automation takes place in a single production line up to the packaging stage. Handmade pasta, which is an alternative to this technology, is not preferred for industrial production due to high labor and time requirements.

Fully automated or highly automated systems are generally preferred in industrial pasta production. The reason for this is to achieve higher efficiency with the machines used with the shift operation method, such as 2-3 months after starting once from the starting energy that the production lines should spend to start the operation and to reduce energy costs. Planning and control of production stages are also ongoing for works on the management of machines with full automation in the pasta production sector with the remote control system. With these systems called PLC and SCADA, it is possible to analyze and report the entire production process with sensors.

For the production of 24 tons of short-cut pasta daily and a short-cut pasta production line with a production capacity of 1000 kg per hour is required. And also for the production of 24-ton spaghetti daily, a long-cut pasta production line with a capacity of 1000 kg per hour is required. Each unit in this line, the details and justifications of these units are as follows:

### **SHORT CUT PASTA PRODUCTION LINE WITH 1000 KG / S PRODUCTION CAPACITY:**

**A) AUTOMATIC PRESS WITH VACUUM UNIT - 1.170 - K 520:** It is a press machine which consists of flour / semolina cyclone mounted on the press, pre-mixing process with a quick mixer, also with double dosing dough tray with water dosing and vacuum boat. Pasta dough, which is the first stage of production, is prepared with this hydraulic system machine. The short cut pasta mold, which is part of the machine, is 520 mm and its eyes are teflon. Each of the following heads are technologies that will be part of the production line as part of this press system:

1. **FLOUR / SEMOLINA FEEDING UNIT:** It plays an important role in the uninterrupted operation of the production line. With its alarm and sensor structure, it warns when flour / semolina decreases in the production line.
2. **FLOUR VOLUME / SEMOLINA DOSING:** This machine has been chosen as an important part of the system to be used in the volumetrical ratio of semolina, which is the basic raw material.
3. **WATER DOSING UNIT:** Precise water dosing is carried out in this unit using a mono pump in the pneumatic water circuit using a thermometer and manometer.

4. FAST MIXER - TLA-P: Dough, which is the basic mixture of semolina and flour dosing and pasta, is used in fast mixer mixing. They are prepared according to the mixing ratios by providing flour from one side of the mixer and liquid from the other side.
5. MAIN BOAT: Selection was made to minimize the loss of raw materials with the dough stripping pallets on the main boat, which is necessary for the dough discharge into the vacuum lock, even the maximum deposits on the surface are always cleaned.
6. VACUUM TRAY: The vacuum tray prepared from stainless steel is covered with 30 mm mica glass for sealing.
7. MAIN HELIX -  $\varnothing$  170 mm: The roller is covered with stainless steel for cooling.
8. PASTA MOLDING SLOT and CUTTING KNIFE -  $\varnothing$  520 mm: It is one of the most important parts of the line that allows each type to be molded and cut from short cut pasta of different types and sizes.
9. CIRCULAR PASTA MOLD: It will be used in the test production of the production line before starting full production with chrome surface and interchangeable teflon eyes.
10. ELECTRIC WINCH: The rotary winch is the piece with a carrying capacity of up to 200 kg and used to transport the molds.

**B) SHAKER:** It is a cabin system consist from side panels that can be opened fully.

C) DRYING UNIT: After mixing the raw material to obtain the dough and then cut it, the most important step is to dry the pasta. The way the pasta is dried and combined with the packaging determines the final life of the product, in other words, the recommended expiration date. Drying process also plays a role in determining the nutritional values of pasta. The drying unit has a total of 9 floors for the first and second drying; the first drying takes 45 minutes and the second drying takes 210 minutes. This drying can be classified as pre-drying and post-drying. Required fresh air is obtained with the help of an aspirator and in the pre and post drying, temperature control and moisture measurements are provided with a probe on the dryer. At this point, it is important to program and ensure proper indoor climate conditions.

**D) "Z" ELEVATORS:** This unit, which has a command system with gearmotors, enables the dried pasta to be transported between the units.

**E) SHOCKING UNIT:** Hot pasta is taken to the resting silos by cooling with the help of the fans in the freezing section. All cold water taps are flanged and equipped with steel pipes and heat control is provided by a probe inside.



**F) RESTING SILOS:** After the shock, the pastas come to the resting silos. For a short cut pasta production line with a production capacity of 1000 kg per hour, 4 pieces of 12 m<sup>3</sup> silos with a total capacity of 48 m<sup>3</sup> are required.

**G) THERMAL CONTROL CENTER:** In the system used for drying, temperature control and adjustment is made through an area that can think like a boiler room and consists of the following units. It is possible to use different fuel types such as natural gas, electricity and coal for the operation of this center.

#### 1. STEAM GENERATOR

#### 2. MATERIAL SET FOR INSTALMENT CONNECTIONS

The control of the short-cut pasta production line with a capacity of 1000 kg / h, consisting of 7 basic units, is provided by automation within the scope of the main control system and power plant thanks to technology that is mentioned above. All functions are controlled by a PLC computer and program installed inside the control panel. The electrical control board and the entire production of the line is managed by a desktop computer with graphics software installed. The button console mounted on the press platform provides the control of the dosing-measuring system of the mixer and raw material with its alphanumeric interface and also it helps to control extrusion and forming. The details of the control technology selected within the scope of automation are as follows:

- High-performance, 22 " color wide screen and at least WINDOWS 7 Sp1 personal computer with operating system are required for inspections and control audits. SCADA system is integrated into this computer.

- 4 local control panels must be used for the electrical control of the production line consisting of 7 basic units.

- Fluid inlets for automatic raw material dosing are managed by a suitable auto-regulated PID. Flour / Semolina dose is measured with a PID algorithm. Flour / Semolina capacity is automatically adjusted by the system. In this way, the planned mixture value is fixed. The amount of dough in the vacuum mixer is checked by the probe. The system that automatically adjusts the dosage relationship between flour / semolina and liquid fixes the extrusion auger pressure at the planned value. The values of the operating variables are displayed on the operator panel display. Although it is also possible to manually dose each system mentioned above, manual use is not required due to the efficiency of the process with automation.

- Press management is controlled automatically with PLC control. Some of the functions controlled by PLC: tank filling operations, discharge of the first pulp at the start of production, thermostation of cylinders, diffuser pipes and water mixtures are speed adjustments of spiral extrusion that vary according to recipes, vacuum pressure and dough pressures.

- Drying unit management is done by making temperature and delta adjustments in various transition areas along the production line and technological control of the drying process. The process is controlled by the PLC installed in the system as a control program. The possibility of making changes in transfer stages in order to maintain product quality is limited. In addition, a user interface with functions that authorized personnel can inspect and / or intervene during operation has been created.

Preference for alternative production systems creates product quality control support with production line consisting of 7 units and automation based monitoring and control system. In this way, existing products are distributed to different product lots determined according to their position in the line. It reduces the possibility of the standardized drying process not reaching the desired results within the scope of automation. It is also possible to set a signal selection that will remind operators employed for this job to check whether the appropriate device is connected when the product reaches the packaging unit.

## **LONG CUT PASTA PRODUCTION LINE WITH 1000 KG / S PRODUCTION CAPACITY:**

### **A) PRESS UNIT - Model TAL 1.190 - 1980 L:**

There are 1 cyclone with alarm and sensor that informs when the amount of flour / semolina is decreasing, flour / semolina and water dosing units and a mixer and boat made of stainless steel material.

1- FLOUR / SEMOLINA FEEDING UNIT: It consists of 1 cyclone with alarm and sensor that informs when the amount of flour / semolina is decreasing. In addition, a system with openable covers has been designed for control / maintenance purposes.

2- FLOUR / SEMOLINA DOSAGE: Semolina and flour are the main raw materials required for production capacity of pasta. It is adjusted to be operated at the desired capacity through the spiral running with the inverter (Yaskawa/ Control Techniques)

3- WATER DOSING UNIT: 2 way pneumatic water circuit. With the Flowmeter system, precise water flow control is provided. Plastic pipes. Thermometer and manometer. Magnetic shutoff valve. Precise water dosing with mono-pump.

4- QUICK MIXER -TLA - P: It is made of AISI 304 quality stainless steel and has the following features.: Easily open front cover. Crawler mixer. Door openings are designed to open sideways for mechanical security purposes. 900 circuit flat engine. Double-sided fluid inlet. Semolina / flour input from flour / semolina dosing unit.

5 - MAIN BOAT: AISI 304 stainless steel adjustable dough mixing pallets. Stainless steel shaft. Even the maximum residues on the surface can be cleaned with the dough scraping palettes on the edges of the shafts. Chrome paste vessel cover and safety switch. Oil reservoir with special power transmission system. Direct

coupled driven reducer. Necessary part for pouring dough into the vacuum lock. Stainless steel AISI 304 quality chrome surface where the dough touches.

6- VACUUM LOCK: One piece silk screen casting body. 3 bucket vacuum capsules. Direct coupled reducer. Pure body G20, bronze special casting.

7- VACUUM BOAT: Vacuum mixer in stainless (AISI 304) steel. 30mm mica glass lids for vacuum sealing. Safety switch for safety. Stainless steel adjustable dough mixing palettes and again stainless steel shaft. Stainless steel AISI304 quality chrome surface where the dough comes into contact.

8 - MAIN HELIX (190 mm diameter): High resistance, carbon-steel pressure rollers are covered with stainless steel. Stainless steel coating to cool the roller. Fixed slope and variable profile. Three sheets of dough shredder. Chrome plated (CK 45 quality). Main spiral transmission with special extruder body. Heat exchanger and pump system assembled with plastic pipes. Measurement and control of sleeve temperature with PT 100. Main screw motor with inverter control and 4 poles.

9 - ROW RECTANGULAR MOLD SLOT: 1980 mm, Heat exchanger and pump system mounted with plastic pipes. Measurement and control of the mold slot temperature is made with PT 100. Pasta molds are removed and mounted with hydraulic system.

10 - PAVER -TAL - S - 200: It is designed to distribute the long cut pasta over the oval section bars. Has a length of 1850 mm. Machine equipments are as follows: Cutting chamber ventilation aspirators. Cutting of wet products with horizontal circular knives. Synchronous rod storage system on the guiding device. Transportation of rods attached to hook gears with the help of automatic conveyors. This conveyor is equipped with safe mechanical claws and automatic repeat devices. Mono-block type structure. Horizontal blades made of hardened metal. Height system for adjusting the dimensions of the products of the system consisting of horizontal blades (4500-6000 mm range). Electric brake drive motor. Stairs and crossing points.

11 - RECYCLING SYSTEM: Recycling conveyor belts made of polyurethane material. Aspirator and cutter for pneumatic transfer of recycling products, decompression cyclone for discharge. Electric control panel adjusted on the machine panel, PLC, equipped with security and control devices, so that control, display and value records can be made while the machine is running.

## **B) DRYING UNIT:**

Our pasta drying unit is single storey and consists of 3 stages as pre-drying, main drying and cooling. Our 3-stage drying unit is divided into 6 air-conditioning zones different from conventional drying in order to increase product quality. As each region has different temperature and humidity values, temperature / humidity regulation and controls are done separately and maximum quality is targeted. In addition, in certain regions, there are nozzle systems that give steam inside and our special design.

The spaghetti in the drying unit, which consists of 5 separate drying cabinets in a single row, transfers from one cabin to another with special heat treated carrier chains. In the third, fourth and fifth zone entrances, control windows are available for sampling on the main panels. The total drying time was calculated as 6 - 7 hours according to the product thickness. The drying unit stages are described in detail below.

**B.1 – PRE-DRYING STAGE:** The technical details of the pre-drying stage divided into 3 regions are briefly given below; In the first zone, there are aspirators that provide clean and desired humidity value. In the second area, there are air circulation aspirators, which are specially designed on the cabin. The third zone is equipped with ventilation aspirators and in addition there is a nozzle system that supplies steam into the drying cabinet. Polyester cabinet consisting of 40 mm thick side and top panels. Side panels that can be opened fully. All skeleton made of AISI 430 stainless steel. Operation is provided by axial fans powered by aluminum blades and electric motors. The need for hot air inside the drying cabinet is provided by serpentines. This system is controlled and operated with a proportional control system of 4-20 mA, with 3-way valves and circulation pump. Thanks to a coil in front of the aspirator, fresh air entering the drying cabinet is heated. This system is proportionally controlled with 4-20 mA. Humidity and temperature control is provided by a probe inside. These measurement devices transfer the information they receive to the PLC in the main control, allowing them to provide all the necessary settings and controls.

**B.2 – MAIN DRYING STAGE:** In this stage, which consists of only one region (Area 4), there are specially designed air mixing aspirators described at the top and there is also a nozzle system that gives steam into the cabin. Polyester cabinet consisting of 40 mm thick side and top panels. Side panels that can be opened fully. The entire frame is made of AISI 430 stainless steel. Operation is provided by axial fans powered by aluminum blades and electric motors.

The need for hot air inside the drying cabinet is provided by serpentines. This system is controlled with 4-20 mA proportional control system and its operation is provided by 3-way valves and circulation pump. Thanks to a coil located in front of the aspirator, the fresh air entering the cabin is heated. This system is proportionally controlled with 4-20 mA. Provided with a probe in humidity and temperature control. These measurement devices transfer the information they receive to the PLC in the main control, allowing them to provide all the necessary settings and controls. It includes a special nozzle system that injects steam into the drying cabinet.

**B.3 – COOLING STAGE:** The cooling stage, consisting of a single drying cabinet, includes the last two zones (5th and 6th zones). Temperature measurements in these two regions are made with separate probes. Polyester cabinet consisting of 40 mm thick side and top panels. Side panels that can be opened fully. The entire frame is made of AISI 430 stainless steel. Operation is provided by axial fans powered by aluminum blades and electric motors. Cold water is controlled with a proportional control system of 4-20 mA and provided with 3-way valves and circulation pump. Temperature control and measurements are provided by one

probe on them. These measurement devices transfer the information they receive to the PLC in the main control, allowing them to provide all the necessary settings and controls.

### **C) STRIPPING UNIT -TAL - 1850:**

Mono-block type structure. Triangular feeding units with automatic product distribution system. Low type cutting units, cutting discs, rods and equipment required for cutting 250/260 mm product. Partial carriers. Electric brake drive motors. Stairs and crossing points. Evacuation system suitable for building structure. Waste recycling system. The movement of the empty bars is provided by a specially designed chain transport system.

### **D) SUPERHEATED WATER SYSTEM (SUPERHEATED WATER):**

Content of this system; There is 1 boiler (hot water boiler) to heat the water. Thermal power - 360,000 kcal / h. 1 gas burner boiler. (Diesel, natural gas, coal, etc. fuel options are available according to customer needs) 1 boiler chimney, steel plate work. The minimum height is 10 meters from the ground. 1 hot water circulation pump. On / off valves, one-way valves, filters, thermometers and manometers, automatic air purge devices. Gas-tight sealing pipes and other related fitting pieces. Hot water distribution system up to the main line. 1 electrical control panel and thermal unit. Working temperature: 130 ° C. Pressure: Maximum 4 bar.

D.1 – STEAM GENERATOR: It is the unit required to meet the steam requirement used in pasta production. Technical Specifications; Industrial type, works with 380 V electricity. 100% safe with safety valve and audible light alarm system activated at overpressure. Thanks to the pumped system, the water supply is automatic. Steam capacity; 10 kg / h. Includes 100 l Kr-Ni stainless steel condenser tank. Working pressure: 4 bar. Resistance power: 2x10 kw Resistances can be activated gradually according to the steam capacity to be used. It is produced in accordance with CE norms.

D.2 – MATERIAL SET FOR INSTALLATION CONNECTIONS: 1 set of materials (pipes and accessories) required to implement the connections below.

Internal connections of thermal power plant, cooling system and vacuum system. Hot water distribution network. Hot dough system connections. Vacuum pump connections.

<b>REQUIRED THERMAL POWER</b>	<b>275000</b>	kcal/h
<b>HOT WATER INLET TEMPERATURE</b>	<b>130</b>	°C
<b>REQUIRED ELECTRIC POWER</b>	<b>180</b>	kw
<b>DOUGH WATER AMOUNT</b>	<b>300</b>	l/h

*Figure 12 Installation Technical Requirements*

### **8.3 Environmental Effects, Protection Measures and Cost of the Technology Selected**

Pasta production line consists of machines that can work using electricity to a large extent. It is only possible to use different energy sources such as natural gas, coal or electricity from the thermal control center. Among these sources, coal is more preferred with the energy produced per unit, but due to its environmental damages, it is a type of fuel that can bring additional costs if preferred. Electricity is not preferred due to high electricity consumption costs. Among these three types, it is planned to prefer natural gas with optimum energy return while environmental damages are minimum and it is important to reduce the environmental cost of the production line to be installed. Wastewater will be discharged to the treatment plant of the OIZ, since the facility to be established will be located within the SUOIZ. Training will be provided for workers to work in the facility to comply with the occupational safety and health rules. It is planned to produce electricity with Solar Energy Panels in the medium term to meet the electricity needs of the enterprise.

### **8.4 Technical Design (process design, machine-equipment, construction works, land arrangement, layout, distribution by provinces etc.)**

Starting from the reason for this investment regarding the establishment of pasta production facility, All works such as construction, machinery and workforce determinations, installation, land arrangement and layout plan are planned within the scope of this feasibility report.

Architectural preliminary project is being prepared within the scope of feasibility, architectural and engineering application projects will be carried out after the feasibility study. Construction works are planned in accordance with these studies.

### **8.5 Investment Costs (construction, machinery-equipment, distribution on a provincial basis, etc.)**

Machinery and equipment costs and building construction costs constitute investment costs in Pasta Production Facility. Feasibility and cost studies have been prepared to guide the entrepreneurs who will make investment in this field. The technical features of the machinery and equipment to be used in the Pasta Production Facility are given in the attachment.

- Steel building with a total area of 1176.50 m<sup>2</sup>
- Machinery and equipment on site

Considering the facility building cost project: According to the “Communique on Building Approximate Unit Costs of 2019 to be Used in the Calculation of Architecture and Engineering Service Costs” published on March 16, 2019 by the Ministry of Environment and Urbanization. In the category of IV A. m<sup>2</sup> unit cost is 1270 TL for the pasta production facility and the building cost of the facility is given below.

Facility Building Cost  $1176,50 \text{ m}^2 * 1270 \text{ TL/m}^2 = 1.494.155,00 \text{ TL}$

Machine equipment cost tables for the production line are given below.

Euro rate was accepted as 6.5 TL and machine equipment cost for short cut pasta was calculated as  $6.5 * 742.500 = 4.826.250,00 \text{ TL}$  excluding VAT.

**Table 8 Short Cut Pasta Production Line Machine Detail Cost**

<b>1000 kg / h Short Cut Pasta Production Line Machine Detail Cost</b>	<b>AMOUNT (EURO)</b>
1 Automatic Press With Vacuum Unit	<b>217.000 € + VAT</b>
2 Circular Short Cut Pasta Mold	<b>10.000 € + VAT</b>
1 Shaker	<b>44.750 € + VAT</b>
1 Drying Unit	<b>246.500 € + VAT</b>
2 "Z" Elevators	<b>23.000 € + VAT</b>
1 Freezing Unit	<b>38.500 € + VAT</b>
4 Resting Silos	<b>20.000 € + VAT</b>
1 Thermal Control Center (Boiler)	<b>36.250 € + VAT</b>
1 Steam Generator	<b>8.000 € + VAT</b>
1 Set of Material for Plumbing Connections	<b>10.500 € + VAT</b>
1 Main Control Panel (PLC - Automation System)	<b>78.000 € + VAT</b>
Installation and Control Services	<b>10.000 € + VAT</b>
<b>TOTAL AMOUNT (EURO)</b>	<b><u>742.500 € + VAT</u></b>

Power usage details for the production line are as follows:

**Table 9 Power Usage Details for Production Line**

<b>SPECIES</b>	<b>QUANTITY</b>
REQUIRED THERMAL POWER	82500 kkal/s
HOT WATER INLET TEMPERATURE	110 °C
REQUIRED ELECTRIC POWER	67 kw
DOUGH WATER AMOUNT	90 l/h

Euro rate was accepted as 6.5 TL and machine equipment cost for long cut pasta was calculated as  $6.5 * 867.000 = 5.635.500,00 \text{ TL}$  excluding VAT.

**Table 10 Long Cut Pasta Production Line Machine Detail Cost**

<b>1000 kg / h Long Cut Pasta Production Line Machine Detail Cost</b>	<b>AMOUNT (EURO)</b>
1 Automatic Press With Vacuum Unit	<b>226.500 € + VAT</b>
1 Rectangular Spaghetti Pasta Mold	<b>8.750 € + VAT</b>
1 Pre-Drying	<b>102.000 € + VAT</b>
1 Drying Unit	<b>257.250 € + VAT</b>
1 Blasting Unit	<b>52.000 € + VAT</b>
1 Stripping Unit - TAL - 1850 (Back Cutting Unit)	<b>72.750 € + VAT</b>
1 Thermal Control Center (Boiler)	<b>38.000 € + VAT</b>

1 Steam Generator	<b>7.500 € + VAT</b>
1 Set of Material for Plumbing Connections	<b>10.000 € + VAT</b>
1 Main Control Panel (PLC - Automation System)	<b>82.500 € + VAT</b>
Installation and Control Services	<b>9.750 € + VAT</b>
<b>TOTAL AMOUNT (EURO)</b>	<b>867.000 € + VAT</b>

## Packaging Units Cost

**Table 11 Packaging Units Cost**

Equipment	Amount
1 Spaghetti Packaging Machine	94.700 € + VAT
1 pc 14-Head Packaging Machine	56.500 € + VAT
1 Feeding Unit	5.000 € + VAT
<b>TOTAL AMOUNT (EURO)</b>	<b>156.200 € + VAT</b>

Euro rate was accepted as 6.5 TL and the cost of packaging units was calculated as  $6.5 * 156.200 = 1.015.300,00$  TL excluding VAT.

Total Machine equipment cost  $5.635.500,00 + 4.826.250,00 + 1.015.300,00 = 11.477.050,00$  TL

## 9. PROJECT INPUTS

### 9.1 Need input (raw and auxiliary materials)

The main raw material of the pasta to be produced in the production facility is durum wheat, which is produced intensively at the investment region. Durum wheat is produced in high quality at the same time not only in Southeast Anatolia but also in many region of Turkey, and converted into semolina that is used in pasta. According to 2017 data in Şanlıurfa, 1.045.645 tons of wheat is produced annually. It is anticipated that there will be no difficulties in meeting the raw material needs, also the raw material supply costs are expected to remain low.

Excipients other than semolina obtained from durum wheat are mineral substances, especially water, eggs, protein and milk powder. The final product, which will emerge after the aggregation of the substances, will be made ready for delivery by packaging with the packages obtained from the packaging facilities around the region and near areas.

Besides raw materials, there are also input costs such as electricity, water, fuel and telephone.

### 9.2 Input Prices and Spending Estimation

**Table 12 Short and Long Cut Pasta**

<b>Short and Long Cut Pasta (17,000 tons per year)</b>				
<b>N</b>	<b>Input</b>	<b>Unit Price</b>	<b>Annual</b>	<b>Annual Cost</b>



o.		(TL)	Amount	(TL)
1	Semolina (kg)	1,80	13.600.000 kg	24.480.000,00
2	Auxiliary Materials	-	0,04	979.200,00
3	Packaging Expenses	0,15	34.000.000 unit	5.100.000,00
<b>TOTAL</b>				<b>30.559.200,00</b>

For the production of 1 kg of pasta, it is necessary to use approximately 0.80 kg of semolina. Pastas will be produced in 500 gram packages.

For the production of 17.000 tons of pasta,  $17.000 \times 0.80 = 13.600$  tons = 13.600.000 kg semolina will be used. Auxiliary Materials cost is accepted as 4% of the total raw materials in each product.

Auxiliary materials to be used during production are as follows::

- Mineral substances
- Vitamins
- Egg
- Protein (powder)

## Milk Powder10. ORGANIZATIONAL STRUCTURE, MANAGEMENT AND HUMAN RESOURCES

### 10.1 Organizational Structure and Management of the Organization

Organization structure of Pasta Factory is given below.

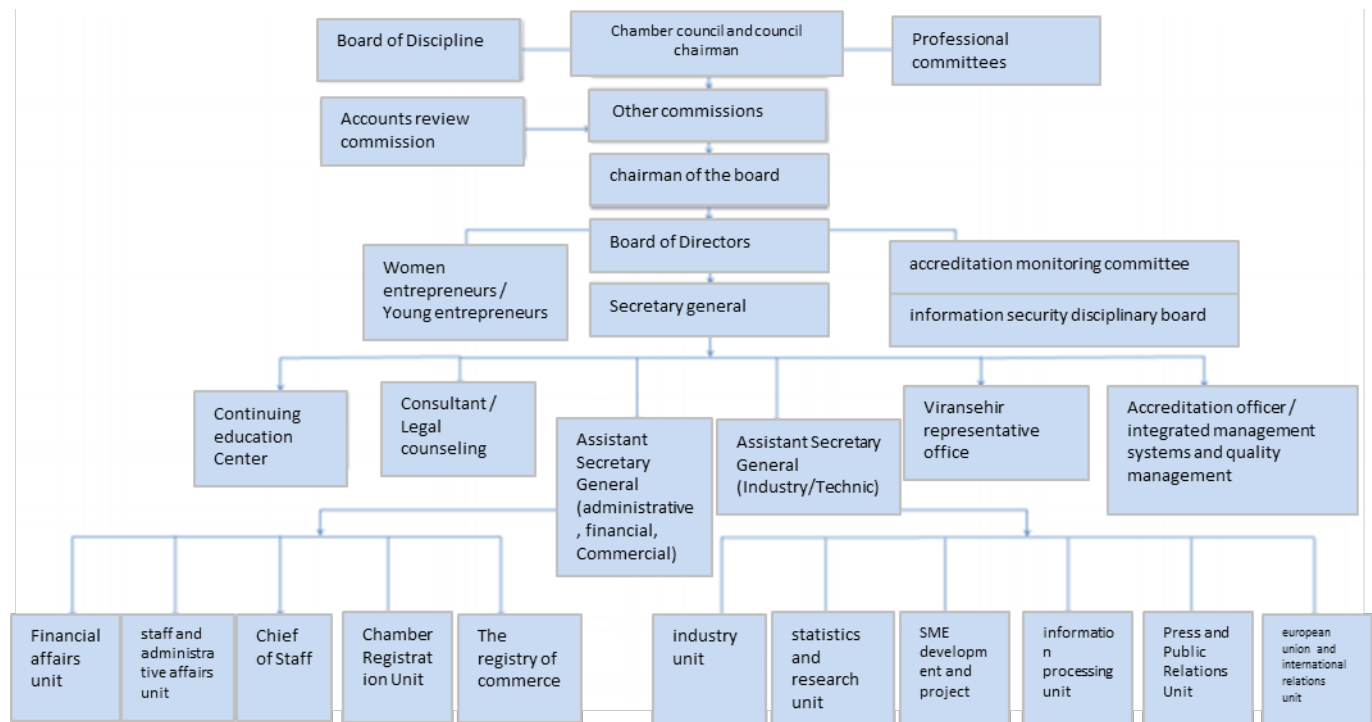


Figure 13 Organizational Chart

## **10.2 Organization and Management Expenses (general expenses etc.)**

### **10.3 Laborforce Requirement and Estimated Expenses**

A total of 60 staff are expected to work at the facility, which is planned to produce 24 tons of short-cut and 24 tons of long-cut pasta daily. Personnel distribution is determined by considering the numbers that a company should have in order to carry out its production, marketing and export activities in a corporate manner. Within the scope of this planning, it is expected that the facility will start operating with a capacity of around 70% with the positions given in the table below, with average annual pricing details.

The General Manager has been designated as the decision-making body responsible for the overall planning and administrative processes of the facility. The Deputy General Manager will serve as the administrative affairs officer, technical affairs officer and foreign trade and marketing officer, and responsible for the coordination of the production and marketing processes. A secretary has been appointed for each senior position; it is envisaged that these secretaries will also be involved in the processes of administrative affairs and foreign trade units. While administrative affairs managers and officers will be responsible for directing the administrative processes of the 60-person production facility; technical works managers and supervisors will be responsible for planning the production process and determining the working details of the machines and operators. Foreign trade and marketing supervisor will be selected from people with experience in this field and these employees will work by establishing connections to ensure that the final products are placed in the domestic market and especially in the foreign market in accordance with market conditions and expectations. Excluding these positions, Machine Operator Chief, Machine Operator Assistant, Packaging Master and Packaging Worker will work 24 hours a day with an 8-hour shift change. These employees will be responsible for the processing of the prescribed pasta production line, programming the machines for the products, eliminating the problems that may arise, and separating the products that will occur as a result of their classification without being subjected to a build-up.

**Table 14 Human Resources Planning \***

<b>No :</b>	<b>Position</b>	<b>Staff</b>	<b>Annual Gross Fee (TL)</b>
<b>1</b>	General manager	1	96.000
<b>2</b>	deputy general manager	2	144.000
<b>3</b>	Secretary	3	144.000
<b>4</b>	Technical manager	5	330.000
<b>5</b>	Administrative Manager	5	330.000
<b>6</b>	Responsible for administrative affairs	2	108.000

<b>7</b>	Technical Affairs Specialist	2	108.000
<b>8</b>	Machine Operator Chief	3	144.000
<b>9</b>	Machine Operator Assistant	3	144.000
<b>10</b>	Packaging Master	3	144.000
<b>11</b>	Worker	30	1.080.000
<b>12</b>	Foreign Trade and Marketing Responsible	1	48.000
		<b>60</b>	<b>2.820.000</b>

\* Human resources planning has been done by considering the production capacity of the factory.

For the first year of production:

- 1- Considering the average gross cost of workers' salaries as 3000 TL,
- 2- Consideration of remuneration policies in market conditions for senior and executive positions,
- 3- Considering that the personnel working in the production departments will work 3 shifts a day.

## **11. PROJECT MANAGEMENT AND IMPLEMENTATION PROGRAM**

### **11.1 Project Executor Institutions and Technical Capacities**

The project coordinator is the establishment Şanlıurfa Chamber of Commerce and Industry. It plays a role in the execution of many finished and ongoing projects. Some of these projects are listed below. The organization's experience and capacity to run and manage projects is high. ŞCCI has the capacity and qualified human resources to carry out the project.

Şanlıurfa Textile and Clothing Sector Cluster Road Map Preparation Project

Project Duration: 3 Months, Project Budget: 27.500 TL

Graduate Students Evaluation and Skilled Experts Class Project

Project Duration: 11 Months Project Budget: 168.000 Euro

Specialized Vocational Training Centers (SVTC) Skill'10 Project

Project Duration: 74 Months Project Budget: 119.270.593 TL

SME Consultancy Center Project

Project Duration: 8 Months Project Budget: 352.659 Euro

Local Foods Come to Light

Project Duration: 3 Months Project Budget: 44.000 TL

Increasing the Adaptability of SME Employees and Employers Project

Project Duration: 24 Months Project Budget: 5.000.000 TL

Increasing the Capacity of Staff Project

Project Duration: 1 Month Project Budget: 15.000 TL

Energy Industry Specialized Region Feasibility Report Project for Solar Energy Based Electricity Generation Plants in Şanlıurfa Province

Project Duration: 3 Months Project Budget: 37.000 TL

Stonework in the Oldest Temple of the World, Göbeklitepe

Project Duration: 16 Months Project Budget: 110.000 TL

Şanlıurfa GAP Air Cargo Transportation Capacity Increase Feasibility Report

Project Duration: 3 Months Project Budget: 42.000 TL

Increasing the Institutional Capacity to Become a Brand City

Project Duration: 1 Month Project Budget: 15.000 TL

COSME South-Innagate South Innovation Gate

Project Duration: 60 Months Project Budget: 89.788 Euro

Electricity Generation Project from Renewable Energy Sources

Project Duration: 28 Months Project Budget: 405.000 TL

Journey Across Civilisation to Link People and Territories- JaC

Project Duration: 12 Months Project Budget: 148.000 TL

Şanlıurfa Export Development Training Center

Project Duration: 12 Months Project Budget: 193.300 TL

European Enterprise Network (EEN) GAPSUN Consortium

Project Duration: 72 Months Project Budget: 167.600 Euro

EU Information Centers Network Support Project in Turkey

Project Duration: 17 Months Project Budget: 2.191.000 Euro

Supporting Youth Employment in Foreign Trade Project

Project Duration: 12 Months Project Budget: 215.000 Euro

### **11.2 Project Organization and Management (decision making process, construction method, etc.)**

The project organization is carried out by ŞCCI and the project is an example for entrepreneurs who want to make similar investments. For this purpose, the

architectural preliminary project of the facility will be prepared, and the facility can be built in the areas deemed appropriate in the industrial zone. After the implementation projects for the investment area are prepared construction works will be carried out and then the facility will be activated.

### 11.3 Project Application Program (Time Schedule Plan)

Necessary works for the implementation of the project will take 24 months. The table for the project implementation program is given below.

**Table 15 ŞUTSO Pasta Production Facility Project Application Program**

ŞCCI Pasta Production Facility Project Application Program																								
Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Establishment of the project team																								
Determination of investment location																								
Preparation of Architectural and Engineering Application Projects																								
Obtaining Construction License																								
Realization of Construction Works																								
Machinery equipment supply and installation																								
Employment of Staff and Commissioning of the Facility																								

## 12. BUSINESS PERIOD INCOME AND EXPENSES

### 12.1 Pricing of Production and / or Service

The investment facility will have an annual capacity of 17,000 tons of pasta. The products are planned to be sold in 500 gr packages.

It is aimed to sell 17,000,000 kg / 0,5 kg = 34,000,000 packages / year. In the standard pasta product types, 2019 sales prices in the market range between 1,60 TL (Besler Mutfak) and 4,50 TL (Barilla).

Pasta price in June 2019: **₺4,11 TL/Kg**

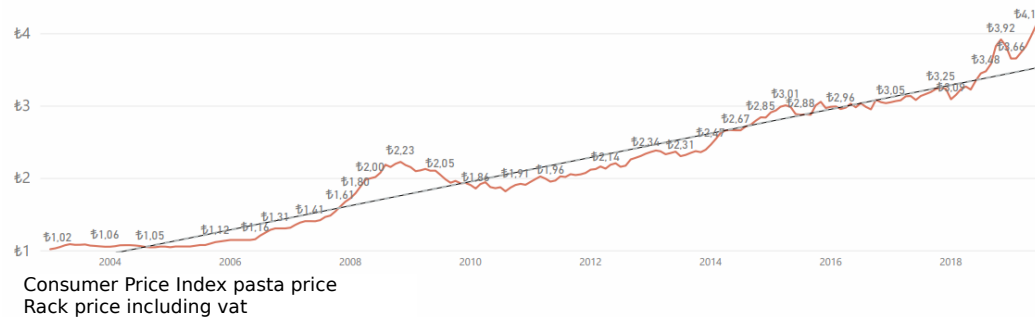


Figure 14 Pasta Price in June 2019

Pasta shelf price (<http://musad.org/wp-content/uploads/2019/08/musad-rapor-2Q.pdf>)

The price of the product in the enterprise is aimed to be close to the market average. For this reason, it has been accepted that the marketing price of 1 pack of pasta to the market and sales channels will be 1.70 TL.

## 12.2 Estimating the Business Income and Expenses

Pasta Sales Income

Table 16 Pasta Sales Income

Product	Price (TL)	Number of Products (per year)	Total Amount (TL)
Pasta (short)	1,70	34.000.000	57.800.000,00
<b>TOTAL INCOME</b>			<b>57.800.000,00 TL</b>

The project operation projection was made for 10 years. Capacity utilization rate as is follow:

Table 17 The Capacity Utilization Rate

INCOME TYPE	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Capacity Usage Rate	%0	%0	%60	%65	%70	%70	%70	%80	%90	%100
Pasta Sales Income	0	0	34.680.000	37.570.000	40.460.000	40.460.000	40.460.000	46.240.000	52.020.000	57.800.000

### Working Capital

Inflation is assumed to increase 12% each year compared to the previous year.

**Table 18 Working Capital**

	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Year=	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capacity=	0	0	60	65	70	70	70	80	90	100
Expenses										
1. Raw Material	0	0	17.748.000	19.227.000	20.706.000	20.706.000	20.706.000	23.664.000	26.622.000	29.580.000
2. Auxiliary Product and Material	0	0	587.520	636.480	685.440	685.440	685.440	783.360	881.280	979.200
3.Elektricity, Water, Fuel	0	0	177.600	192.400	207.200	207.200	207.200	236.800	266.400	296.000
4.Maintanence - Repair	0	0	64.856	64.856	64.856	64.856	64.856	64.856	64.856	64.856
5.Tech. Payment (Licence etx.)	0	0	0	0	0	0	0	0	0	0
6. Labor and Staff	0	0	2.820.000	2.820.000	2.820.000	2.820.000	2.820.000	2.820.000	2.820.000	2.820.000
7. Rental Expenses	0	0	0	0	0	0	0	0	0	0
8. General Management	555	2.220	214.424	229.851	245.279	245.279	245.279	276.134	306.989	337.845
9. Sales/Marketing	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
10.Depreciation	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293	2.325.293
11.Interest (Operation Period)	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>2.331.848</b>	<b>2.333.513</b>	<b>23.943.693</b>	<b>25.501.880</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>30.176.443</b>	<b>33.292.818</b>	<b>36.409.194</b>

### 13. TOTAL INVESTMENT AMOUNT AND YEARS DISTRIBUTION

#### 13.1 Total Investment Amount (in domestic and foreign currency)

The facility building cost is approximately 1,180,520.29 TL, and the total cost of the machinery equipment to be used in the production line is 7,442,893.18 TL.

Land Cost =  $20.000 \text{ m}^2 * 30 \text{ TL/m}^2 = 600.000 \text{ TL}$

#### FIXED INVESTMENT AMOUNT

**Table 18 Fixed Investmen Amount**

<b>Investment Items</b>	<b>Amount(TL )</b>	<b>Explanation of Expense</b>
Survey Project Expenses	100.000,00	Application projects of the building construction (Discovery, quantity, plan, map and drawing) and ground survey cost.
Land Purchase Expenses	600.000,00	20-acres of land purchases will be made.
Building Construction	1.494.155,00	Plant construction cost.
Machinery-Equipment and Furnishings (price including assembly)	11.477.050,00	VAT excluded amounts of machinery, equipment, furnishing and equipment.
Vehicle Purchase Expenses	0,00	There is no vehicle purchase.
Assembly Expenses	0,00	Machine price includes assembly price.
<b>Fixed Investment Total</b>	<b>13.671.205,00</b>	



## **14. PROJECT FINANCE**

### **14.1 Financial Structure of Executive and Operator Organizations**

Şanlıurfa Chamber of Commerce and Industry, carries out activities to meet the needs of its members and to facilitate and develop its professional activities. Also to protect professional discipline, morality and solidarity and to provide services written in the law numbered 5174 in order to maintain integrity and trust among its members and the public. It uses the sources of income specified in Law No. 5174 for the realization of these activities.

These resources are listed below for all TOBB member rooms.

- a) Approval of invoice copies.
- b) Approval of current prices.
- c) Approval of the qualifications of commercial and industrial goods samples.
- d) Surveyor and expert reports and capacity reports.
- e) Annotation and approvals that indicating the registration status in chambers of the signatories written on bail bond and on covenant.
- f) Documents of industrial and commercial nature.
- g) Commercial bail approvals.
- h) Allocation and consumption documents.
- ı) Quality, competence and sample documents.
- j) Documents of domestic goods.
- k) Approval of the signatures of registered members.
- l) Enrollments and registration copies of the members of the chamber and their member IDs.

- m) Written or verbal answers of questions about non-confidential records of its members which is not as a commercial reputation certificate.
- n) Construction machinery registration certificate issued pursuant to article 22 of the Highway Traffic Law No. 2918.
- o) Articulated lorry book, ATA, A.TR and EUR.1 circulation documents, Certificate of origin and EAN -UCC line code operations, Declaration in international trade of goods and services, attestations and similar documents.
- p) Force majeure documents.
- r) Turkey Trade Registry Gazette copies.
- s) General and international sectoral services to be provided to Turkish or foreign flagged ships.
- t) Trade registry services.
- u) All kinds of commercial and industrial documents and information and services.

The budgets of the chambers are prepared by the board of directors and approved by the councils in accordance with the type to be prepared by the Union and the accounting procedures to be determined.

Budget is organized by calendar year.

Budget spending is done by the joint signature of the chairman or his vice president, and the secretary general or treasurer. In the absence of the secretary general, the signature of the treasurer is sought instead of the secretary general.

Upon the proposal of the board of directors, the amount determined by the councils can be made by the general secretary, provided that it is submitted for the approval of the board later.

By taking the feasibility model prepared for the project subject to investment, the project can be realized by entrepreneurs and organizations who want to take part in the OIZ.

#### **14.2 Financing Method (equity, external credit, grant, DOT etc.)**

Since it is aimed to prepare a sample project within the scope of feasibility, it is assumed that approximately 75% of the facility will be constructed through equity, and 25% will be utilized from the state supports in the financial statements.

## 15. PROJECT ANALYSIS

## 15.1 Financial Analysis

It is aimed to reveal the level of profitability with financial analysis for the institution / investor who will run the project. Cash inputs and outputs and depreciations are taken into account.

The reduction factor of the project is taken as 10. In this context, considering the time scheduled project plan, the first two years in financial analysis were considered as the establishment phase and only construction and machinery equipment costs were taken into account for the first two years. The third year was analyzed as the year of transition to business. In the analysis made within this scope, the project meets the investment in the 4th year after the commissioning. The project will contribute to regional development and employment, and will provide social and economic benefits in this respect.

### Table 19 Income and Expense Table

[illegible]



<b>XII. Total Cash Out (+15 +II)</b>	<b>13.865.526</b>	<b>2.526.308</b>	<b>5.963.654</b>	<b>27.839.919</b>	<b>29.664.192</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>30.176.443</b>	<b>33.292.818</b>	<b>36.409.194</b>
15.Total Investment Spending	13.865.526	194.459	3.630.141	3.896.226	4.162.311	0	0	0	0	0	0
15.1. Change in Working Capital	194.321	194.459	3.630.141	3.896.226	4.162.311	0	0	0	0	0	0
15.2 . Fixed Investment Spending	13.671.205	0	0	0	0	0	0	0	0	0	0
<b>II. Expenses</b>	<b>0</b>	<b>2.331.848</b>	<b>2.333.513</b>	<b>23.943.693</b>	<b>25.501.880</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>27.060.068</b>	<b>30.176.443</b>	<b>33.292.818</b>	<b>36.409.194</b>
<b>XIII. Depreciations</b>	<b>0</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>	<b>2.325.293</b>
<b>XIV. Gross Cash Flow (VIII-XII+XIII+9)</b>	<b>-13.865.526</b>	<b>-201.014</b>	<b>-3.638.361</b>	<b>9.165.374</b>	<b>10.231.101</b>	<b>15.725.225</b>	<b>15.725.225</b>	<b>15.725.225</b>	<b>18.388.850</b>	<b>21.052.475</b>	<b>23.716.099</b>
<b>XV. Credit Principal Payment</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>XVI. Net Cash Flow (VIII +XIII+IX+X+XI-XII -XV-V-VII)</b>	<b>0</b>	<b>-380.645</b>	<b>-3.171.658</b>	<b>7.018.113</b>	<b>7.817.477</b>	<b>13.045.239</b>	<b>13.045.239</b>	<b>13.045.239</b>	<b>15.176.138</b>	<b>17.307.038</b>	<b>19.437.938</b>
<b>XVII.Cumulative Net Cash Flow</b>	<b>0</b>	<b>-380.645</b>	<b>-3.552.303</b>	<b>3.465.809</b>	<b>11.283.287</b>	<b>24.328.525</b>	<b>37.373.764</b>	<b>50.419.003</b>	<b>65.595.141</b>	<b>82.902.180</b>	<b>102.340.118</b>

## **DEPRECIATION TABLE**

**Table 21 Depreciation Table**

<b>Tangible Assets Depreciation</b>				
<b>Investment Expenditures</b>	<b>Economic Life (Years)</b>	<b>Depreciation Rate</b>	<b>Price</b>	<b>Amount</b>
Vehicle Purchase Expenses	5	20%	0,00	0,00
Building Construction	50	2%	1.494.155,00	29.883,10
Machinery-Equipment and Furnishings	5	20%	11.477.050,00	2.295.410,00
Interest Depreciations	5	20%	0,00	0,00
Fixtures	5	20%	0,00	0,00
<b>Total</b>		<b>17,93%</b>	<b>12.971.205,00</b>	<b>2.325.293,10</b>

**Table 22 Investment Period Financial Status Table**

	<b>Year 1</b>	<b>Total</b>
<b>1. Initial Investment</b>	13.671.205	13.671.205
<b>2. Working Capital</b>	194.321	194.321
<b>Toptal Financial Needs</b>	<b>13.865.526</b>	<b>13.865.526</b>
<b>1. Equity</b>	10.635.526	10.635.526
<b>2. Debts</b>	0	0
<b>3. Credit</b>	0	0
<b>4. Support Amount</b>	3.230.000	3.230.000

Total Financing	13.865.526	13.865.526
-----------------	------------	------------

**Table 23 Net Current Value**

Reduction Ratio: 9,00%			
<i>A- NET CURRENT VALUE METHOD</i>			
Years	Net Cash Flow	Reduction Coefficient	Reduced Values
0	-13.865.525,68	1	-13.865.525,68
1	-201.014,43	0,91743	-184.416,66
2	-3.638.361,07	0,84168	-3.062.335,75
3	9.165.374,06	0,77218	7.077.318,54
4	10.231.101,39	0,70843	7.248.019,15
5	15.725.225,01	0,64993	10.220.295,49
6	15.725.225,01	0,59627	9.376.479,92
7	15.725.225,01	0,54703	8.602.169,84
8	18.388.849,81	0,50187	9.228.812,06
9	21.052.474,61	0,46043	9.693.190,89
10	23.716.099,41	0,42241	10.017.917,55
	<b>TOTAL (Net Current Value)</b>		<b>54.351.925,36</b>
	<b><u>Net Current Value =</u></b>		<b>54.351.925,36</b>

**Table 24 Profitability Index (Benefit / Cost Ratio)**



Years	Cash Out	Cash Entry	Reduction Coefficient	Reduced Expenses	Reduced Incomes
<b>0</b>	13.865.525,68	0	<i>1</i>	<b>13.865.525,68</b>	<b>0</b>
<b>1</b>	2.526.307,53	0,00	<i>0,91743</i>	<b>2.317.710,31</b>	<b>0</b>
<b>2</b>	5.963.654,17	0,00	<i>0,84168</i>	<b>5.019.488,44</b>	<b>0</b>
<b>3</b>	27.839.919,04	34.680.000,00	<i>0,77218</i>	<b>21.497.428,68</b>	<b>26779202,4</b>
<b>4</b>	29.664.191,71	37.570.000,00	<i>0,70843</i>	<b>21.015.003,34</b>	<b>26615715,1</b>
<b>5</b>	27.060.068,09	40.460.000,00	<i>0,64993</i>	<b>17.587.150,05</b>	<b>26296167,8</b>
<b>6</b>	27.060.068,09	40.460.000,00	<i>0,59627</i>	<b>16.135.106,80</b>	<b>24125084,2</b>
<b>7</b>	27.060.068,09	40.460.000,00	<i>0,54703</i>	<b>14.802.669,04</b>	<b>22132833,8</b>
<b>8</b>	30.176.443,29	46.240.000,00	<i>0,50187</i>	<b>15.144.651,59</b>	<b>23206468,8</b>
<b>9</b>	33.292.818,49	52.020.000,00	<i>0,46043</i>	<b>15.329.012,42</b>	<b>23951568,6</b>
<b>10</b>	36.409.193,69	57.800.000,00	<i>0,42241</i>	<b>15.379.607,50</b>	<b>24415298</b>
				<b>158.093.353,85</b>	<b>197.522.338,70</b>

<b>Benefit Cost Ratio =</b>	<b>Reduced Incomes</b>
	<b>Reduced Expenses</b>

$$\text{B/C} = \frac{197.522.338,70}{158.093.353,85}$$

$$\text{B/C} = 1,25$$

## 15.2 Economic Analysis

Regional, socio-economic benefits of the project are included in the section on social analysis and other economic impacts. With the project, an increase will be achieved in the amount of agricultural products and value added food production in the region. Within the scope of the project, 60 people will be employed and contribution to the economic development of the region will be provided.

**Table 25 Financial Internal Profitability Rate**

		LAST REDUCTION RATIO THAT MAKES THE NET CURRENT VALUE POSITIVE		LAST REDUCTION RATIO THAT MAKES THE NET CURRENT VALUE NEGATIVE	
Years	Net Cash Flow	Reduction Ratio (%)	Reduced Values	Reduction Ratio (%)	Reduced Values
		1		8	
0	-13.865.525,68	1	-13.865.525,68	1	-13.865.525,68
1	-380.644,81	0,99010	-376.876,04	0,92593	-352.448,89
2	-3.171.658,45	0,98030	-3.109.164,25	0,85734	-2.719.185,92
3	7.018.112,64	0,97059	6.811.710,99	0,79383	5.571.204,08
4	7.817.477,48	0,96098	7.512.442,20	0,73503	5.746.079,32
5	13.045.238,63	0,95147	12.412.096,94	0,68058	8.878.370,21
6	13.045.238,63	0,94205	12.289.204,90	0,63017	8.220.713,16
7	13.045.238,63	0,93272	12.167.529,60	0,58349	7.611.771,45
8	15.176.138,47	0,92348	14.014.909,26	0,54027	8.199.195,40
9	17.307.038,31	0,91434	15.824.514,37	0,50025	8.657.828,04
10	19.437.938,15	0,90529	17.596.911,83	0,46319	9.003.526,37
			81.277.754,12		44.951.527,56

**Financial Internal Profitability Rate = 1%**

**Economic Life 5,879346995 Years**

**Investment Profitability 5,18 %**

**Return on Investment 4,56 Years**

**Employment Contribution 231.092,09 TL**

**Added Value Contribution**

**Net Added Value 3.538.521,52 TL**

**Gross Added Value 6.043.445,00 TL**

**Table 26 Breakeven Analysis**

Expenses	Fixed	Variable	Total
----------	-------	----------	-------

<b>1. Raw Material</b>	0	29.580.000	29.580.000
<b>2. Auxiliary Product and Materials</b>	0	979.200	979.200
<b>3.Electricity, Water, Fuel</b>	148.000	148.000	296.000
<b>4. Maintenance - Repair</b>	16.214	48.642	64.856
<b>5.Tech. Payments (Licence etc.)</b>	0	0	0
<b>6. Labor and Staff</b>	2.820.000	0	2.820.000
<b>7. Rental Expenses</b>	0	0	0
<b>8. General Management</b>	337.845	0	337.845
<b>9. Sales/Marketing</b>	3.000	3.000	6.000
<b>10.Depreciation</b>	2.325.293	0	2.325.293
<b>11. Interest (Business Period)</b>	0	0	0
<b>Total</b>	<b>5.650.352</b>	<b>30.758.842</b>	<b>36.409.194</b>

**Breakeven Points** **20,90%**

**Gross Profit** **21.390.806 TL**

**Net Profit** **17.112.645 TL**

**Social Value Added Contribution** **24.210.806 TL**

**Physical Values**

**Product to be produced** **57.800.000** **TL/Year** **Pasta**

**Payback Period** **0,71** **YEAR**

**Provided Employment** **60** **PERSON**

### **Table 27 Investment Economic Summary**

Project Total Investment Amount	:	13.865.525,68	TL
- Fixed Investment	:	13.671.205,00	TL
- Working Capital Investment	:	194.320,68	TL
Full Capacity Company Incomes	:	57.800.000,00	TL
Full Capacity Company Expenses	:	36.409.193,69	TL
Full Capacity Gross Cash Flow	:	23.716.099,41	TL
Internal Profitability Rate	:	1,00	%
Benefit/Cost Ratio	:	1,25	
Return on Investment	:	4,56	Year
Annual Gross Added Value	:	6.043.445,00	TL
Annual Net Added Value	:	3.538.521,52	TL
Breakeven Point	:	20,90%	

### 15.3 Social Analysis

The employment area creation with the help of the project will contribute to the development of the regional economy and contribute to the level of social welfare. It is expected to contribute positively to similar projects and entrepreneurship climate in the region. Social benefit-cost analysis of the Project could not be done since the problem of measurability due to the economic added value calculation of the innovation and socio-cultural development.

### 15.4 Sensitivity Analysis

It is evaluated that there are investors who will provide sufficient financing for the investment and that the related institutions will act in cooperation. In addition, customers who demand the products subject to investment are consumers and raw material suppliers are farmers. For this reason, decreasing supports of farmers, occurring barriers for exporting and all kinds of problems that will cause their activities to decrease will be affect production and investment. Suppliers and changing in supply chain can affect investors. The evaluation regarding the realization of the investment under different conditions or alternative financial solutions is as follows: The investment can be realized with the investor's own resources, as well as long-term financing loans and government investment supports. When realized with loans, investment costs will increase by interest cost according to the maturity ratio. Optimum conditions in the realization of the investment are planned to be realized through equities, state supports and domestic production appropriate technologies and payment terms. In order to measure the sensitivity of the investment, the product sales price has been reduced by 15%, and the raw material and personnel expenses have been increased by 20% and a refinancing analysis has been made, the following results have been obtained, the benefit cost ratio has been calculated as 0.93 and the payback period 1.95 years.

Expenses – Incomes Table (TL)										
	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
<b>I. Incomes</b>	<b>3.230.000</b>	<b>0</b>	<b>29.478.000</b>	<b>31.934.500</b>	<b>34.391.000</b>	<b>34.391.000</b>	<b>34.391.000</b>	<b>39.304.000</b>	<b>44.217.000</b>	<b>49.130.000</b>
1.Incomes from Sales	0	0	29.478.000	31.934.500	34.391.000	34.391.000	34.391.000	39.304.000	44.217.000	49.130.000
2. Other Incomes	0	0	0	0	0	0	0	0	0	0
3. Support Amount	3.230.000									
<b>II. Expenses</b>	<b>2.331.848</b>	<b>2.333.513</b>	<b>28.217.108</b>	<b>30.083.943</b>	<b>31.950.779</b>	<b>31.950.779</b>	<b>31.950.779</b>	<b>35.684.450</b>	<b>39.418.121</b>	<b>43.151.792</b>
1. Raw Material	0	0	21.297.600	23.072.400	24.847.200	24.847.200	24.847.200	28.396.800	31.946.400	35.496.000
2. Auxiliary Products and Materials	0	0	705.024	763.776	822.528	822.528	822.528	940.032	1.057.536	1.175.040
3.Elektricity, Water, Fuel	0	0	177.600	192.400	207.200	207.200	207.200	236.800	266.400	296.000
4.Maintanence - Repair	0	0	64.856	64.856	64.856	64.856	64.856	64.856	64.856	64.856
5.Tech. Payment (License etc.)	0	0	0	0	0	0	0	0	0	0
6. Labor and Staff	0	0	3.384.000	3.384.000	3.384.000	3.384.000	3.384.000	3.384.000	3.384.000	3.384.000
7. Rental Expenses	0	0	0	0	0	0	0	0	0	0
8. General Expenses	555	2.220	256.735	275.218	293.702	293.702	293.702	330.669	367.636	404.603

[illegible][illegible]

XVI. Net Cash Flow (VIII +XIII+IX+X+XI- XII -XV-V-VII)	<b>0</b>	<b>380.645</b>	<b>-2.506.076</b>	<b>162.784</b>	<b>427.851</b>	<b>4.277.470</b>	<b>4.277.470</b>	<b>4.277.470</b>	<b>5.220.933</b>	<b>6.164.396</b>	<b>7.107.859</b>
XVII.Cumulative Net Cash Flow	<b>0</b>	<b>380.645</b>	<b>2.886.721</b>	<b>2.723.937</b>	<b>2.296.086</b>	<b>1.981.384</b>	<b>6.258.854</b>	<b>10.536.324</b>	<b>15.757.257</b>	<b>21.921.653</b>	<b>29.029.512</b>

#### Net Current Value

Reduction Ratio: 9,00%			
A- NET CURRENT VALUE METHOD			
Years	Net Cash Flow	Reduction Coefficient	Reduced Values
<b>0</b>	-13.865.525,68	1	-13.865.525,68
<b>1</b>	-201.014,43	0,91743	-184.416,66
<b>2</b>	-2.972.778,99	0,84168	-2.502.128,62
<b>3</b>	414.962,11	0,77218	320.425,44
<b>4</b>	797.962,52	0,70843	565.300,59
<b>5</b>	4.765.514,13	0,64993	3.097.250,60
<b>6</b>	4.765.514,13	0,59627	2.841.533,11
<b>7</b>	4.765.514,13	0,54703	2.606.879,20
<b>8</b>	5.944.843,09	0,50187	2.983.538,40
<b>9</b>	7.124.172,05	0,46043	3.280.182,54
<b>10</b>	8.303.501,01	0,42241	3.507.481,86
<b>TOTAL (Net Current Value)</b>			<b>2.650.520,79</b>

**Net Current Value = 2.650.520,79**

#### Profitability (Benefit / Cost Ratio):

Years	Cash Outs	Cash Inflows	Reduction Coefficient	Reduced Expenses	Reduced Incomes
<b>0</b>	13.865.525,68	0	<i>1</i>	<b>13.865.525,68</b>	<b>0</b>
<b>1</b>	2.526.307,53	0,00	<i>0,91743</i>	<b>2.317.710,31</b>	<b>0</b>
<b>2</b>	5.298.072,09	0,00	<i>0,84168</i>	<b>4.459.281,32</b>	<b>0</b>
<b>3</b>	31.388.330,99	29.478.000,00	<i>0,77218</i>	<b>24.237.441,42</b>	<b>22762322,04</b>
<b>4</b>	33.461.830,58	31.934.500,00	<i>0,70843</i>	<b>23.705.364,64</b>	<b>22623357,84</b>
<b>5</b>	31.950.778,97	34.391.000,00	<i>0,64993</i>	<b>20.765.769,77</b>	<b>22351742,63</b>
<b>6</b>	31.950.778,97	34.391.000,00	<i>0,59627</i>	<b>19.051.290,97</b>	<b>20506321,57</b>
<b>7</b>	31.950.778,97	34.391.000,00	<i>0,54703</i>	<b>17.478.034,62</b>	<b>18812908,73</b>
<b>8</b>	35.684.450,01	39.304.000,00	<i>0,50187</i>	<b>17.908.954,92</b>	<b>19725498,48</b>
<b>9</b>	39.418.121,05	44.217.000,00	<i>0,46043</i>	<b>18.149.285,47</b>	<b>20358833,31</b>
<b>10</b>	43.151.792,09	49.130.000,00	<i>0,42241</i>	<b>18.227.748,49</b>	<b>20753003,3</b>
				<b>180.166.407,63</b>	<b>167.893.987,90</b>
<b>Benefit / Cost Ratio = <math>\frac{\text{Reduced Incomes}}{\text{Reduced Expenses}}</math></b>					
<b>B / C = 167.893.987,90      B / C = 0,93</b>					

180.166.407,63		
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**Profitability Index (Benefit / Cost Ratio)= 0,93**

Expenses	Fixed	Variable	Total
1. Raw Material	0	35.496.000	35.496.000
2. Auxiliary Product and Materials	0	1.175.040	1.175.040
3. Electricity, Water, Fuel	148.000	148.000	296.000
4. Maintenance - Repair	16.214	48.642	64.856
5. Tech. Payment (Licence etc.)	0	0	0
6. Labor and Staff	3.384.000	0	3.384.000
7. Rental Expenses	0	0	0
8. General Management	404.603	0	404.603
9. Sales/Marketing	3.000	3.000	6.000
10. Depreciation	2.325.293	0	2.325.293
11. Interes (Operating Period)	0	0	0
<b>Total</b>	<b>6.281.110</b>	<b>36.870.682</b>	<b>43.151.792</b>

**Breakeven Point 51,24%**

**10. Gross Profit 5.978.208 TL**

**11. Net Profit 4.782.566 TL**

**12. Social Added Value Contribution 9.362.208 TL**

**13. Physical Values**

**Product to be produced 49.130.000 TL/Year Pasta**

**14. Payback Period 1,95 YEAR**

## **15.4 Regional Analysis**

### **15.4.1 Direct and indirect effects of the project at the regional level**

The project will be built in TRC2 region. The project, which will contribute to the development of the region's agriculture and value added food production capacity, will lead to similar investments in other provinces. With the project, it is thought that public investments to improve the transportation infrastructure to the region will increase. The project is expected to create new projects in other public institutions and NGOs in order to set an example and to benefit from the regional resources more actively and effectively.

The project will contribute to the rise of the region in the ranking of socio-economic development. It is expected that similar investment projects for industry will increase in the region.

There will be an increase in the data of the region such as employment rate and GDP, will be an decrease in value of unemployment and migration etc.

### **15.5. Risk analysis**

The investment has been evaluated according to the risks in the following framework:

1. Drought,
2. Economic risk,
3. Problems in purchasing necessary technical equipment and works,
4. Malfunctions on the production line,
5. Problems that may arise in the employment of personnel with the required qualifications,
6. Political and market risks,
7. Production-related risks,
8. Exchange rate and sectoral risks.

In the economic life of the project, the most important risk that may affect the project is the extreme arid periods due to climate change. In this case, there will be a problem in the supply of agricultural products that will provide the raw material. Making collective bargaining agreements with manufacturers for such cases, and it is planned to take measures by working with stock.

Predicted other risks are economic risks for investment. At this point, firstly, will be evaluated own funds, public investment and project supports for investment. In addition to this, any economic crisis that may occur throughout our country and the disappearance of investment environment support are risk factors. In constrast, the investor will endeavor to complete the investment by trying to maintain its position economically. Although the economic crises that may occur in the country seem like a risk, the fact that the product to be produced is cheap, it is consumed in every kitchen of every economic class and it is very satisfying, eliminates this risk in terms of investment.

Against breakdown that may occur in machinery, technical equipment and construction works, contracts will be made with the suppliers or suppliers to be determined during the purchasing processes, within the framework of the investment schedule, administrative and technical specifications. These contracts will include articles for goods and services, including binding and criminal sanctions, and the supply of construction works on time and under the desired conditions. Thus, precautions will be taken for any problems that may occur. A war, natural disaster, etc. at a level where production or goods service delivery



will stop throughout our country. Unless the situation is experienced, a significant part of the procurements can be made easily. The differences that will arise in the procurements related to exchange rates can be financed by the investor.

Malfunctions that may occur in the production line will affect the production capacity of the facility. For this reason, it is aimed to carry out periodic maintenance of all machines on the production line regularly and to make long-term maintenance contracts with services.

Desired experience against the risk of not having the features found in staff, primarily in Turkey Business Council staff including newspaper ads and online career sites will be evaluated and provide employment.

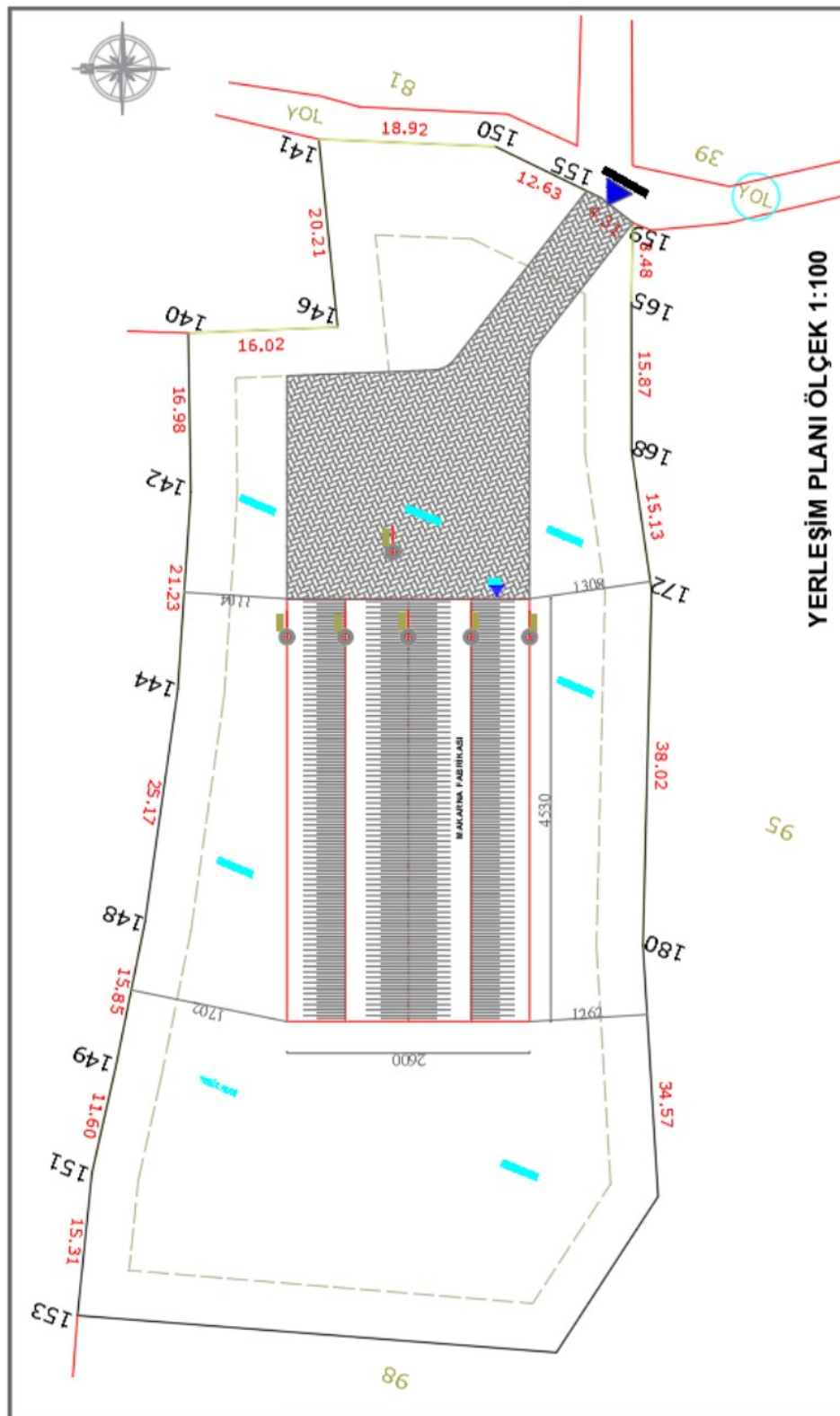
Another risk factor is political and market risks. We will act in cooperation with suppliers, producers, customers, other relevant persons, institutions and organizations against the problems that will affect the strategic goals of our country at home or abroad. There is no serious risk factor for the market and the product will be delivered to the target audiences.

Providing the necessary legislation, technical and hygiene conditions in the pasta production processes is of major importance. Enterprises that can perform the actual inspections by the relevant institutions in the manner stipulated by the legislation, can carry out continuous production with permanent / visa-time permits. Therefore, all legal requirements and standards will be complied with in the production processes.

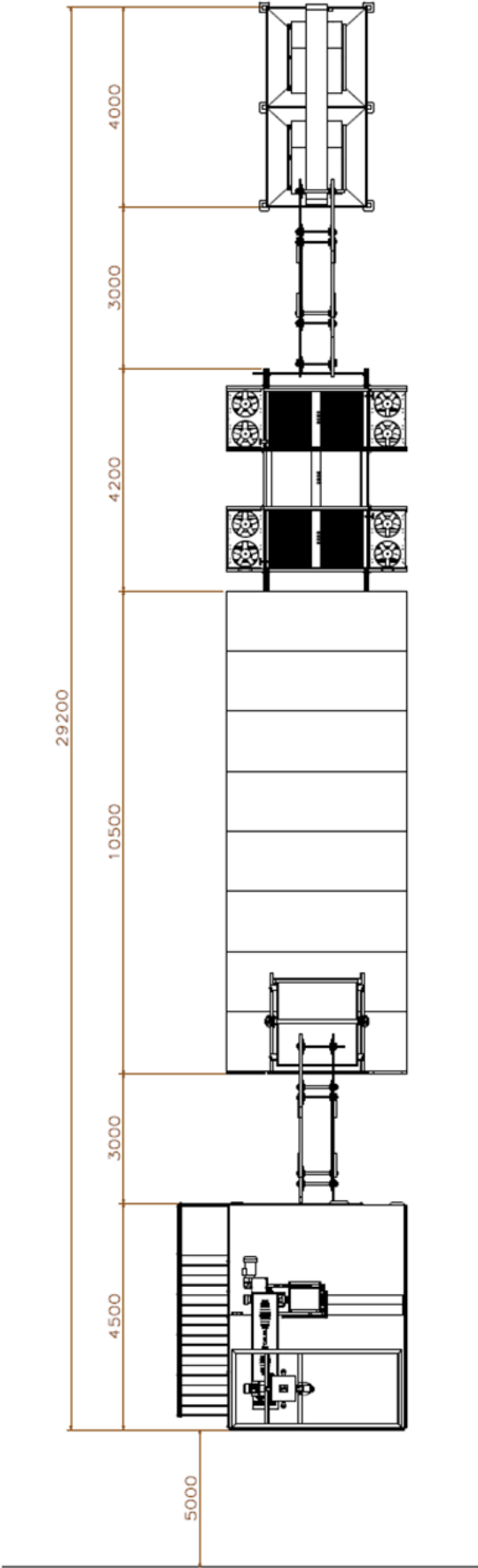
The investment is not expected to be affected by exchange rates within the general framework. Because it is envisaged to carry out processes with completely local suppliers for construction and machinery equipment. However, since some equipment (motor, automation etc.) required for the final product may be supplied from abroad, especially during the operating period, the investor will evaluate the researches, stocking option and options to develop the products in the country against currency risks. In addition, if the investor earns foreign currency with an export-intensive sales policy, the chance of minimizing the exchange rate risk will increase.

## 16. ATTACHMENTS

### 16.1. Pasta Production Facility Preliminary Architectural Project



16.2. Pasta Production Facility Machine Layout Plan



### **16.3. Pasta Production Facility Machine-Equipment Technical Qualifications**

Given in the attached file.

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# PASTA PRODUCTION FACILITY

## FEASIBILITY REPORT

**Destekleyen:**

KARACADAĞ DEVELOPMENT AGENCY

Diyarbakır: Selahattin Eyyubi Mah. Urfa Bulv. No:19/B  
21080

Bağlar / Diyarbakır

0 (412) 237 12 16 - 17

[info@karacadag.gov.tr](mailto:info@karacadag.gov.tr)

Şanlıurfa Office: ŞCCI New Service Building (A Block Kat  
4)

Paşabağı Mah. Adalet Cad. No:9 Haliliye / Şanlıurfa

0 (414) 314 98 03

[urfaydo@karacadag.gov.tr](mailto:urfaydo@karacadag.gov.tr)

**Applicant:**  
INDUSTRY

ŞANLIURFA CHAMBER OF COMMERCE AND

Paşabağı Mahallesi Adalet Caddesi no: 9 (Behind  
Sanliurfa Governorship)

Şanlıurfa/ TURKEY

0 (414) 444 6100

[bilgi@sutso.org.tr](mailto:bilgi@sutso.org.tr)

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PROWIN CONSULTANCY INC.